

Laurentian

Journal of the
Great Lakes Fishery Commission



The Great Lakes Fishery Commission (Commission) was established by the Convention on Great Lakes Fisheries between Canada and the United States, which was ratified on October 11, 1955. The Commission was organized in April 1956 and assumed its duties as set forth in the Convention on July 1, 1956 (glfc.org/pubs/conv.pdf). The Commission has two major responsibilities: first, develop coordinated programs of research in the Great Lakes, and, on the basis of the findings, recommend measures that will permit the maximum sustained productivity of stocks of fish of common concern; second, formulate and implement a program to eradicate or minimize Sea Lamprey populations in the Great Lakes. The Commission is also required to publish or authorize the publication of scientific or other information obtained in the performance of its duties.

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Scope

Launched in 2022, *Laurentian* replaces three historically separate, irregularly published Commission journals: *Technical Report*, *Special Publication*, and *Miscellaneous Publication*. *Laurentian* will continue to serve as an outlet for publication of interdisciplinary review and synthesis papers; narrowly focused material with special relevance to a single but important aspect of the Commission's mandate under the Convention; and scientific reports from committees that work under the umbrella of the Commission. In addition, relevant papers that do not fit the format of mainstream journals owing, for instance, to length, extensive datasets, or nature of the material and its presentation, will be considered. For further clarification, authors are encouraged to review recent papers published under the three former titles, all available on the Commission's website (www.glfc.org).

Editorial Process

All accepted submissions to *Laurentian* will be citation indexed by ProQuest®. In continuing with this scholarly process, all submissions will be reviewed by external experts, freelance editors, or staff editors as indicated by the nature of the material. Manuscripts should be submitted to the Commission's Managing Editor (randye@glfc.org) to begin the editorial process. The editor may also be consulted in advance of submission, if authors are unsure regarding whether a proposed paper is suitable for *Laurentian*. After a submission is determined to be suitable for *Laurentian*, the Managing Editor will forward it to one or more freelance Technical Editors, who will arrange for peer review, as needed based on subject matter. Reviews by Technical Editors and the Managing Editor may satisfy the requirement for review, or additional reviews may be sought by a freelance editor. The Managing Editor will decide on acceptance and requirements for revision based on recommendations from Technical Editor(s) and the Managing Editor's own review.

Style

The style guide of the American Fisheries Society (A Guide to AFS Publications Style) has been adopted for *Laurentian* (<https://fisheries.org/books-journals/writing-tools/style-guide/>).

FRONTISPICE. The Great Lakes showing fishery-related locations referenced in the text.



The History behind the Canada-U.S. Convention on Great Lakes Fisheries: A Seven-Decade Effort

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ABSTRACT

Online Information
www.glfc.org/pubs/laurentian/2022-01.pdf

Canada and the USA share the Great Lakes, and, for most of the region’s history, cross-border collaboration over the fishery was nonexistent, resulting in serious economic and ecological harm. This publication, which covers the late 1800s to 1955, traces the efforts to establish a binational treaty to govern the Great Lakes fishery. We explore the circumstances Great Lakes fishers found themselves in at the dawn of the 20th century, the chaos caused when multiple jurisdictions did not cooperate (called “divided governance”), the political pressures stakeholders exerted to eliminate agreements they disliked and promote agreements they liked, and the scientific community that made biological cases to act and, occasionally, stepped into the political fray. The road to establish a permanent body to ensure collaboration was long and tortuous and included two failed attempts at a treaty, one attempt in 1908 and another attempt in 1946. A third treaty attempt, the 1954 Convention on Great Lakes Fisheries between the United States and Canada, succeeded, which created the Great Lakes Fishery Commission as a permanent mechanism for bilateral cooperation. By 1954, influential persons could no longer tolerate the governments’ unwillingness to address severe declines in fish stocks and concomitant economic losses, inconsistent science, and the Sea Lamprey *Petromyzon marinus* invasion. This publication draws from hearings and debates in the Parliament of Canada and the U.S. Congress, national and international boards of inquiry, previously confidential documents that contain the strategies of those engaged in bilateral negotiations, and the literature.

INTRODUCTION

By the turn of the 20th century, several of the Great Lakes' region's most desirable and economically valuable fish species—Lake Trout *Salvelinus namaycush*, Lake Whitefish *Coregonus clupeaformis*, Cisco *C. artedii*—were exploited to levels nearing extirpation (Koelz 1926; Smith 1968). Those who made a living plying the lakes' waters suffered crippling economic losses (Whillans and Berkes 1986). Starting in the late 1800s, preeminent scientists (such as Samuel Wilmot, James Milner, Walter Koelz, John Van Oosten, and William Harkness) documented the fisheries decline and regularly implored governments to improve research, restrain destructive commercial-fishing operations, and enforce any regulations that were in place (Milner 1874; Wilmot and Harris 1893; Koelz 1926; Harkness 1930; Van Oosten 1937). By the 1940s, several of these same scientists, joined by a new cohort of colleagues, lamented ongoing practices that did little to conserve fish. About the same time, when events conceivably could not get worse, Sea Lamprey *Petromyzon marinus* invaded the upper Great Lakes (Lakes Superior, Huron, Michigan) through shipping canals and began a fish-killing spree that drove harvest even lower—posing an existential threat to the Great Lakes fishery (Brant 2019). As the 20th century reached its midpoint and the people of Canada and the USA began to enjoy a post-war economic recovery, many feared that the Great Lakes fishery would be lost.

To make matters worse, federal and sub-national science, in the words of Joseph Murphy (Member of Parliament from Lambton West, Ontario) was “picayune”, resulting in little information to support management decisions (SCMF 1955, p. 22). Not that more information would have helped. With or without data, the governing institutions were unwilling to take the necessary steps to conserve and improve the fishery. Governance—actually the lack thereof—was a major complication. Two nations, eight states, one province, and

multiple Indigenous governments divided the region politically. Day-to-day decisions over Great Lakes fish harvest, fishing gear, stocking, enforcement, and other elements of management have always fallen under the authority of a patchwork of sub-national governments, even though the lakes are an international resource. This “divided governance” resulted in management chaos. Basic philosophies behind fishery management across the Great Lakes basin were inconsistent. Rarely did two jurisdictions on a Great Lake have similar fish-harvest regulations, let alone the scientific knowledge to determine if the regulations were efficacious. Problems—large and small—were either ignored or dismissed, as politicians were not keen to regulate their fishers if those in other jurisdictions were perceived to have liberal access to the resource.

From the late 1800s, many of the Great Lakes region's chief actors became increasingly convinced that problems affecting the Great Lakes fishery would not be solved without first creating a mechanism for Canada and the USA to work together, particularly to generate science and promulgate similar regulations. Fixing governance was first proposed binationally in 1897 when a joint Canada-U.S. board of inquiry recommended the creation of a permanent commission empowered to make uniform fishery regulations for most Canadian and U.S. boundary waters (Wakeham and Rathbun 1897). In 1943, another binational board of inquiry made a similar recommendation for just the Great Lakes (Gallagher et al. 1943). Both boards of inquiry resulted in bilateral treaties—the Treaty between the United States and Great Britain Concerning the Fisheries in Waters Contiguous to the United States and Canada (Treaty of 1908; Root and Bryce 1908) and the Great Lakes Fisheries Convention between Canada and the United States (Treaty of 1946; Truman 1946). Both treaties mandated consistent regulations but took regulatory power away from the

sub-national units, vesting power instead in a binational commission. Both treaties failed because they usurped state and provincial powers (Gaden et al. 2013).

In 1954, a breakthrough occurred when the third attempt at a bilateral fishery treaty, called the Convention on Great Lakes Fisheries between the United States of America and Canada (Treaty of 1954), succeeded and was ratified by Canada and the USA (GLFC 1956). The treaty established the Great Lakes Fishery Commission (GLFC), a permanent body to promote and improve fish stocks of common concern between the two nations. Although the three treaties were not identical in scope, focus, or power granted to a binational commission, all three treaties sought to create a mechanism for cross-border cooperation.

Here we examine in detail why the Treaty of 1954 succeeded when the two earlier treaties failed. The short answer is because, by 1954, multiple jurisdictions could no longer tolerate government unwillingness to address the sharp declines in fish stocks and the concomitant economic losses, the inconsistent science, and the rapidly increasing number of fish killed by the invading Sea Lamprey. Despite major problems caused by jurisdictional parochialism, a few jurisdictions still were unwilling to cede management authority to a binational commission. Thus, the Treaty of 1954 did not fully address the divided governance problem.

Instead, the treaty reflected the Great Lakes basin's governance realities and found ways to work within those realities. The Treaty of 1954 writers learned from past mistakes. The treaty focused on science and Sea Lamprey control (two things that added value to the fishery and that required a high level of cross-border coordination) and avoided the contentious issue of regulatory authority, which remained with the sub-national governments.

This publication, which covers the late 1800s to 1955, recounts various fishery inquiries and agreements, reflects on why the first two treaty attempts were unsuccessful, and describes how the Treaty of 1954 came to be. This publication draws from hearings and debates in the Parliament of Canada and the U.S. Congress, national and binational boards of inquiry, previously confidential documents that contain the strategies of those engaged in the bilateral negotiations, and literature. This publication includes an in-depth look at the role of and rationale behind the GLFC as a binational institution for cross-border cooperation. The Appendix compares and contrasts the Great Lakes fishery treaties of 1908, 1946, and 1954. Gaden et al. (in press) contains an annotated version of the Treaty of 1954 that compares intent to implementation of that treaty, article by article; facsimiles of the three treaties; enabling legislation from the USA and Canada; and diplomatic notes that enlarged the GLFC.

INTERRELATED ISSUES AFFECTING BILATERAL COOPERATION

Three interrelated issues drove early attempts by Canada and the USA to ratify a fishery agreement: (1) the need for more science and data; (2) jurisdictional chaos, called divided governance; and (3) the decline of commercial fisheries. By the mid-1940s, a fourth issue, the Sea Lamprey invasion of the upper Great Lakes (Lakes Superior, Huron, Michigan), added another problem to an already dismal situation and intensified the urgency to adopt and implement a treaty. This publication discusses how the three early issues and the later Sea Lamprey issue intertwined to influence boards of inquiry and bilateral agreements, both unsuccessful and successful (Figure 1).

The Need for More Science

Today, in the early 21st century, several units of government and many universities have well-established and relatively well-funded capacity to conduct fishery research in the Great Lakes. This capacity (which originated in the early decades of the 20th century but did not start to grow until the 1950s) has resulted in long-term data to gauge change, to increase understanding of fishery stressors, and to serve as an information base for fishery management and species restoration.

Such capacity has not always been the case. Prior to the mid-1940s, if governments were interested in understanding biological

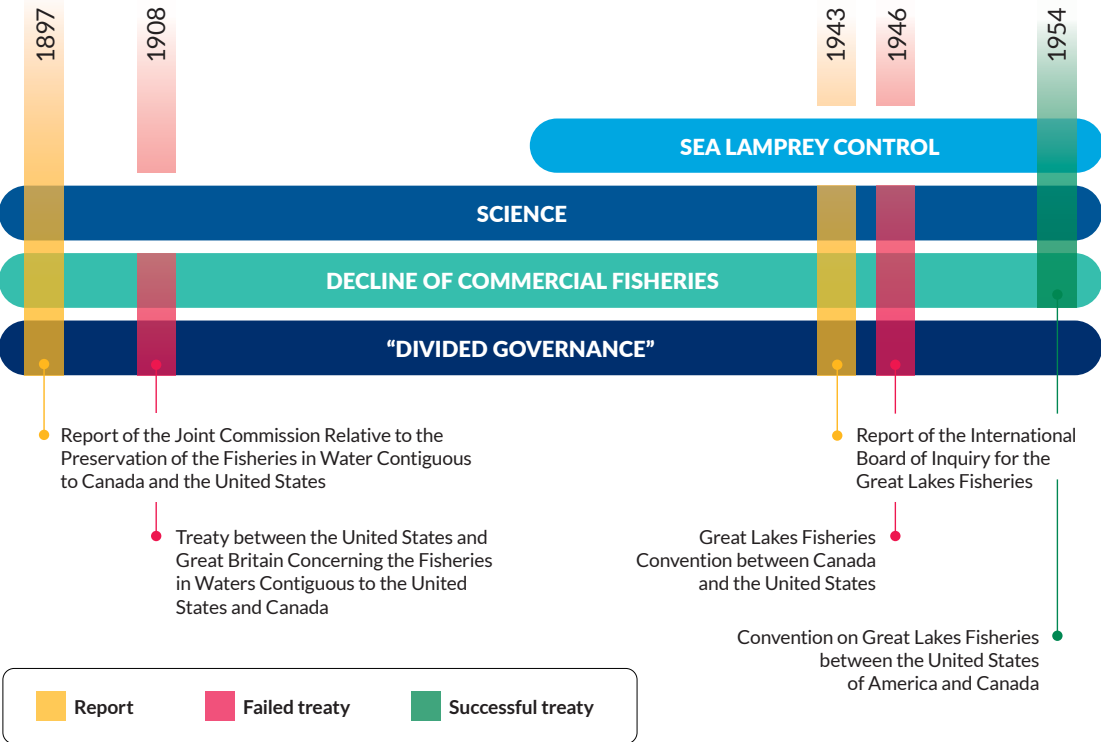


FIGURE 1. Boards of inquiry and treaties and how they addressed the major issues facing the Great Lakes fisheries, 1897–1954.

conditions or the state of the fishery, they would conduct special scientific assessments and surveys. Starting in the late 1800s, inquiries and surveys were the primary methods to collect and publish data about the state of the fisheries. These scientific investigations were large ad hoc undertakings. Inquiries and surveys often relied heavily on information about fish spawning and effective gear from fishers. The reliance by boards of inquiry on information from fishers illustrates how little was known during the era about the life history of fish and the application and effectiveness of harvesting gear. If the inquiries were binational, as a few were, authorization to complete them was complicated by the need for a binational agreement and a commitment to fund the work jointly. The 1940 International Board of Inquiry for the Great Lakes Fisheries, for example, was registered with the League of Nations. There would never be a guarantee, however, that governments would act on the inquiries and recommendations from surveys.

Between 1871 and 1943, federal, state, and provincial researchers conducted more than 25 biological surveys (Gallagher and Van Oosten 1943). Each investigation was unique in scope and intent, but, generally, the processes and methodologies for conducting the investigations were similar:

- Government(s) negotiated and outlined the scope of an investigation and authorized the work.
- Government(s) appointed a group of surveyors to conduct an investigation and appropriated funds.
- Surveyors reviewed existing data from myriad sources, such as federal, state, and provincial surveys and from commercial fishers.
- Surveyors analyzed the results of their investigations and presented them in

a formal report. Reports (with data often presented both quantitatively and qualitatively) typically focused on each watershed within the scope of an investigation and on the region as a whole. Reports also typically included recommendations to government(s) consistent with the initial charge made to the surveyors.

- Investigators at times conducted their own surveys (field investigations) using research vessels provided by federal and other entities.
- Investigators held field hearings and meetings and took testimony from commercial fishers about fish abundance, fish behavior, and gear effectiveness. Data from commercial fishers, in many cases, were the only sources of information. In other cases, data were considered in light of government-collected data.
- Reports were presented to the appropriate government groups for consideration.

Federal agencies in Canada and the USA, individual states, and the Province of Ontario conducted many surveys in the late-19th and early-20th centuries. Most of the surveys, although important to scientific understanding, were narrowly focused on one issue, on one lake, or even on one region within a lake (Harkness 1930; Harkness et al. 1954; SCMF 1955). The permanent and comprehensive research capacity that was sorely needed was not to be.

Among the earliest of such surveys, at least at a scale broader than an assessment of an individual lake or a particular species, were the 1874 U.S. report⁴ on the fisheries of the Great Lakes, led by James Milner, and the 1893 Canadian report of the Dominion Fishery Commission on the fisheries of the Province of Ontario, led by Samuel Wilmot and Edward

⁴The report was a detailed portion of the Baird (Commissioner of Fish and Fisheries for the United States Fish Commission) report.

Harris (Milner 1874; Wilmot and Harris 1893). These reports, which made occasional reference to cross-border considerations but were not binational, focused on the Great Lakes states in the case of the Milner report and the Province of Ontario in the case of the Wilmot and Harris report. Both investigations relied heavily on interviews with commercial fishers for data. Both investigations documented destructive practices (e.g., excessively lethal fishing gear, fishing during the spawning season, pollution, habitat destruction), and both called for better domestic regulations to better manage the fishery.

The first major binational survey of the Great Lakes fishery was the 1897 Report of the Joint Commission Relative to the Preservation of the Fisheries in Waters Contiguous to Canada and the United States (Report of the Joint Commission) discussed below (Wakeham and Rathbun 1897). The commission, comprising William Wakeham (Great Britain) and Richard Rathbun (USA), spent more than four years investigating Canadian and U.S. fisheries in all of the boundary waters (Wakeham and Rathbun 1897). Wakeham and Rathbun, too, relied heavily on commercial-fishing data and interviews with commercial fishers. They presented a bleak picture of the fishery.

Beyond government-organized surveys, some looked to partnerships with universities to fill the knowledge gap, with a fair level of success. In Ontario, for example, the University of Toronto established a research station on Georgian Bay in 1901. Although that station was abandoned in 1914 (Huntsman 1943), university leadership re-emerged in 1921 when the University of Toronto set up the Ontario Fisheries Research Laboratory (Bocking 1997). Ontario's capacity for science grew starting in the 1940s, and a close relationship between Ontario and the University of Toronto allowed for scientific research to burgeon in the

ensuing decades (Bocking 1997; Regier 2019). U.S. academic institutions, such as Cornell University and the University of Michigan (UM), greatly expanded their fishery research programs and established cross-border networks (Bocking 1997; Beeton and Schneider 1998).

The Canadian contribution to Great Lakes science during this period was irregular. Prior to the mid-20th century, federal involvement was in the form of investigations, some of which were binational. Until the late 1800s, the relationship between the Province of Ontario and the Canadian federal government was complicated by questions about which government body had primary responsibility for inland freshwater fisheries. By 1898, court cases had determined that the Canadian federal government did not have exclusive control over inland fisheries. Instead, management would be a shared responsibility, with the provinces taking the lead (Thompson 1974). Thus Ontario, in the early 1900s, began to increase its interest and active involvement in Great Lakes fisheries and science, which resulted in a concomitant decline in federal involvement. The Canadian federal government reduced its hatchery operations in 1912, eliminated its Commission of Conservation in 1920, and closed its research station on Lake Huron around the same time (Bocking 1997). Decades later, James Sinclair (federal Fisheries Minister), while testifying before the Standing Committee on Marine and Fisheries (SCMF), reported that his department devoted only Can\$50,000 in 1955 to Great Lakes science, an amount some members of the committee perceived as rather small (SCMF 1955).

In the USA, as in Canada, the federal government engaged in surveys starting in the late 1800s. The sudden and complete collapse in the 1920s of what was then called Lake Herring (now Cisco) *Coregonus artedii* (a member of the whitefishes and a mainstay of the commercial-

fishing industry in Lake Erie) was the major impetus for the heightening of U.S. federal science in the Great Lakes. Walter Koelz (of the U.S. Bureau of Fisheries and one of the preeminent scientists of the day) said (Koelz 1928, p. 661)

The coregonids, like most of the other Great Lakes fish, are taken by the fishers with gill nets and traps. . . . These fish thus have sustained an almost unrestricted fishery, whose effects have been tempered only by the “law” of supply and demand. Fortunately, the supply has, until recently, exceeded the demand. In 1925, however, the impossible, the incredible, happened. The herring [type of coregonid] of Lake Erie, suddenly and without warning, gave out. Where in 1924 the fish could be caught by the ton, in 1925 only stray individuals could be found, though dozens of boats, with miles of nets, set virtually from top to bottom in the lake, undertook the search. In 1926 the fish still failed to appear. A fishery that annually yielded as many high-class fish as could be sold . . . was no more.

Largely in response to the Lake Erie Cisco collapse, Jacob Reighard (a pioneer Great Lakes fisheries scientist and early Director of the UM Museum of Zoology²) helped organize the Great Lakes Laboratory of the U.S. Bureau of Fisheries housed at the university’s Museum of Zoology in Ann Arbor, Michigan (Beeton and Schneider 1998). The new Ann Arbor laboratory³, initially directed by John Van Oosten, continues to conduct regular fishery investigations on the Great Lakes up to the present day. Government appropriations in the U.S. were modest for more than 20 years, starting at US\$3,450 in 1926 and

increasing to nearly US\$400,000 annually by 1952 (U.S. House of Representatives 1952)⁴.

The diversion or lack of funds and personnel during the Great Depression and the Second World War greatly hindered the U.S. government’s ability to conduct scientific investigations to inform policy makers about the status of fish populations. Ralph Hile (a fishery research biologist with the U.S. Fish and Wildlife Service (FWS)), reflected on the constant financial struggle (Hile 1952, p. 1)

Born in the crisis arising from the disappearance of the Lake Erie cisco, Great Lakes Fishery Investigations has forever since experienced the varying fortunes that inevitably befall an organization whose very life depends on the existence of emergencies that cry for attention. . . . Seldom has money been adequate to the task assigned; commonly it was supplemented by funds from State and private agencies interested in particular problems; never could long-term researches be set up that would contribute to a fundamental understanding of the fish populations and of the factors that control their level of productivity.

The Great Lakes Laboratory in Ann Arbor, Michigan, (aided modestly by the RV *Fulmar* in the 1920s and 1930s but mostly by the availability of commercial-harvest statistics) focused on fish-stock assessment, trends in commercial yield, and habitat. Even so, Albert Day (Director of the FWS into which the U.S. Bureau of Fisheries was integrated in 1940) ruled in 1949 that (U.S. House of Representatives 1949a, p. 2)

²Reighard was also Koelz’s graduate supervisor. In 1929, Koelz published a seminal report entitled *Coregonid Fishes of the Great Lakes* (Koelz 1929). In the report, Koelz described the Great Lakes whitefishes, one of which, the Shortnose Cisco *Coregonus reighardi*, he named after his mentor. Alas, the Shortnose Cisco was presumed to be extinct by 1995 (the last Shortnose Cisco was recorded in Lake Huron in 1985). Although considerable research of Great Lakes coregonines has occurred since the 1920s, Koelz’s work remains the foundation for our understanding of whitefishes and ciscoes (Koelz 1929; Webb and Todd 1995; Eshenroder et al. 2016).

³The laboratory is still in Ann Arbor across town from its original location on the UM campus. Today the laboratory is known as the U.S. Geological Survey, Great Lakes Science Center.

⁴The appropriation was US\$14 million in 2022.

We need to know more about what should be done to restore those [Great Lakes] fisheries. . . . Here in the Great Lakes . . . with the greatest body of fresh waters in the world, the Government has never had a fishery research vessel⁵ or a fully equipped fishery laboratory in that vast expanse of waters.

Notwithstanding a small but growing research capacity by the 1950s, top scientists were still concerned about the need for more science, particularly because science was essential as the foundation for management. In a 1952 address to the American Fisheries Society, its President, Ontario's William Harkness, speaking to a broad audience, stressed that (1953, p. 294)

Any management program, including assimilation of hatchery work, will succeed only when factual information resulting from research is available.

Harkness (1953, p. 294) was not confident, adding

Fellow members of the American Fisheries Society, let us face the facts. In fisheries management we don't know where we are going.

Harkness did not believe universities in general were poised to prepare the next generation of fishery managers. He and his colleagues remarked the following year (Harkness et al. 1954, p. 216) that North American fishery management as a discipline still had not

[a]ccumulated enough "established doctrine" to warrant outlining a regular four-year college course in Fishery Biology. . . .

It would not be until the 1960s, after significant growth in university capacity and state, provincial, federal, and binational commitments to science, that research efforts would expand and be ongoing (Egerton 1985; Bocking 1997; Regier 2019).

The suppressed degree of science capacity (the Great Lakes region's scientists and policy makers worried openly) hampered development of clear-headed policies to sustain the fishery and, some believed, provided an excuse to avoid action to curb harmful fishing practices. The 1946 and 1954 treaties, described below, sought to improve management by heightening investment in research and bringing forward cross-border coordination to maximize the application of research dollars.

Interjurisdictional Management Chaos, aka "Divided Governance"

The Great Lakes fishery presents a unique case of an international resource managed in effect by sub-national governments—eight Great Lakes states, the Province of Ontario, and U.S. Indigenous government⁶. In Canada, the British North America Act (the precursor to Canada's Constitution) gave the federal government authority over inland freshwater fisheries, but, by the late 1890s, the courts had affirmed ownership of lake beds and the products of those lake beds (such as fish) to the provinces (Piper 1967; Thompson 1974; Gough 2007; Gaden et al. 2013). After approval of the U.S. Constitution in 1787, state control over freshwater fisheries was also couched in

⁵The RV *Fulmar* was not a permanent federal vessel used for Great Lakes fishery research. It was a repurposed World War I armored navy vessel (originally named the *Wachusett*) that the U.S. Bureau of Fisheries used from the mid-1920s to the mid-1930s to conduct fishery investigations. The vessel was granted to the state of Ohio in 1934.

⁶Prior to the 1980s, states managed the fishery on behalf of U.S. tribes and required tribal fishers to adhere to state licensing. In the 1980s, U.S. tribes successfully asserted their sovereign authority to manage tribal fishers on reservations and in U.S. ceded waters. Commensurate ability to manage Indigenous fisheries does not exist in Canada (Gaden et al. 2013). Indigenous considerations were non-existent in the effort to establish a bilateral treaty during the period covered in this paper and, thus, are not discussed. The literature, of course, would benefit from a thorough accounting of Indigenous involvement (or lack thereof) in Great Lakes fishery treaty considerations.

sub-national ownership of the resources. By the mid-20th century, however, courts abandoned that justification and affirmed instead that the U.S. Constitution did not vest freshwater fishery authority in the federal government and, therefore, such authority was retained by the states (Piper 1967; Killian and Beck 1987; Gaden et al. 2013). That was not to say federal agencies were absent in Great Lakes fisheries research. To the contrary, federal agencies were often the impetus behind major biological surveys from the late 1800s to the present. However, the U.S. states and the Province of Ontario retained preeminent authority to manage the fisheries in their waters even though the international boundary bisects four of the five Great Lakes.

The states and Province of Ontario have guarded fiercely their authority to regulate the fishery, which usually came at the expense of cross-border collaboration. The fishery suffered tremendously because of this divided governance, as it became known. Divided governance led to inconsistent laws and regulations over fish harvest, gear, seasons, and all the other elements that entail fishery management. Commercial fishers who eschewed regulation, those bullish on fish stocking, and politicians (with little science to rely on) used divided governance as a tool to continually promote self-interest rather than cohesive fishery-management practices. From the earliest days of the commercial fishery, any two jurisdictions on the same lake rarely had harmonious regulations. Top scientists at the time (e.g., Koelz, Van Oosten) connected this management chaos and low science capacity to fishery decline (Hile 1952).

The lack of sound regulation, let alone cross-border coherence, was unequivocal by the late 1800s. James Milner, for example, in his report on the fisheries of the Great Lakes (Milner 1874), recommended better regulations (or regulations where there were none) and artificial propagation to reverse fishery declines. Wilmot and Harris, keen to learn more

about what was happening in U.S. waters of the Great Lakes, attended an interstate fisheries convention in December 1892 and noted a strong sentiment among state government participants to do what they could to protect Great Lakes fish (Wilmot and Harris 1893). The state delegates went out of their way to profess in a resolution (Wilmot and Harris 1893, p. vi) that

[t]he fisheries were held by the States and Canada in trust for the people to see that they and their descendants had for all time to come a supply of fish. . . .

Margaret Beattie Bogue (an environmental historian) noted (1993, p. 1439) that commercial fishers, particularly on the U.S. side of the border, followed a

[t]radition of open access to the fishery as practiced on the colonial frontier, which meant free and unlimited entry without license or governmental supervision.

Regulations, if they were even promulgated, were ad hoc, focused on narrow or specific issues, and usually ignored, leading elected officials and commercial fishers in one country to complain bitterly about those in the other country (Anonymous 1908). Moreover, some preeminent U.S. officials of the late 1800s—primarily Spencer Baird (U.S. Fish Commissioner) and James Milner, both of whom led major surveys—were convinced that regulations would be less effective at saving the fisheries than stocking programs (Bogue 1993). Many believed stocking was a more realistic tactic to address problems than undertaking the hard, politically thankless work of achieving uniform regulations across borders (Bogue 2000; Gaden et al. 2013).

Canadians with a lack of unity took note of the U.S. preference for more stocking and fewer regulations. During a pointed debate in 1895, for example, liberal members of the Parliament

of Canada chastised the former conservative fisheries minister, Sir Charles Hibbert Tupper⁷, for promulgating regulations that were too restrictive to Canadians, particularly compared to the perceived laissez-faire approach to regulations on the U.S. side. Henry Allan, Member of Parliament (MP) from South Essex, said (HC 1895, p. 3958)

The Americans, through the stupid policy of our Government, are securing a great advantage over the Canadian fishermen. While our people are prevented from fishing, or only allowed to fish to a very limited extent, the Americans are reaping vast profits from an enormous trade.

To MP William McGregor of West Essex, the solution was a race to the bottom (HC 1895, p. 3974): “If they [the Americans] are determined to deplete the waters let us have our share.”⁸

Whereas, to MP George Casey (of West Elgin), a better solution was to aim toward “international uniformity of regulations” (HC 1895, p. 3978).

The 1897 Report of the Joint Commission (Wakeham and Rathbun 1897) highlighted considerable differences among the jurisdictions in terms of gear used, open and closed seasons, and size limits of both commercial species and sport species. A section of the report, focused on Lake Erie, is illustrative of what was discovered during two years of investigation (Wakeham and Rathbun 1897, p. 75)

Owing to its more extensive fisheries and its exceptionally large variety of market fishes, Lake Erie presents greater difficulties in respect to the establishment of suitable protective regulations than any other of the great lakes. The subject

is especially complicated by the association, generally, of several different grades and sizes of fishes on the same grounds, or the rapid replacement of one by the other, rendering it impossible to adjust the methods employed for their capture so as to insure the equitable protection of all, without imposing unjust or impracticable restrictions on the industry. The urgency for regulations other than those now in force is evidenced by the continued decrease in abundance of practically all the important varieties, while the discord produced by the five separate and wholly dissimilar codes, of laws which apply to this region, emphasizes the necessity for some unity of action.

The Joint Commission of 1892 found the divided governance problem to be universal across the shared waters between Canada and the USA, not just on Lake Erie. The problem, they asserted, was exacerbated by a paucity of data. The Commissioners said (Wakeham and Rathbun 1897, p. 2)

[a] uniform system of regulations common to the entire extent of each body of water along the boundary line is required to insure the protection of its resources, is fully shown by the conditions which we have found to exist in nearly all of them, whether bordered on the side of the United States by a single state or by several states. The failure to secure adequate results in that direction has, naturally, been due to the diversity of legislation, but it has resulted in large part from the general lack of accurate information regarding the habits of the several fishes to serve as a basis for intelligent action.

Many years after the Wakeham and Rathbun 1897 Report of the Joint Commission called for uniform mesh regulations, the experimental investigations on Chub *Coregonus* spp. nets, carried out in Lake Michigan from 1930–32 with

⁷Not to be confused with his father, The Right Honorable Sir Charles Tupper (Canada's Prime Minister from May 1–July 8, 1896).

⁸The Hansard does not denote sarcasm, so it is difficult to determine if MP McGregor meant this literally.

the RV *Fulmar*, provide a good example of an attempt to end disparate regulations through the application of scientific research. As Hile noted (Hile 1952, p. 5), the investigations

[w]ere designed to provide information on regulations, particularly on mesh size, that would permit the most efficient exploitation of the stocks of chubs (deep-water ciscoes) with the minimum destruction of small lake trout that are regularly taken in chub gill nets.

Wisconsin, Michigan, and several net manufacturing companies jointly funded these investigations (Hile 1952, p. 5) yet

[t]his project proved disappointing in that both of the supporting States ignored the recommendations resulting from the work. . . .

Divided governance ultimately thwarted sound scientific advice—a trend that was all too common—although it should be noted that the materials and data collected contributed substantially to knowledge of growth, distribution, and abundance of imperiled deepwater fishes and to understudied habitats.

Not long after the attempt to seek uniform practices concerning mesh size, the U.S. Congress would shed light on the regulatory chaos in stark terms. In 1937, in a hearing of the U.S. House Committee on Merchant Marine and Fisheries (the committee of jurisdiction), U.S. Representative John Luecke (Escanaba, Michigan) provided some of the most detailed examples available about disparate state regulations, both in terms of size limits and gear. He (Luecke 1937, p. 8) reported the variation among the states in their permissible Lake Whitefish size limits as follows

[M]ichigan, 2 pounds round, 1 pound 12 ounces dressed; Ohio, Pennsylvania, and New York, 1¾ pounds round; Ontario, 2 pounds round; Indiana, 2 pounds round, 1 pound 10 ounces dressed, 1 pound 6 ounces dressed, head off, and salted; Wisconsin,

13 inches on Lake Michigan, 15 inches on Lake Superior; Minnesota, 16 inches.

Luecke went on to outline in lake-by-lake detail the differences in regulations for commercial gear permissible for Lake Whitefish harvest. Lake Erie pound-net regulations, for example, were markedly different (Luecke 1937, p. 8) depending on jurisdiction

[M]ichigan, 4½ -inch pot, but 3½-inch or smaller may be used in one side, except tunnel side for shoaling; 4½-inch heart and tunnel, 5-inch lead. Meshes between 3½ and 4½ inches prohibited in pot. Net may not be set in water deeper than 80 feet. Ohio, one-fourth of each side next to back 2¾-inch as used; rest of pot 2¼-inch as used; meshes must hang squarely strung on one-third; twine not heavier than 18-thread. Pennsylvania, 2¼-inch pot as used—insert steel rule. New York, 4¾-inch mesh. Ontario, no law on mesh of pound nets, Maximum number to any licensee, 10. Department designates which nets may be set.

Luecke thus concluded (1937, p. 10)

The necessity of uniform regulation is apparent from the fact that in many cases, fishermen from two States or two nations depend upon the same population of fish for their catches. Lack of uniformity causes much unfair competition between fishermen of adjoining States and in addition fails utterly to give the fish the necessary protection.

Luecke (1937, p. 8) added: “[w]e must take Canada into consideration, because she plays an important part in the fishing industry.”

Almost a decade later, in a U.S. House Committee on Merchant Marine and Fisheries hearing about the Great Lakes fisheries, the FWS submitted an even more comprehensive list that painstakingly outlined details about disparate regulations throughout the Great Lakes basin (see U.S. House of Representatives 1946a, pp. 49–71).

Some fishers, themselves, connected their problems to divided governance. Oliver Smith (head of the Conservative Commercial Fishermen's Association, Port Washington, Wisconsin) testified (U.S. House of Representatives 1945, p. 11) that

Michigan, of course, controls the greater part of Lake Michigan, Wisconsin next, and then Illinois and Indiana on the lower end of the Lake. Those are four States, each with conflicting laws and regulations, and above all things, the difference in enforcement . . .

Ed Mathews (a commercial fisher from Tuscola, Michigan) added (U.S. House of Representatives 1945, p. 86)

The thing I am concerned with is the conflict between the Canadian law and the State of Michigan law. . . . I went to the Conservation Commission and they refused me, but they let the Canadian fishermen, with no closed season, fish at [Yankee Reef]. . . . I left there, took everything off from the reef, 60 miles in to Tuscola, and the Canadian [sic] were moving on—they knew our season was closed, and they were fishing with 4-inch mesh nets.

Van Oosten (Great Lakes Laboratory Director), who was much alarmed by disparate regulations, did not miss an opportunity to remind the U.S. House Committee on Merchant Marine and Fisheries that such divided governance was a problem and that even the commercial fishers universally (he perhaps exaggerated) supported better regulation. Van Oosten said (U.S. House of Representatives 1945, p. 8)

[i]n our report [Gallagher and Van Oosten 1943], which I think every fisherman should get a copy of, it only costs 30 cents, it has very valuable information in it, in that report, we have reviewed the whole history of the attempt to obtain uniform regulations. We . . . gave a summary of the fishermen's views on uniform regulations, and of course . . . they were unanimously in favor of it. . . .

The paucity of consistent and structured science and the inconsistency in regulations caused by divided governance resulted in considerable confusion among commercial fishers and perceptions among policy makers that individual jurisdictions favored their own fishers at the expense of the resource.

The Decline of Commercial Fisheries

By the turn of the 20th century, commercial fisheries were in a state of decline. Bogue (1993, p. 1432) traces the roots of the commercial-fishery decline to the "expansive development of North America" with the commercial-fishing industry ballooning to satisfy consumers first at the regional level and then nationally. In other words, commercial fishing became an industry by the late 1800s as small operations grew, as new technologies allowed for increased harvests, and as market networks expanded the customer base considerably (Wakeham and Rathbun 1897; Koelz 1926; Bogue 1993; Bogue 2000; Gough 2007). Commercial fisheries were growing faster than fish populations could compensate. Fishing technology improved immensely from 1850 through the early 1900s, allowing commercial operations to overfish local populations, travel farther from harbors in search of commercially important species, and catch greater numbers of fish with less effort (Regier et al. 1999).

Various surveys, assessments, and reports about the state of the fishery were sobering from the late 1800s up to 1954. The surveys and reports documented systematically what many commercial fishers complained about directly to agency officials and politicians—the state of the fishery was bad and in decline. Survey conclusions relied mostly on interviews with commercial fishers. For example, Milner (working under Baird) traveled the Great Lakes in 1871 and 1872, interviewed scores of commercial fishers, and documented "the decrease of the food-fishes" in nearly every

place he visited (Milner 1874, p. 14). After sympathizing with commercial fishers about how difficult it was to make a living in the industry, Milner nevertheless made it clear humans were largely to blame for the poor state of the fishery (Milner 1874, p. 17). He concluded

The taking of fish in too large quantities to allow of handling and preservation, the destruction of fishes too small for use, or of others because they are not in a special line of fishing followed by certain fisherman, or the capture, when used, of those not old enough to spawn, are all entirely wrong and destructive to the fishing-interests.

Milner's report recommended a combination of regulations to protect fish and artificial propagation to reverse the decline.

In Canada, Wilmot and Harris also interviewed commercial fishers (more than 120 throughout the Great Lakes basin between 1892 and 1893) and documented a decline similar to that noted by Milner. In the Wilmot and Harris report of 1893, the conclusions about the cause of the problems were unequivocal (Wilmot and Harris 1893, p. CC)

The general tendency of the testimony given by the fishermen themselves, and the information obtained from all other sources, clearly and unmistakably goes to show that rapid decline of the better classes of fishes is being experienced in all of the former extensive fisheries in the lakes; and in some localities almost an extermination of the former prosperous commercial traffic in the fishing industries of the country has been already reached.

Wilmot and Harris (1893, p. vii) used what they learned to recommend closed seasons and gear restrictions. The report also noted that hatcheries might be of some help in

[r]eplenishing depleted waters,⁹ but all artificial efforts will be futile where waste, excessive fishing, and a defiance of all nature's laws have a foothold.

The information that officials like Milner, Wilmot, and Harris collected in the late 1800s served as the foundation for documenting further decline during the first half of the 20th century. The annual catch in U.S. waters of the Great Lakes in 1899 was 50,088 metric tons (110,425,000 pounds), which consisted mainly of Lake Trout, Cisco, and Lake Whitefish (Koelz 1926). Improved technology, including deepwater trap nets, pound nets, longer and tougher gill nets, and better net-lifting capabilities helped target more and deeper dwelling Cisco and Lake Whitefish (Ebener et al. 2008; Brenden et al. 2013). Harvest of Lake Whitefish, a key commercial species, had fallen from about 11,340 metric tons (25 million pounds) to 4,082 metric tons (9 million pounds) between 1879 and 1899 (Wakeham and Rathbun 1897; GLFC 2018). Harvest of Lake Sturgeon *Acipenser fulvescens*, a fish once so numerous it was considered a pest, declined from almost 3,629 metric tons (8 million pounds) to only 907 metric tons (2 million pounds) in the same period (GLFC 2018). The last recorded catch of an indigenous Atlantic Salmon *Salmo salar*, which was native only to Lake Ontario, was in 1898 (Madenjian et al. 2008).

In a seminal report, Koelz, drawing upon data from the Province of Ontario and the states, took notice of these and other severe declines in harvest in all lakes, understating flatly (Koelz 1926, p. 609)

No argument is necessary to prove that fish are now less abundant than they were 50 years ago. . . .

⁹This conclusion is balanced given Wilmot is widely known as the father of artificial propagation in Ontario.

During the 1928 Third Great Lakes Fisheries Research Conference, delegates heard about the depletion of Cisco in Lake Erie, the need to regulate Lake Whitefish in Lake Huron because of heavy fishing pressure, and the benefits of closed seasons for Lake Trout on Lakes Ontario and Superior (MDC 1928). In 1931, before the Great Lakes Fishery Conference held in Buffalo, New York, Elmer Higgins (head of the Division of Scientific Inquiry of the U.S. Bureau of Fisheries) noted (Higgins 1931, p. 1) with alarm that “an increasing scarcity of the fish remaining to be caught in the lakes” led to more than a 50% reduction in fish harvest over a 15-year period. An official report to the U.S. Congress by the FWS in 1945 noted a decline in Cisco harvest from 17,237 metric tons (38 million pounds) in the early 20th century to only 11 metric tons (25,200 pounds) in 1942, while Yellow Perch *Perca flavescens* fell to a small fraction of its high of 3,175 metric tons (7 million pounds) in the decades preceding the 1940s (FWS 1945).

As the 20th century approached its midpoint, Gallagher and Van Oosten (1943), in a comprehensive analysis of Great Lakes fisheries using Canadian and U.S. harvest data, defined the period 1879–1918 as the baseline¹⁰ and then gauged fish harvest during other eras against this baseline. For most lakes and almost all species, in both Canada and the USA, annual catch in the years leading up to 1940 were below baseline and, in some cases, well below it. For example, the Canadian catch of all species in Lake Huron was 59% of baseline during 1925–1940, and the U.S. catch of all species in Lake Erie was 36% of baseline (Gallagher and Van Oosten 1943). At an extreme, Lake Sturgeon catch in Lake Michigan was less than 0.5% of baseline during 1921–1928 (Gallagher and Van Oosten 1943).

By the 1940s, thanks to sustained communication by the region’s leading scientists, the need for action to save the fishery gained traction at the political level as congressional hearings drew attention to the decline of commercial species throughout the Great Lakes basin. The U.S. House Committee on Merchant Marine and Fisheries held a major hearing on the Great Lakes fisheries in 1937 and then seven more hearings between 1946 and 1956, all focusing on the state of the lakes’ fisheries and the plight of commercial fishers. In most cases, members of the committee heard direct testimony from commercial fishers and government scientists.

In 1937, Luecke’s hearing (U.S. House of Representatives 1937, p. 2) aimed to

[g]et something started toward throwing the spotlight upon the conditions which now exist in the fishing industry on the Great Lakes.

The hearing was the first attempt to understand the need to curb overfishing, instill fairness in regulations, and better understand the fishery resource through science. Luecke raised the alarm in his opening statement (U.S. House of Representatives 1937, p. 7)

12 species of fish in the Great Lakes have been either exterminated or are seriously threatened. The blackfin [*Coregonus nigripinnis*], bloater [*C. hoyi*], and salmon of Lake Ontario have been completely exterminated. The sturgeon, blackfin, chub, and Lake Erie cisco of Lake Erie are no longer commercially important. The other six species of chubs are severely depleted, and the whitefish is threatened with commercial extinction.

Luecke believed more needed to be done to investigate the causes of fishery decline, and

¹⁰This period represented a severe decline from earlier baselines. For more about the shifting-baseline phenomenon, see Pauley 1995 or Gaden et al. 2021.

he introduced a resolution authorizing the U.S. Bureau of Fisheries to work closely with the states to document the state of the fishery and to make recommendations to reverse the decline (U.S. House of Representatives 1937). Higgins stressed the need to reduce fishing intensity if the fisheries were to be saved, although he also expressed frustration that the U.S. government was limited in its ability to issue regulations to achieve that goal—the states would have to do so (U.S. House of Representatives 1937).

Luecke, Higgins, and other hearing participants clearly blamed overfishing for the preponderance of problems in the Great Lakes basin. They suggested that commercial fishers and regulators exploited divided governance and little scientific knowledge to continue their unsustainable fishing practices. Noting a lack of “conservation sentiment” among the states, for example, Higgins was pessimistic about the interest in bringing coherence to disparate regulations (U.S. House of Representatives 1937, p. 26). Speaking about state conservation commissioners, Higgins (U.S. House of Representatives 1937, p. 26) concluded

They recognize that among the commercial fishermen there are small, well-organized groups (minorities, certainly, but nevertheless powerful) that would probably be able to exert enough political pressure to defeat the effort to take away their State's control of those local fisheries.

Notably, commercial fishers did not appear before the U.S. House Committee on Merchant Marine and Fisheries in the 1937 hearing.

Eight years later, in 1945, the discussion was markedly different. In 1945, the U.S. House Committee on Merchant Marine and Fisheries held two days of field hearings—one in Blaney Park, Michigan, and the other in Bay City, Michigan. Scores of commercial fishers showed up to impress upon the U.S. Congress the difficulties in making a living from commercial-fishing operations (U.S. House of

Representatives 1945). Most witnesses used the hearings to complain about state regulations they considered onerous. So, whereas Luecke highlighted a paucity of regulations as the root of decline, later hearings suggested that too much regulation and other problems were to blame. Arthur Tormela (of Chassell, Michigan) said in the 1945 hearing (U.S. House of Representatives 1945, p. 16) that the conservation department wants “to punish us with the mesh—the size of the mesh.”

Other witnesses pointed out deeper problems. To Norman Dutcher (a commercial fisher from Sebawaing, Michigan), pollution was killing his living, not necessarily overfishing. His statement (U.S. House of Representatives 1945, pp. 58–59), presaging the Silent Spring Era by about two decades, places the blame on industry

[O]ur problem . . . right at the present time is pollution, and it is a very serious problem. . . . I don't want to throw any stones or anything of that kind, but it is pretty serious right at the present time. We figure to make a living in the winter to carry us through the year, and yesterday we went on the lake, and my oldest son from Alpena, a fisherman, took me out and showed me what was going on. We lifted a net there and I think there were three or four little carp alive out of about 250 pounds of good fish. All the rest were dead. . . . [Pollution is coming from] two places—the chemical company at Midland and the sugar factories—and I think it is probably a little sewage from the village goes into the river. . . . There is lots of times right here and in Saginaw and clear down the Bay 20 miles, I understand, when the Dow Chemical Co. puts in a lot of pollution, some sort of phenol refuse, and it is 20 miles from here, when the water is unfit to drink.

Nathan Barkman (a commercial fisher from East Tawas, Michigan) added that (U.S. House of Representatives 1945, pp. 67, 69) because of pollution the fish from his area were gaining a bad reputation at the major fish markets in New York, Detroit, and Chicago

[T]he trade in the New York area purchases the Lake Erie hard pike [Blue Pike *Sander vitreus glaucus*] rather than the yellows [Walleye *S. vitreus*] from Saginaw Bay. . . . They complain and they blacklist the fish of Saginaw River, I mean Saginaw Bay, which should stand the highest in fish, and we haven't any answer to it.

Few of the participants in these two days of field hearings pointed to overfishing and excessively lethal gear as the causes of the decline in commercial catch.

The plight of the Great Lakes fishery did not, however, garner commensurate attention at the parliamentary level in Canada, although a review of the Canadian House of Commons and Senate debates shows that members of the Parliament of Canada were quite aware of the decline in fish harvest. Sporadic floor

statements like the one by Joseph-Enoil Michaud (Fisheries Minister in 1940) noted that the harvest of certain Great Lakes species reached “very low levels”, and he promised his colleagues the government’s support for a binational investigation (HC 1940, p. 2473). The SCMF in the House of Commons held only one major hearing about the Great Lakes fishery (in 1955) and the Senate held none.

Overall, the decline of commercial fisheries, which many believed was caused by overfishing, pollution, and a patchwork of inadequate regulations, sounded the alarm and raised political awareness. Fishery decline and management chaos persisted for decades, leading to two major binational inquiries, two failed treaties and, after the Sea Lamprey invasion, a successful treaty that reflected the realities of Great Lakes governance.

THE JOINT COMMISSION RELATIVE TO THE PRESERVATION OF THE FISHERIES IN WATERS CONTIGUOUS TO CANADA AND THE UNITED STATES (1892) AND THE TREATY OF 1908

The Joint Commission of 1892

The Joint Commission of 1892 was formed in a period of tension between Canada and the USA over the fishery. Margaret Beattie Bogue said (1993, p. 1435)

The commissioners . . . functioned in an atmosphere charged with nationalistic frictions that had been building up since the American Revolution. They tainted the attitudes of Americans and Canadians and contributed to deep resentment when American fishermen poached in Canadian Great Lakes waters. By 1892 Dominion authorities were fed up with American fishermen taking millions of pounds of whitefish, trout, and herring from Canadian waters, and Americans seethed over seizures of their boats and gear by Canadian cruiser patrols.

In Canada, regulations were positively systematic and enforced compared to regulations in the USA, which were sporadic and weak, if they existed at all. U.S. fishers essentially adopted an open-access attitude (Bogue 1993). With divided governance, wildly different approaches to fishery management among the jurisdictions, and an intense skepticism toward regulation, the governments of Canada and the USA were at a loss for what to do. The need for a joint fisheries commission was acknowledgment that the status quo was unacceptable.

In the late 1800s, domestic surveys (e.g., by Samuel Wilmot and Edward Harris; Spencer Baird and James Milner) depicted fisheries in severe decline for a number of reasons. Many of the surveys acknowledged cross-border

issues, and state and provincial officials met “opportunisticly to find ways to defuse fishery-related conflicts” (Regier 2019, p. 245).

However, little was done in terms of truly joint survey work. Officials set out to change that situation. John Foster (U.S. Department of State), in an October 4, 1892, letter to Michael Herbert (British Legation), noted that both Canada and the USA had the resources and the capacity to conduct surveys about the condition of the two nations’ respective fisheries. Foster said (Foster 1892, p. vi), therefore, it

[s]eems most desirable for the two parties to avail themselves in common, so far as may be practicable, of the means already at hand in order that the end in view may be the more speedily attained.

By 1892, Great Britain (on behalf of Canada) and the USA acknowledged the need for a combined fishery survey and, as such, agreed on December 6, 1892, to form the Joint Commission of 1892. The commission was composed of one expert from each party to investigate, together, the fisheries along the entire Canada-U.S. border. Most of the investigations focused on contiguous fresh waters, although the charge to the commission also included the Atlantic coast between Cape Hatteras and the mouth of the St. Lawrence River, the Bay of Fundy, and marine waters between the state of Washington and British Columbia. The commission’s work did not include Lake Michigan. The governments tasked the commission (Foster 1892) to investigate:

- Limitation or prevention of exhaustive or destructive fishing methods
- Prevention of pollution or obstruction of shared waters

- Effectiveness of close seasons
- Stocking to further preserve the fisheries

In late 1892, the USA and Great Britain, respectively, appointed William Wakeham (the commander of a fishery-law-enforcement vessel in the Gulf of St. Lawrence) and Richard Rathbun (a senior scientist from the U.S. Commission of Fish and Fisheries) to this new joint commission (Bogue 1993). The two nations agreed to make available all pertinent information and equipment (e.g., vessels) from their respective fishery agencies to the Commissioners and to empower (and underwrite the work of) the Commissioners to conduct their own investigations (McGee 1892). The Commissioners were also charged to make recommendations, although their recommendations would be nonbinding (Bogue 1993).

The Joint Commission of 1892 first met in March 1893 and completed its work in December 1896. During that time (Bogue 1993, p. 1430), the commission conducted

[a]n extraordinary series of on-site studies, experiments, and interviews . . . from Maine to British Columbia. . . .

The two Commissioners interviewed fishers, intermediaries, conservation officers, and hatchery officials to supplement data they themselves collected about fish species and operations (Bogue 1993). The commission’s combined survey was an attempt by the two governments, together, to understand the status and trends of species and gear use on a watershed-by-watershed basis for all major boundary waters. Wakeham’s and Rathbun’s work was so thorough that, by 1894, they were forced to ask for more time to conduct their work, which was granted (Pouncefote 1892)¹¹.

¹¹Bogue was not surprised at the need for more time (Bogue 1993, p. 1441). “Rathbun was overwhelmed. The original records of this remarkable project preserved at the U.S. National Archives fill two standard reading room trucks.”

As already seen, the Commissioners painted a particularly bleak picture of the Great Lakes fisheries¹². Based on statistics provided by state, provincial, and federal surveys in each country (which were themselves informed by catch data, assessments conducted by governments, and interviews with commercial fishers), the commission noted severe declines in fish catch. The Commissioners placed the blame squarely on ineffective (or absent altogether) regulations promulgated by the various states and the Province of Ontario and human activities, particularly overfishing, overly destructive gear, fishing during the spawning season, and pollution (Wakeham and Rathbun 1897).

The Treaty of 1908 between the USA and Great Britain Concerning Fisheries in Canada and U.S. Waters

Notably, the Joint Commission of 1892 issued its conclusions in a single report to stress alignment between the two nations or at least between the two Commissioners. To be effective, regulations needed to better protect the fish, of course, but the commission also stressed that the regulations needed to be uniform on each lake or boundary water across the Canada–U.S. border (Wakeham and Rathbun 1897). Because practices and regulations were inconsistent among the jurisdictions, were inadequate to sustain the fishery, and were highly protean, the commission recommended taking regulatory authority away from the sub-national governments and vesting such authority in a permanent joint commission (Wakeham and Rathbun 1897). This was the first time the two nations, together, proposed a drastic end to divided governance.

The Report of the Joint Commission did not resonate equally in both countries at the political level. In the USA, neither the outgoing Cleveland administration nor the incoming McKinley administration had the appetite to regulate businesses, including fishers (Bogue 1993). Essentially, the report was ignored south of the Canadian–U.S. border. In Canada, where fishers were regulated more than in the USA, the report was treated as vindication of the Dominion's approach to management. Bogue noted (1993, p. 1450) that parliamentarians

[t]ook sheer delight in reporting stories from U.S. newspapers that commended the Canadian system of management as superior.

The recommendations for a treaty and a permanent Canada–U.S. commission were received more warmly in both countries' diplomatic circles, although turning the recommendations into action got off to a slow start. The Joint Commission of 1892's call for a treaty in 1897 was turned over to a body called the Joint High Commission of 1898 (DEA 1959), one of many ad hoc commissions designed to settle emergent disputes between Great Britain and the USA (Dreisziger 2013). Among the great conflicts referred to the Joint High Commission were those related to fisheries and several border disputes (A Canadian Liberal 1899). A subcommittee of the Joint High Commission drafted a treaty in 1898 based on the recommendations of the Joint Commission of 1892, but a dispute over the Alaskan boundary stymied consideration of the subcommittee's draft (A Canadian Liberal 1899; DEA 1959). Finally, in 1906, U.S. Secretary of State Elihu Root, impatient over the lingering 1897 recommendations, took the 1898 Joint High Commission draft and turned it into a formal agreement for Canada's consideration.

¹²The Great Lakes fisheries must have warranted particular attention. Although the commission's report covered all contiguous waters, two-thirds of the final report covered the Great Lakes and its problems (Bogue 1993).

The Treaty of 1908 (Root and Bryce 1908; DEA 1959) was signed on April 11, 1908, and was quickly ratified by both nations¹³.

The Proposed International Fisheries Commission and Its Failure

In the Treaty of 1908, Great Britain (on behalf of Canada) and the USA agreed to create the International Fisheries Commission, comprising one Commissioner from each nation. The Treaty of 1908 (Root and Bryce 1908, pp. 3–4) gave the commission sweeping power

[t]o prepare a system of uniform and common International Regulations for the protection and preservation of the food fishes . . . which Regulations shall embrace close seasons, limitations as to the character, size, and manner of use of nets, engines, gear, apparatus, and other appliances; a uniform system of registry by each Government in waters where required for the more convenient regulation of commercial fishing by its own citizens or subjects within its own territorial waters or any part of such waters; an arrangement for concurrent measures for the propagation of fish; and such other provisions and measures as the Commission shall deem necessary.

The authority of the International Fisheries Commission would apply to all Canadian and U.S. boundary waters, not just the Great Lakes, although neither Lake Michigan nor Georgian Bay were included in the Treaty of 1908 (Root and Bryce 1908; Piper 1967).

The Treaty of 1908 committed the two nations to pass legislation and issue executive actions to implement and enforce the regulations promulgated by the International Fisheries Commission. Notably, the treaty did not specify the process by which the two Commissioners would determine the regulations, although each government (through the treaty) committed to covering its Commissioners' expenses. Presumably, the Commissioners would be given resources to investigate so they could deliver on their charge. Although science and data were at a premium and surveys were inconsistent and ad hoc, the Treaty of 1908 was silent about a vision to increase research capacity.

The two nations appointed Commissioners to the new International Fisheries Commission in July 1908, an act that occurred absent the U.S. House of Representatives vote to put the Treaty of 1908 into effect¹⁴. David Starr Jordan was appointed to represent the USA, and Edward Earnest Prince was appointed to represent Canada. Jordan and Prince, together, issued their regulations on May 29, 1909, which included a weight limit for Lake Whitefish and Lake Trout; length and/or size limits for Yellow Pike or Pickerel (regional names for Walleye *Sander vitreus*), Brook Trout (*Salvelinus fontinalis*), and other species; bag limits for various species; specifications for pound nets, trap nets, and mesh size of nets; and other regulations designed to limit commercial and recreational harvest (Jordan and Prince 1910).

The implementation of the International Fisheries Commission's regulations started out

¹³It is notable that around the time the Treaty of 1908 was negotiated, Canada and the USA also ratified the Boundary Waters Treaty of 1909 (IJC 2016), an agreement about water quantity (and to a lesser extent water quality) along the entire border between the two nations (Griffin 1959). Like the fishery treaty (of 1908), the water treaty (of 1909) established an institution, the International Joint Commission, to ensure treaty implementation. It is noteworthy that the fishery treaty failed but the water treaty was approved. Additional research into the history of treaties during this Progressive Era would yield more definitive answers about why the two treaties followed separate paths and experienced different fates.

¹⁴In the USA, treaties are negotiated by the administration, and U.S. Senate ratification requires a two-thirds vote of approval. Often, treaties are not self-executing; in the case of the Treaty of 1908, both houses of the U.S. Congress need to pass enabling legislation for the agreement to go into effect. That enabling legislation did not happen due to congressional opposition to regulations proffered by the International Fisheries Commission. Canada, conversely, approved the regulations.

strong but ended in shambles. The Parliament of Canada accepted the regulations relatively quickly. Fisheries Minister Louis-Philippe Brodeur, in a speech to the Canadian House of Commons on March 14, 1911, touted Canadian approval and expressed his government's confidence that the U.S. Congress would do the same (HC 1911). The U.S. Congress never did (Vallance 1937; Piper 1967; DEA 1959). Little direct written evidence exists as to why the U.S. Congress did not promulgate the International Fisheries Commission's regulations. The Department of Fisheries in Canada, in an internal account, blamed strong opposition from commercial fishers in Ohio, Michigan, and Puget Sound, Washington, for the lack of U.S. congressional interest in the treaty and the proposed International Fisheries Commission's regulations (DEA 1959). Bogue perhaps best summarized why the U.S. Congress never took up the agreement (Bogue 1993, p. 1448)

The idea of a joint commission staffed by experts with power to modify regulations and of two national governments enforcing those regulations flew in the face of the fishermen's passion for a free and open-entry fishery. Guided by today, not tomorrow, in their struggle to make a living, they were highly competitive, and they were convinced they could offset low prices by making ever larger hauls. They were truly the farmers of the Great

Lakes, harvesting the waters and producing more to make up for low prices.

The failure of the Treaty of 1908 was particularly embarrassing for Canada. The International Fisheries Commission's regulations, which were approved by the Parliament of Canada, were stricter and more readily enforced than most regulations promulgated by the various U.S. states. Thus, not only did the treaty fail to end the problem of divided governance, but it also confirmed the worst fears critics like MPs Henry Allan, William McGregor, and George Casey voiced in 1895—that Canada would restrict its fishers, while the USA would not. The Privy Council for Canada issued a minute (DEA 1959, p. 6) on September 30, 1914

[t]o "disclaim all responsibility for the failure of the Treaty" and "to resume her liberty of action". . . .

The Treaty of 1908 was officially dead, and the International Fisheries Commission never functioned again (Vallance 1937). Meanwhile, the problems caused by divided governance only worsened, particularly as unsustainable fishery practices continued apace into the early decades of the 20th century.

THE 1940 INTERNATIONAL BOARD OF INQUIRY FOR THE GREAT LAKES FISHERIES AND THE TREATY OF 1946

Between the late 1800s and the 1930s, various subsets of the states, the Province of Ontario, and federal agencies tried to create a mechanism to work across borders and to reduce divided governance. No fewer than 27 international and interstate conferences were convened (for a list, see Gaden et al. 2013, pp. 317–318), many of which were designed to

develop uniform regulations (Gallagher and Van Oosten 1943; Gaden et al. 2013; DEA 1959). These attempts ended dismally—resolutions were adopted but no future meetings occurred (Gallagher and Van Oosten 1943, p. 31) with "[n]othing accomplished . . . nothing definite was achieved and the conference was soon forgotten."

Walter Koelz summarized the sentiments of the science and management community after the failure of the Treaty of 1908 (Koelz 1928, p. 662)

As discouraging as it is that the fish are being exterminated and the waters polluted (and here I want to repeat that I am not an alarmist; the facts are plain and point to an unavoidable conclusion), it is demoralizing to realize that nothing is being done about it. No less than nine governments are administering conservation legislation, and it goes without saying that no two have the same idea! Some, in fact, have no idea at all! Control of these fisheries must be coordinated, and this clearly is possible only through a centralized body. As the waters [of the Great Lakes] are international, this body must be international in character.

Starting in the 1930s, John Van Oosten (Director of the U.S. Bureau of Fisheries Great Lakes Laboratory in Ann Arbor, Michigan) was determined to use every persuasive power he had to force an end to divided governance; no single individual was more determined to achieve that objective. Neither impressed nor discouraged by decades of failed attempts at cooperation¹⁵, Van Oosten's strategy was to mount a sustained effort to link Great Lakes problems to a lack of uniform regulations across borders and to take his arguments to both the public and to the highest powers in Washington and Ottawa. In addition to being a respected fishery biologist, Van Oosten was an effective communicator who, on the speaking circuit, rarely missed an opportunity to remind audiences that Great Lakes problems could be addressed through better governance and more science. He was particularly troubled by the lack of coordination across borders and viewed divided governance as the root of Great Lakes woes (Van Oosten 1937, p. 133)

Every fisheries survey, every fisheries investigator, virtually every fisheries administrator, and commercial fisherman on the Great Lakes have stressed the point at one time or another that the fisheries of each lake must be governed by uniform regulations, uniform methods of enforcement, and uniform enforcement. That such uniformity is essential is apparent from the simple fact that virtually every commercially important species of fish migrates back and forth in the waters of a lake without reference to any state or international boundaries.

The Council of State Governments Presses a Binational Approach

Van Oosten seemed to want cross-border governance any way he could get it. Aware of the perils of sub-national preemption, one strategy was to do the arduous work of persuading eight states and the Province of Ontario to agree on uniform—or at least harmonized—regulations that were seen as fair; such an effort could be done through an organization like the Council of State Governments, which was set up to foster cooperation among states. Another option was to create an interstate compact, a unique governance arrangement permitted under the U.S. Constitution that allows states to enter into binding agreements with each other—a treaty among states. An interstate compact, some argued, could be the mechanism by which at least the states would proffer consistent regulations (CSG 1938b; Gallagher and Van Oosten 1943), although such an arrangement would not include Ontario and, thus, would create an inherent limitation. Still another option would be to issue regulations under a treaty between Canada and the USA, thus stripping the states and the Province of Ontario of regulatory power and vesting it in a binational commission.

¹⁵Van Oosten himself organized many of the attempts.

Progress toward a shared approach to Great Lakes fishery management received a major boost in 1938 when Van Oosten partnered with Hubert Gallagher (of the Council of State Governments) to convene a Great Lakes Fisheries Conference under the auspices of the council, which was held at the Hotel Statler in Detroit, Michigan, February 25–26, 1938. During that conference, state and U.S. federal delegates¹⁶ discussed at length the status of the Great Lakes fishery and the threats to sustainability. These problems festered for decades and the causes of the problems were well accepted. The status quo, the conference delegates concluded, simply could not continue. The delegates focused the bulk of their discussions on methods to end divided governance—methods that included tedious, self-organizing coordination among the states; a formal, legally binding interstate compact; and a treaty between Canada and the USA. An official from the Province of Ontario, Hector MacKay, participated in the deliberations after Prime Minister Mackenzie King deferred to the province for this conference (CSG 1938b).

After convening the conference planning committee for the purpose of recommending the best approach to ending divided governance, the conference delegates rejected the idea of an interstate compact, concluding it would take too long, and they also postponed recommending a binational agreement (CSG 1938b, p. 117), observing that

[t]he situation was not ripe for such a treaty, partly because of the lack of discussion up to the present time as to the precise provisions of any regulations.

State delegates remained open to discussing the treaty idea further, and Elmer Higgins (head of the Division of Scientific Inquiry of the U.S. Bureau of Fisheries) supported a single authority—an authority that would include the Province of Ontario—to regulate the fisheries (CSG 1938b). MacKay, the sole Ontario delegate to the conference, believed a treaty to be unnecessary; he instead maintained the states could adopt similar regulations to those currently in force in Ontario. MacKay saw a treaty as a last resort (Simmons 1938)¹⁷.

As momentous as the Detroit conference was in terms of acknowledging the problems of divided governance, the delegates decided that further investigation into the state of the fishery and a regional governance structure were necessary. Van Oosten and Gallagher managed to secure a conference resolution that called upon the states to redouble their efforts (through the Council of State Governments) to seek uniform regulations and also called upon Canada and the USA to discuss a treaty (CSG 1938b). In the meantime, the delegates' resolution recommended the formation of a binational board of inquiry (CSG 1938b, p. 117)

[w]hose function it shall be to consider and to recommend measures for the conservation of the Great Lakes fisheries. . . .

On December 5, 1938, another major fishery conference (again convened by the Council of State Governments) picked up in Chicago, Illinois, where the delegates left off earlier that year in Detroit. Although the focus of the Chicago conference included a deep look into

¹⁶Commercial fishers, while in attendance, were not given any official status. John Schacht (President of the Great Lakes Fisheries Association) reflected wryly years later that representatives of his industry "were there in an auditory capacity only" (Schacht 1945b, p. 1).

¹⁷Apparently, MacKay's idea of cooperation was that the states would agree with whatever Ontario promulgated. The meeting minutes avoid mention of why MacKay did not believe the last resort had been reached, which is surprising given that divided governance had been bemoaned for decades.

the condition of the Lake Michigan fisheries, the major focus was on the implementation of the resolution from Detroit to form a binational board of inquiry. The Detroit resolution calling for a binational inquiry was generally well received federally in both Ottawa and Washington. Evidence exists, however, that the Province of Ontario was cautious about a binational board of inquiry from the moment it was proposed in the 1938 Detroit conference, particularly if the board of inquiry was to pursue a treaty that would strip power away from the province. In the months after the Detroit conference, officials from the Province of Ontario and the Canadian federal government communicated with each other about if and how they would participate in a binational board of inquiry, should it be formed. In a letter to Albert Matthews (Ontario's Lieutenant Governor), Ephraim Coleman (Under Secretary of State at the Department of the Secretary of State of Canada) noted (Coleman 1938, p. 2) that it was

[d]esirable that the views of the Government of Ontario should be ascertained and that arrangements should be made for co-operation in this [international] negotiation.

Coleman continued (Coleman 1938, pp. 2–3)

It would undoubtedly facilitate such a negotiation if arrangement could be made for consultation on the proposals [to establish a binational board of inquiry] in question or any alternative methods that may be proposed. It would appear desirable to arrange for early consideration of the matter by a Committee including representatives of the Interested Departments of the Canadian Government, and representatives of the appropriate Departments of the Ontario Government. Following consideration of the question by such a Committee, arrangement could be made for a conference between this Committee and representatives of the United States Government.

The Canadian Government would be prepared to appoint representatives at once for this purpose, and desires to learn whether the Government of Ontario is prepared to adopt a similar course.

The archives do not contain Ontario's response to Coleman's idea for joint discussions with U.S. counterparts.

By the time the Chicago conference convened, Ontario's opinion of a binational board of inquiry was more known. Inexplicably, Canada's federal government was not present at the Chicago conference, which left Ontario free to reflect as it wished on the matter. As in Detroit months earlier, Ontario did send a delegate, David Taylor, who, the meeting minutes show, was at times dogmatic and quarrelsome with the U.S. delegates. Taylor was the Deputy Minister of Game and Fisheries for the province, and he was not shy in reminding delegates that his department—not the federal government—promulgated the vast majority of Ontario's fishery regulations (CSG 1938a). This fact, Taylor asserted, meant that any binational board of inquiry must include Ontario, particularly if the board of inquiry was to propose a cross-border agreement. In other words, Taylor feared a federal power grab in Canada (CSG 1938a, p. 24), and he stressed to his U.S. counterparts that his province would never sanction an agreement

[w]hereby we were going to designate to any other authority than the Ontario government the power to speak on the regulations of game and fish, whether it be on the Great Lakes or anywhere else within the province. We are not going to designate to our federal government that power.

Taylor added (CSG 1938a, pp. 25–26)

The Ontario government takes the stand that she is capable of dealing with those fishery affairs within the province, and will not concede or will not request the Dominion to make any treaty negotiations on her behalf.

Just in case he was misunderstood, Taylor harshly added (CSG 1938a, p. 39)

Seventy per cent of the difficulties [managing the fisheries] have to do with those eight states, apart from the Province of Ontario.

The December 5, 1938, meeting in Chicago concluded (CSG 1938a, p. 39) with a resolution that surely irked Taylor. It read in part that

[i]t is in the opinion of this committee [of which Taylor was a member] that we should reaffirm the stand taken at the meeting in Detroit in February [1938], that a treaty between the United States and Canada, regulating the fisheries of the Great Lakes, is desirable.

Although the resolution passed¹⁸, Taylor complained it did not recommend specifically that Ontario be a party to any agreement. After passage (CSG 1938a, p. 40), he asked the conference delegates (who represented state governments) if they would

[h]ereby designate the Province of Ontario body unit with powers to deal with the various states under treaty for regulations of the fisheries in the Great Lakes.

Notwithstanding Taylor's protestations, delegates at the Chicago meeting affirmed the results of the Detroit conference (Jackson 1941, p. 138)

An international treaty to bring about uniform regulations of Great Lakes fisheries was again endorsed.

The 1940 International Board of Inquiry for the Great Lakes Fisheries

With support growing for another binational inquiry, the Canadians decided they would participate provided both the federal and provincial governments would serve equally. With both nations on board, the Canadian and U.S. federal governments, through an exchange of notes, formed the 1940 International Board of Inquiry for the Great Lakes Fisheries on February 29, 1940. Gallagher (of the U.S. Council of State Governments) would chair the board and Canadian Archibald Huntsman (of the federal Fisheries Research Board of Canada) would serve as Secretary. Taylor would represent the Province of Ontario, and Van Oosten would represent the U.S. federal government. Twelve distinguished scientists would serve as a Scientific Advisory Committee¹⁹. The board was charged to consider measures for the conservation of Great Lakes fisheries with a special focus on the causes of fishery decline. Although the Council of State Governments' resolutions called upon the board to look into arrangements like a treaty to end divided governance, Canada and the USA did not agree to go that far and asked the board (more generically) to jointly consider the methods necessary to improve the fisheries. The board was authorized to travel the region, hold hearings, visit fishing grounds and landing sites, and report back to the two governments (Moore 1939).

Two years later, after holding 29 field hearings and polling 4,000 commercial fishers via a questionnaire, the board submitted

¹⁸The actual vote tally was not recorded.

¹⁹The Scientific Advisory Committee consisted of John Detwiler (University of Western Ontario), John Dymond (Royal Ontario Museum and member of the future Great Lakes Fishery Commission), Samuel Eddy (University of Minnesota), William Harkness (University of Toronto), Al Hazard (Michigan Department of Conservation), Carl Hubbs (University of Michigan), Chancey Juday (University of Wisconsin), Thomas Langlois (Ohio State University), Hector MacKay (Ontario Game and Fisheries Department), Emmeline Moore (New York State Conservation Department), William Ricker (Indiana University), and Edward Schneberger (Wisconsin Department of Conservation) (Gallagher et al. 1943).

a 26-page joint report on the state of the fishery (Gallagher et al. 1943)²⁰. The board documented, essentially, what was already well known—many fish species were in decline, Atlantic Salmon was extirpated from Lake Ontario, certain fishing gear was more harmful than others, and overfishing continued to be a concern. The terse list of Canadian and U.S. joint recommendations, although somewhat recycled from previous suites of recommendations, were nonetheless noteworthy. The board, acting in unison, recommended more science capacity, cohesive regulations developed by a Canada–U.S. agency, and better information about the effectiveness of fish stocking (Gallagher et al. 1943).

The real story of the 1940 International Board of Inquiry, however, is found in the U.S. 187-page supplemental report that contains comprehensive data tables about the state of the fishery and a thorough analysis of cooperative arrangements that could end divided governance (Gallagher and Van Oosten 1943). U.S. members Gallagher and Van Oosten presented in detail one failed attempt after another at unifying governance and then analyzed various options for an agreement, ranging from continued attempts at coordination among the jurisdictions to a binding interstate compact to a treaty between Canada and the USA. The U.S. members of the board of inquiry recommended a treaty (Gallagher and Van Oosten 1943, p. 107), with the federal FWS given the authority “to regulate and control the fisheries in United States waters.” The states would retain the ability to make laws consistent with the treaty. The U.S. members also recommended that the Province of Ontario, not the federal fisheries department, serve as the Canadian authority.

Canadian Secretary Huntsman was furious. Not only did the U.S. recommendations threaten to ignite a storm of federalism in Canada over which order of government would enjoy primacy over fishery management, but also the U.S. recommendations were proffered, in his view, in a duplicitous way, undermining the spirit of a binational board of inquiry. In a confidential letter dated November 7, 1942, Huntsman (1942) complained to Donovan Finn (the federal Deputy Minister of Fisheries) that the Americans on the board of inquiry held back important statistics until the last minute, failed to give Canadians time to consider points raised, and did not even ask Canadians to consider the more than 20 recommendations made in the U.S. supplemental report.

Huntsman, however, aimed his sharpest criticism at the U.S. attempt to force Canada into a treaty, echoing fellow Board Member Taylor’s caustic comments in the Detroit conference of 1938. Huntsman (1942, p. 2) wrote in his letter to Finn that it was obvious to him from the start that the board was “ill-conceived” and that

Its international character was only a cover under which it was desired to alter effectively public opinion in the United States in favour of a pre-determined course.

Huntsman was particularly worried that Gallagher and Van Oosten had successfully divided the Canadian delegation on the board by proposing a treaty that would protect Ontario’s right to manage and, perhaps more galling, have the province control the fisheries jointly with the federal FWS. He felt outmaneuvered by the U.S. members. Given the U.S. members’ perceived temerity, Huntsman recommended that the supplemental report be ignored (Huntsman 1942).

²⁰Transcripts from all 29 hearings were inserted into the Executive Hearings before the U.S. House of Representatives Committee on the Merchant Marine and Fisheries House of Representatives (U.S. House of Representatives 1946a, pp. 140–275).

Officials at the Canadian Department of External Affairs displayed more equanimity. The officials were concerned that Huntsman's dissatisfaction would distract from Canada's primary objective to establish an agreement that would end divided governance, elevate science, and lead to better fisheries. In a letter to Finn on January 28, 1943, Hugh Keenleyside (Assistant Under Secretary of State for External Affairs) articulated a broader view than Huntsman (Keenleyside 1943, p. 1)

It would be a great pity if the work of the past four years and the establishment of the International Board of Inquiry were to go the same way as all former efforts to obtain action on this very important matter, and end in stagnation.

The Department of Fisheries eventually retreated given External Affairs' insistence that an agreement was in Canada's interests (DEA 1959).

The U.S. supplemental report was received more warmly in the USA. Officials at the U.S. Department of State were quite open to an agreement and were quick to move. On May 31, 1943, U.S. officials asked the Canadians for a meeting to begin negotiations for a new treaty, pursuant to the board of inquiry's recommendations. The joint recommendations did, after all, manage to include a generic call for a Canada-U.S. agency to establish regulations (Gallagher et al. 1943; DEA 1959). Throughout 1944 and 1945, a consensus at the federal level developed for a Canada-U.S. commission to regulate the Great Lakes fisheries. The consensus also included representation, and voting within the commission should be equal between the two nations, as opposed to fractional, with the states carrying more votes collectively (DEA 1944; 1945c, d; 1959). The consensus, also, was to include all five Great Lakes in an agreement, which was different from the Treaty of 1908 that excluded Lake Michigan and Georgian Bay (Lake Huron).

Opponents and Proponents of a Treaty Line Up

With the tenets of a new agreement clarified, U.S. officials in both countries were anxious to move forward with a treaty before support for it waned (Keenleyside 1944; DEA 1945a, b). By October 1945, the U.S. Department of State had cause to move quickly, as support for a treaty-based agreement was softening in the U.S. Congress and among the states. At that time, for example, the *Chargé d'Affaires* at the Canadian Embassy in Washington, D.C. reported to Ottawa that, although most states were in general support of an agreement, Ohio was hard-lined against it, and New York was wavering (DEA 1945c).

In Canada, the Province of Ontario and the federal government were still quite far apart in their vision for a treaty. Throughout 1944 and well into 1945, Ontario's Taylor and MacKay and Canada's Finn and Keenleyside had regular discussions and meetings to decide what they would accept in a treaty. Once-confidential minutes from a meeting among Canadian officials prior to negotiations over a new agreement indicate that Taylor was deeply skeptical about a treaty with the U.S. (DEA 1944, pp. 1–2). He believed such an accord

[m]ight in fact take administrative control out of the hands of Ontario and vest it in the Federal Government or the joint [Canada-U.S.] commission. He intimated that control by . . . [such a] commission would be theoretically desirable, but he felt that the proposed convention would give the commission power to issue regulations but would leave the responsibility of enforcement to existing agencies and therefore that it might prove unworkable.

Canadian federal officials had a different take—they worried a treaty would move the delicate balance between the two orders of government to Ontario's favor. In a confidential memo to

Keenleyside (DEA 1943, p. 1), an anonymous aide summarized the federal concern

[t]he major difficulty which at present stands in the way of our entering into the convention is the anomalous position with respect to the regulation of fisheries in Ontario. The law is the Dominion should issue and enforce Fishing Regulations there; the practice is that Ontario issues some Regulations without consulting the Dominion at all, issues other Regulations which it submits to the Dominion to be rubber stamped and enforces all Regulations. The terms of the draft convention envisage Ontario as the fishery authority for Ontario. If we enter into the convention on this basis, the Dominion is “surrendering” its regulatory rights to Ontario, and, what is worse, any Regulations for the Great Lakes issued by Ontario would certainly be *ultravires*²⁴ unless rubber stamped by the Dominion. If, however, we insisted that in the convention the Dominion should appear as the regulating and enforcing authority, we should raise a political row between the Dominion and Ontario.

In sum the draft convention seems as between the Dominion and Ontario to be political dynamite.

Thus, while Taylor feared a treaty would turn Ontario’s authority over to a binational commission, Canadian federal officials feared that a treaty, even though it would be signed by the federal government, would cut the Dominion out of the equation altogether in favor of Ontario—political dynamite indeed.

In addition to government concern about federalism in Canada, public skepticism to a treaty arose during the board of inquiry’s work, leading to poor political support if not outright hostility. During the board of inquiry’s field hearings held in 1940 and 1941, for example, commercial fishers were skeptical of uniform

regulations, let alone a treaty to govern Great Lakes fisheries. Although fishers generally felt practices should be more uniform across jurisdictions than they were at the time, there was widespread disagreement about how to approach the management chaos. Many felt a treaty was overkill or, worse, a Trojan horse leading to more regulations under the guise of uniformity. During the board of inquiry’s hearing on November 30, 1940, in Cleveland, Ohio, commercial fisher Charles Lay (of Sandusky, Ohio) expressed a fairly typical and telling response to the issue of a treaty (U.S. House of Representatives 1946a, p. 274)

I have nothing to say, although I am opposed to the international treaty. It would give all the advantage to the Canadian fishermen. They have the advantage of cheaper labor and cheaper raw material and we feel that any regulation that is made will be entirely to the advantage of the Canadians. Now, at the present time there are twice as many American fishermen as there are Canadians and we are fearful of regulations that will be made to put the American fishermen out of business, or at least half of them. We feel that the States bordering on Lake Erie should coordinate their laws and have uniform regulations.

At the same hearing, Louis Reger (of Reger & Warner Fish Co., Lorain, Ohio) was optimistic that the states would do a better job working together than they had in the past (U.S. House of Representatives 1946a, p. 271)

I believe the States can carry out all the regulations necessary, because in Ohio within the last few years between the fishermen and the conservation department they worked things out very nicely, and there is no need whatever for any outside set-up. I believe the various States can get together without any treaty.

²⁴In other words, beyond the power of the Province of Ontario in the Dominion’s view.

Reger did not elaborate on what gave him such optimism that the states would buck history and “get together”, nor did Van Oosten, surprisingly, press him on that point (U.S. House of Representatives 1946a, p. 271).

During the board of inquiry’s hearing in Escanaba, Michigan, on June 11, 1941, Roy Jensen (of Jensen & Jensen Food Market) responded to a question from Gallagher about the idea of a treaty (U.S. House of Representatives 1946a, p. 640)

As far as I am concerned personally I don’t think we should have any treaty with Canada . . . we couldn’t produce fish as cheap as they can. Their labor amounts to probably one-tenth of what it does in the United States. Their operating costs and so on are less . . . we have to have a more equal basis if we make our treaty.

Jensen added later (U.S. House of Representatives 1946a, p. 641)

You can’t do it [have uniform regulations] between the two States, so I don’t see how you can do it between the two countries.

Clearly, Jensen felt the status quo protected U.S. fishers and that a treaty would cede some of that advantage to the Canadians.

In Bayfield, Wisconsin, on July 8, 1941, H. J. Ehlers (of Cornucopia, Wisconsin) preferred to take his chances with his own state than with either the Canadian and U.S. federal governments or an extraconstitutional commission established under a treaty. Expressing similar fears as Jensen did the previous month in Escanaba, Ehlers framed Great Lakes fisheries in terms of competition, not cooperation, although he did soften his view during his exchange with Gallagher (U.S. House of Representatives 1946a, pp. 648–649)

Mr. Ehlers: Our fishermen have nothing to gain by such a treaty and everything to lose. Of all the

fish produced in Canada, a large percentage are marketed in our country, and I can see no reason whatever why we should enter into a treaty with them. I think we hold all the aces right here. I don’t know of anything else to say, but I am opposed to such a treaty.

Chairman Gallagher: You are satisfied with present control?

Mr. Ehlers: I would favor State control of our fisheries as it is today. I think our fishermen have better opportunity for hearings in case they have some grievance. Each State has its own department, and it is so much easier for a fisherman to appear before his own commission than at some international hearing at Washington or Ottawa, Canada.

Chairman Gallagher: In what way do the Canadians compete with you?

Mr. Ehlers: They market their fish in our country. . . . In the marketing of which I am particularly interested, these fish come on to our markets when it is heavy here and the markets are glutted.

Chairman Gallagher: I think you could keep them out by international treaty, possibly under a quota system. That would be one of the simplest ways of doing it. That is the reason it has been suggested at various times.

Mr. Ehlers: I don’t want to argue with you on that. I am only explaining the problem our fishermen are confronted with. If they [Canadians] could be barred during our closed season, naturally it would help. Canada would automatically be forced to close their season because they have no other market.

A few years later, in a scathing editorial in the *Bulletin of the Great Lakes Fisheries Association* (a commercial–fishing–industry group), President John Schacht (who testified at several board of inquiry hearings) blasted any proposal for a commission that would have “full and absolute regulatory power” yet would fail to

include representatives from the commercial-fishing industry (Schacht 1945a, p. 2). Moreover, betting even chaotic state regulations would be better than a federal power grab, fishers objected to the usurpation of sub-national management authority. With Lake Michigan discussed as part of a treaty, the commercial industry objected to Canadians having a say over the regulation of fishers on a lake that is wholly within the USA.

That said, many others, particularly conservation organizations and more than a few commercial fishers, expressed support for a treaty, even one that would cede sub-national fishery-management authority to a binational commission. Van Oosten and Gallagher were shrewd enough to make sure those supportive voices were asked the right questions and had their letters and testimony inserted into hearing records. For example, during its annual meeting in Chicago on March 30, 1940 (U.S. House of Representatives 1946a, p. 159), the Isaak Walton League of America

[r]eaffirms its stand taken in convention in Chicago, March 18, 1939, recommending a Great Lakes Treaty with Canada [that would ensure uniform regulations]. . . .

The league's action was raised at several of the board of inquiry's hearings. During the board's hearing (U.S. House of Representatives 1946a, p. 332) in Rochester, New York, on December 19, 1940, Franklin Smith (Chairman of the Genesee Conservation League) noted (citing binational success in managing migratory birds) that

[i]t seems most desirable to establish through treaty an international commission to control the fisheries of the Great Lakes.

In contrast to commercial fishers Jensen and Ehlers, who viewed the status quo as protecting U.S. fishers, Charles Hagen (of Hagen Fish Co., St. Ignace, Michigan) saw a treaty as doing the opposite—creating some degree of fairness

to the advantage of all fishers. The following exchange occurred during the board of inquiry's hearing in St. Ignace on June 2, 1941 (U.S. House of Representatives 1946a, p. 597)

Chairman Gallagher: Canada is a Dominion and we have State government. Would you be in favor of some sort of international agreement?

Mr. Hagen: Yes, I think so, and I believe every fisherman would be. We can't continue the way things are with a closed season here and let them have theirs open. The way it is now it is simply going to put the commercial fisherman here out of business.

To Carl Kolbe (a commercial fisher from Port Dover, Ontario), uniformity in regulations, whether by treaty or otherwise, was most important. During the board of inquiry's hearing in St. Thomas, Ontario, on December 21, 1940, the following exchange illustrates a rare example where Canadian Board Member Taylor broached the subject of uniform regulations (U.S. House of Representatives 1946a, p. 381)

Mr. Taylor: Would you be in favor of uniformity in regulations?

Mr. Kolbe: Yes; absolutely. I think that anybody who does not cooperate there is something wrong with them. There are such big differences now I wonder if there is a possibility of getting them ironed out.

Dr. Van Oosten: Mr. Kolbe, how would you bring about this uniform regulation?

Mr. Kolbe: That is a question of politics; is it not?

Dr. Van Oosten: That is, for the State of Ohio and other States to cooperate—to get the States to work with the Province of Ontario?

Mr. Kolbe: Yes; I would not want any international agreements as to regulations unless they were uniform.

Some respondents were simply indifferent or conditional in their answers to questions about an agreement. When asked during the board of inquiry's hearing in Sarnia, Ontario, on November 22, 1940, about his views on uniform regulations, R. T. Purdy (of Sarnia) replied: "Well, that would depend on what the regulations were" (U.S. House of Representatives 1946a, p. 216). Purdy's fellow fisher, E. C. Lusty (also of Sarnia), when asked the same question, answered: "Well, I think it would be nice if we got together and had a uniform regulation of some sort or other" (U.S. House of Representatives 1946a, p. 217). Like Ontario's MacKay asserted in the 1938 Chicago conference, both Purdy and Lusty conceded that their view of uniformity meant U.S. fishers adhering to Ontario's regulations. When Van Oosten asked M. McKillop (Eagle Fisheries, West Lorne, Ontario) about his sentiments, McKillop replied: "Yes; I would like to see uniform regulations on both sides of the lake" (U.S. House of Representatives 1946a, p. 223). Van Oosten, likely hoping for some specificity about an agreement probed: "How could that be brought about?" (U.S. House of Representatives 1946a, p. 223). McKillop answered: "I don't know, by our Governments, I suppose" (U.S. House of Representatives 1946a, p. 223).

Some in the U.S. Congress wanted to stop any agreement before it started. In December 1945, U.S. Representative Alvin Weichel (of Ohio), with the support of U.S. Representative Fred Bradley (of Michigan), introduced a bill to demand that the U.S. Department of State cease work on an agreement with Canada as recommended by the board of inquiry. The bill blamed the U.S. Department of State (DEA 1959, p. 21) for giving

[c]ontrol of the fisheries in the Great Lakes to a foreign country . . . [and accused it of] carrying on secret meetings with England for Canada. . . .

The Treaty of 1946 and the Proposed International Commission for the Great Lakes Fisheries

Despite mixed public opinion, some vocal congressional opposition, and hesitation among the state and provincial jurisdictions, Canada and the USA reached agreement, primarily because the new treaty contained direct federal and sub-national involvement. The Treaty of 1946, called the Great Lakes Fishery Convention between Canada and the United States (Truman 1946), was signed in Washington, D.C. on April 2, 1946. The treaty created the International Commission for the Great Lakes Fisheries, which would include two sections with three Commissioners each. The U.S. section would comprise an official from the federal fisheries agency, a person selected by the U.S. President from a list of two or more persons named by the states, and a member of the public with knowledge of Great Lakes fisheries (Truman 1946). The Canadian section would include federal, provincial, and public-at-large members²² (Truman 1946).

The International Commission for the Great Lakes Fisheries would have the authority to make regulations concerning all elements of fishery management, including open and closed seasons, open and closed waters, size limits, and gear, among other things (Truman 1946). The U.S. section alone would make regulations pertaining to Lake Michigan, and the sub-national jurisdictions would retain the ability

²²The Treaty of 1946 did not specify how the federal and public-at-large members in both countries would be nominated; did not require that persons on the list submitted by the states be state officials (although, presumably, that was the intent); and did not specify who would appoint the Canadian members or how the prospective members would be nominated (although, presumably, the Privy Council for Canada would perform that role).

to enact measures that would be more protective of fisheries in their waters than those enacted by the International Commission for the Great Lakes Fisheries (Truman 1946). The states and Ontario would continue to license fishers, as long as the licenses were consistent with the regulations of the international commission. If the regulations were not adequate, the federal governments were granted the ability to take any necessary steps.

All decisions, including regulations, would be determined by a majority vote of the entire International Commission for the Great Lakes Fisheries, with each member having one vote. The treaty was silent about what would happen in the event of a tie (Truman 1946). In the case of Lake Michigan, decisions would be by majority vote of the U.S. section only, with each of the three U.S. members having one vote.

The Treaty of 1946 would also create advisory committees to be made up of state and provincial fishery agencies, sport and commercial fishers, and the public-at-large. The parties to the treaty were given discretion over how the advisory committees would be constituted, although nominations to the committee would have to come from state and provincial jurisdictions (Truman 1946). Importantly, the Treaty of 1946 mandated that all regulations approved by the international commission (and regulations for Lake Michigan approved by the U.S. section) would be submitted to the advisory committees for their comments. The international commission would be required to consider the comments before submitting the regulations to the President and the Governor General for approval (Truman 1946).

The treaty also addressed the need for more science (Truman 1946, p. 683) by directing the International Commission for the Great Lakes Fisheries to

[f]ormulate and recommend specific research programs of observations and studies of the Great Lakes fisheries. . . .

The Treaty of 1946 also expected federal and sub-national governments to conduct research, not the international commission. The purpose of the research function was to determine the status of and trends in the Great Lakes fisheries, to evaluate propagation methods, and to investigate other stressors, such as pollution and siltation. The expectation was that the international commission would drive the research agenda for the Great Lakes fisheries.

The Treaty of 1946 differed from the failed Treaty of 1908 in that the 1946 agreement applied only to the Great Lakes. The two treaties otherwise were similar in ending divided governance by stripping regulatory power away from the sub-national governments and vesting that power in a binational commission. The Treaty of 1946 did make concessions to the states and the Province of Ontario by reserving a seat in each section for a sub-national official and by allowing more restrictive sub-national actions. The Treaty of 1946 also gave the International Commission for the Great Lakes Fisheries a research mandate; such a mandate was missing from the Treaty of 1908. For the most part, however, the rationale for the two treaties and the considerable powers given to both binational commissions were similar.

Congressional Opposition to the Treaty of 1946 Forestalls Its Ratification

President Harry Truman sent the proposed Treaty of 1946 to the U.S. Congress on April 22, 1946, where, like the Treaty of 1908, it slowly died. Whereas the U.S. Congress was surprisingly silent about the Treaty of 1908, the Treaty of 1946 was an object of derision in the U.S. House Committee on Merchant Marine

and Fisheries for years. Opposition to the treaty grew over time, fueled by the reluctance of U.S. commercial fishers to embrace more regulation and by political opposition (particularly in Ohio) to the usurpation of sub-national management authority.

Congressional discussion²³ began in June 1946 when the U.S. House Committee on Merchant Marine and Fisheries held a hearing filled with acrimony toward the bilateral agreement. Although the hearing was ostensibly about commercial overfishing, U.S. Representatives Bradley and Weichel (who, as noted, tried to stop negotiations on the agreement) launched the first of sustained assaults against any accord that would preempt states' rights. The two U.S. Representatives berated Gallagher for using the Council of State Governments to advocate for a treaty that would take power away from the states (U.S. House of Representatives 1946b). Weichel, especially, seemed incredulous that the U.S. Department of State would pursue a treaty based on what he called "propagandized" assertions from the council (U.S. House of Representatives 1946b, p. 12). Echoing debates in the Parliament of Canada decades earlier, Bradley worried that a treaty would give too many fish away to the other side (U.S. House of Representatives 1946b, p. 27)

I have never known the Canadians to be overanxious or to be too generous with the United States. My whole criticism of this thing . . . [the Treaty of 1946] . . . is that I object to their having equal voice when there is a 4 to 1 disparity in the catch. . . . I think we are letting ourselves in for a mighty good gypping of the American commercial fishermen, and goodness knows they are having a hard enough time living as it is now.

The hearing continued to deteriorate, with members grilling U.S. Department of State and FWS officials (including Van Oosten) about why they were so intent on usurping states' rights and giving fish away to the Canadians.

Proponents of the Treaty of 1946 retorted that state-level support for the treaty (which, as written, took away the state-level ability to issue regulations) was, nevertheless, strong. Inserted into the hearing record were letters of support from Indiana, Michigan, Minnesota, New York, and Wisconsin (U.S. House of Representatives 1946b). The only state to object to the treaty was Ohio, a point FWS Director Albert Day confirmed in later congressional testimony (U.S. House of Representatives 1951, p. 6) when he asserted that the Treaty of 1946 had: "[b]een effectively stymied, if I may use that word, by opposition from the State of Ohio."

With explicit support from six of the eight states bordering the Great Lakes (Illinois was not on record), Weichel found it incredible that Gallagher would willingly support the federal attempt for power (he expected Van Oosten to be in favor of it). Indeed, it is testament to the severity of divided governance that six of the eight Great Lakes states were willing to surrender their authority. That said, opposition in the U.S. House Committee on Merchant Marine and Fisheries did not let up for years, with Weichel using most hearings about the Great Lakes to rebuke the treaty and any person who advocated for it. Weichel believed that an agreement with Canada—or, more precisely, with the "king of England" in his words—would cede control of U.S. resources to a foreign power. He objected to an extraconstitutional body having any say over resources that

²³Calling this "congressional discussion" is somewhat misleading. Although the U.S. Senate approves treaties, the Treaty of 1946 was never taken up or discussed officially in the U.S. Senate. The U.S. House of Representatives has no formal role. Nevertheless, members can and often do discuss agreements but to no direct end.

belonged to the states. He usually couched his arguments in terms of states' rights, and he wielded an inordinate level of influence on the committee. The transcripts repeatedly showed Weichel dominating hearings with anti-treaty lines of questioning, framing the discussion, and making statements with little or no challenge from his colleagues²⁴.

Weichel's strategy, regardless of subject, was to commandeer every Great Lakes fishery hearing and to turn the discussion against the proposed treaty. Snippets of the various hearings over the years demonstrate Weichel's unwavering view on the subject. The following examples represent a fraction of his diatribes (often pages long) against cross-border collaboration. Weichel reserved his most poisonous venom for Gallagher, Day, and, particularly, Van Oosten.

A hearing held on June 14, 1946, was the first hearing where the Treaty of 1946 was aired. Gallagher (of the Council of State Governments and a member of the board of inquiry) testified (U.S. House of Representatives 1946a, p. 12)

Mr. Weichel: Who brought this thing [the Treaty of 1946] in there and tried to push this thing along?

Mr. Gallagher: Mr. Congressman, you sound as though it is a plot or something. It is not a plot at all.

Mr. Weichel: I want some names. Who brought this thing in there and who propagandized this thing with the Council of State Governments? I want the names.

A hearing held on March 8, 1949, was ostensibly about commercial fishing and the Sea Lamprey.

Day of the FWS testified (U.S. House of Representatives 1949a, p. 5)

Mr. Day: There has been a problem that has been well recognized by the fishing interests, by conservationists throughout the years, that the Great Lakes fisheries have gone downhill. The States have not been able to get together in a uniform type of regulation. The Great Lakes treaty [of 1946] would attempt to do that.

Mr. Weichel: Then I suppose that if you cannot regulate your own yards you give it to some foreigner to handle. Do you expect to give away what belongs to the States of the Union, and give it to the English to regulate?

Mr. Day: No.

Mr. Weichel: That is just exactly what you are talking about. . . . This is State property. You go out and want to take away from States something that they own—a part of this New Deal philosophy to give away everything. That belongs to the States. That is not something that belongs to the Federal Government. Do you think your position is to take things that belong to the States of the Union and give them to the English? Is that your idea?

Mr. Day: No.

Mr. Weichel: That is just what you have done in this thing in which you have urged and worked on for about 15 years, scheming against the ownership of the States.

Weichel did not reserve his rancor for only government officials, as is evident in this exchange that began as a dialogue between U.S. Representative Charles Potter (of Michigan, later a U.S. Senator) and Oliver Smith (Smith

²⁴Bradley, who joined Weichel on the U.S. House Committee on Merchant Marine and Fisheries in early and vocal opposition to a binational agreement, died in 1947. Therefore, Weichel was left as the main voice of opposition on the U.S. House of Representatives committee. Bradley's successor, Charles Potter, took a more open view of a bilateral agreement.

Whitfish Gill Net.
Steamer Great Lake.
(Lake Huron)





(Previous page) Gill-net steamer tug, Lake Huron, ca. 1890s.

Image from the Gulf of Maine Cod Project, NOAA National Marine Sanctuaries, U.S. National Archives.

Scientists use pound nets to capture Cisco and Walleye for spawning studies, early 1900s.

Image from the Archives of Ontario.



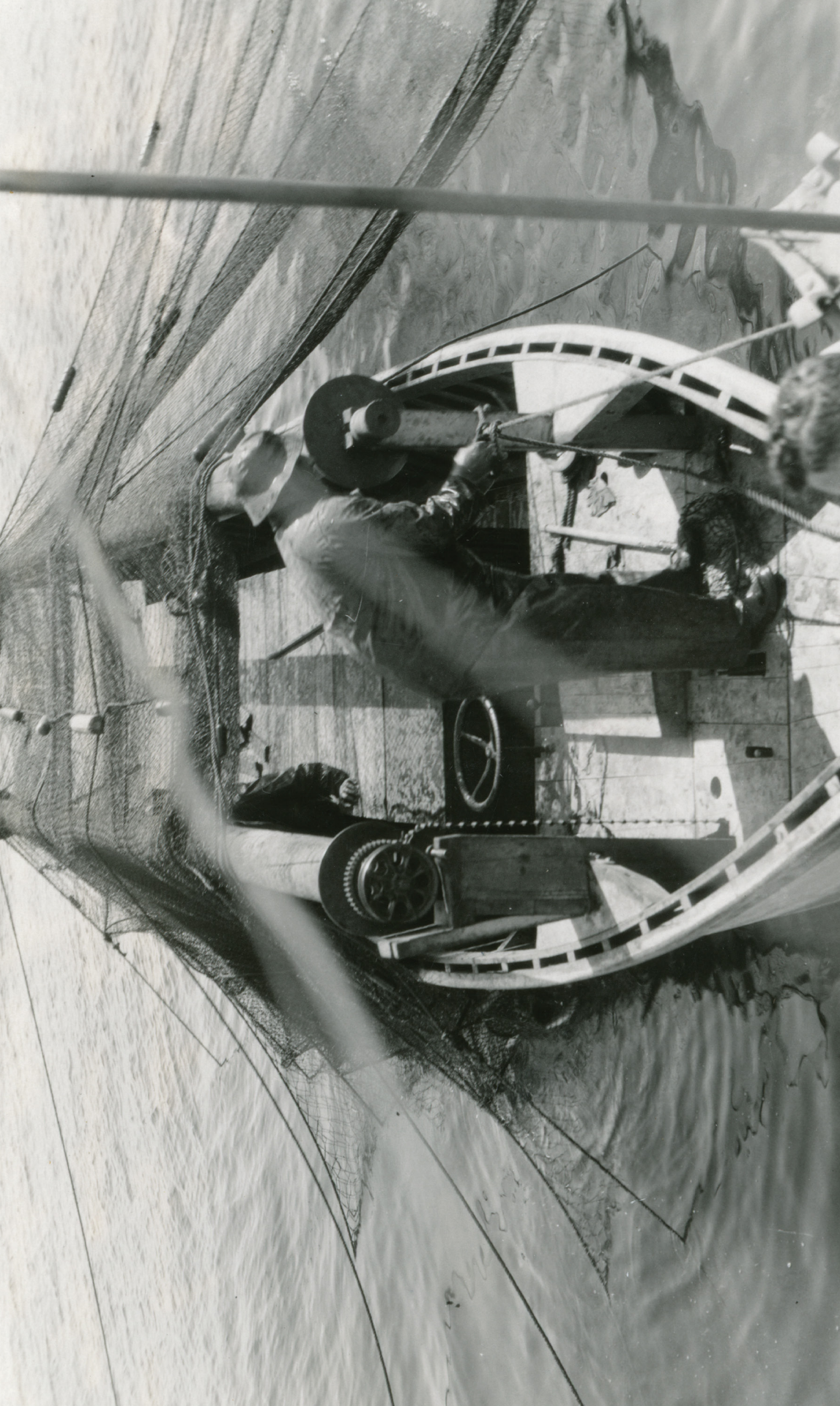
Fish culturists collect spawn for research purposes, early 1900s.

Image from the Library and Archives Canada.



Commercial fisher Charles Hoskins and crew, Erie, Pennsylvania, 1928.

Image from the John Van Oosten Library, Great Lakes Science Center.



Lake Whitefish trap-net lift near Grand Haven, Michigan, July 1930.

Image from the John Van Oosten Library, Great Lakes Science Center.



Whitefish pound-net lift near Grand Haven, Michigan, July 1930.

Image from the John Van Oosten Library, Great Lakes Science Center.



Gill-net tug, northern Lake Huron, March 1931.

Image from Purvis Fisheries.



John Van Oosten (white hat, of the U.S. Bureau of Fisheries) pointing to an opening in a deepwater trap net that leads to the pot, and Captain William Muntinga. The image (location unknown, June 1932) shows the construction and size of a typical net.

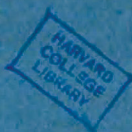
Image from the Michigan Department of Conservation.

Chapman
1893

REPORT AND REVIEW
OF THE
DOMINION FISHERY COMMISSION

ON THE
FISHERIES OF THE PROVINCE OF ONTARIO

1893

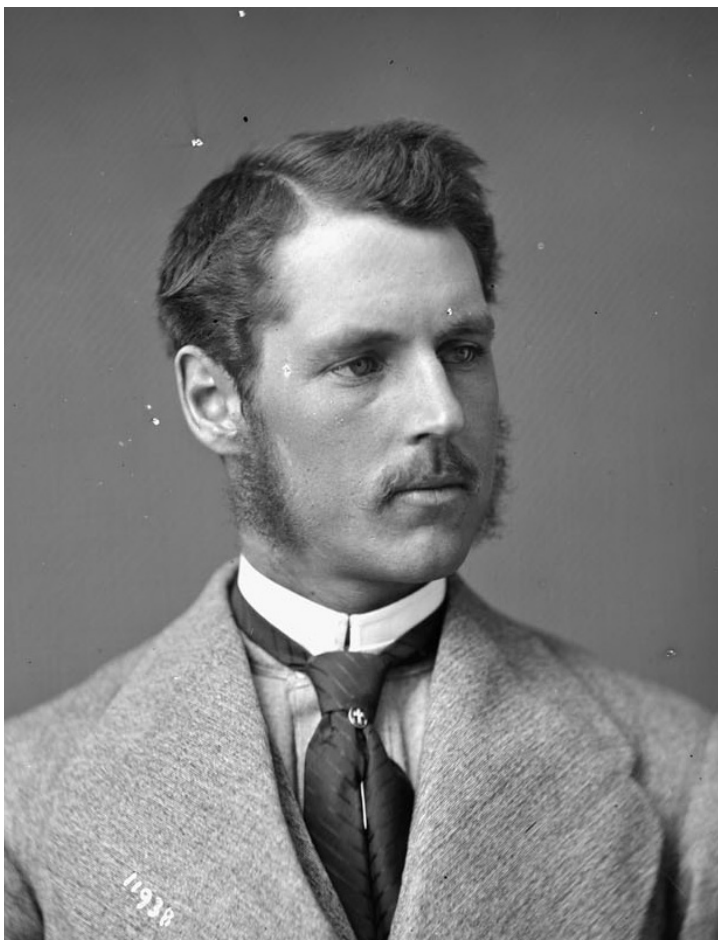


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1894

[No. 10c*—1893] Price 30 cents



Samuel Wilmot (above) and his colleague Edward Harris co-led the Dominion Fishery Commission of 1893. The report (previous page), which focused on Ontario waters, described a bleak view of the fisheries of the province and, by extension, the Great Lakes. Wilmot is widely known as the father of artificial fish propagation in Ontario.

Images from the Library and Archives Canada.

REPORT

OF THE

Mr. Beil and U. S.

JOINT COMMISSION

RELATIVE TO THE

PRESERVATION OF THE FISHERIES IN WATERS CONTIGUOUS

TO

CANADA AND THE UNITED STATES

(Submitted December 31, 1896)

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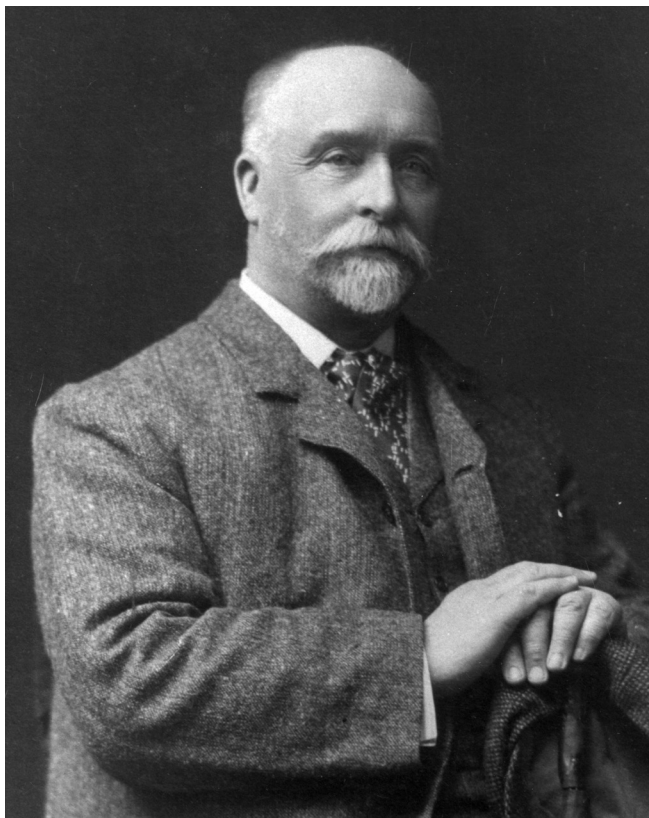


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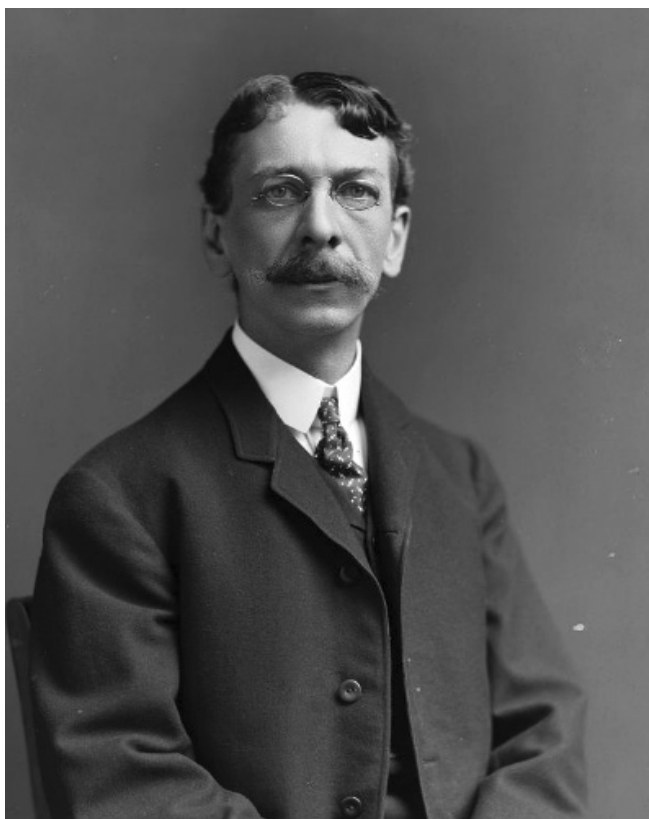
1897

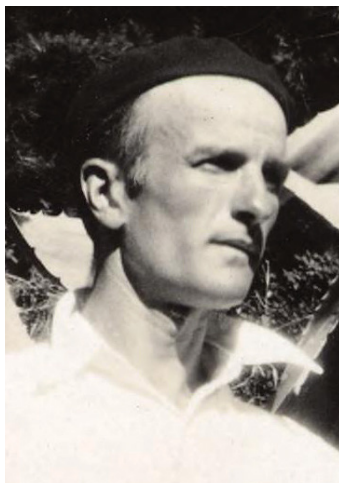
[No. 11d—1897.]



William Wakeham (top) and Richard Rathbun (bottom) led the 1892–1896 Joint Commission of 1892, the first binational survey of the Great Lakes fisheries. Although the commission examined all boundary waters, the report (previous page) on the state of the Great lakes fisheries was sobering. The Wakeham and Rathbun effort was the first binational recommendation for a treaty between Canada and the U.S. to govern the fisheries.

Image of William Wakeham from the Musée de la Gaspésie.
Image of Richard Rathbun from the Smithsonian Institution.





Starting in the late 1800s, leading researchers documented the severe declines in Great Lakes fisheries while lamenting the paucity of science and regulations. Walter Koelz (left) of the U.S. Bureau of Fisheries studied coregonine fishes and was an early proponent of uniform regulations to prevent fish depletion. William Harkness (right), of the University of Toronto and later with the Ontario Department of Lands and Forests, helped establish collaborative science between government and academia. Harkness is credited with developing Ontario's fish and wildlife science program and establishing standards for fishery management.

Images from the Bentley Historical Library and the Harkness Laboratory of Fisheries Research.



(Above, left to right) Fred Westerman, John Van Oosten, and Frank Hoard examine a Rainbow Smelt *Osmerus mordax* in Hoard's ice shanty on Crystal Lake, Beulah, Michigan, February 29, 1940. Van Oosten (Director of the Great Lakes Laboratory, Ann Arbor, Michigan) was a strong proponent of science, Sea Lamprey control, and cross-border governance. Van Oosten's outspokenness was not always well received in the halls of the U.S. Congress. Westerman (head of fisheries for the Michigan Department of Conservation) was a frequent collaborator with Van Oosten on science and policy. Westerman and Van Oosten worked closely together to understand the Sea Lamprey invasion and to formulate a response.

Image from the John Van Oosten Library, Great Lakes Science Center.

(Next page) By the late 1940s and early 1950s, a network of fishery managers and researchers pressed for more science and Sea Lamprey control. These leaders engaged with commercial and recreational fishers and were frequent interlocutors with elected officials. This photo includes many personalities mentioned in this publication including John Van Oosten (top row, third from left), Ralph Hile (top row, fifth from left), Fred Westerman (top row, first from right), James Moffett (bottom row, first from left), and Vernon Applegate (bottom row, second from left).

Image from the Great Lakes Fishery Commission.







Members of the International Board of Inquiry for the Great Lakes Fisheries in 1940 (above). The board investigated the state of the Great Lakes fisheries and proposed actions that could halt fishery decline. The board's recommendations precipitated the 1946 Great Lakes Fisheries Convention between Canada and the United States, a treaty that was not ratified. The four Board Members are (left to right): Archibald Huntsman (Fisheries Research Board of Canada), Hubert Gallagher (Council of State Governments), John Van Oosten (U.S. Bureau of Fisheries, Great Lakes Laboratory), and David Taylor (Ontario).

Image from the John Van Oosten Library, Great Lakes Science Center.

(Previous page) By 1946, the effects of Sea Lamprey on Great Lakes fish were felt. An early response was the formation of the Great Lakes Lake Trout Committee and Great Lakes Sea Lamprey Committee (the two committees merged by 1948) to investigate the decline of Lake Trout, the rise of Sea Lamprey, and the negative interactions between the two species. The committees consisted of officials from the U.S. Fish and Wildlife Service, the Great Lakes states, and the Province of Ontario. Pictured here on the left are Committee Members at the 1950 annual meeting in Minneapolis, Minnesota (left to right): Hector MacKay (Ontario), Hjalmar Swenson (Minnesota), Ralph Hile (U.S. Fish and Wildlife Service), Edward Schneberger (Wisconsin), James Moffett (U.S. Fish and Wildlife Service), and Fred Westerman (Michigan).

Image from the Great Lakes Fishery Commission.

(Next two pages) This once-confidential letter from Archibald Huntsman to Donovan Finn (Huntsman's superior) expressed Huntsman's anger after the U.S. section of the 1940 International Board of Inquiry issued a supplement to the joint report that called for a Great Lakes fishery treaty. Although Huntsman felt the call for a treaty between the two nations was duplicitous on the part of the U.S. members, the joint recommendations did call for a shared-governance arrangement. In Huntsman's handwritten notes (Huntsman 1942, p. 2), he added the postscript: "There is also the question as to the desirability of a supplemental report by the Canadian members." Canada did not submit a supplemental report, but the Department of External Affairs did respond favorably to the idea of a treaty.

Image from the Library and Archives Canada.

360723
J. P. GALLAGHER, CHAIRMAN
COUNCIL OF STATE GOVERNMENTS
CHICAGO, ILLINOIS

D. J. TAYLOR
DEPARTMENT OF GAME AND FISHERIES
TORONTO, ONTARIO

**BOARD OF INQUIRY
FOR THE
GREAT LAKES FISHERIES**

JOHN VAN OOSTEN
U.S. BUREAU OF FISHERIES
ANN ARBOR, MICHIGAN

A. G. HUNTSMAN, SECRETARY
FISHERIES RESEARCH BOARD OF CANADA
TORONTO, ONTARIO

Confidential
Toronto 5, Ont.,
November 7, 1942

Dr. D. B. Finn,
Deputy Minister of Fisheries,
Ottawa, Ont.

PERSONAL

Dear Dr. Finn,--

The copy of the Supplemental Report of the United States Members of the International Board of Inquiry for the Great Lakes Fisheries 1942", which you sent has reached me and I have read through the text quickly, but somewhat carefully. Further action regarding it should depend upon advice from you, so I hasten to send you my views of the report which is a somewhat curious document.

It contains (pages 20 to 38) a treatment of the United States approach to the matter of a treaty with Canada, which was considered by the Canadian members as at least doubtful for the joint report, and also (pages 64-68, 78-82, 115-117, 125-129, 137-141 and 142-148) summaries of the replies to questionnaires, the Canadian counterpart of which could not be worked up through lack of funds and time. I understood that it was agreed that each country should publish its own statistics rather fully (the United States failed to furnish the compilation of its statistics for combined study until the very last moment, while ours was furnished them over six months previously), and that where the statistics of the two countries could be combined properly for a common picture, such should be included in the joint report. In the U. S. report, the Canadian statistics are "included to facilitate comparisons with the United States records and to obtain the grand total catch of each species for each lake" (p. 223), but include many years for which there are no U. S. records.

The numbered paragraphs on pages 153F to 153J are introduced as "facts" to which "an analysis" and "a study" "point very clearly and very convincingly". Subsequently (p. 153K) these "facts" are said to be a summary and to contain recommendations. They seem to be largely conclusions, as is definitely stated for one of them. The United States members failed to put these forward for consideration as to inclusion in the joint report and in fact made no response to my request in a letter of February 27, 1942 (repeated in letter of March 3) to Mr. Gallagher that he "indicate clearly what points you think can be made, so that there can be time for consideration of each before we meet for discussion".

Dr. Finn, continued:

Similarly the fifteen recommendations of pages 153 to 155 were not put forward for our consideration.

This shows, I believe, what seemed evident shortly after the Board began its activity, that the Board was ill conceived. Its international character was only a cover under which it was desired to alter effectively public opinion in the United States in favour of a predetermined course. While our joint report acknowledges assistance from a representative scientific advisory committee, thus showing a desire to have a thoroughly sound basis, the U. S. report acknowledges assistance from persons in the three bodies (Council of State Governments, Fish and Wildlife Service, and Department of State) that had agreed upon the course and from whose staffs the U. S. members of the Board were drawn, ^{they} and did not consult the Canadian members of the Board.

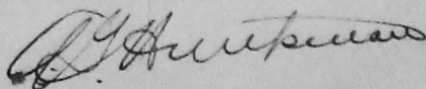
The object of the supplementary report is misstated (p. 4) as "to cover the basis of action in greater detail than was possible in the joint report". This is somewhat absurd since there was no difficulty in including detail in the joint report. I have not reviewed all the documents, but in my letter of April 17th to Mr. Gallagher giving my understanding of our plans for a report I wrote "it is considered desirable that each country should publish subsidiary reports dealing with things of domestic concern, e. g. the detailed statistics". Whether or not there was any other record of what we decided on this point I cannot state at the moment.

What international status unilateral action by one country's representatives on an international body to their own government may have, I do not know. If it has none, but is purely a domestic matter, we can ignore this report. But then it should scarcely be joined to the common report as part of it.

Since action is being requested from the United States, we should doubtless make sure that we are ready for any common meeting of officials from the two countries. The United States side is and has been well worked out, since the three bodies mentioned above have been co-operating very closely. That is not the case in Canada, and our situation is particularly weak owing to the relations between the Dominion and Ontario governments. Mr. Taylor is on record as opposed to any action by the Dominion government in this matter and I am not sure but that this weakness in our ranks will militate against us in discussions. The type of treaty that the U. S. members of the Board recommend is designed to override opposition by certain states and to satisfy Ontario. Whether it will accomplish this and whether such is desirable, I do not know. Nor do I know whether it will be suitable for carrying out the recommendations in the joint report.

I am not taking up the matter with Mr. Taylor until I am clear what action will be wise. Perhaps it would be well for me to discuss it first with you and have someone from the Department of External Affairs to advise. I doubt also the wisdom of having a meeting with U. S. officials until we are quite clear as to our position. The Canadian side of the whole matter has received all too little attention.

Yours sincerely,



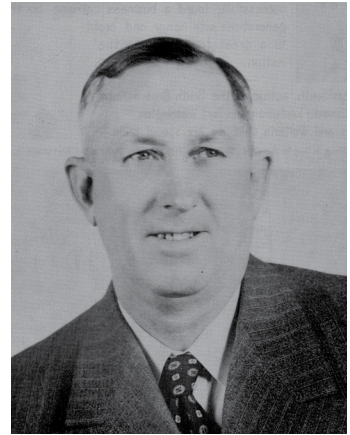
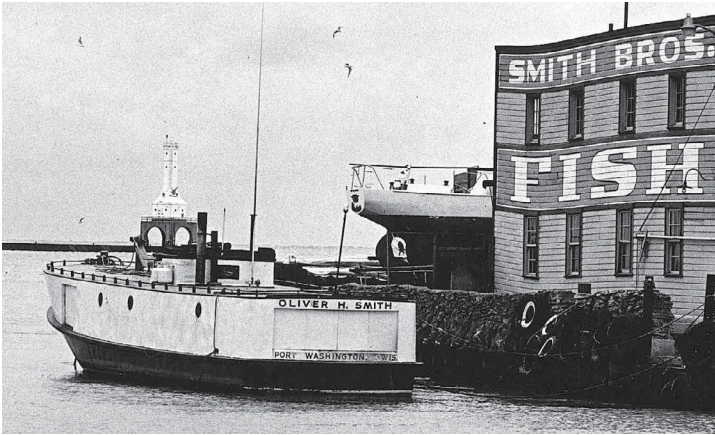
P.S. There is also the question as to the desirability of a supplemental report by the Canadian members.





The Mertz family from Rogers City, Michigan, was prominent in commercial fishing in the early and mid-20th century. The *Beatrice M* was Louis Mertz's vessel (above). Mertz's daughter, young Beatrice, is pictured with Alfred Basel (previous page). Basel carries a Lake Trout caught in a Mertz fishery deep trap net. After Louis Mertz's untimely death by drowning in 1934, Beatrice and her mother, Katherine, continued to fish Lake Huron. Beatrice Skaggs (née Mertz) (left), was interviewed by Cory Brant in 2016 for this research. Skaggs recalls it was her job to ensure no Sea Lamprey brought up in nets went back into the lake alive.

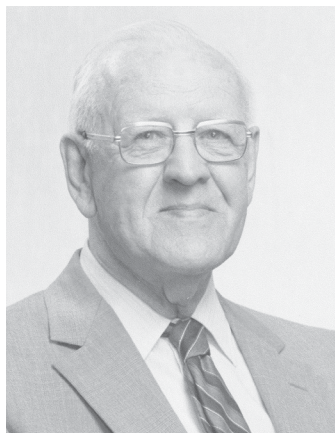
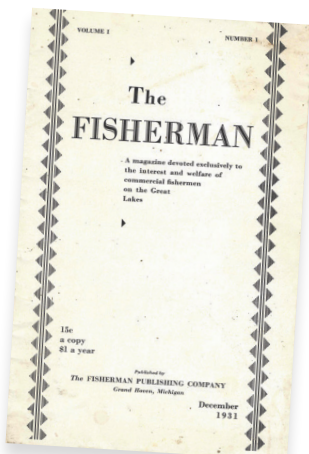
Images courtesy of Beatrice Skaggs.



Oliver Smith (right), a commercial fisher from Port Washington, Wisconsin, ran a thriving fishery operation called Smith Brothers (left). Smith made regular appearances before the U.S. Congress and binational boards of inquiry in the 1940s and 1950s to argue for better fishery management, including cross-border governance.



Mathon Kyrtsis (left), pictured in 1960, was a prominent commercial fisher and restaurant owner from Waukegan, Illinois (right). As President of the Illinois Commercial Fishermen's Association, he testified frequently before the U.S. Congress about the severe hardship the Sea Lamprey was causing and the need for a treaty to address the Sea Lamprey problem.



Claude Ver Duin (right), a commercial fisher, printer, and publisher from Grand Haven, Michigan, combined his occupations to produce a periodical (left) called *The Fisherman*, which contained lengthy articles about fish harvest and research findings. Ver Duin helped negotiate the Convention on Great Lakes Fisheries of 1954 and served as a founding member of the Great Lakes Fishery Commission.



Participants of the annual meeting of the Ontario Federation of Commercial Fishermen, January 12, 1948. The federation, today called the Ontario Commercial Fisheries' Association, was formed in 1945 to advance Ontario's fishing-industry interests and to press for better regulations and management. Carl Kolbe (bottom row, fourth from left) helped found the organization and served as its President for many years. Kolbe was a frequent witness before the 1940 International Board of Inquiry and was in regular communication with elected officials. Among the other notable participants were William Harkness (front row, sixth from right); Arthur Blackhurst (front row, third from right), who became a founding member of the Great Lakes Fishery Commission; and Bev Scott (with eyeglasses, top row, fourth from right) who, with Ed Crossman, co-authored the 1974 monograph *Freshwater Fishes of Canada*.

Image from the Ontario Commercial Fisheries' Association.

(Previous page) Images from the Port Washington Historical Society; the University of Wisconsin Sea Grant; the Dunn Museum, Lake County History Archives; and the Great Lakes Fishery Commission.



U.S. Representative John Luecke

Image from the Library of Congress.



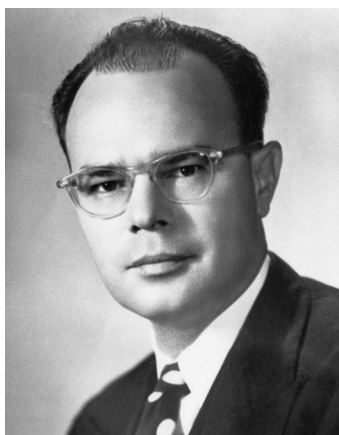
U.S. Representative Fred Bradley

Image from the Library of Congress.



U.S. Representative Alvin Weichel

Image from the Collection of the U.S. House of Representatives.



**U.S. Representative (later Senator)
Charles Potter**

Image from the U.S. Senate Historical Office.



U.S. Senator Hubert Humphrey

Image from the U.S. Senate Historical Office.



Albert Day

Image from the U.S. Fish and Wildlife Service.



James Moffet

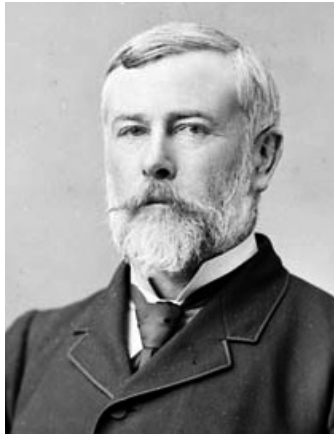
Image from the Great Lakes Fishery Commission.

Between 1937 and 1956, the U.S. Congress (predominantly the U.S. House Committee on Merchant Marine and Fisheries) held eight major hearings about commercial-fishing challenges in the Great Lakes and, starting in 1946, the scourge of the Sea Lamprey. U.S. Representative Weichel (Chair of the committee in the late 1940s) was particularly truculent with Albert Day (Director, U.S. Fish and Wildlife Service); James Moffett, Great Lakes Laboratory (Ann Arbor); and John Van Oosten. U.S. Representative Charles Potter (later a U.S. Senator) took a more measured approach to the witnesses. Pictured here are several prominent U.S. elected officials and witnesses to hearings mentioned in this publication.



**Member of Parliament
William McGregor**

Image from the Library of Parliament.



Member of Parliament George Casey

Image from the Library of Parliament.



Fisheries Minister James Sinclair

Image from the Library of Parliament.



Senator Norman McLeod Paterson

Image from the Library of Parliament.



**Assistant Under Secretary of State
for External Affairs Hugh Keenleyside**

Image by Harry Palmer.

Unlike in the U.S., the Parliament of Canada did not hold a committee hearing about the Great Lakes fisheries until a debate in 1955 by the Standing Committee on Marine and Fisheries. Divided governance was less of an issue in Canada than in the USA and left the Canadian federal government with a lesser role than the U.S. role. Parliamentarians, on the other hand, routinely lamented the poor state of the Great Lakes fishery during parliamentary debates, often with blame placed on U.S. commercial-fishing practices. Several prominent Canadian elected parliamentarians and governmental officials mentioned in this publication are shown.



William Sprules

Image from the Harkness Laboratory of Fisheries Research.

(Next page) The third annual meeting of the Great Lakes Fishery Commission (GLFC), April 1958. Several of the meeting participants were primary actors in advancing Great Lakes science, policy, and governance during the preceding decades. Left to right: Norm Baldwin (in profile), the GLFC's first Executive Secretary; GLFC Commissioners Donald McKernan, Lester P. Voight, Andrew Pritchard, William Harkness, and Arthur Blackhurst; Isla Davies, Warren Looney, and Stuart Blow (U.S. Department of State). Pritchard and Looney were key witnesses in Canada and the USA, respectively, during hearings on the proposed Convention on Great Lakes Fisheries between the United States of America and Canada. Harkness, Walter Koelz, and John Van Oosten advocated for many decades the need for more and better science.

Image by H. Meyle (U.S. Department of State) courtesy of the Great Lakes Fishery Commission.



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AUG 23 1946

Federal Government And State Combine To Fight Lamprey

ANN ARBOR — The eel-like lamprey, already causing considerable damage to the lake trout and some other fish in the Great Lakes, definitely is increasing.

This is the opinion of John Van Oosten, who is in charge of the Great Lakes fisheries investigation for the U. S. Fish and Wildlife Service, with laboratory and office facilities at the University of Michigan.

He reports more and more streams in Michigan, the other Lakes states and the Province of Ontario are being used each year by the lampreys for spawning. However, a fight to eliminate this parasite soon will be started.

A sea lamprey sucks the life blood of a fish after attaching itself to it with its sucking-disk mouth. The fish either dies or is left with such a disfiguring mark or appearance that it often cannot be sold after being netted by commercial fishermen. The fish cannot rub off the lamprey; it must release itself.

Lampreys prefer lake trout, mainstay of Great Lakes fishing, because such fish have small, thin scales. The parasite also feeds on such fish as whitefish, chubs, suckers and pilotfish, Van Oosten explains.

"It's impossible to estimate the damage lampreys cause," he asserts, "but Lake Huron and Lake Michigan fishermen, for example, report that from 25 to 85 per cent of lake trout brought in in various catches have lamprey marks. Some fishermen are in desperate straits because of depleted catches allegedly caused by the lamprey."

"Lampreys are known to be in all the Great Lakes, although they were reported in Lake Superior for the first time this spring," he states. "Originally lampreys were

found in Lake Ontario and the Fingerling Lakes in New York, to which they presumably came from the sea. They probably entered the Upper Lakes through the Welland Canal."

The lamprey differs from the true eel in that it lacks ordinary upper and lower jaws, paired fins and external gill openings on each side. The parasite attains a length of from one to two feet, lives an average of seven years and spawns in streams during late May and early June, Van Oosten says.

Next spring Van Oosten expects to begin what may be a ten-year struggle to virtually eradicate the lampreys. A bill recently passed by Congress appropriates up to \$20,000 per year for ten years for this purpose. Conservation departments of the Lakes states are expected to match federal funds in cooperating in the effort. The Province of Ontario also may participate in the program.

Trapping will be done with wire weirs, he explains, although other devices such as electric shocking machines may be utilized. A weir is a fine wire screen with a trap which is placed across the stream as near the mouth as possible. Lampreys going upstream to spawn are trapped.

Van Oosten estimates it will cost at least \$1,000 each to provide for the trapping of lampreys in more than 20 Michigan streams and an undetermined number in the other Lakes states from early May to mid-July every year. The cost is high because it is necessary to have the weirs tended at all times to prevent them from becoming clogged and thus permitting lampreys to escape upstream, he states.

THE DETROIT NEWS, FRIDAY, JANUARY 14, 1938.

Vampires of the Sea Peril Fishing Industry of Lakes

ANN ARBOR, Mich., Jan. 14.—(P)—The sea lamprey, an eel-like, blood-sucking animal that attaches itself to fish, threatens the commercial fishing industry of the Great Lakes.

Evidence that the lamprey is in-

creasing in numbers and destructiveness are contained in reports of fishermen to the United States Bureau of Fisheries here and the University of Michigan's Institute for Fisheries Research.

This marine parasite, equipped with a suction mouth and rows of

Sea Lamprey Treaty Approved By Senate

WASHINGTON —(P)— A treaty with Canada, aimed at exterminating sea lampreys, was ratified by the Senate today, 79 to 0. The treaty also sets up a Great Lakes fishery research program.

The lampreys, eel-like parasites, have destroyed trout and whitefish in Lakes Michigan and Huron at an alarming pace since they first sneaked into the upper lakes from Lake Ontario in the early 1930's.

The treaty is estimated by the Senate Foreign Relations Committee to cost the United States \$750,000 a year for the first three years and somewhat less thereafter. The committee's report to the Senate said part would be paid by states bordering the Great Lakes.

The trout catch by American fishermen in Lake Huron dropped from 1,700,000 pounds in 1935 to less than 50 pounds in 1951. In Lake Michigan the 1952 catch was 3,000 pounds, compared to the nearly 7,000,000 pounds taken in 1943.



WAR DECLARED ON LAMPREY EEL

Canada and the United States have declared a 10-year war on the Lamprey eel infesting the Great Lakes and reducing the annual catch of commercial fish. Above signing the ratification documents covering a 10-year treaty between

Canada and the United States for Great Lakes fisheries research are, left to right, United States Ambassador Douglas Stewart, Deputy Minister of Fisheries G. R. Clark and Fisheries Minister the Hon. Robert Winters.

—Photo by Newton

(Previous page, this page) As Sea Lamprey invaded and spread throughout the Great Lakes, its impact on the region and government responses were well documented in the press.

Images reprinted with permission from *Presque Isle County Advance* ("Federal Government"); *Detroit News* ("Vampires"); *Ann Arbor News* ("Sea Lamprey Treaty"); *Ottawa Citizen*, a division of Postmedia Network Inc., photo by Newton ("War Declared"); *Algoma Record Herald* (The "Crinkled Nose").

Algoma Record Herald.

Algoma Friday May, 1947.



THE CRINKLED NOSE of Peter Meyer, son of Mr. and Mrs. Edward Meyer, expressed the reaction of most passers-by on Algoma's Steele street Saturday morning when they viewed the first three sea-lampreys trapped at Hibbard's creek, Jacksonport, by Alfred Villwock, Mayville, state conservation commission agent, who is showing the creature to Peter.

Ranging in length from 18 to 24 inches, the lampreys trapped Saturday morning were the first caught in a planned campaign designed to eliminate one of the most dangerous enemies of lake fish that has yet developed. Apparently it was the start of a lamprey "run" up the creek.

The Conservation department last year experimented with electrical shocking devices in an effort to determine where the lampreys were spawning. Young lampreys were spotted in four or five creeks in Door county and a trap was built Apr. 14 on Hibbard's creek. The trap involves setting a funnel-shaped wire box with a wire fence extending out each side to prevent the lampreys from swimming around as they come up the creek from the lake to spawn. Suckers

came first, he said.

In eliminating the lampreys before spawning, they are actually killing thousands at a stroke, Mr. Villwock said. He said that the conservation department was working with Matt Patterson, Sturgeon Bay, head of the state commercial fisheries of the conservation department.

The trap will be set for the next month and after that electrocuting devices will be used during the summer against the young lampreys, Villwock said.

Reason for the intensified campaign against these creatures is their piratical depredations against the trout population of Lake Michigan. Fastening their ugly-looking sucking disks to the bodies of fish, the lampreys have literally drawn the life-blood out of lake trout and the trout fishing industry.

The lamprey grows to a length at maturity of about two feet and appears much like any other eel. They spawn in the upper reaches of small streams draining into the lakes and the young spend the summer months growing in the muck and shallow waters of these creeks.

Record-Herald Photo

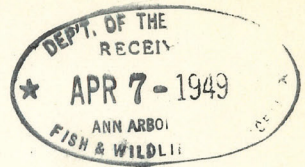
CHARLES E. POTTER
MEMBER OF CONGRESS
11TH DIST., MICHIGAN

HOME ADDRESS:
CHEBOYGAN, MICHIGAN

SECRETARIES:
MRS. ANNE COOK, ROGERS CITY
ALVIN W. CHRISTOPHERSON, ALPENA

Congress of the United States
House of Representatives
Washington, D. C.

COMMITTEE:
MERCHANT MARINE AND FISHERIES



April 4, 1949

Dr. John Van Oosten, Chief
Great Lakes Investigations
Fish and Wildlife Service
University Museums Building
Ann Arbor, Michigan

Dear Dr. Van Oosten:

In today's mail I received the attached letter from Mr. J. W. Readmond of Harbor Springs, Michigan.

You will note that Mr. Readmond poses the suggestion that Ratfish may possibly serve as a destroyer of the lamprey eel. I know that you, like myself, appreciate Mr. Readmond's interest in the lamprey problem.

With warm regards, I remain

Very sincerely yours,


CHARLES E. POTTER, M. C.

enc.

C. J. HAGEN

JULE HAGEN

HAGEN FISH COMPANY

— DEALER —

FRESH AND SMOKED FISH

98 Joseph St., July 15, 1949
ST. IGNACE, MICH.

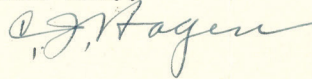
Fish And Wildlife Service
Washington D. C.

Dear Sirs;

Enclosed you will find a tag which was removed from a sea lamprey by me. This lamprey was caught three and one half miles north east of Mackinaw City, Michigan in seventy eight feet of water on a mud bottom.

How we caught the lamprey was unusual. The tag that you had attached to the lamprey had become tangled in our four and five eight inch mesh gill nets and had held it until we removed it from the nets. It is a shame that you haven't all the lampreys tagged; we might catch more of them. This is a poor suggestion I will admit, but it is better then doing nothing. As it is they are rapidly putting us out of business. I am a veteran of forty seven years of fishing and have yet to see anything as destructive to the industry.

Yours truly,



C. J. Hagen

(Previous page) The effects of the Sea Lamprey invasion sent shock waves through the commercial fishing, scientific, and political communities. Scientists like John Van Oosten and James Moffett, and their state agency colleagues, served as a bridge between commercial fishers and politicians to monitor Sea Lamprey dispersal and to communicate needs. Constituents routinely contacted elected officials to call for action.

(Above) Commercial fishers like Charles (C. J.) Hagen had suggestions, some unworkable or in jest, for Sea Lamprey control.

(Next page) A postcard (top) from Lester (of Smith Bros. Commercial Fishermen) notes the day's Sea Lamprey catch.

A notebook (bottom) from an unknown volunteer records more than 35 pages of Sea Lamprey information in Door County, Wisconsin, 1949.

Images from the Great Lakes Fishery Commission.

FRESH and SMOKED FISH • **SMITH BROS.** • CANNED and PICKLED FISH DELICACIES
COMMERCIAL FISHERMEN

Port Washington, Wis., Dec. 8, 1937

Gentlemen:

For your records, we caught one 19½ inch sea lamprey today.

RECEIVED
DEC 10 1937
U. S. BUREAU OF FISHERIES

Yours truly,
SMITH BROS.
Lester
PER

Sea lamprey


THIS SIDE OF CARD IS FOR ADDRESS

Dr. John Van Oosten
University Museums Bldg.
Ann Arbor, Michigan

WASHINGTON
DEC 8
PM
1937
WIS.

3387 Form A-154

LAMPREY
Record.



Hibbard's Creek
Jacksonport.
Doot Co.

April 18 to July 11
1949

Property of—
Wisconsin
Conservation
Commission

April 22 6 A.M.
Lamprey 8
Temperature 49 at 6 P.M.
54 at 1 P.M.
April 22 5-2 at 7 P.M.
Lamprey 6
Temp. 49 at 6 P.M.
5-6 at 1 P.M.
5-2 at 7 P.M.
April 23 6 P.M. Time
Temp. 50 at 6 P.M.
Lamprey 5
Temp. 1 at 1 P.M.
Temp. 4 at 7 P.M.
April 24
Time 6 P.M. Temp. 42
Lamprey 4
Time at 1 P.M. 44
Time at 7 P.M. 44
Lamprey Temp. APR 25
Temp 40 at 6 P.M.
Temp 42 at 1 P.M. 44 at 7 P.M.

Brothers, a commercial operation in Port Washington, Wisconsin) during the March 8, 1949, hearing (U.S. House of Representatives 1949a, pp. 26, 29, 31). The exchange has been edited for length.

Mr. Smith: For your information I am in favor of the international treaty with Canada. Knowing from experience the impossibility . . . of getting the four States on Lake Michigan together on uniform laws, and after years of trying to bring about that uniformity, I feel definitely that a treaty is necessary to really bring about that uniformity.

Mr. Potter: I believe we had better recess [perhaps sensing what would come next]²⁵.

Mr. Weichel: Just because you think that the Michigan fishermen have a bigger privilege than you in Wisconsin with reference to taking fish, and you have got some ax to grind between Wisconsin and Michigan, then you think that to settle that . . . you should give 50 percent of the say on settling that to England? Is that your idea?

Mr. Smith: Do not be afraid, Mr. Weichel; I think our record stands that we have been trying to do that for years and years and years, to bring up our standards to that of the State of Michigan.

Mr. Weichel: But the people of your state will not do it.

Mr. Smith: That is right.

Mr. Weichel: So then you want to embroil all the rest of the States, to get them into the control of the English because the people in your State will not do what you think they ought to do.

Mr. Smith: I do not like those words "giving it to the English."

Mr. Weichel: It certainly is giving it to the English, if it is signed, and it is signed by the King of England. . . .

Mr. Smith: That old bugaboo that the British are coming? "To arms, to arms, the British are coming!" I think it is a myth.

This hearing held February 5, 1952, was supposedly about the Sea Lamprey. Van Oosten had retired so James Moffett (his replacement as Director of the Great Lakes Laboratory in Ann Arbor, Michigan) testified (U.S. House of Representatives 1952, pp. 16–17)

Mr. Weichel: What is he [Van Oosten] doing now?

Dr. Moffett: He is completing the work he had on file prior to retirement.

Mr. Weichel: The testimony was he tried to give these things [Great Lakes fish] away starting in 1924. Has he done anything technically besides this foreign relations business? I thought that was the State Department's job.

Dr. Moffett: Yes, sir. Dr. Van Oosten has made a great contribution to the knowledge of the Great Lakes' fisheries. It is unfortunate that he got himself involved in this matter which you are talking about.

Mr. Weichel: Now, that is another example of bureaucrats in bureaus doing something that they were never authorized to do or spend the money on, and I am glad that he is retired. If he isn't I will help him out of it.

Weichel and his like-minded colleagues were reeling from the New Deal, which was an unprecedented shift in power from the states to the federal government. New Deal supporters

²⁵The committee did not recess.

believed, according to Richard N. L. Andrews (Andrews 2006, p. 177)

[t]hat the natural environment could be developed and managed in an integrated fashion for human benefit, that this could be done in ways that restored and conserved nature itself rather than merely exploited its commodities for profit, and that government leadership, rather than just the invisible hand of the market, was a necessary and effective instrument to accomplish this.

Those critical of New Deal centralization of fish and wildlife power regularly touted the interstate compact as a state-centric alternative to a federal law or a power-grabbing treaty. All the same, anti-New Dealers would often concede, as did William Brooke Graves (1934, p. 142)

While there are a number of organizations of fish and game officials, little in the way of actual uniformity has been accomplished through their cooperation.

Van Oosten (a federal government official) and, interestingly, Gallagher (a state government official), dismissed the interstate compact not out of any desire to undermine states' rights, but because they believed a compact would take too long to accomplish and would be too rigid and inflexible. A compact would require the passage of the exact same law in every state. Any changes to the compact that might be necessary to promulgate regulations would be a difficult, protracted affair (Gallagher and Van Oosten 1943). Moreover, a compact would not include Ontario. While Weichel and his cohorts opposed a treaty on anti-New Deal grounds because it took power away from the states, Gallagher and Van Oosten avoided a commission formed by a state-centric compact because the commission created would be less flexible than if it had powers from a treaty. The treaty, also, would be binational.

Canada, for its part, embraced the Treaty of 1946 primarily because the Canadian section of the new International Commission for the

Great Lakes Fisheries (with representation from the federal and provincial governments) largely reflected the situation in Canada whereby the provincial government promulgated regulations, and the federal government rubber-stamped them (DEA 1943, 1959; Taylor 1945). Also, the treaty would have allowed Ontario to negotiate regulations in a less chaotic setting than the status quo—with divided governance, Ontario was forced to negotiate individually with each of the six states that bordered its waters. As early as 1895, for example, there was some trepidation about who Ontario would negotiate with for any regulation (HC 1895). That is not to say that the agreement was perfect from Ontario's perspective. With voting on the international commission by member instead of by section, for example, it was conceivable Ontario could be forced to promulgate regulations despite its wishes.

After the Treaty of 1946 was signed, Canada did nothing to advance it. That inaction was not because of second thoughts—instead, it was a direct reflection of Canada's experience with the failed Treaty of 1908. In 1908, both countries appointed Commissioners to the International Fisheries Commission who, in turn, developed joint regulations under the treaty. Canada, but not the USA, put the regulations into force. Canada was embarrassed by this unilateral action and would not make that mistake again. With the Minister of External Affairs reminded that, in the USA "Signature is not Ratification" (DEA 1959, p. 13), the Cabinet of Canada decided on January 14, 1948, to postpone its ratification until after the USA approved the treaty (PCO 1954). The Canadians were aware of the growing opposition to the treaty in the U.S. Congress and had good reason to believe it would never be acted upon. Moreover, the Canadians also felt that, if they proceeded too quickly, they would give the USA the excuse it needed to cancel the agreement. An internal narrative written ca. 1957 by an official of the Department of External Affairs, explains that concern (DEA 1959, p. 13)

We [Canada] were reluctant to speed our own ratification of the Convention [Treaty of 1946] because of the possibility that United States opponents of the Convention would point to early action by Canada as proof that we had obtained the better of the bargain and were unduly anxious to have the deal closed. At the same time, however, a Canadian bill was prepared in the event that rapid action should be necessary. These tactics seem to have made sense in view of the slow progress of the Convention in the United States.

Canada's approach was as prudent as it was prescient. The treaty never received a hearing in the U.S. Senate because of major opposition by commercial fishers from Ohio (PCO 1954; Looney 1955) and because of relentless resistance, led by Weichel, in the

U.S. House Committee on Merchant Marine and Fisheries. President Dwight D. Eisenhower formally withdrew the treaty in January 1955 (Looney 1955), although the U.S. Department of State concluded by early 1951 that the U.S. Senate would never ratify the treaty and quietly informed Canada of such in that year (DEA 1959). For all the continuous objections about the federal government taking fishery-management authority away from the Great Lakes states, Ohio was the only state that went on record opposing the Treaty of 1946. Given the momentum of the New Deal during the debate over the treaty, it is perhaps surprising that one opposing state with one committed congressman would be enough to kill the agreement.

THE SEA LAMPREY INVADES AND THE SUCCESSFUL TREATY OF 1954

While the Treaty of 1946 was at an impasse, the poorly regulated commercial fishers of the Great Lakes continued to overexploit and suffer economic losses. Meanwhile, a new threat, the Sea Lamprey, abruptly changed the subject about what or who was to blame for the decline in Great Lakes fisheries. The Sea Lamprey united both the regulators and the regulated in a fight against a common enemy. The Sea Lamprey also helped shift the debate away from the need for cohesive regulations toward a unified fight against the aquatic invader. John Van Oosten, once again, played a pivotal role in promoting binational accord, this time aimed at building political support for action against the Sea Lamprey. As officials in diplomatic circles continued the decades-long attempt to establish a permanent mechanism for cooperation that was first envisioned in 1897, the Sea Lamprey, over a span of only a few years, turned out to be a major boost to achieving that objective.

Sea Lampreys "Raise Their Slimy Little Heads"

The Sea Lamprey is native to the Atlantic Ocean but found its way into the Great Lakes through the Erie Canal. The Sea Lamprey attaches to fish with a suction-cup mouth ringed with sharp teeth. It bores a hole through a fish's scales and skin and feeds on a fish's blood and bodily fluids. After spending about a year marking and killing fish, the Sea Lamprey migrates into streams, spawns once, and dies (Applegate 1950). The Sea Lamprey lives as a harmless larva in streambeds for several years before emerging, transforms into a parasitic juvenile, migrates to the open lake to feed, and, shortly thereafter, matures into an adult, which enters streams to spawn, completing its life cycle. The Sea Lamprey has no meaningful natural predator in the Great Lakes, and its food supply and spawning habitat are abundant, which makes it a particularly noxious invasive species.

Eshenroder (2014) posited that construction of an improved Erie Canal in 1863 allowed the Sea Lamprey to invade the Lake Ontario basin from the Susquehanna River, which drained to the Atlantic Ocean, New York, and then Lake Ontario. By 1890, biologists were reporting Sea Lamprey predation on Lake Ontario fish, although experts considered overfishing to be a greater threat to commercial fisheries than the Sea Lamprey (Pearce et al. 1980). The Welland Canal (a 27-mile shipping channel bypassing the once impassable Niagara Falls and connecting Lake Erie to Lake Ontario) was deepened and widened in 1919 to allow passage of larger freighters. The bigger canal is believed to have facilitated the movement of Sea Lamprey from Lake Ontario to Lake Erie and enter the heart of the Great Lakes (Hubbs and Pope 1937; Smith and Tibbles 1980; Sullivan et al. 2003). A few years after the Welland Canal was enlarged, in November 1921, a Sea Lamprey was recorded in Lake Erie, when Alexander Crew (a commercial fisher) caught a large parasitic Sea Lamprey while lifting pound nets near Merlin, Ontario (Dymond 1922). Sea Lamprey spawning was first observed in tributaries to Lake Erie in 1932 (Creaser 1932; Pearce et al. 1980).

While occasionally reported in Lake Erie, Sea Lamprey was relatively unnoticed in the early years of its invasion. The Sea Lamprey's life cycle requires 5–10 years for establishment and noticeable reproductive migrations to tributaries (Applegate 1950). The small number of suitable (unpolluted or undammed) spawning streams in Lake Erie likely contributed to the length of time it took for the Sea Lamprey to fully establish in Lake Erie. Nevertheless, scientists and commercial fishers knew what was coming for the rest of the Great Lakes basin. Charles Creaser (of the College of the City of Detroit) said (1932, p. 157)

This lamprey has now penetrated the waters of Lake Erie to one of its western tributaries in the State of Michigan, the Huron River, where an adult

specimen was collected at Flat Rock on May 8, 1932. This constitutes a new record for the state (the specimen has been examined), and is an indication of the complete establishment of this lamprey in Lake Erie. The way is now open for a further penetration into Lake St. Clair and Lake Huron. In the not too distant future, it will no doubt be encountered throughout the Great Lakes waters. Knowing its record of destruction among the food fishes of Cayuga Lake in New York, we must consider it as one more source of further depletion of the fisheries of the Great Lakes.

Beatrice Skaggs (née Mertz), who began fishing Lake Huron at a young age with her father, Louis Mertz (a commercial fisher from Rogers City, Michigan), recently recalled the seriousness of the situation (C. O. B., personal communication)

I was only four [ca. 1934] but I can still picture my dad sitting at the table telling us about Sea Lamprey coming into the Great Lakes. He kept telling us that it was going to be an evil thing.

The Sea Lamprey invasion of the upper Great Lakes (Lakes Superior, Huron, Michigan) developed as Creaser, Louis Mertz, and others predicted, with the Sea Lamprey spreading quickly throughout the region due to an abundance of habitat for its young and a nearly unlimited supply of prey for adults. In 1936, commercial fisher Frank Paczocha caught a Lake Trout in Lake Michigan with a Sea Lamprey attached and took the specimen to the Milwaukee Public Museum (Hubbs and Pope 1937; Brant 2019). The museum curator, T. E. B. Pope, knew what he had and, with Carl Hubbs of UM, warned (Hubbs and Pope 1937, pp. 174–175)

The Sea Lamprey is no doubt not only spreading but also increasing in numbers in the Great Lakes. . . . For the present, attempts to control this unwanted and destructive immigrant . . . would seem practically limited to the killing of all individuals caught by fishermen.

Skaggs' uncle, Clarence Mertz (himself a commercial fisher), also saw the seriousness of the Sea Lamprey impact. In 1937, Clarence Mertz noted that Lake Trout catches dropped precipitously and the fish he did catch had gruesome Sea Lamprey marks (Brant 2019). Clarence Mertz also caught several Sea Lampreys while fishing. After Vernon Applegate (of the FWS) reported a large spawning run in a Lake Huron tributary (Michigan's Ocqueoc River), scientists assumed the Sea Lamprey was in Lake Huron several years prior to 1937 (Applegate 1950; Smith and Tibbles 1980; Brant 2019).

Lake Superior commercial fishers also knew what was coming. Stu Sivertson (of a multi-generational commercial-fishing family in Minnesota) recounted in 2015 what was clearly an indelible encounter with his mother more than 75 years earlier (C. O. B., personal communication)

Well, the first I heard about the lamprey, I was probably six, seven years old and there was talk around the fish house about this creature that had come into Lake Michigan [and] Lake Huron. We heard that they were devastating to the trout and the whitefish and the burbot [*Lota lota*] and so on. And we heard that they were so devastating that the catches of lake trout were just declining very rapidly. Our family was so dependent upon lake trout and its business that we figured there'd be some real consequences. . . . My dad would go out to Isle Royale, about the middle of April. . . . When there finally was enough open water to set hook lines or set some nets, he could report back on the fishing and he'd write my mother a couple times a week almost with every boat. And I remember seeing my mother crying and I asked her what was wrong, and she said, "Well the lamprey are at Isle Royale".

The Sea Lamprey was first reported in Lake Michigan in 1936, Lake Huron in 1937, and Lake Superior in 1938 (Applegate 1950; Smith and Tibbles 1980; Heinrich et al. 2003). This rapid dispersal through the upper Great Lakes

was likely facilitated by the Sea Lamprey's known behavior of attaching to boats (Morman et al. 1980). Within a few years of the first reports of Sea Lamprey, the consequences of its establishment were apparent to scientists and fishers alike.

Early Attempts at Sea Lamprey Control

By the mid-1940s, the Sea Lamprey was firmly established throughout the entire Great Lakes system. Scientists conducting biological assessments documented Sea Lamprey abundance and marks on fish, while commercial fishers bore the brunt economically. Lacking coordination and a shared pool of funds, the states and Ontario were doing what they could to stem the Sea Lamprey tide. With Michigan bordering four of the five Great Lakes, it was most impacted by the Sea Lamprey invasion of the upper Great Lakes. Some Michigan biologists began Sea Lamprey studies in the mid-1930s (Shetter 1949).

By the mid-1940s, it became clear to the U.S. that a heightened level of coordinated Sea Lamprey control backed by funding would be necessary given the number of jurisdictions involved and limited resources. The strategy in the U.S. Congress was to authorize the FWS to provide some federal leadership over Sea Lamprey control while still recognizing the key role states would play—all while hoping the Province of Ontario would also do its part. Apparently, the U.S. Congress was not yet ready to promote engagement with the Canadians directly, especially after Weichel's dissatisfaction with the Treaty of 1946.

At a U.S. House Committee on Merchant Marine and Fisheries hearing on June 12, 1946, U.S. Representative Fred Bradley (U.S. House of Representatives 1946b, p. 2) made the statement

[d]uring the war . . . [the FWS] had no funds or manpower to really put on a widespread extermination program. . . .

But with the war over, he continued, the FWS should be requesting an appropriation for Sea Lamprey work. Van Oosten testified in that hearing that the FWS did not have the authority to carry out control; rather, it had only the authority to conduct scientific investigations. The states, he implied, would have to use FWS science and act themselves. Thus, on June 13, 1946, Bradley and Weichel introduced (U.S. House of Representatives 1946b, p. 18) legislation to authorize and direct the FWS, in cooperation with the states, to develop and implement

[a] vigorous program for the elimination and eradication of sea lamprey populations of the Great Lakes.

The FWS recommended US\$20,000 for the first year with the annual appropriation reduced to US\$12,000 by the fourth year and beyond (U.S. House of Representatives 1946b). The legislation moved through the U.S. Congress remarkably quickly. The legislation became law on August 8, 1946²⁶, and, when the U.S. Congress realized the Sea Lamprey was in the Great Lakes to stay, the law was amended in 1949²⁷ to re-authorize the program (U.S. House of Representatives 1949b).

Subsequent to the congressional action, multi-state efforts to deal with the Sea Lamprey threat emerged with some degree of coordination. In 1946 and 1947, respectively, the FWS facilitated the formation of the Great Lakes Lake Trout Committee and the Great Lakes Sea Lamprey Committee (Sea Lamprey Committee 1946)²⁸. Both committees comprised at least one representative from each Great Lakes state, the Province of Ontario, and the FWS (Moffett 1952). These two committees were

the first cross-border committees in the Great Lakes that lasted beyond one or two meetings—after nearly 50 years of trying. Finally, the Sea Lamprey got the fishery agencies working together, at least to deal with one issue.

One of the Sea Lamprey Committee's first accomplishments was the 1947 Memorandum of Understanding (dated November 24, 1947) among the states and the FWS that committed each jurisdiction to do what it could to control the Sea Lamprey, exchange information, make recommendations for further control measures, and otherwise share resources (Sea Lamprey Committee 1947). Even though Ontario was a member of the committee, officials at the U.S. Department of the Interior asserted it was not possible for the province to sign a memorandum with states and the federal FWS. In a memo to Van Oosten, Paul Thompson (Assistant Chief of the FWS Division of Biology) explained (Thompson 1947, p. 1) that

[i]t might be desirable to have them [Ontario] express their approval or accord with the terms of the [memorandum of] agreement without any commitment.

Although no record exists of Ontario expressing its commitment formally, Ontario did carry out Sea Lamprey control operations and reported its work to the committee.

The Sea Lamprey Committee served as a place where the states and Ontario could report their individual actions, which they did starting in 1946. Those annual reports were communicated to the U.S. Congress and to other interested parties for several years. Except for New York, each of the states and Ontario conducted Sea Lamprey surveys, and several states

²⁶Public Law 79-672 (U.S. House of Representatives 1949b).

²⁷H.J.Res. (House Joint Resolution) 202 (U.S. House of Representatives 1949b).

²⁸The two committees would be combined in 1951 and then subsumed by the newly created Great Lakes Fishery Commission in 1955 (GLLTC and GLSLC 1951; Gaden et al. 2013).

investigated Sea Lamprey life history to get a better understanding of the species' behavior (Moffett 1952). Most states also surveyed commercial fishers to gain an understanding of Sea Lamprey damage. Michigan, Wisconsin, Minnesota, Indiana, Pennsylvania, and Ontario went so far as to construct and operate Sea Lamprey control structures (like mechanical and electrical weirs and traps) on streams where they spawned (Moffett 1952)²⁹. The FWS provided some federal funding and facilitated the implementation of the 1947 Memorandum of Understanding. The memorandum generally stayed in effect until the Sea Lamprey control program became binational under the Treaty of 1954 (GLFC 1956).

The Canadian federal government did not get involved in fishery management or Sea Lamprey investigations and control until the early 1950s, mainly because divided governance was less of an issue on the Canadian side of the border. Fisheries Minister James Sinclair said (SCMF 1955, p. 17)

When we are criticized for not having taken action [to control Sea Lampreys] on the Great Lakes before this, it must be remembered that this is a matter of provincial jurisdiction, and up until 1953 we were not in the picture at all.

I must say that the Province of Ontario has been most co-operative in this program. We have never had trouble over jurisdiction such as they had in the states across the boundary. . . .

Scientists and Fishers Build Political Momentum to Address the Sea Lamprey

While some sub-national and U.S. federal work was taking place, commercial fishers, urged by some government officials and scientists,

increased the pressure for a heightened cross-border Sea Lamprey control program. Commercial fishers were particularly bold about raising the issue with politicians. During the hearings of the U.S. House Committee on Merchant Marine and Fisheries (held in 1945 in Michigan) mentioned earlier, Charles Hagen (of St. Ignace, Michigan) reported (U.S. House of Representatives 1945, p. 33)

At the present time our fish are threatened with destruction on account of the lamprey eel. Since they have come there are no trout left. . . . Each one [fish] we caught was marked by the lamprey eel.

Clarence Mertz, two days later at the field hearing, had the following exchange with U.S. Representative Hardin Peterson, a committee member from Florida (U.S. House of Representatives 1945, pp. 53–54)

Mr. Mertz: Four years ago, we noticed most of our trout being marked, and last year the trout were gone, so it indicates as the lamprey gets larger and gets on the fish, we don't see the fish any more.

Mr. Peterson: And now they have practically wiped out the trout in your area?

Mr. Mertz: Yes.

Mr. Peterson: And it was good trout fishing?

Mr. Mertz: Yes, sir.

Mr. Peterson: And now it is attacking the whitefish?

Mr. Mertz: Now they are attacking the whitefish.

The focus of these field hearings in the summer of 1945, however, was on state-level

²⁹Pennsylvania fared particularly poorly. A report submitted by James Moffett (U.S. House of Representatives 1952, p. 58) included this hapless account: "[In 1950], one control weir was built but it washed out twice in 12 days of operation. Only two Sea Lampreys were taken during the 12-day period. In all, 15 sea lampreys were found in streams of the State."

regulations that commercial fishers believed were damaging their business. Pollution and chaotic divided governance were also a concern, but the Sea Lamprey was becoming part of the discussion about commercial-fishing woes.

In November 1946, Van Oosten convened the Great Lakes Sea Lamprey Conference in Ann Arbor, Michigan, as a way to bring together leading university researchers and federal, state, and provincial agency officials to share information. This conference began a process of integrating disparate Sea Lamprey control programs (through the 1947 Memorandum of Understanding), strategizing on new control methods, and publishing reports (Sea Lamprey Committee 1946). It was at this conference that G. P. Cooper (Sea Lamprey Committee 1946, p. 11) of UM's Institute for Fisheries Research made the memorable comment

Some practical method of holding down the numbers of these parasites is the goal toward which all of our activities should be pointed. I suspect that the lamprey will be with us like fleas on a dog from now on.

Thus, accepting the reality that the Sea Lamprey was now a permanent fixture of the Great Lakes, the committee hypothesized on control methods focused on the Sea Lamprey's life cycle. The committee even looked at commercial fishing of the Sea Lamprey as a control technique.

In addition to the Great Lakes Sea Lamprey Conference being pivotal to reach a general consensus on Sea Lamprey science and control strategies, the conference was also a turning point in the strategic use of political pressure. Shrewdly, Van Oosten invited several commercial fishers to the conference, so that they could hear from scientists and managers about the Sea Lamprey problem and, in turn, share anecdotal experiences. What the conference attendees heard was stark and unequivocal. Some of the commercial-fishers' comments from the minutes are worth quoting.

Carl Kolbe (a commercial fisher from Port Dover, Ontario) reported (Sea Lamprey Committee 1946, pp. 17–18) that the Sea Lamprey problem

[i]s a very serious one. Trout decline in Lake Huron is so great, that there is very little commercial fishing in Lake Huron for trout. Not one trout is caught in gill nets without lamprey marks. Lake Ontario is just as badly infested as Lake Huron.

Claude Ver Duin (a commercial fisher from Grand Haven, Michigan), Secretary of the Michigan Fish Producers Association, said (Sea Lamprey Committee 1946, p. 18)

One fisherman in Lake Huron set 14 boxes of nets on one of the best trout reefs in the lake for 5 days and upon lifting them did not have a single trout. There were 250 to 300 pounds of burbot badly marked by lampreys. In 1940, the same nets set in the same area would have produced 10,000 to 12,000 pounds of trout in a single lift. There has been a very drastic reduction in the trout population in Lake Huron. Following storms in Lake Michigan, gill nets are often filled with dead fish. The cause of death cannot always be determined, but often the fish are badly scarred by lampreys. The fishermen are inclined to be impatient and want immediate relief. Yet they realize that control will be a long, slow process.

Oliver Smith (a commercial fisher from Port Washington, Wisconsin) said (Sea Lamprey Committee 1946, p. 18)

At one time ten percent of the fish caught had been attacked; now it is fifty to seventy-five percent. Fishermen are looking for some way to combat this menace.

Unnamed commercial fishers commented (Sea Lamprey Committee 1946, p. 29)

Fishermen are beginning to report large numbers of dead fish taken in nets after storms, but we do not know whether this can be laid to the sea lamprey. However, there are more dead fish now than ever before. They are also taking in their

nets fish that are almost dead and drained of their blood. If a fish is badly marked on one side, it is filleted, and the good side sold; in the cases of large fish, the fish is cut into steaks and the wounded portion thrown away, thus utilizing some of the fish.

The focus and tone of subsequent congressional hearings about the Great Lakes fisheries reflected the commercial-fishers' laments expressed most vocally during the conference. In most previous discussions, the emphasis was on the decline of fish stocks due to overfishing, excessively lethal fishing gear, greed, and pollution. After the Sea Lamprey invasion of the upper Great Lakes, both commercial fishers and elected officials were quick to place primary blame on that outside invader—the Sea Lamprey³⁰. In other words, by the fall of 1946, commercial fishers had shifted their rhetoric away from industrial pollution and fishing-industry practices toward the Sea Lamprey. In a 1946 U.S. House Committee on Merchant Marine and Fisheries hearing aptly entitled “The Menace of the Sea Lamprey”, Ver Duin joined several other witnesses to sound the alarm (U.S. House of Representatives 1946b, p. 2)

And at the end of a 5-year period they [Sea Lamprey attacks on Lake Trout] had got to the point where 80 percent of the trout that were taken in the Rogers City region were marked [wounded] by the lampreys. It spoils, to a large degree, the market value of these fish, because the [sic] have a large sore on them and it ruins their appearance.

The following year, following the year that about 80 percent of the fish were marked, the trout production was down so low that the fishermen

were forced to discontinue fishing for that species of fish, and turned to some other fish.

They thought in the beginning that trout were the only thing that the lamprey would attack, but it was found that after the trout supply had been reduced in a certain area the lamprey started to attack other fish, and they have been found on whitefish and even down on suckers . . . practically any fish, so that no fish in the Great Lakes area are safe from the attack of the lamprey.

Three years later, at another hearing in Washington, Mathon Kyritsis (President of the Illinois Commercial Fishermen's Association) provided illustrative testimony (U.S. House of Representatives 1949a, p. 36)

There is not more I can say about the lamprey. . . . We are out of business today, and we would certainly like to see someone, whether it is the State or the [federal] government do something.

At that same hearing, Fred Westerman (head of fisheries for the Michigan Department of Conservation) pointed out the close relationship between the federal government and the state in trying to understand the Sea Lamprey and its threat. He called upon the federal government to devote more resources to combatting the problem.

Westerman, referring to the Sea Lamprey, asserted (U.S. House of Representatives 1949a, pp. 64–65): “We never have experienced anything like this before”.

This statement prompted U.S. Representative Charles Bennett (of Florida) to ask him: “You believe that the marked reduction in lake trout is the direct result of the lamprey eel?”

³⁰Decades later, Eshenroder and Amatangelo (2002, p. 4) would acknowledge that: “The controversy still exists as to whether the cause of the decline of lake trout in Lake Michigan was sea lampreys or overfishing.” They concluded, at least for Lake Michigan, (Eshenroder and Amatangelo 2002, p.27): “We believe that a spate of intensified fishing for juvenile lake trout with an intensive fishery already targeted at adults left too few spawning-sized fish in the population.” The other Great Lakes were not part of the analysis.

Westerman replied (U.S. House of Representatives 1949a, pp. 64–65): “I do, sir.”

Additional hearings before the U.S. House Committee on Merchant Marine and Fisheries were held in 1951 and 1952 to determine what, if anything, could be done to combat the Sea Lamprey. Two strong voices emerged during these hearings—Ver Duin and James Moffett³¹. Ver Duin used the hearings of the early 1950s to present the Sea Lamprey as the root of the problem. In 1951, he presented his arguments in economic terms (U.S. House of Representatives 1951, p. 34): “I would like to point out that we find ourselves in pretty desperate straits”.

Ver Duin asserted that Sea Lamprey predation on Lake Trout had caused a 50% loss in revenue and that the industry feared the chub fisheries would be next (U.S. House of Representatives 1951). The following year, in another hearing about Sea Lamprey, Ver Duin reported that commercial fishers were “very, very depressed” about their economic losses, and he again called for a Sea Lamprey control program (U.S. House of Representatives 1952, p. 37).

Likewise, during the hearings of 1951 and 1952, Moffett and his FWS colleagues emphasized the Sea Lamprey threat and provided an optimistic assessment about the likelihood of achieving Sea Lamprey control. Albert Day (the FWS Director), testifying in 1951, noted that (U.S. House of Representatives 1951, p. 3)

It has become increasingly evident that our earlier speculations as to the seriousness of the sea-lamprey menace were not the cries of alarmists.

Moffett reinforced the testimony by Day (Moffett’s superior) and assured the committee

that control was possible, which would greatly help the commercial-fishing industry. Moffett, perhaps optimistically, touted electrical barriers that “will kill 100 percent of the lampreys” lamenting only a high electricity bill (U.S. House of Representatives 1951, p. 11). A year later, Moffett would again appear before the committee, this time armed with a movie produced by Applegate (who later would lead the charge to discover lampricides) as a visual tool to encourage a robust control program (U.S. House of Representatives 1952).

The years 1945 to 1952 were pivotal in demonstrating to the U.S. Congress and, to a lesser extent the Parliament of Canada, the economic hardships that the Sea Lamprey inflicted on commercial fishers and the need for bold, coordinated action to control the Sea Lamprey. Commercial fishers like Ver Duin and scientists like Van Oosten and Moffett would convey a sense of urgency. Leaders like Bradley and Charles Potter (U.S. Representative, later a U.S. Senator) of Michigan, would move legislation through the U.S. Congress. U.S. Representative T. Millet Hand (New Jersey), in paying Potter a compliment, would also reveal the value of policy leadership. Hand said (U.S. House of Representatives 1951, p. 38)

I never heard of a sea lamprey until Congressman Potter arrived in Washington, and I have never heard of anything else since.

Potter and his like-minded colleagues drew much attention to the Sea Lamprey problem, and, despite Weichel’s successful strategy in turning every hearing into an indictment of federal usurpation of states’ rights, the hearings did manage to move the U.S. Congress to take action.

³¹Ver Duin would later become a founding member of the Great Lakes Fishery Commission. Moffett had recently replaced the semi-retired Van Oosten as head of the Great Lakes Laboratory.

The Treaty of 1954 and the Great Lakes Fishery Commission

Despite FWS attempts to help sub-national efforts through the 1947 Memorandum of Understanding, by about 1950, those involved in the Sea Lamprey battle began to recognize the need for a coordinated, binational approach, as opposed to state and provincial agencies working in their waters. In March 1950, the Canadian Department of External Affairs noted (DEA 1959, p. 24) they received from the embassy in Washington, D.C.

[i]nformation which turned out to be quite significant and prophetic: "The lamprey seems to be stirring up some special sort of trouble which the present Convention [Treaty of 1946] is unable to cope with. I gather that in any new discussions of Great Lakes problems lampreys will raise their slimy little heads."

The information was prophetic. By the early 1950s, commercial fishers like Ver Duin and scientists like Van Oosten made regular appearances before the U.S. Congress to plead for help to battle the Sea Lamprey. Meanwhile, the U.S. Department of State and the Canadian Department of External Affairs, recognizing that the Treaty of 1946 was dead (the treaty did not deal with the Sea Lamprey anyway), pressed ahead with the idea of negotiating a new bilateral agreement for the Great Lakes—one that would learn from past mistakes and address the Sea Lamprey threat. The need to stop fisheries decline and to devote more resources to science would converge in 1952 with the need for a binational program to control the Sea Lamprey.

In the fall of 1952, the FWS and the U.S. Department of State visited each state capital in the Great Lakes region to meet with officials in fisheries agencies and discuss the goals, desires, and, most importantly, political feasibility of a new treaty (Looney 1955). Officials from the two federal agencies also visited the main fishing ports around the Great Lakes basin to meet with sport and commercial fishers.

The U.S. Department of State reported (Looney 1955, p. 10)

There was wide agreement, both by State authorities and other interested groups, that a treaty was needed which would cover both the lamprey and general research problems.

In the discussions, the goal of science had shifted by the early 1950s from restoring fisheries and supporting efficacious regulations to restoring fisheries and implementing a binational Sea Lamprey control program. Although scientists and commercial fishers continued to pressure governments to reverse the decline of the Great Lakes fisheries, the culprit sharply pivoted from wasteful commercial-fishing practices and a lack of regulation to the Sea Lamprey. Divided governance remained a major problem in the Great Lakes region (and most people knew it), but the quest for a Canada-U.S. commission with sweeping regulatory authority to end divided governance was abandoned.

With some confidence a new agreement would succeed if it was shorn of the 1908 and 1946 Treaties' baggage, the U.S. Department of State, in December 1952, invited the Canadians to Washington, D.C. to begin negotiations for a new agreement (PCO 1954). Although willing to discuss a new agreement with the U.S. delegation, the Canadians, after their bad experience with the Treaty of 1908 and after having their cautious approach justified when the USA failed to ratify the Treaty of 1946, took a wait-and-see attitude. The Canadians would not commit to another agreement until they saw a draft and cleared the draft with key stakeholders and the Province of Ontario (DEA 1959).

By early 1953, a draft of an agreement, as prepared by the USA, included several familiar elements. The draft agreement created a binational commission, had a science focus, and acknowledged the need for cooperation among national and sub-national government entities. New to the agreement was a Sea

Lamprey control mandate that would be the direct responsibility of a binational commission. Dropped from the draft was the ability for the commission to develop and issue regulations. The drafters kept the parts of the two failed treaties that were generally acceptable, added the Sea Lamprey management task that the states and the province were ill equipped to deal with, and explicitly denied the proposed commission the ability to usurp sub-national management authority.

Despite the broad agreement between the two countries over the new treaty, the USA added a nuance that was troubling, at least initially, to Canada. An early draft of the treaty included all five of the Great Lakes for Sea Lamprey control but only four of the Great Lakes (Erie was excepted) for science (DEA 1953). During an informal meeting in March 1953, William Harrington (Chair of the U.S. delegation), informed Canadian negotiator E. A. Cote (head of the American Division at the Department of External Affairs) that Lake Erie commercial fishers believed more science would only lead to more regulations, thus persuading the state of Ohio to demand exclusion of Lake Erie from the commission's research mandate under the new treaty (Lausche 1955; Ohio Wildlife Council 1955; DEA 1959). The Canadians felt such an approach was not only ridiculous but also would exclude a major element of Ontario's fisheries from the benefit of science (DEA 1953). Canada suspended additional discussions until January 1954 when the USA signaled that it *might* be willing to abandon its Lake Erie exclusion from the draft treaty. This shift was primarily because the Sea Lamprey was becoming a nuisance in Lake Erie, and, thus, some commercial fishers did not want to see any further delay in an agreement

(PCO 1954). The willingness to discuss the Lake Erie matter was enough to prompt the Canadians to return to the negotiating table.

By September 1954, two versions of the draft treaty had emerged. One draft included all Great Lakes for Sea Lamprey control and research, and the other draft contained the Lake Erie research exclusion. A meeting was set for early September to put the final touches on the treaty (DEA 1954). Canadians were not sure which version of the agreement would emerge, but they were prepared to agree to the Lake Erie research exclusion (PCO 1954; DEA 1959). To the surprise of the Canadians, the USA was able to neutralize Ohio's opposition to research in Lake Erie and produced a treaty called the Convention on Great Lakes Fisheries between the United States of America and Canada (GLFC 1956) that included Sea Lamprey control and research in all five Great Lakes³². The treaty was signed on September 10, 1954, in Washington, D.C.

The Treaty of 1954 (GLFC 1956) created the Great Lakes Fishery Commission (GLFC) and divided it into two national sections, each comprising four members appointed from each nation³³. The treaty did not specify the process by which appointments would be made, only that the contracting parties would make the appointments. Since 1956, the U.S. President appoints U.S. Commissioners, and the Privy Council for Canada appoints Canadian Commissioners. Commissioners are not paid for their service, although they are reimbursed for expenses and, in the case of the USA, do not require U.S. Senate confirmation. U.S. law³⁴ specifies that one Commissioner must be a state official, and one must be a federal official.

³²History does not record why the Canadians were willing to accept a Lake Erie research exclusion or why the USA was able to keep Lake Erie research in the treaty.

³³The treaty originally called for three members to be appointed by each nation. In 1967, through diplomatic notes, Canada and the USA increased the size of the GLFC from three members per nation to four. In 1986, the USA through statute (now contained in U.S. Code, volume 16, sections 931–939c) added an alternate Commissioner who would serve if a vacancy arose.

³⁴U.S. Code, volume 16, sections 931–939c.

In addition, U.S. law mandates that two Commissioners serve at the pleasure of the President—the federal Commissioner and the alternate Commissioner. The three remaining appointees serve six-year terms, and no two of them can come from the same state. The Privy Council for Canada is not restricted in its appointees.

The Treaty of 1954 specified that each section would have one vote. With an even number of sections, fishery-commission operations must be by consensus. To authorize the parties' support for the treaty, each nation passed enabling legislation in 1956. In Canada, the legislation was called the Great Lakes Fisheries Convention Act³⁵; in the USA, the legislation was called the Great Lakes Fishery Act of 1956³⁶. The treaty authorized each section to establish committees of advisors. The USA established such a committee through its enabling legislation by calling for state agencies to sit formally on the committee (there was deep concern that states would be left out of the process), with citizens representing the sport and commercial fisheries and the public-at-large. Canada also created a committee of advisors, although that committee was created by the Canadian section, not through statute. The treaty also authorized the commission to establish additional advisory boards, if desired.

The Treaty of 1954 gave the GLFC several duties that fell into three broad categories—

to undertake a binational science program, to control the Sea Lamprey, and to help sub-national jurisdictions work under divided governance. The treaty granted the fishery commission the ability to conduct investigations, install physical infrastructure, hold public hearings, own property, enter into arrangements with public and private entities, and make recommendations to government.

Debate in the U.S. Congress and in the Parliament of Canada over the Treaty of 1954 was somewhat anticlimactic compared to the testiness in the U.S. Congress over the Treaty of 1946³⁷. In the USA, a special subcommittee chaired by U.S. Senator Hubert Humphrey (of Minnesota) met on April 27, 1955, to consider the treaty and make recommendations to the full U.S. Senate. In Canada, the SCMF, chaired by MP Thomas Ashourne (of Newfoundland), held hearings on May 13 and 16, 1955, to discuss the draft treaty and to make a report to the House of Commons. Hearings in both countries focused primarily on the GLFC's role in research and Sea Lamprey control. Both hearings ignored almost entirely the issue of divided governance. The focus and tone of the hearings in both countries were quite similar, and legislators in both nations saw the treaty as a way to reverse fishery losses that had so dominated discussions in previous decades. At a binational level, the new GLFC would play a major role in the Great Lakes fisheries but would not regulate.

³⁵R.S.C. 1985, c. F-17.

³⁶U.S. Code, volume 16, sections 931–939c.

³⁷One reason for the anticlimax in the USA was the fact that two protagonists from past debates (Van Oosten and Weichel) were no longer involved by the time the Treaty of 1954 came before the U.S. Congress. Van Oosten was partially retired by 1952. It is not clear if Van Oosten believed the treaty went far enough to fulfill his vision for ending divided governance. There is some evidence that the U.S. Department of the Interior had grown anxious about Van Oosten's years of outspoken advocacy for a treaty, although no documents have been uncovered that prove Van Oosten was silenced ("silencing" documents are rare). Nevertheless, the exchange between Weichel and Moffett during the 1952 hearing illustrates Moffett's intent to distance the department from Van Oosten's vision for Great Lakes governance (U.S. House of Representatives 1952). Weichel retired on January 3, 1955, prior to the U.S. Senate debate about the treaty. Although Weichel's opinion of the treaty remains unclear, he was adamant that more research would lead to more regulation and that the Sea Lamprey was not a major problem in Lake Erie.

The Great Lakes Fishery Commission's Role in Research

Witnesses in both Canada and the USA emphasized the Treaty of 1954's role in advancing fishery research with the intent of using the information to understand why fish stocks fluctuate and to apply that knowledge to management and Sea Lamprey control. In the U.S. Senate hearing, for example, Ernest Swift (of the FWS) recognized the decline of Great Lakes fisheries during the previous several decades (U.S. Senate 1955, p. 38) and observed

[t]he causes of these violent fluctuations are not understood at present and will not be understood until much more is known about the fish stocks. The increased knowledge which we need in order to understand the fluctuations and predict, if not prevent them, can come only from research.

In Canada, William Sprules (of the Department of Fisheries) had similar sentiments (SCMF 1955, p. 22)

We cannot begin to manage the lakes and suggest measures to have the lakes produce their maximum yield on a consistent annual basis unless we accumulate a great background of information concerning the habits of every species.

Sprules stated (SCMF 1955, p. 21)

Certainly we would be able to forecast a crisis instead of having to find an explanation after it had happened.

To some, the Treaty of 1954, by promoting research, would improve the basic understanding of fisheries which, in turn, would lead to better management and economic benefits.

Humphrey, for example, noted (U.S. Senate 1955, p. 24)

I have talked to a number of our people in Minnesota in the conservation field, and they feel there is much more that can be done if there is a program that is really well directed and carefully organized in the field of research.

When Senators Humphrey and Alexander Wiley (of Wisconsin) asked Warren Looney (a U.S. Department of State witness) if the treaty would lead to better fish production, Looney replied that many hoped the fish take "may be doubled or even tripled"³⁸ (U.S. Senate 1955, p. 24).

The GLFC was also seen as a mechanism to provide better research coordination under divided governance. Witnesses in the U.S. Senate hearing, for example, lamented the inefficiency of individual jurisdictions doing their own research, which not only was expensive but also left major gaps in science (Looney 1955; Walford 1955; Westerman 1955). Canadian witnesses during the SCMF hearing and members of the Parliament of Canada during the floor debate made similar observations. For example, Sinclair observed that the Canadian federal government and the Province of Ontario had separate research programs and that the GLFC could play a role in making the effort more efficient (SCMF

³⁸The U.S. Department of State, at one point during the hearing, made a strong connection between science and regulations, probably to the chagrin of those who were trying to sidestep concerns that the GLFC would impose regulations or that states would use science to add more requirements for commercial fishers. A U.S. Department of State witness during the hearing (U.S. Senate 1955, p. 28), speaking about the Pacific Halibut Convention, said: "As first negotiated, this Convention provided for an International Commission empowered to conduct research but not to regulate. The results of the research were so convincing that the Convention was renegotiated in 1930 to include provisions which gave the Commission the authority to regulate the fishery."

1955). MP J. Watson MacNaught (Parliamentary Assistant to the Minister) stressed that the new GLFC would coordinate research activities toward a common purpose (MacNaught 1955). The GLFC, it was envisioned, would play a role in research coordination such that investments made by individual jurisdictions would be less duplicative or narrowly focused than without a guiding entity. Looney said (U.S. Senate 1955, p. 9) during the U.S. Senate hearing

[a] central mechanism to coordinate such research could not only multiply the accomplishments of such research but could do so on a more economic basis.

The Great Lakes Fishery Commission's Role in Sea Lamprey Control

The Treaty of 1954 was designed partially to address the Sea Lamprey problem. After years of hearings in the USA, members of the U.S. Congress needed little convincing of the need to control the Sea Lamprey. Across the border, Canadian Senators, who rarely if ever discussed Sea Lamprey prior to the treaty debate, took up the new treaty on June 2, 1955, and seemed genuinely intrigued by the matter. Senator Norman McLeod Paterson (Milton, Ontario) managed the discussion during the debate (Paterson 1955, pp. 561) and referred to the Sea Lamprey as: “[o]ne of the most interesting matters that have come before the Senate in recent years.”

Paterson proceeded to regale his colleagues with images of bloody Sea Lamprey attacks on fish and the plight of Marilyn Bell—the long-distance swimmer who fended off Sea Lamprey during her trailblazing swim across Lake Ontario³⁹. Sinclair, in the SCMF hearing, screened the film produced by Applegate⁴⁰, and Sprules passed around preserved Sea Lamprey.

The Treaty of 1954 was an acknowledgment that a coordinated basinwide approach would be needed to control the Sea Lamprey. The U.S. Department of State, for example, reported to Senator Humphrey that the Sea Lamprey control program must be binational. “It is an all-or-nothing program,” said witness Looney (1955, p. 10)

[i]f any considerable number of spawning streams are left open, the lamprey is so prolific that the work on other streams will have been largely lost. Accordingly, joint action by the United States and Canada and is an absolute necessity if the lamprey populations are to be controlled.

Minister Sinclair, Andrew Pritchard (Director for Conservation and Development, Canadian Department of Fisheries)⁴¹, and Sprules made similar observations during the SCMF hearing (SCMF 1955).

The FWS, in the late 1940s, was given the authority and the funds to carry out a program to control Sea Lamprey, while control work

³⁹In 1954, Marilyn Bell (16 years old), became the first person to swim across Lake Ontario. She began her swim in Youngstown, New York, at 11:07 pm on September 8, 1954 (coincidentally, two days before the signing of the Treaty of 1954) and emerged from the water 21 hours later in Toronto, Ontario. Ms. Bell explained that, in addition to suffering pain, aches, and breathing difficulty, she was forced to remove lamprey that had hitched a ride on her cold body. June Callwood (p. 72) (reporting for *McLeans* magazine), noted Bell “had said earlier, ‘If I feel an eel [i.e., Sea Lamprey] on me, I’ll scream!’ but when the first eel, a little one eight inches long, struck her stomach and hung there she kept calm and punched it off with her fist. In the next few hours, three more clamped to her thigh and she beat them off without any hysteria.” Bell’s feat, including the notorious Sea Lamprey encounters, earned her considerable notoriety (Callwood 1954).

⁴⁰The film produced by Applegate was the same film that Moffett showed during a 1952 hearing before the U.S. House Committee on Merchant Marine and Fisheries.

⁴¹Pritchard would soon become a founding member of the GLFC.

in Canada was conducted by the Province of Ontario. The FWS and province programs would be subsumed by the GLFC (the FWS authorization for appropriation was set to expire, which added some urgency to approving the treaty), and a strong, clear authority was seen as the pathway to success.

Despite having only partially effective Sea Lamprey control mechanisms at the time of the Treaty of 1954 debate, optimism was quite high that the Sea Lamprey problem could be addressed successfully. Witnesses during hearings in Canada and the USA pointed to mechanical and electrical barriers as helping to prevent reproduction (Swift 1955; Walford 1955) and to lampricides and diseases as potentially new and effective methods for control (Farley 1956; Robinson et al. 2021).

Notwithstanding this optimism, at no point did anyone suggest on record that eradication would be the treaty's goal. In 1951, for example, Day pointed out (U.S. House of Representatives 1951, p. 4) to the U.S. House Committee on Merchant Marine and Fisheries his use of the word "control" in his testimony: "I do not honestly believe that we can eliminate the animal."

When pressed by Wiley during the 1955 U.S. Senate hearing, the U.S. Department of State witness predicted control (not eradication) by 1963, a goal actually met in the upper Great Lakes, albeit later. In a U.S. House of Representatives hearing in 1956 over the GLFC's enabling legislation, U.S. Representative John D. Dingell (of Michigan) asked Commissioner John Farley if Sea Lamprey eradication would lead to the new GLFC abandoning the Sea Lamprey program.

Farley replied (U.S. House of Representatives 1956, p. 31)

I am sure that I am voicing the opinion of all the members of the Commission when I say that the control program must continue as long as necessary. We do not have at this time positive information as to what that period will be.

The Treaty of 1954 and the Divided Governance Problem

Until the mid to late 1940s, the severe decline of Great Lakes fish stocks—and commensurate economic losses—were attributed mostly to pollution and overfishing, harmful gear, and inconsistent regulations because of divided governance. The failed treaties of 1908 and 1946 would have created strong commissions capable of imposing regulations and removing the possibility for as many different regulations as jurisdictions. Although divided governance and inconsistent regulations persisted unabated into the 1950s, those issues were not mentioned during the Treaty of 1954 debate. In fact, legislators and treaty writers in both nations took pains to point out a savings clause in Article X of the treaty that expressly prohibited the GLFC from usurping regulatory authority. Article X also prohibited the states and the province from inhibiting the GLFC from doing its job (GLFC 1956)⁴².

Notwithstanding Article X, the treaty, in Article VI, created a role for the GLFC in coordinating cross-border collaboration among management agencies. In Article VI, the GLFC was directed to "establish and maintain working arrangements" among the agencies (GLFC 1956). Helping the jurisdictions achieve shared

⁴²Article X (GLFC 1956) reads: "Nothing in this Convention shall be construed as preventing any of the States of the United States of America bordering on the Great Lakes or, subject to their constitutional arrangements, Canada or the Province of Ontario from making or enforcing laws or regulations within their respective jurisdictions relative to the fisheries of the Great Lakes so far as such laws or regulations do not preclude the carrying out of the Commission's duties."

objectives through working arrangements was quite different from authority to promulgate regulations, but this clause created a pathway toward the elusive goal of a harmonious approach to fisheries—a goal for more than 50 years starting in 1897 with the Joint Commission of 1892’s recommendation for a permanent commission for fisheries. That pathway has led to cross-border cooperation for the largest freshwater fisheries on Earth.

Despite repeated, compelling, and anxious calls between the late 1800s and the early 1950s to address divided governance, Article VI was never mentioned explicitly during the parliamentary and congressional debates. Instead, any reference to divided governance was mentioned in terms of Article X, which constrained the GLFC’s authority. Some unrecognized individuals involved in the negotiations were prescient enough to add Article VI to the Treaty of 1954. Supporters of the treaty likely were reluctant to tout Article VI out of simple fear the Treaty of 1954 would suffer the same fate as the 1908 and 1946 treaties. Commercial fishers, Weichel, and the state of Ohio mounted loud and effective assaults against the Treaty of 1946, and those advocating for the Treaty of 1954 likely wanted to avoid any hint of the new GLFC’s role in coordinating sub-national action.

There was good reason to avoid a conversation because some still viewed the new treaty unfavorably. In Canada, for example, MP George Pearkes (of British Columbia), after hearing about the GLFC’s role (SCMF 1955, p. 25), asked Sinclair

[I] take it that the province of Ontario has surrendered the control it has had up until now over the commercial fishing?

Sinclair replied (SCMF 1955, p. 25): “No, it [Ontario] has surrendered nothing.” During the U.S. Senate hearing, Wiley asked Looney if the

convention was a federal power grab. Looney pointed out (U.S. Senate 1955, p. 12)

It is to be noted that the convention, in article X, contains a saving clause with respect to the fisheries jurisdictions of the Great Lakes States as well as of the Province of Ontario.

Wiley, after further discussion with Looney, observed (U.S. Senate 1955, p. 19): “Well, that is good. We hear so much talk nowadays about interference with States rights. . . .”

The Epilogue chapter in this publication provides a short history about how the GLFC has implemented Article VI and, thus, how the GLFC has worked within the constraints of divided governance.

Passage of the Treaty of 1954 in the U.S. Congress and the Parliament of Canada

Support for the Treaty of 1954 was quite strong given Article X and the expected proactive role the GLFC would play in advancing science to control an exotic pest and to reverse fisheries decline. However, support was not unanimous. Opposition came from some Ohio commercial fishers, academics, and government officials. In a statement inserted into the U.S. Senate hearing record, the Ohio Wildlife Council said (Ohio Wildlife Council 1955, p. 49)

While it is clear that the proposed convention provides safeguards against such action [usurpation of state authority] it is common knowledge that certain fisheries workers of the United States Fish and Wildlife Service harbor hopes that this convention is but a step toward Federal regulation of the Great Lakes fishery resource.

Thomas Langlois (Director of The Ohio State University’s laboratory at Lake Erie’s Put-in-Bay) testified against the treaty because he believed the Sea Lamprey was not the main

cause of the fishery decline in Lake Erie and that effective cross-border coordination could occur without a treaty (Langlois 1955). When pressed by Senators, Langlois maintained his position that the states and the province were already working together effectively to handle fishery issues. Moreover, he believed that, although scientists like Koelz and Van Oosten blamed overfishing for the major decline of commercial fisheries, the real reasons were environmental conditions and increased sport fishing (Langlois 1954, 1955). Langlois and Van Oosten had, in fact, clashed for decades over the fundamental causes of fishery loss. As Egerton wrote in his colorful account of the two Laboratory Directors (Egerton 1985, p. 3)

In spite of what they had in common . . . they were protagonists, defending opposing explanations for the causes of the decline in the preferred commercial fisheries of Lake Erie; Van Oosten believed the basic cause was overfishing and Langlois believed it was water pollution.

Van Oosten also believed the Sea Lamprey was causing enormous harm. As Van Oosten retired a few years before the treaty was proffered and was absent from the debate, Langlois got in the last word. But his opinion did not prevail.

The last piece of skepticism to the treaty came from the state of Ohio. Citing a letter from his Governor, N. E. Copeland (Ohio DNR) reported to the U.S. Senate committee that, if the other states wanted the convention, Ohio would not oppose it (Copeland 1955; Lausche 1955). Copeland added that (U.S. Senate 1955, p. 47), while not speaking for them, the commercial fishers of Ohio's Lake Erie

[a]re still unalterably opposed to this [treaty] for fear of possible future regulations that might be a result of the opening treaty⁴³.

U.S. Senator Humphrey was having none of that argument (U.S. Senate 1955, p. 47)

I would like to say that the view of this Senator, at least, is if there isn't something done, there won't be anything to regulate. . . . This is a convention that is different from the one in 1946, and it is spelled out in the convention that it is a non-regulatory treaty insofar as the commercial operations are concerned. The regulations come from your State agencies and your respective conservation departments.

Humphrey added (U.S. Senate 1955, p. 47)

I wish you [Copeland] would reassure these fine people [Ohio commercial fishers], and I know they are sincere in their concern, that a special effort has been made in this convention to make sure that this did not extend into the regulatory aspects of fishing as an industry.

To which Copeland conceded (U.S. Senate 1955, p. 47): "That has been done, Senator, but they are of a suspicious character, shall we say."

This exchange all but ended the discussion in the USA.

In Canada, final debate of the treaty took place on May 23, 1955, in the House of Commons. After strong support from Sinclair and several members, Murphy rose. Murphy spoke about the importance of the fishery to his constituents, to the economy, and to his communities. As he lamented the scourge of the Sea Lamprey and stressed the urgency for

⁴³On April 26, 1955, Nelson Parsons (President, Ohio Commercial Fishermen's Association) sent a letter to Ohio U.S. Senator John Bricker that was received too late to be included in the U.S. Senate hearing. Instead, the letter was inserted into the Congressional Record on the date (June 1, 1955) of the Treaty of 1954 vote. In the letter, Parsons endorsed provisions for Sea Lamprey control as a "cooperative gesture to the neighboring Great Lakes fisherman" but remained adamantly opposed to "Federal fishery controls of any degree" on Lake Erie (Parsons 1955, p. 7346).

action, he concluded (Murphy 1955, p. 4015), perhaps with the highest praise a Progressive Conservative MP could give

[I] never make it a practice, and I do not intend ever to make it a practice, to ask for moneys unless I think they can be wisely spent. I do not know of an instance where this government could spend money more wisely than in an effort to destroy this pest and at the same time re-establish the fishermen.

A few moments later, the House of Commons approved the treaty.

Floor debate in the U.S. Senate took place on June 1, 1955. Charles Potter, the one-time U.S.

House of Representatives member who was mocked in good humor by his colleagues for speaking about nothing but the Sea Lamprey, rose to reflect on the “long overdue” treaty that would address the Sea Lamprey problem (Potter 1955, p. 7347). Like his colleagues in Canada who used props at the SCMF hearing, Potter brought preserved specimens and presented them to his colleagues on the U.S. Senate floor. The U.S. Senate approved the Treaty of 1954 by a vote of 79–0⁴⁴. Ratification notes were exchanged on October 11, 1955, and the treaty went into effect on that date. The long quest for binational governance, or at the very least, cooperative management of the Great Lakes fishery, had been fulfilled.

CONCLUSION

The Treaty of 1954 (GLFC 1956) and the duties of the GLFC reflect what was needed to address the Great Lakes’ biggest fishery challenges and the negativity from the failed treaties of 1908 and 1946. With unrelenting opposition from commercial fishers against regulations and with considerable reluctance (particularly from the State of Ohio) to cede management authority to the federal governments or to a supranational commission, the quest to overcome the problems of divided governance faced strong headwinds from the day a Canada–U.S. commission was first proposed in 1897. Even with declining fisheries, inconsistent regulations, scarce science, and economic losses, policy makers were unable to establish meaningful solutions to address the basin’s fishery problems until 1955.

The Sea Lamprey invasion was the last insult inflicted on an already broken fishery. The Sea Lamprey was also a major catalyst for an

elusive binational fisheries agreement. The species was economically costly; required science to understand and manage; and demanded a coordinated, binational response over a wide geographic area. In a way, the Sea Lamprey provided policy makers with the perfect enemy to rally around. The successful Treaty of 1954 might have met the same fate as the previous two treaty attempts without the Sea Lamprey urgency. Additionally, through the Treaty of 1954, commercial fishers and policy makers could divert attention away from human-induced causes of fishery decline toward an alien invader. Who would argue against a common approach to such a nemesis? Very few, it turned out.

Much early work to establish a binational commission was motivated by disparate and weak regulations that resulted in overfishing and fishery decline. However, the Treaty of 1954, by skirting the divided governance

⁴⁴An unusually high number of the 96 U.S. Senators were absent for the vote.

issue, did little to protect fish from human exploitation through ineffective, inconsistent regulations. Yet commercial-fishing intensity did decline shortly after the treaty went into effect, with recreational fishing surpassing commercial fishing in value by the 1970s (Talhelm 1988; Castañeda et al. 2020). Further research into why commercial-fishing pressure became less of an issue could center around several factors—the increasing costs (and decreasing profitability) of commercial fishing; the rise in recreational fishing and its political influence; and the growth of professional staff at the departments and ministries of natural resources, which allowed for more scrutiny of commercial-fishing operations and more protective regulations. That said, the increase in science capacity at several levels of government, the GLFC’s directed-research program, and the surge in funds for ongoing biological assessments likely armed management agencies with the data needed to make informed decisions and reduce commercial-fishing intensity (see Regier et al. (2015) and Regier (2019) for candidate hypotheses and reflections on the trajectory of science in the latter half of the 20th century). With the mandate to establish and maintain working arrangements, the GLFC formed

lake committees where agencies could share science and make collective decisions. The lake committee process (described in the Epilogue chapter) has served as a place where agencies can better assess fishing practices of all types and make consistent recommendations about how to better sustain the fishery.

This publication concludes with a review of why the Treaty of 1954 succeeded when two earlier treaties failed. The short answer is because, by the time the Treaty of 1954 was approved in 1955, overfishing and the Sea Lamprey had exacerbated a severe decline in fish stocks, making the need for formalized cooperation more evident. The treaty gave the GLFC clear accountability for addressing these two problems on a Great Lakes-wide, binational scale. Based on lessons learned from the first two failed treaties, the cost of an agreement was denying the GLFC the ability to issue regulations. That failure to end divided governance left the Great Lakes basin vulnerable to continued chaos and a patchwork of regulations. Divided governance, which drove the first two attempts at agreement, was left intact, leaving it up to the GLFC to find other ways to create harmony in a milieu of unrelenting hardship.

EPILOGUE: WHAT HAPPENED TO DIVIDED GOVERNANCE?

Divided governance has been a major theme of this publication, and those trying to solve the fishery’s problems expended considerable energy and political capital to end the interjurisdictional chaos that caused such ruin. Although the Convention on Great Lakes Fisheries between the United States of America and Canada (Treaty of 1954; GLFC 1956) created a coherent, cross-border approach to science and Sea Lamprey control—both geared toward reversing fishery losses—the treaty did little to address the divided governance problem that dominated the debate from 1897 to around 1950. Even with science coordination and Sea

Lamprey control in the Treaty of 1954, the fundamental governance landscape was not remarkably different in 1954 from what it was in 1897. Article X of the treaty ensured sub-national units would remain free to promulgate the regulations they each desired, irrespective of what others were doing. This divided governance problem, in terms of regulations, maintained the classic “race to the bottom” characteristic of exploiting natural resources that are valued and shared yet not governed collectively. Without some mechanism to bridge jurisdictional divides often short on science to guide management decisions,

governments, sometimes under pressure from stakeholders, were unable or unwilling to address unsustainable practices at a lakewide or basinwide level.

Despite scores of attempts and two proposed treaties, the region could never muster the will to compel cross-border regulations. The visceral reaction against measures to blunt the edge of divided governance—particularly by Weichel and commercial fishers from Ohio—did nothing except perpetuate the problem. No treaty, not even in the face of the existential Sea Lamprey threat, would succeed if it resulted in a hostile takeover of sub-national authority. As such, fishery managers would have to make do with the cross-border provisions contained in the Treaty of 1954, even if the GLFC's powers to regulate were nonexistent.

Although the Treaty of 1954 failed to create a binational regulatory regime for the fisheries, it did contain a terse, somewhat elliptically written sentence that spawned an extraordinarily successful regime to operate within divided governance—the formation of lake committees supported by *A Joint Strategic Plan for Management of Great Lakes Fisheries* (Joint Strategic Plan) (GLFC 2007). The sentence, part of Article VI of the treaty, reads simply (GLFC 1956, p. 10)

The Commission may seek to establish and maintain working arrangements with public or private organizations for the purpose of furthering the objectives of this Convention.

Without knowing the history of the treaties of 1908 and 1946, it would be easy to miss the significance of Article VI. In 1954, treaty supporters were astute not to mention Article VI at hearings or on the floors of legislative bodies. Indeed, the focus during parliamentary and congressional debates was not on what the proposed GLFC could do to end divided governance, it was on where the GLFC's authority would not extend. Elected officials and expert witnesses wisely opted to focus

on Article X and ignore Article VI lest they reawaken the ire of skeptical legislators and interest groups that detested governmental change.

The GLFC itself also overlooked Article VI for a decade after the treaty went into force, instead opting to devote attention to discovering a lampricide, improving Sea Lamprey control barriers, and establishing a robust science program—all to further the main clauses of the treaty. However, divided governance and disparate regulations continued to be unresolved issues.

As time went on, and as it became apparent that the GLFC was succeeding in its Sea Lamprey and research mandates, the GLFC became aware that it lacked the capacity to fully discharge its duties and that it was not implementing Article VI (Gaden et al. 2013). As such, during the GLFC's interim meeting of 1964 (GLFC 1964, p. 8) held at the U.S. Department of State (in Washington, D.C.), Commissioner Donald McKernan (Director of the U.S. Bureau of Commercial Fisheries) announced that he and his fellow Commissioners decided to form a lake committee for each Great Lake

[t]o strengthen the work of the States and Province in administering the fishery and to further the objectives of the Commission.

Commissioner Pritchard (GLFC 1964, p. 8) added

[t]he organization proposed it was necessary if the Commission wished to discharge its coordinating responsibilities properly and pointed out that it would in no way infringe on the responsibilities of the other agencies concerned with the fishery.

In addition, behind the scenes, the work of reviewing management changes (for which the GLFC had no authority) became overwhelming for Commissioners and staff, who were already consumed with administering the Sea Lamprey control effort.

The lake committees would serve as the action arms by which Article VI would be implemented. Lake committees, comprising state- and provincial-agency staff, first met in the spring and summer of 1965. Norm Baldwin (GLFC Executive Secretary) further explained, during the Lake Erie Committee meeting, what the lake committees were set up to do (GLFC 1965, p. 2)

A lake committee had no special powers and agencies administering or investigating the fishery were not required to carry out any action it might recommend. However, since it was composed of senior staff from agencies responsible for the fishery, the likelihood that actions it recommended would be implemented after approval by the Commission⁴⁵ and governments would be increased.

The Lake Erie Committee meeting minutes continued (GLFC 1965, p. 4)

Mr. Baldwin explained that since the members of the Committee represented agencies administering the fishery on Lake Erie and Lake St. Clair, it was in a good position to set out objectives for the fishery and the kinds of investigations that should be carried out. . . . The Committee would probably be asked to produce a statement indicating specific objectives and investigations appropriately oriented.

The Chairman believed that this would involve review of the present objectives of the various agencies and consideration of any areas of disagreement.

The lake committees were (and remain) GLFC-supported committees. In 1964, part of the rationale for forming the committees was to expand the GLFC's capacity—in essence, to have the committees serve as a place

where agencies would provide the GLFC with information. That function was envisioned by the treaty framers who hoped the GLFC would leverage the research capacity of other agencies. However, Baldwin hastened to add (GLFC 1965, p. 2)

Although the fishery commission would wish to have any questions it referred to a lake committee considered fully, there would be no limitation on matters it wished to discuss.

In other words, the lake committees could be as responsive to the GLFC as they wished. In practice, the early lake committees served mainly as places for the agencies to (Gaden et al. 2013)

- Coordinate management programs
- Keep each other informed about regulations and management practices
- Explore uniform regulations
- Hear about the GLFC's program and consider other matters placed before it

For the rest of the 1960s and for most of the 1970s, the lake committee process served as a welcome mechanism for information exchange. Occasionally, members would use the committees to reach agreement on the number of hatchery-reared fish to stock. However, the committees were not used to develop uniform regulations, and, most importantly, they were not a mechanism to compel any jurisdiction to do anything it did not want to do (Gaden et al. 2013). Nevertheless, the lake committee process gave fishery managers a place to work together under persisting divided governance. The main benefit of the early lake committee process was to create a culture of cooperation among independent actors. The culture that existed hitherto was the antithesis of cooperation.

⁴⁵The GLFC does not have this authority, and, in fact, there is no evidence in lake committee minutes or other records that GLFC approval ever occurred, at least not formally (Gaden 2007).

By the mid-1970s, the ecosystem approach to Great Lakes management was maturing and the lake committee process evolved appropriately (Gaden 2007; Guthrie et al. 2019). In 1981, state- and provincial-management agencies, with the support of the GLFC and federal agencies, signed a Joint Strategic Plan—a consensus-based, voluntary agreement that streamlined the lake committee process (GLFC 2007). The lake committees would remain GLFC committees (constituted under Article VI of the treaty), but instead of being passive bodies for information exchange, the parties to the plan would use that agreement to make stronger commitments to each other while still preserving their autonomy. Under the plan, the members would identify their shared objectives and then develop plans together for how to achieve them. The plan represented a major advance in cooperation within a divided governance setting⁴⁶.

Since the lake committees were formed in 1964 and energized through the Joint Strategic Plan in 1981, the process has functioned admirably. Without giving up any of their authority, the sub-national management agencies have worked together, have taken steps to harmonize their programs, and have even pledged not to make any major changes to policy without first attaining consensus of the other members of the plan. Two Indigenous groups in the USA with treaty-based management authority joined the lake committee process in 1986 (Gaden et al. 2013), with an additional Indigenous group joining in 2015.

The Lake Erie Committee is the only lake committee that uses the process to come to an annual agreement about harvest (Walleye and Yellow Perch) in that lake. The Lake Erie agencies come to consensus on scientific data about the two species and then come to consensus on appropriate harvest levels. The Lake Erie Committee members agree to take the lake committee recommendations back to their home agencies and implement them. Except for two occasions (one in 1994 and one in 2004), the Lake Erie Committee has always reached consensus on Walleye and Yellow Perch harvest (Gaden 2007). The Joint Strategic Plan contains a dispute resolution process, which was invoked on both occasions when consensus could not be reached. Chapter 5 of Gaden (2007) contains an analysis of the 2004 dispute about Walleye harvest and the plan's ability to handle such a difficult situation.

The lake committees and the Joint Strategic Plan process are the response to divided governance of the Great Lakes fisheries. Although the vision of a powerful joint commission with the authority to issue regulations would not come to pass, the treaty-inspired plan has created a way for fishery managers to cooperate while still maintaining their sub-national authority. The process is successful because it leverages the resources and good will of individual agencies while still operating under the structure of the GLFC, a neutral third party that earned the agencies' trust by facilitating working arrangements that gently compel cooperation. It would be interesting to know if the members of the Joint Commission of 1892 or the 1940 International Board of Inquiry would have approved of the Joint Strategic Plan.

⁴⁶The rationale behind the Joint Strategic Plan and its function are described in detail in Gaden et al. (2013).

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APPENDIX: COMPARISON OF THREE TREATIES RELATED TO GREAT LAKES FISHERIES

Category	Treaty of 1908 ⁴⁷	Treaty of 1946 ⁴⁸	Treaty of 1954 ⁴⁹
Name of Agreement	Treaty between the United States and Great Britain Concerning the Fisheries in Waters Contiguous to the United States and Canada	Great Lakes Fisheries Convention between Canada and the United States	Convention on Great Lakes Fisheries between the United States of America and Canada
Date Signed	April 11, 1908	April 2, 1946	September 10, 1954
Effective Date	Never went into effect officially Both countries ratified the treaty Both countries appointed Commissioners in 1908 Canada acted upon the regulations promulgated by the Commissioners, but the U.S. did not	Never went into effect Neither country ratified the treaty	October 11, 1955
Enabling Legislation	Not applicable	Not applicable	Canada: Great Lakes Fisheries Convention Act [1956] (Revised Statutes of Canada 1985, c. F-17) U.S.: Great Lakes Fishery Act of 1956 (U.S. Code, volume 16, sections 931-939c)

⁴⁷See Root and Bryce 1908.

⁴⁸See Truman 1946.

⁴⁹See GLFC 1956.

APPENDIX. Continued.

Category	Treaty of 1908	Treaty of 1946	Treaty of 1954
Scope of Agreement	<p>Most boundary fresh waters shared by Canada and the U.S.; Lake Michigan and Georgian Bay in Lake Huron excluded</p> <p>Atlantic coast between Cape Hatteras and St. Lawrence River mouth, Bay of Fundy, and salt waters between Washington and British Columbia</p>	<p>Great Lakes area, including all five Great Lakes, Lake St. Clair, Georgian Bay, connecting channels and embayments, and St. Lawrence River to 45th parallel</p>	<p>Great Lakes area, including all five Great Lakes, Lake St. Clair, Georgian Bay, connecting channels, and St. Lawrence River to 45th parallel</p> <p>Great Lakes tributaries for investigations and Sea Lamprey control</p> <p>Fish stocks of common concern</p>
Name of Organization Created	International Fisheries Commission	International Commission for the Great Lakes Fisheries	Great Lakes Fishery Commission
Commissioners	<p>One Commissioner from each country</p> <p>No stipulation as to how Commissioners were to be selected</p>	<p>Commission consists of a Canadian section and a U.S. section</p> <p>Three Commissioners from each country</p> <p>Canadian section composition: one federal official, one Province of Ontario official, and one public-at-large member</p> <p>U.S. section composition: one federal official, one person nominated by the states, and one public-at-large member</p>	<p>Commission consists of a Canadian section and a U.S. section</p> <p>Three Commissioners from each country; in 1967, the number of Commissioners was increased by mutual agreement (a “diplomatic note”) to four from each country</p> <p>Canadian section composition: not stipulated; traditionally, one is a Province of Ontario official, and at least one is a federal official</p> <p>U.S. section composition: by law, one must be a federal official and one a state official; the U.S. also has an alternate Commissioner</p>

APPENDIX. Continued.

Category	Treaty of 1908	Treaty of 1946	Treaty of 1954
Voting	Two Commissioners jointly develop regulations No process stipulated for Commissioners to develop regulations	One vote per Commissioner Decisions by majority vote of Commissioners Lake Michigan decisions determined by majority vote of U.S. Commissioners only	Voting by section not by Commissioner Decision making must be by consensus since number of sections is equal No stipulation regarding how sections determine their votes Votes rarely occur
Role of Science	Not mentioned explicitly	Commission given authority to formulate and recommend specific research programs in collaboration with government and non-government institutions to guide its development of regulations Commission given authority to conduct or support other research deemed valuable to Great Lakes fisheries Commission given authority to hold hearings Commission directed to publish reports at least biennially on science, recommendations, etc.	Commission given several science-related duties: <ul style="list-style-type: none">• Formulate a research program concerning maximum sustained productivity and betterment of fish stocks of common concern• Coordinate and carry out research• Make recommendations to governments based on research findings• Publish or authorize publication of scientific and other information obtained by the commission• Conduct investigations• Hold public hearings

APPENDIX. Continued.

Category	Treaty of 1908	Treaty of 1946	Treaty of 1954
Commission Does/Does Not Have Regulatory Authority	<p>Does</p> <p>Commission has authority to “prepare a system of uniform and common International Regulations for the protection and preservation of the food fishes”</p> <p>Regulations cover:</p> <ul style="list-style-type: none">• Closed seasons• Size limits• Use of fishing gear• Use of engines and other apparatuses• Uniform system of registry• Concurrent measures for fish propagation <p>Regulations must be approved by Canadian Governor General and U.S. President</p>	<p>Does</p> <p>Commission has authority to “develop a comprehensive plan for the effective management of the fishery resources of the Great Lakes for the purpose of securing the maximum use of these resources”</p> <p>Regulations cover:</p> <ul style="list-style-type: none">• Open and closed seasons• Open and closed waters• Size limits for each fish species• Time, methods, and intensity of fishing• Type and specifications of nets, gear, and apparatuses to be used• Measurement methods• Extent and nature of stocking• New species introduction• Catch returns and statistical records• U.S. section alone has authority to promulgate regulations for Lake Michigan• Regulations must be presented to an advisory committee for consideration and comment and then approved by Canadian Governor General and U.S. President• States and Province of Ontario allowed to promulgate more restrictive regulations than the commission’s (if so desired) as long as such regulations are consistent with the commission’s regulations	<p>Does not</p> <p>Article X contains a savings clause protecting sub-national and commission authority: “Nothing in this Convention shall be construed as preventing any of the States of the United States of America bordering on the Great Lakes or, subject to their constitutional arrangements, Canada or the Province of Ontario from making or enforcing laws or regulations within their respective jurisdictions relative to the fisheries of the Great Lakes, so far as such laws or regulations do not preclude the carrying out of the Commission’s duties.”</p>

APPENDIX. Continued.

Category	Treaty of 1908	Treaty of 1946	Treaty of 1954
Sea Lamprey Control Authority	Not mentioned in the treaty because Sea Lamprey as an invasive species was present only in Lake Ontario	<p>Sea Lamprey not mentioned in the treaty; thus, commission not given explicit authority to undertake Sea Lamprey control</p> <p>Commission given authority to make recommendations to federal, state, provincial, and local governments “regarding measures for dealing with such other factors affecting the Great Lakes fisheries”, which could cover Sea Lamprey control recommendations [this provision specifically references silting and pollution]</p> <p>Research into Sea Lamprey problem presumably could occur under general science provisions</p> <p>Commission given authority to issue regulations and “emergency regulations” which, presumably, could pertain to Sea Lamprey control</p>	<p>Commission given broad authority to “formulate and implement a comprehensive program for the purpose of eradicating or minimizing the sea lamprey populations in the Convention Area”</p> <p>Commission given authority to take measures and install devices in lakes and tributaries for Sea Lamprey control</p> <p>States and Province of Ontario not permitted to make laws or regulations that preclude the commission from implementing Sea Lamprey control</p>

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