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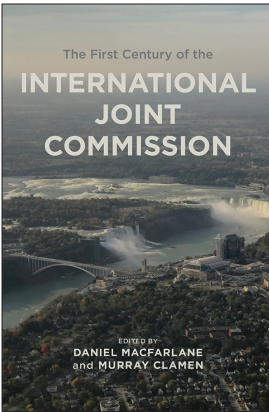
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THE FIRST CENTURY OF THE INTERNATIONAL JOINT COMMISSION

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The Boundary Waters Treaty, the International Joint Commission, and the Evolution of Transboundary Environmental Law and Governance

Noah D. Hall, A. Dan Tarlock, and Marcia Valiante

Transboundary environmental law provides principles to address the physical harms (e.g., pollution and diminished natural resources) that spill over from one state to another. Disputes arise when intensive use or consumption of natural resources in the source state results in the externalization of the environmental costs to the neighbouring state. The facts can vary infinitely—consider the example of an upstream factory that diverts most of the river water and discharges toxic pollution just above a state boundary to an international metropolitan area with many shared economic and environmental values on both sides of the border. Physical and geographic settings, wealth disparities, differing values and cultures, and crude self-interest shape these conflicts. But the first step in resolving a dispute, and avoiding future disputes, is adopting applicable legal norms. And for over a century, the Boundary Waters Treaty (BWT) has shaped the legal norms for transboundary environmental harms.

In the years leading up to the signing of the BWT in 1909, both the United States and Canada advanced more absolutist approaches to

transboundary environmental law—but from opposite directions. (The chapters in this volume by David Whorley and Meredith Denning explore this history in its deserved detail.) The United States, in the context of disputes with its southern neighbour Mexico, advanced the notion of absolute territorial *sovereignty* for using natural resources regardless of spillover harms. Canada, in its early negotiations with the United States, advanced the notion of absolute territorial *integrity* to prohibit transboundary environmental harms. Ultimately, the two countries' respective positions evolved into the balanced approach adopted and provided for in the BWT.

The Rejection and Failings of Absolutist Approaches to Transboundary Environmental Law

The shortcomings and short life of absolutist approaches to transboundary environmental law in North America was first seen in the United States' Harmon Doctrine. Disputes arose over the Rio Grande, with conflicts between the upstream American farmers and the downstream Mexican city of Ciudad Juarez. As the water use disputes escalated into a diplomatic conflict, the US secretary of state requested a legal opinion from the US attorney general as to whether the diversions in the United States that potentially affect Mexican waters violated Mexico's rights under the principles of international law.

Attorney General Judson Harmon's resulting 1895 opinion claimed that the United States was under no international legal obligation to hinder its development to protect the environment of its downstream neighbour:

The fundamental principle of international law is the absolute sovereignty of every nation, as against all others, within its own territory. . . . No believer in the doctrine of natural servitudes has ever suggested one which would interfere with the enjoyment by a nation within its own territory of whatever was necessary to the development of its resources or the comfort of its people. The immediate as well as the possible consequences of the right asserted by Mexico show that its recognition is entirely inconsistent with the sover-

eignty of the United States over its national domain. Apart from the sum demanded by way of indemnity for the past, the claim involves not only the arrest of further settlement and development of large regions of country, but the abandonment, in great measure at least, of what has already been accomplished.¹

The resulting principle, the so-called Harmon Doctrine, became the leading statement of the concept of absolute territorial sovereignty. However, the doctrine was practically dead on arrival. Even while advancing this absolutist approach in its dispute with Mexico, the United States backed away from it as a governing principle of international law and policy. The United States ultimately resolved the Rio Grande dispute with Mexico with a treaty “providing for the *equitable* distribution of the waters of the Rio Grande.”² Several decades later, in testimony before the US Senate Committee on Foreign Relations, then assistant secretary of state Dean Acheson put to rest the legal arguments of Harmon’s opinion: “[Harmon’s opinion argued] that an upstream nation by unilateral act in its own territory can impinge upon the rights of a downstream nation; this is hardly the kind of legal doctrine that can be seriously urged in these times.”³

Physical settings may explain both the advancement of the Harmon Doctrine and its subsequent rejection by the United States. The United States is the upstream state on the Rio Grande and most other major waterways shared with Mexico, so in that context the absolutist approach would be self-serving. But the United States is as often the downstream state on the major waterways shared with Canada, and given the reciprocal nature of the shared US-Canada waterways, the principle of absolute territorial sovereignty wouldn’t look so nice on either side of the border.

While the United States was advancing absolute territorial sovereignty, Canada was advancing the counter-absolutist approach of territorial integrity. In discussions leading up to the agreement that eventually became the BWT, Canada proposed a provision forbidding any water pollution having transboundary consequences.⁴ While not termed as such, this is an example of absolute territorial integrity, as it prevents an upstream state from having any transboundary pollution that affects the downstream state. If adopted, the principle would prevent any utilization

of the environment or emissions in a region that is upwind or upstream of another state.

The US secretary of state rejected Canada's proposal, as it would put any upstream or upwind economic development in the United States at the mercy of the complaining downstream or downwind Canadian interests (and vice versa, from Canada's perspective). Instead, the two countries compromised on a more balanced approach ultimately incorporated into article iv of the BWT: "It is further agreed that the waters herein defined as boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other."⁵ This language subtly but effectively rejects both absolutist approaches. Transboundary spillovers are actionable, but only based on actual harms to the downstream state's interests. And, as further described in this chapter, transboundary environmental resources must be managed to balance both economic development and environmental protection interests.

The Evolving Balanced Approach to Transboundary Environmental Law: Trail Smelter and United Nations Declarations

Transboundary environmental law continued to evolve over the subsequent century from the BWT's balanced approach. The most significant development was the Trail Smelter arbitration,⁶ which "laid out the foundations of international environmental law, at least regarding transfrontier pollution."⁷ It remains "the only decision of an international court or tribunal that deals specifically, and on the merits, with transfrontier pollution."⁸ And, as detailed by Don Munton and Owen Temby in chapter 10 of this volume, it is central to the history of transboundary air pollution management. The facts of the dispute are best told by quoting directly from the final 1941 arbitration decision:

In 1896, a smelter was started under American auspices near the locality known as Trail [in British Columbia, located on the Columbia River about seven miles north of the US border and Washington State]. In 1906, the Con-

solidated Mining and Smelting Company of Canada, Limited [later known as COMINCO] . . . acquired the smelter plant at Trail. . . . Since that time, the Canadian company, without interruption, has operated the Smelter, and from time to time has greatly added to the plant until it has become one of the best and largest equipped smelting plants on the American continent. In 1925 and 1927, two stacks of the plant were erected to 409 feet in height and the Smelter greatly increased its daily smelting of zinc and lead ores. This increased production resulted in more sulphur dioxide fumes and higher concentrations being emitted into the air. In 1916, about 5,000 tons of sulphur per month were emitted; in 1924, about 4,700 tons; in 1926, about 9,000 tons—an amount which rose near to 10,000 tons per month in 1930. In other words, about 300–350 tons of sulphur were emitted daily in 1930. . . . From 1925, at least, to 1937, damage occurred [to private farms and timber lands] in the State of Washington resulting from the sulphur dioxide emitted from the Trail Smelter.⁹

Canada and the United States eventually agreed to refer the Trail Smelter dispute to a three-member arbitration tribunal composed of an American, a Canadian, and an independent chair (a Belgian national was ultimately appointed).¹⁰ The arbitration tribunal's most significant charge regarding substantive transboundary pollution principles was to decide whether the Canadian smelter should be required to cease causing damage in the state of Washington in the future, and what "measures or regime, if any, should be adopted or maintained" by the smelter, in addition to future indemnity and compensation.¹¹ To answer these questions, the tribunal was directed to "apply the law and practice followed in dealing with cognate questions in the United States of America as well as International Law and Practice, and shall give consideration to the desire of the High Contracting Parties to reach a solution just to all parties concerned."¹²

The arbitration tribunal's ultimate 1941 decision answering these questions became a historic precedent for international transboundary pollution law.¹³ The tribunal first cited a leading international law

authority: “As Professor Eagleton puts in (*Responsibility of States in International Law*): ‘A State owes at all times a duty to protect other States against injurious acts by individuals from within its jurisdiction.’”¹⁴ The tribunal supplemented this general rule with a comprehensive summary of the US Supreme Court’s decisions on inter-state transboundary pollution.¹⁵ Taking the decisions in whole, the tribunal elaborated the following substantive principle for transboundary pollution law:

No State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the cause is of serious consequence and the injury is established by clear and convincing evidence.¹⁶

Applying these principles to the dispute at hand, the tribunal required the Trail Smelter to “refrain from causing any damage through fumes in the State of Washington.”¹⁷ The tribunal ordered a detailed management regime and regulations for the smelter to prevent sulphur dioxide emissions at levels that cause damage to property in Washington State, and allowed future claims for damages that might occur despite the imposed management regime.¹⁸

Since the pioneering BWT and precedential Trail Smelter arbitration decision, numerous international declarations (non-binding pronouncements known as “soft law”) have further advanced the balanced approach on the global stage. Most significantly, the balanced approach was incorporated into the United Nations Conference on the Human Environment’s Stockholm Declaration of 1972, which provides in its Principle 21 that

states have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.¹⁹

Principle 21 was reaffirmed in numerous other charters and declarations, most notably Principle 2 of the United Nations Conference on Environment and Development's Rio Declaration of 1992.²⁰ It is now widely acknowledged, as the Restatement (Third) of the Foreign Relations Law of the United States provides that

a state is obligated to take such measures as may be necessary, to the extent practicable under the circumstances, to ensure that activities within its jurisdiction or control . . . are conducted so as not to cause significant injury to the environment of another state or of areas beyond the limits of national jurisdiction.²¹

The strength of the balanced approach is also a shortcoming—it leaves the specific obligations rather vague. States and scholars widely agree that it does not prohibit all transboundary harm any more than it immunizes polluting acts. In practice, limitations range from thresholds for actionable transboundary harms (significant or substantial) to procedural duties (due diligence) to prevent such harms. Fortunately, the thin language of the BWT has been supplemented by a rich history of the International Joint Commission's collaborative governance.

The International Joint Commission and Changed Boundary Waters Conditions

Complementing its balanced approach to transboundary environmental law, the BWT also establishes a model approach to international water resources co-operation. It provides a permanent dispute-resolution mechanism and a reference procedure, which has allowed the six-member International Joint Commission (IJC)²² to help provinces and states adapt “the spirit of the Treaty” to new challenges to the sustainable use of the boundary waters. This section describes two examples of the IJC's adaptive capacity and its broader international influence. The first example illustrates the IJC's use of its status as an international body to influence constructively the development of a Great Lakes management regime,

based largely on modern environmental principles, in both the United States and Canada. The second example illustrates the use of the reference process to foster dialogue between the State of Montana and the Province of Alberta to revisit an outdated allocation of the St. Mary and Milk Rivers and to reinforce the idea that the rivers should be shared in a manner consistent with the evolution of international water law.

The IJC and a New Ecosystem Management Model for the Great Lakes

Between 2001 and 2008, the eight Great Lakes states and two Great Lakes provinces negotiated an innovative inter-state compact, the Great Lakes–St. Lawrence River Basin Compact,²³ which complemented a series of early Canada-US initiatives to manage the Great Lakes to conserve the basin-wide ecosystem.²⁴ The compact makes it very difficult to divert water out of the Great Lakes–St. Lawrence watersheds (on the history of controlling water quantities in this watershed, see Clamen and Macfarlane’s chapter in this volume).²⁵ Complementary federal and provincial legislation was also enacted in Canada.²⁶

The compact is a reaction to several proposed diversions to the more arid regions of the United States or bulk water transfers to undisclosed water-short countries. This triggered concerns that states lacked the constitutional authority to prevent these diversions.²⁷ In Canada, there was widespread concern about the loss of Canadian sovereignty over its abundant water resources and about coming pressure for diversions to bail out the United States’ profligate use of its waters.²⁸ Canadian nationalist greens, among others, raised the concern that a Canadian export ban, which was ultimately adopted by the federal Parliament, would be struck down as illegal under the General Agreement on Tariffs and Trade because it discriminated against non-Canadians desiring to export water, although this argument has very little support in international trade law.²⁹

IJC involvement in the “diversion issue” was initially problematic because there was no treaty dispute; article iii only applies to diversions or obstructions that affect the natural level of the lakes and imposes a high burden on the country asserting a violation.³⁰ Therefore, the Canadian and US responses were negotiated outside the regime and superimposed over it.³¹

Politically, the compact was not a hard sell among the eight Great lakes states, but it faced serious economic and scientific challenges from outside the region, which could have made federal approval difficult. The region's stagnation and decline actually worked in favour of the compact within the Great Lakes basin. Because serious diversions are hypothetical, the problem of allocating a limited resource among competing consumptive interests did not exist as it does in many basins, including that of the St. Mary and Milk Rivers.³² Since the value of the compact was primarily symbolic,³³ each state stood to gain politically by blocking future moves by "others" outside the region. But, any regime that prevented almost all diversions can be attacked as unfair, inefficient, irrational, and unnecessary.

The nub of the outside problem was that the compact and parallel Canadian legislation dedicate the waters of the Great Lakes–St. Lawrence basin—20 per cent of the world's freshwater supply, and 95 per cent of the United States' surface supply—almost exclusively for non-consumptive uses in a basin where only 10 per cent of the US population lives and is relatively stable or declining. Population is increasing only in Southern Ontario.³⁴ Given the shift of population to the more arid areas of the United States, one can legitimately ask: What is the rationale for this action, especially since all the diversion threats were and are speculative at best and highly unlikely to come to fruition for environmental and economic reasons?

The IJC was able to influence the negotiations over the compact by leveraging the reference process to address the objections to dedicating the Great Lakes primarily to in-basin, non-consumptive uses. The stars were aligned at the IJC in a way that they had not been for years. The governments of both Canada and the United States had a strong interest in the conservation of the Great Lakes and they recognized their importance as a valuable, functioning ecosystem. The Canadian and US commissioners had a strong commitment to the conservation of the Great Lakes, and both the Canadian and US sections were led by accomplished water professionals who were at home in both the technical and the policy worlds.

In 1999, the two governments agreed to an IJC reference on Great Lakes diversions. After considerable internal debate, the IJC concluded that a state-provincial effort was the best avenue to protect the lakes. There was concern that if the US federal government were to instead pre-empt

state efforts, as it had the full constitutional power to do, the dedication of the Great Lakes to regional uses might be subordinated to the possibility of national (i.e., arid Western) use. The resulting 2000 report, *Protection of the Waters of the Great Lakes: Final Report to the Governments of Canada and the United States*, examined both the scientific and legal issues raised by the diversion threats and marshaled available scientific evidence to underscore the need for a strong anti-diversion regime.

The 2000 report blended a synthesis of the available science on the hydrology of the Great Lakes with economics and the emerging, and much contested, international environmental law principles, to counsel that the Great Lakes states and provinces adopt a strong anti-diversion regime. This conclusion is founded on the report's mixed scientific-economic classification of the Great Lakes as a fragile, fully allocated "non-renewable resource." Initially, the idea that the Great Lakes are fully utilized almost exclusively for non-consumptive uses is a surprising and counter-intuitive conclusion to anyone who has seen them or even looked at a map of the basin.

Resources classified as non-renewable are usually deep aquifers and mineral deposits rather than rain-fed water bodies. Rivers and lakes are classic renewable resources. Nonetheless, the Great Lakes have a fundamentally non-renewable characteristic: a long renewal time that makes them analogous to a deep aquifer. The report noted that less than 1 per cent of the lakes' total volume is renewed annually by precipitation and the levels remain relatively constant "with a normal fluctuation ranging from 30 to 60 cm (12–24 in.) in a single year."

Determining the line between a renewable and non-renewable resource is a matter of judgment, and the classification of the Great Lakes as fully allocated is a normative conclusion, which the report was careful to underscore. An allocation of a river or lake can refer either to a situation in which recognized property rights exceed the available dependable supply or to the dedication of a resource to a suite of uses to the exclusion of others. The latter, which is the case in the Great Lakes, is an economic or normative choice rather than a hydrologically constrained situation. An existing resource use mix can always be changed, as the IJC recognized, but the question is always: What are the opportunity costs that would be incurred by any change from the current allocation?

The observation that there would be opportunity costs from any change in the status quo is not *per se* a compelling argument for the maintenance of the status quo. There were many voices suggesting that more consumptive uses should be allowed because instead of costs there would be benefits from changing the status quo. Those familiar with the law of prior appropriation in the Western United States suggested that the states make a conventional allocation among the riparians to do as they wished. Some proposed a compact giving each state a share, and others, in a bow to the value of non-consumptive uses, recommended that it be constrained by a cap and trade program borrowed from the 1990 United States Clean Air Act and climate change debate.³⁵ Thus, the report had to take an additional step and provide a more convincing rationale for not incurring the opportunity costs of increased diversions and rejecting the lure of profitable inter-state and international water markets.

The report took this step by concluding that, not only are the Great Lakes a non-renewable resource, but they are a fragile one, and thus change involves risks. This will appear as another counter-intuitive conclusion to anyone who has seen the lakes on a stormy, windy day or remembers the concern about shoreline erosion and flooding in the mid-1980s.³⁶ The basis of their fragility is the fact that lake levels fluctuate according to precipitation and evaporation cycles, and even small seasonal fluctuations can have dramatic and costly consequences for the ecosystem and for the maintenance of the primary commercial, non-consumptive use of the lakes—navigation. Lake shippers, owners of pleasure-boat launching facilities, and shoreline property owners have lived with short- and long-term fluctuating levels for years.

The case for not trying to alter Great Lakes cycles is strengthened if the prospect of global climate change is factored into the mix. The report concluded that the Great Lakes are “highly sensitive to climatic variability.”³⁷ It synthesized the various projected, but inconsistent, climate change scenarios to reach the bold conclusion that “climate change suggests that some lowering of water levels is likely to occur . . . [and] the Commission believes that considerable caution should be exercised with respect to any factors potentially reducing water levels and outflows.”³⁸

The precautionary principle is an evolving international environmental law norm.³⁹ It can be stated in hard and soft versions,⁴⁰ but the core idea

is that the state has the power to limit activities that pose a risk of future harm when the available scientific evidence about the likelihood and magnitude of harm remains uncertain and inconclusive. During the George W. Bush administration, the United States opposed the precautionary principle as a European import with the dangerous potential to undermine the more rigorous scientific foundations of US environmental laws.⁴¹

The IJC's decision to ground the management of the Great Lakes in principles of international environmental law can be seen both directly and indirectly in the compact. First, the compact *de facto* recognizes that the Great Lakes are a common heritage of humankind.⁴² The idea that certain resources, traditionally part of the territory of a sovereign nation—such as rain forests—are subject to duties that run to all nations has been strongly opposed by countries such as Brazil and has minimal recognition in international agreements. Nonetheless, the compact adopts the core idea that certain ecosystems should be preserved for future generations.⁴³ The IJC's most enduring legacy can be seen in the fact that the compact adopts the precautionary approach to management and expressly links it to climate change. Article 4.5.1(b) provides that the states must:

Give substantive consideration to climate change or other significant threats to Basin Waters and take into account the current state of scientific knowledge, or uncertainty, and appropriate Measures to exercise caution in cases of uncertainty if serious damage may result.⁴⁴

The IJC and the St. Mary and Milk Rivers: Small Rivers, Big Conflicts

In retrospect, the promotion of the sustainable use of the Great Lakes was relatively easy because there were few potential economic losers from so doing.⁴⁵ The same cannot be said for two rivers in Montana and the Prairie provinces of Alberta and Saskatchewan, the St. Mary and Milk Rivers. Both countries exceed their respective BWT allocations.⁴⁶ These rivers have been dedicated largely to irrigated agriculture, and strong expectations that the status quo is eternal have been built up on both sides.

Thus, change does not come easily. This section complements Timothy Heinmiller's chapter in this volume by offering an international water perspective on the ongoing efforts to achieve the equitable sharing of the two rivers.

The Milk River arises in Montana, flows into Alberta and Saskatchewan, and then back to the United States, where it eventually joins the Missouri River. The St. Mary River also arises in Montana and flows into Alberta but it continues on to Hudson Bay. At the beginning of the twentieth century, the United States proposed to divert water from the St. Mary into the Milk and Canada retaliated by beginning a diversion from the Milk into the St. Mary.⁴⁷ The dispute was initially resolved directly in the BWT. Article vi allocated 500 cubic feet per second (cfs) or so much as constitutes three-quarters of the natural flow of the Milk to the United States and the same amounts of the St. Mary to Canada. In 1921, the IJC resolved an interpretation dispute between the two countries and held that article vi prescribed an equal split of the total flow; excess flows above 500 cfs were divided equally.⁴⁸

In response to decades of overuse, in 2003 the governor of Montana requested an IJC review of the 1921 order.⁴⁹ The IJC first formed a task force that recommended a series of management options for more equitable sharing on both sides of the border,⁵⁰ but it did not reopen the 1921 apportionment order. The IJC next suggested that the Governments of Montana and Alberta form a task force to consider collaborative, co-operative management options for the rivers.⁵¹ A joint initiative was formed between 2008 and 2010.⁵²

The initiative is continuing, but the hard sharing decisions have not yet been taken. In brief, "the United States faces an infrastructure problem because it never invested in a water efficient system while Canada . . . built a costly system to use water that it was not entitled to use."⁵³

Despite the fact that Alberta and Montana have not, as of summer 2019, been able to agree on the management of the allocation of the two rivers, the IJC-inspired process has contributed positively to the development of international water law. First, the treaty and the 1921 order adopt the fundamental norm of international water law, reflected in the United Nations Convention on the Non-Navigable Uses of Water, that all riparian states have a right to make equitable and reasonable uses of transboundary

rivers.⁵⁴ Second, Montana and Alberta have exceeded customary international procedural norms and the 2008 initiative can serve as a model of transboundary co-operation among riparians. Third, the IJC's 2006 report incorporated the emerging international water law norm that states may have a duty to ensure minimum environmental flows on transboundary rivers.⁵⁵ The 1921 order is naturally silent on this issue but the report concluded that the allocation "includes maintaining a 'live' stream, whether for aquatic life, esthetic or other purposes."⁵⁶ Fourth, the engagement of the states and the IJC is a good example of trust-building co-operation that advances the formal procedural norms of international water law.

Reflection on the BWT and IJC in Contemporary International Environmental Law

As already noted, as well as being of central importance in the regional Canada-US context, the BWT represents an important landmark in the evolution of international environmental law. Within North America, by establishing general principles to guide the use, obstruction, and diversion of boundary waters, the treaty set the ground rules for decision-making and dispute resolution, facilitating the development of all major projects for hydro-power, navigation, irrigation, and flood control along the border. However, by recognizing equal rights to use shared waters and by establishing a restriction on injurious pollution, the treaty also influenced the principles of international water law, and eventually environmental law more generally.

Yet for all its historical importance, the BWT was a reflection of its era—of the political, economic, and social values, and the scientific understandings, of the time; it should be obvious that those have changed dramatically over the last century, as has international law as a result. The parties have never revised the treaty to respond to or reflect such changes.⁵⁷ Rather, as needed, the parties negotiated new agreements outside of the treaty—for example, to deal with Great Lakes water quality, Great Lakes fisheries, transboundary air quality, and development of the Columbia River basin. In addition, as will be discussed further below, the practice of the IJC evolved to reflect, and in many cases advance, these changes.

Some of the differing characteristics of international water and environmental law between the early twentieth (as represented in the BWT) and twenty-first centuries include the following.

Scope

The BWT has a narrow focus on “boundary waters,” which are shared waters that form the international boundary, expressly excluding tributaries to boundary waters and rivers that cross the border. Increasingly, international legal obligations address a larger frame of reference—“water-courses”⁵⁸ or watersheds and drainage basins⁵⁹ extending beyond surface water in rivers and lakes to include groundwater, wetlands, and the interacting forces on land. International obligations also now reflect the role of water systems in the protection of biodiversity, habitat, and ecosystem services such as climate and nutrient cycles, and concerns beyond pollution from sewage to those such as invasive species.⁶⁰

Governance

The BWT is a classic international treaty between equal, sovereign states. The treaty extends limited autonomy to the IJC on decisions to approve uses and diversions,⁶¹ but is otherwise largely hierarchical, with the national governments at the centre of decisions to refer matters to the IJC and implement the recommendations that result. In the particular context of North America, the treaty entirely excludes recognition of Indigenous sovereignty over the waters and lands affected, or even mention of Indigenous communities. Adoption of the UN Declaration on the Rights of Indigenous Peoples,⁶² and calls from the courts and others to ensure such recognition and “decolonize” laws and institutions, have become more urgent in recent years.⁶³

Furthermore, as the example of the state and provincial water resources agreement and compact discussed above demonstrates, much of the policy-making, management, and dispute resolution within shared ecosystems is no longer necessarily restricted to national governments. The authority, interests, and roles of sub-national polities, non-governmental organizations, local communities, business groups, and epistemic communities are expressed through both formal and informal networks and

have significant influence on environmental policies and outcomes, both outside of and within traditional hierarchies.

Social Context

The BWT reflects a narrow conception of water as an economic resource. The treaty established a rigid “order of precedence” with a list of priority uses—domestic and sanitary as the first priority, followed by navigation, and then power and irrigation, with no reference to environmental or recreational interests—that reflect the needs of the time. International water law, as reflected in the UN convention and the decisions of the International Court of Justice, has come to incorporate the principle of “reasonable and equitable” use, wherein decisions about infrastructure development and the uses of shared waters are made within the particular economic, social, and environmental context.⁶⁴ At the domestic level, “environmental justice” has been recognized as an important value. At both the domestic and international levels, the relationship between health and access to water and sanitation influences policy. At the international level, recent debates about water concern whether access to water is a human right and what obligations states have to fulfill that right for their citizens, as well as what obligations water-rich regions may have to alleviate shortages in other countries in the face of global water scarcity.⁶⁵

Governing Principles

The primary principles of the BWT are the equal right of each party to use boundary waters, and the exclusive right to exploit waters within a party’s territory while prohibiting or requiring compensation for significant transboundary injury to health or property resulting from unilateral action on waters that would flow across the boundary. The latter became a fundamental principle of international environmental law, which is, as discussed above, reflected in the Stockholm and Rio Declarations and numerous multilateral treaties. However, the principles guiding national actions on water and environmental issues have broadened considerably to include: the precautionary principle, intergenerational equity, sustainable development, and the conservation and protection of biodiversity. Procedural principles that support the substantive principles include

obligations to give notice, to consult, and to conduct environmental impact assessments prior to development.

The BWT is silent on how to respond to such shifts and challenges. To some extent, international law allows subsequent practice and developments in international law to be used to guide treaty interpretation.⁶⁶ These developments could be used to interpret the treaty to incorporate more contemporary values and principles into decision-making, but could not be used to revise or undermine the clear terms of the treaty itself.⁶⁷

Conclusions

To date, much of the flexibility to respond to contemporary issues and to reflect changing values and principles in the transboundary environmental context has been due to the evolution in the role and approach of the IJC, the institution established by the treaty. In some cases, the work of the IJC through its boards, including boards of control and the boards established under the Great Lakes Water Quality Agreements, have influenced the development of international principles; in other cases, the boards have incorporated principles generated elsewhere into their scientific studies, recommendations, and management decisions.⁶⁸

To cite just a few examples, in addition to those already discussed: The IJC's reference work on water pollution in the lower Great Lakes led directly to the parties' adoption of the Great Lakes Water Quality Agreements (1972, 1978, 1987, and 2012) and the establishment of two ongoing boards, the water quality board and the science advisory board as well as two reference groups, one on the influence of land uses on water quality and the other on the upper lakes. The work of these boards was instrumental in establishing the foundation for the concept of the Great Lakes basin as an integrated whole, for the "ecosystem approach," now widely adopted elsewhere, for including persistence and bioaccumulation in toxic chemicals management, and for the goal of the restoration of "ecological integrity." These boards have also led in recognizing the influence of airborne toxins and urban and agricultural land uses on water quality.

In all of its work in recent decades, the IJC has become a forum for input from NGOs, interested individuals, officials, and groups. In fact, the IJC has evolved from an institution only for the parties to the treaty into

an institution that considers its responsibility to other public authorities and to the public.⁶⁹ IJC boards and references have developed progressive decision-making standards: for protecting against the *risk* of harm (Red River), for adding protection of habitat and environmental values as priorities (Lake Ontario), and for preventing the introduction of invasive biota across ecosystems (Garrison Diversion). Through the International Watersheds Initiative, the IJC, supported by the parties, has moved its boards beyond the narrow focus of the treaty to embrace an integrated watershed approach for existing control boards.⁷⁰ For example, in the St. Croix River watershed, the board of control, established in 1915, and the water quality board, established in 1962, were first combined into a single board and then designated as a watershed board in 2007.⁷¹ With both this board and the International Rainy-Lake of the Woods Watershed Board, the objective is to address issues through an integrated ecosystem approach. In addition, board membership has been expanded to include local representatives and representatives of Indigenous communities.

This type of evolution in the role of an institution where the treaty text remains static is not unique to the IJC, but is common among similar long-lived international water commissions, particularly those in Europe.⁷² Nevertheless, it has been essential to the ability of the existing institutions established under the treaty to adapt what has been referred to as the “spirit of the treaty” to new challenges and changing values.

The continued ability of the IJC and its boards to play this role in the future depends on many factors, including continued support from the national governments—the parties to the treaty—which has sometimes been inconsistent in the past. The framework of the treaty places limits on the degree to which the IJC may act independently to respond to bilateral disputes or new challenges. The commission has no ability to initiate a study, but must await a reference from the two governments, which may not come.⁷³ Moreover, the commission is subject to the parties’ sometimes mercurial decisions on appointments and budget. Likewise, the IJC has no ability to implement recommendations or enforce treaty provisions, and cannot recognize Indigenous sovereignty over North American waters. This is the role of the parties.

The role of the IJC in the future may also be limited to one of support as other actors become more prominent on certain environmental and

resource issues. This is best illustrated by considering the action of the states and provinces in the negotiations of the agreement and compact, in which the technical findings of the IJC's reports were used to ground negotiations that left out the treaty parties and the IJC. Nevertheless, this should not be seen as an unimportant role in transboundary water governance. Thus, even in light of these limitations, the IJC can continue to evolve and play an important role in policy development and water resource management into the future.

Notes

- 1 21 U.S. Op. Att'y Gen. 274 (1895), 281–2.
- 2 US-Mex., *Convention Providing for the Equitable Distribution of the Waters of the Rio Grande for Irrigation Purposes* (21 May 1906), 34 Stat. 2953 (emphasis added).
- 3 *Hearings on Treaty with Mexico Relating to Utilization of Waters of Certain Rivers Before the Comm. on Foreign Relations* (1945), 79th Cong. 1762 (alteration in original).
- 4 Library and Archives Canada (LAC), Sir George C. Gibbons Papers, Vol. 14, Fol. 3.
- 5 Boundary Waters Treaty art. iv, 36 Stat. at 2450.
- 6 *Trail Smelter I*, 3 R.I.A.A. 1911 (1938); *Trail Smelter II*, 3 R.I.A.A. 1938 (1941).
- 7 Alexandre Kiss and Dinah Shelton, *International Environmental Law* (Ardsey-on-Hudson, NY: Transnational Publishers, 1991), 107.
- 8 Edith Brown Weiss, Stephen C. McCaffrey, Daniel B. McGraw, and A. Dan Tarlock, *International Environmental Law and Policy* (Boston, MA: Aspen Law and Business, 1998), 257.
- 9 *Trail Smelter II*, 3 R.I.A.A. at 1945 (alteration in original).
- 10 Convention Relative to the Establishment of a Tribunal to Decide Questions of Indemnity and Future Regime Arising from the Operation of Smelter at Trail, British Columbia, US-Can., 15 April 1935, art. ii (effective 3 Aug. 1935), 49 Stat. 3245, 3246; *Trail Smelter I*, 3 R.I.A.A. at 1911.
- 11 *Trail Smelter Convention*, art. iii, 49 Stat. at 3246.
- 12 *Trail Smelter Convention*, art. iv, 49 Stat. at 3246.
- 13 *Trail Smelter II* (1938), 3 R.I.A.A. 1911.
- 14 *Trail Smelter II* (quoting Clyde Eagleton, *Responsibility of States in International Law* [1928], 80 [internal citation omitted]).
- 15 *Trail Smelter II*, 1964–5.
- 16 *Trail Smelter II*, 1965 (alteration in original).

- 17 *Trail Smelter II*, 1965.
- 18 *Trail Smelter II*, 1966–81.
- 19 United Nations Conference on the Human Environment, Stockholm, SE, *Stockholm Declaration of the United Nations* (16 June 1972), 11 I.L.M. 1416, 1420.
- 20 United Nations Conference on Environment and Development, Rio de Janeiro, BR, *Rio Declaration on Environment and Development*, princ. 2, UN Doc. A/CONF.151/26 (June 14, 1992), 31 I.L.M. 874, 876.
- 21 Restatement (Third) of the Foreign Relations Law of the United States § 601(1) (1987).
- 22 David Lemarquand, “The International Joint Commission and Changing Canada-United States Boundary Relations,” *Natural Resources Journal* 33 (1993): 62–7. For more detailed histories, see L. M. Bloomfield and G. F. Fitzgerald, *Boundary Waters Problems of Canada and the United States (the International Joint Commission 1912–1958)* (Toronto: Carswell, 1958), and A. D. P. Heeney, *Along the Common Frontier: The International Joint Commission* (Toronto: Canadian Institute of International Affairs, 1967).
- 23 P. L. 110–342 (2008).
- 24 E.g., Leonard B. Dworsky, “Ecosystem Management: Great Lakes Perspectives,” *Natural Resources Journal* 33 (1993): 347. The compact was preceded by a soft law interstate agreement, the Great Lakes Charter. See Peter V. MacAvoy, “The Great Lakes Charter: Toward a Basinwide Strategy for Managing the Great Lakes,” *Case Western Reserve Journal of International Law* 18 (1986): 49.
- 25 Noah D. Hall, “Toward A New Horizontal Federalism: Interstate Water Management in the Great Lakes Region,” *Colorado Law Review* 77 (2006): 405.
- 26 International Boundary Waters Treaty Act, R.S.C. 1985, c. I-17 as amended by S.C. 2001, c. 40 and S.C. 2013, c. 12; Ontario Water Resources Act, R.S.O. 1980, c. O.40, as amended by S.O. 2007, c. 12; and Loi affirmant le caractere collectif des ressources en eau et favorisant une meilleure gouvernance de l’eau et des milieus associes, L.Q. 2009, c. C-6.2.
- 27 In the late 1970s, the US Army Corps of Engineers released a congressionally mandated study on ways to recharge the depleted Ogallala Aquifer from adjacent areas. The study did not include any proposal to construct a pipeline from Lake Superior to the High Plains, but it triggered regional fears that the water-short West would eventually ask Congress to bail it out with Great Lakes water, which held that groundwater allocated under state law was an article of commerce and thus subject to the Dormant Commerce Clause. *Sporhase v. Nebraska*, 458 U.S. 941 (1982). See also *Pennsylvania v. West Virginia*, 262 U.S. 553 (1923). Congress prohibited out-of-basin diversions without state approval in 1986, but concerns persisted. See Peter Annin, *The Great Lakes Water Wars* (Washington, DC: Island Press, 2006), 57–81, for a discussion of the reactions to feared diversions, and Maxwell Cohen, “Great Lakes Legal Seminar: Diversion and Consumptive Use,” *Case Western Reserve Journal of International Law* 18, no. 1 (1986): 1–259, is a good snapshot of the diversion fears and range of legal responses in the mid-1980s.

- 28 Two respected Canadian academics criticized the Annex 2001 process, a precursor to the compact, as an abdication of the Canadian federal government's responsibility because it "would leave the provinces with no control over diversions in the US [and] [i]t would also give the US significant say over water-related developments in Canada." See D. W. Schindler and Adele M. Hurley, *Rising Tensions: Canada/U.S. Cross-Border Water Issues in the 21st Century* (Notes for Remarks to the Centre for Global Studies Conference on Canada/US Relations, University of Victoria, November 2004), 11.
- 29 Edith Brown Weiss, "Water and International Trade Law," in *Freshwater and International Economic Law*, ed. Laurence Boisson de Chazournes, Edith Brown Weiss, and Nathalie Bernasconi-Osterwalder (Oxford: Oxford University Press, 2005). The basic argument was that any regime that allowed regulated diversions was therefore a "commodification" of the lakes and could then be challenged as a disguised discriminatory trade practice. This incredible anti-commodity argument was made in litigation challenging Perrier's planned diversion of spring waters in Michigan. Opponents of the proposed extraction argued that when groundwater is used to produce commodities, the commodities could only be consumed on the overlying land. The Michigan courts rejected the argument, as groundwater law allows the use of the water for commercial purposes well beyond the tract of overlying land. *Michigan Citizens for Water Conservation v. Nestle Waters N. Am., Inc.*, 709 N.W.2d 174 (Mich. App. 2005), reversed on standing grounds, 737 N.W.2d 447 (Mich. 2007).
- 30 Joseph W. Dellapenna, "International Law's Lessons for the Law of the Lakes," *University of Michigan Journal of Law Reform* 40 (2007): 754–7.
- 31 Article 8.2.3 provides: "Nothing in this Compact is intended to affect nor shall be construed to affect the application of the Boundary Waters Treaty of 1909 whose requirements continue to apply in addition to the requirements of this Compact."
- 32 Ken Conca, *Governing Water: Contentious Transnational Politics and Global Institution Building* (Cambridge, MA: MIT Press, 2006), 73–80. Conca sets out the stresses that many river basins face and the barriers they pose to co-operative management among riparian states.
- 33 The compact does impose two real costs on the basin states. First, the straddling community's standard may block much small transfer across the basin line. Second, the compact will create pressure for the additional regulation of surface and groundwater. States such as Indiana, Illinois, Ohio, New York, and Pennsylvania have resisted the strong regulated riparianism adopted in Minnesota, Michigan, and Wisconsin. The compact was briefly held up when an Ohio state representative argued that it would erode Ohio's power to control its water resources.
- 34 Ontario Ministry of Finance, "Ontario Population Projections Update, 2017–2041" (2017), available at <http://www.fin.gov.on.ca/en/economy/demographics/projections/>.
- 35 42 U.S.C. § 7401 et seq., as amended.
- 36 Stanley A. Changnon, "Temporal Behavior of Levels of the Great Lakes and Climate Variability," *Journal of Great Lakes Research* 30 (2004): 184–200.
- 37 *Ibid.*, 6.
- 38 *Ibid.*, 21–2.

- 39 Ulrich Beyerlin, "Different Types of Norms in International Environmental Law Policies, Principles and Rules," in *The Oxford Handbook of International Environmental Law*, ed. by Daniel Bodansky, Jutta Brunée, and Ellen Hey (Oxford: Oxford University Press, 2008), 425, and Jonathan B. Wiener, "Precaution," in *The Oxford Handbook* at 597, explore the legal status of precaution.
- 40 The soft precautionary principle posits that a high degree of certainty about the adverse impacts of an activity is not a necessary prerequisite to limit or regulate it and is one of the foundations of international environmental law. The hard version posits that an activity should not be allowed until there is conclusive evidence that it does not cause harm. The general principle was endorsed in the 1992 Rio Declaration, Principle 15. Because crucial issues, such as who bears the burden of proof and how feedback loops should operate, remain unresolved, it remains much contested and has been criticized as incoherent and unfair. E.g., Cass Sunstein, *Laws of Fear: Beyond the Precautionary Principle* (Cambridge: Cambridge University Press, 2005); Christopher D. Stone, "Is There a Precautionary Principle?" *Environmental Law Reporter* 31 (2001): 10790, 10792; Frank B. Cross, "Paradoxical Perils of the Precautionary Principle," *Washington & Lee Law Review* 53 (1996): 851.
- 41 The best articulation of this position is Jonathan B. Wiener, "Whose Precaution After All? A Comment on the Comparison and Evolution of Risk Regulatory Systems," *Duke Journal of Comparative & International Law* 13 (2003): 207. Jutta Brunnée, "The United States and International Environmental Law: Living with an Elephant," *European Journal of International Law* 15 (2004): 617, 628–30 places US opposition in the broader context of the fear of general principles of customary law.
- 42 This aspect of the compact has been addressed A. Dan Tarlock, "The Great Lakes as an Environmental Heritage of Humankind: An International Law Perspective," *University of Michigan Journal of Law Reform* 40 (2007): 995.
- 43 The compact does use the term "common heritage of humankind," but it recognizes that the lakes are held in trust by the states for the benefit of future generations (Article 1.3.1(a) and (f)).
- 44 Article 4.15.1(c) also provides that the states shall: "consider adaptive management principles and approaches, recognizing, considering and providing adjustments for the uncertainties in, and evolution of science concerning the Basin's water resources, watersheds and ecosystems, including potential changes to Basin-wide processes, such as lake level cycles and climate."
- 45 See note 12, *supra*.
- 46 US Bureau of Reclamation, "St. Mary River and Milk River Basin Study: Summary Report" (2012), 7–11.
- 47 Ryan P. McClane, "The St. Mary and the Milk River, Two Rivers, One Stream," *University of Denver Water Law Review* 14 (2010): 131–3; R. Halliday and G. Faveri, "The St. Mary and Milk Rivers: The 1921 Order Revisited," *Canadian Water Resources Journal* 32 (2007): 75–92.

- 48 Id. at 145. The 1921 order can be found in Appendix B, “International St. Mary–Milk Rivers Administrative Measures Task Force Report to the IJC” (2006), <http://www.ijc.org/rel/pdf/SMMRAM.pdf>.
- 49 Alberta irrigates 215,000 hectares from the St. Mary and “received 28.1% more than its entitlement from the St. Mary River because Montana was unable to divert and use its full share. The situation was reversed in the Milk River where Montana received 47.4% more than its entitlement because Alberta lacked physical resources to utilize its share.” See, K. K. Klein, Danny G. Le Roy, Md Kamar Ali, and Tatiana Cook, “Is Water an Agricultural Trade Issue? Examining the Montana–Alberta Dispute,” available at <https://pdfimages.wondershare.com/forms-templates/scientific-poster-template-2.pdf>.
- 50 International St. Mary–Milk Rivers Administrative Measures Task Force Report to the IJC (2006).
- 51 For a detailed discussion of the issues and possible solutions, see Michelle Morris, “Governance of the St. Mary and Milk Rivers,” in *Beyond the Border: Tensions Across the 49th Parallel to the Great Plains*, ed. Kyle Conway and Timothy Patsch (Montreal: McGill–Queens University Press, 2012), 113–32.
- 52 Montana–Alberta St. Mary Milk River Water Management Initiative, Terms of Reference, telephone interview with Gerald Galloway (secretary US section, IJC, 1998–2003), 16 September 2008.
- 53 McClane, “The St. Mary and the Milk River,” 156.
- 54 United Nations, *Convention on the Law of Non-Navigable Uses of International Watercourses*, 36 I.L.M. 700 (1997) (“UN Watercourses Convention”). Article 20 provides: “Watercourse States shall, individually and, where appropriate, jointly, protect and preserve the ecosystems of international watercourses.” The need to protect aquatic ecosystems was recognized in *Case Concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, IJC Reports 114 (2006).
- 55 Josefin Gooch, *Protecting Ecological Integrity in Transboundary Watercourses: An Integrational Approach towards Implementing Environmental Flows* (PhD diss., Lund University, 2016), 64, available at <https://lup.lub.lu.se/search/publication/eb2f4bfe-9045-4a5a-8e3a-36181509eb50>.
- 56 St. Mary–Milk River Administrative Measures Task Force, Report to the IJC, 40.
- 57 Stephen J. Toope and Jutta Brunée, “Freshwater Regimes: the Mandate of the International Joint Commission,” *Arizona Journal of International and Comparative Law* 15 (1998): 276–7.
- 58 The UN Watercourses Convention defines a “watercourse” as “a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus.”
- 59 See, for example, UN Economic Commission for Europe, *Convention on the Protection and Use of Transboundary Watercourses and International Lakes*, www.unece.org/fileadmin/DAM/env/documents/2013/wat/ECE_MP.WAT_41.pdf, which adopts a basin-based approach to integrated water resource management, guided by the precautionary principle, polluter pays principle, and sustainable use.

- 60 UN, *Convention on Biological Diversity* (1992), 1760 U.N.T.S. 79, www.cbd.int/doc/legal/cbd-en.pdf.
- 61 As well as an adjudicatory role in article x; however, this has never been resorted to.
- 62 See UN General Assembly, *Declaration on the Rights of Indigenous Peoples*, GA Res. 61/295 (2007), www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf.
- 63 In 2004, Indigenous leaders signed the Tribal and First Nations Great Lakes Water Accord, which states, in part: “Tribes and First Nations continue to exercise cultural and spiritual rights of self-determination and property rights within traditional territories of peoples and nations. . . . It is thus our right, our responsibility and our duty to insist that no plan to protect or preserve the Great Lakes Waters moves forward without the equal highest-level participation of Tribal and First Nations governments with the governments of the United States and Canada.” In Canada, see Truth and Reconciliation Commission of Canada, *Calls to Action* (2015).
- 64 The UN Watercourses Convention gives less weight to existing uses and implies that “equal” might not be “equitable” in particular circumstances. Also see, International Court of Justice, *Case Concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, 1997 IJC Rep. 7 (25 Sept.).
- 65 See, for example, the UN’s Sustainable Development Goals, adopted September 2015, at the UN Sustainable Development Summit, available at <https://www.un.org/sustainabledevelopment/sustainable-development-goals>.
- 66 *Vienna Convention on the Law of Treaties* (1969), art. 31, 1155 U.N.T.S. 331, www.legal.un.org/ilc/texts/instruments/english/conventions/1_1_1969.pdf.
- 67 See discussion in Marcia Valiante, “How Green is My Treaty? Ecosystem Protection and the ‘Order of Precedence’ under the Boundary Waters Treaty of 1909,” *Wayne Law Review* 54 (2008): 1525–51, in the context of the regulation of Lake Ontario.
- 68 The work of the IJC has been catalogued and analyzed in a mountain of academic literature. The point here is not to repeat those works but simply to note the commission’s important role in keeping the transboundary regime relevant.
- 69 See IJC, “Guiding Principles of the International Joint Commission,” at <https://www.ijc.org/en/who/mission/principles/guiding-principles>: “The Commission affords all parties interested in any matter before it a convenient opportunity to be heard. It promotes the engagement of state, provincial and municipal governments and other authorities in the resolution of these matters. . . . While directing its advice and assistance to governments, the Commission takes account of the need to foster public awareness of the issue in question and ensure that the public is able to contribute to the consideration and implementation of its assessments by governments.”
- 70 See, IJC, *The International Watersheds Initiative: Implementing a New Paradigm for Transboundary Basins; Third Report to Governments on the International Watersheds Initiative* (January 2009), available at <https://ijc.en/international-watersheds-initiative-implementation-new-paradigm-transboundary-basins-third-report>.

- 71 As discussed in IJC, *The International Watersheds Initiative: From Concept to Cornerstone of the International Joint Commission, Fourth Report to Governments* (October 2015), available at www.ijc.org/files/tinymce/uploaded/IWI/IJC-IWI-EN-WEB.pdf.
- 72 Joachim Blatter, "Beyond Hierarchies and Networks: Institutional Logics and Change in Transboundary Spaces," *Governance: An International Journal of Policy, Administration and Institutions* 16, no. 4 (2003): 503–26.
- 73 For a discussion of a "retreat from bilateralism" and recent examples of avoidance of the IJC in disputes over Devil's Lake and the Trail Smelter, see Shi-Ling Hsu and Austen L. Parrish, "Litigating Canada-U.S. Transboundary Harm: International Environmental Lawmaking and the Threat of Extra-territorial Reciprocity," *Virginia Journal of International Law* 48 (2007): 1–64. See also Toope and Brunée, "Freshwater Regimes."

