

**Governance Around the Great Lakes Between Canada and the United States.
Always in Agreement?****La gobernanza de los Grandes Lagos entre Canadá y Estados Unidos,
¿siempre de común acuerdo?**Frédéric Lasserre¹ & Yenny Esmeralda Vega Cárdenas²

ABSTRACT

Our objective is to analyze, from a geopolitical and legal point of view, the main challenges of water governance in the Great Lakes of North America. The analysis is based on an extended bibliographic search and a triangulation analysis of the corpus thus produced. The first part of the text identifies the concerns of riparian populations in recent years. The second presents the challenges of protecting the basin from climate change and political uncertainty. Overall, the text provides a better understanding of the construction of a transnational water governance model based on the commonality of interests, which seems to leave the old Harmon theory of absolute sovereignty behind. We will finally wonder if it will be necessary to attribute a new juridical status to this basin to protect these ecosystems from the challenges raised by climate change.

Keywords: 1. governance 2. water law, 3. Great Lakes, 4. North America.

RESUMEN

Nuestro objetivo es analizar desde un punto de vista geopolítico y jurídico los principales desafíos de la gobernanza de los Grandes Lagos de Norteamérica. El análisis se basa en una búsqueda bibliográfica extensa y una triangulación del análisis del corpus producido. La primera parte del artículo identifica preocupaciones de las poblaciones ribereñas de los últimos años. La segunda, presenta los desafíos que impone la protección de la cuenca frente a los cambios climáticos y la incertidumbre política. El artículo contribuye a mejorar el entendimiento para la construcción de un modelo de gobernanza transnacional del agua basado en una comunidad de intereses, lo que parece dejar atrás la antigua teoría Harmon acerca de la soberanía absoluta. Finalmente, nos preguntamos si se requerirá atribuir un nuevo estatus jurídico a esta cuenca, a fin de proteger los ecosistemas de los desafíos que imponen los cambios climáticos.

Palabras clave: 1. gobernanza; 2. derecho al agua; 3. Grandes Lagos; 4. Norteamérica.

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- 2 Governance around the Great Lakes between Canada and the United States. Always in agreement?
Lasserre, F. & Vega Cárdenas, Y. E.

INTRODUCTION

The Great Lakes Basin (GLB) in North America holds about 20 percent of the fresh water in the world and about 84 percent of freshwater in this region, shared between Canada and the United States (IJC, 2020). Owing to this, there is a false perception of abundance, since only one percent of this water is renewable, while the 99 percent is fossil water that remained in the basin after the last glaciation (Lasserre, 2005a; Northern Michigan Watershed Council, 2020).

The immense GLB is the main water source for more than 50 million people; this way, it is an economic and environmental aspect very relevant for Canada and the U.S. (IJC, 2020). In the early 20th century, the two countries took up the joint management of this basin by means of the Boundary Waters Treaty of 1909, which created the International Joint Commission (IJC), an autonomous quasi-judicial organization in charge of settling, mediating and putting forward solutions for conflicts related to boundary waters management at the border between Canada and the United States (Boundary Waters Treaty, 1909). Although the 1909 treaty is an expression of the desire to cooperate of both countries, this does not mean there are no conflicts or tensions between these governments, or lakeside federated states and provinces regarding the management, use, and protection of the water in such an immense basin.

Indeed, water pollution in the Great Lakes has been one of the most important challenges these countries have had to face over several decades, making them work jointly in the context of the treaty to find satisfactory solutions. As in most of the countries in the world, industrialization in this region has produced a great loss in terms of biodiversity. In fact, pollution has reached levels so high that water treatment is increasingly difficult, while the tourist sector has been seriously threatened (McCartney, 2017). A number of binational instruments have been signed, namely: the agreement regarding the quality of the water of the Great Lakes, adopted in 1972 and reformed in 1978, 1987 and 2012, with a view to restricting polluted water discharges in the basin, dragging the bottom of the lakes to alleviate the pollution accumulated over the years, as well as taking measures to restore the ecosystems and the quality of water in the basin (Vega Cárdenas, 2015).

By and large, protecting water from severe droughts all over the world, particularly in southwestern U.S., has been a concern in recent years. Considering the uneven water distribution in this country, many states in the region longed for it, so they devised water transference models and water markets for the basin. Despite their large volume, understanding the low renewal rate of the Great Lakes made most of the basin state governments oppose these transference plans; for its part, Canada adopted a measure to ban the transfer of water between states at national level (Lasserre, 2005a).

It is in this context that lakeside U.S. states (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin) and two Canadian provinces (Quebec and Ontario) overcame their differences and entered into a first transnational agreement

to manage transborder waters, whose goal was to preserve water in the basin, imposing an obligation to return the water, previously treated.

Indeed, the main goal of this Agreement was to prevent that projects massively exported water from the basin. This one-of-a-kind agreement is not an international treaty but a transnational agreement, since it is celebrated by eight U.S. lakeside states and two Canadian provinces, without directly involving the Canadian and U.S. federal governments. It is worth noticing that the signing of this document was possible because of the constitutions of these countries, which allow federated states to enter into interstate agreements to deal with situations that affect local issues such as the management and use of water in their territories (Vega Cárdenas and Vega, 2010).

Well now, recent situations have contested the transnational Agreement celebrated by U.S. states and Canadian provinces. In July 2016, an American county (Waukesha, Wisconsin) was authorized to receive water from the Great Lakes, despite the county does not neighbor the basin. The transference was approved, despite the discontent of Canadian provinces. In this way, important concerns arose regarding the impacts of water transfers from the Great Lakes toward various U.S. counties far from the basin.

Linked to the above, in March 2017, the decision of Trump's administration to drastically cut the budget for the Environmental Protection Agency (EPA) particularly affected the programs to improve the quality of water in the Great Lakes. Lakeside U.S. States and the Canadian provinces were concerned by this decreasing support, as it may importantly affect the preservation of that immense water reservoir. In the face of political changes dictated by the incumbent governments, and despite it was foreseen that Biden's administration might take a more favorable stance toward ecological problems, we wonder about the way the relationship of joint management and continual protection will be articulated with new challenges that could make the uses of water at both sides of the border compete. Will the basin continue being consensually managed by the various members of this community of interests? Or, will the decisions of the U.S. majority be imposed?

METHODOLOGY

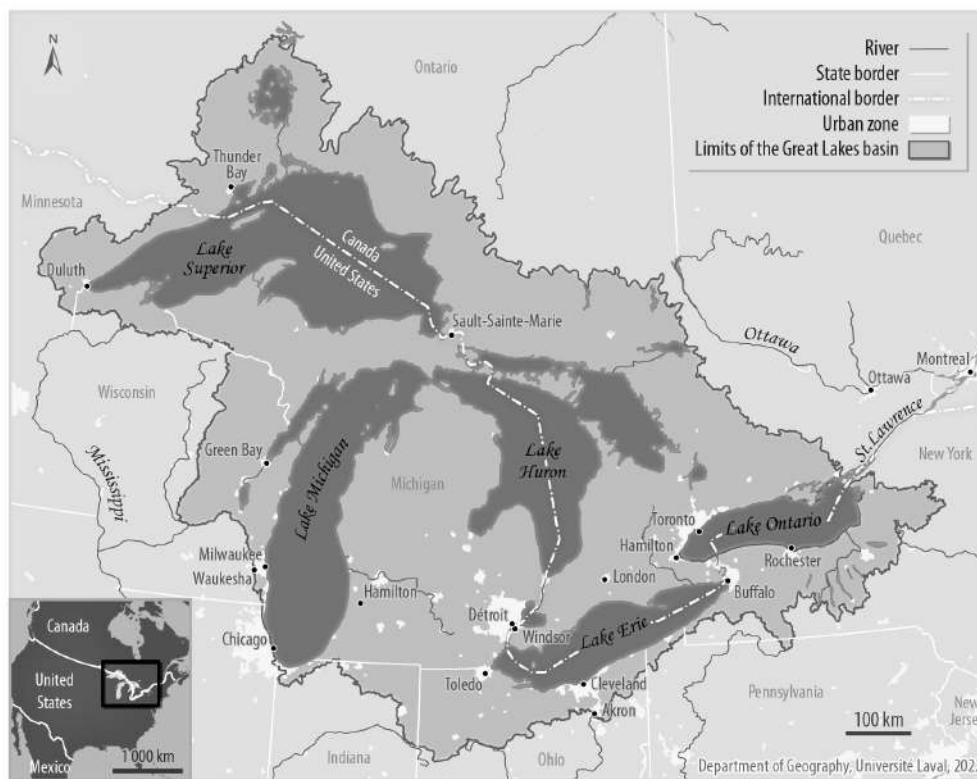
With a view to answering the main research questions, we ran a content analysis on the basis of reviewing secondary sources such as press and scientific articles, legal documents, law texts, and treaties and research reports. Our text is based on an extensive documental search and triangulation, which allows integrating various sorts of documents (Denzin, 1973; Rothbauer, 2008; Heath, 2001; Carter, Bryant-Lukosius, DiCenso, Blythe & Neville, 2014). The systematic search for sources with several search engines was enriched by means of identifying fundamental keywords (Pochet, 2005; Paillé & Mucchielli, 2012), following a content analysis approach (Negura, 2006).

- 4 Governance around the Great Lakes between Canada and the United States. Always in agreement?
Lasserre, F. & Vega Cárdenas, Y. E.

MAIN CONCERNS REGARDING THE GOVERNANCE OF THE GREAT LAKES BASIN OVER TIME

The earliest concerns about the management of the GLB came in colonial times, particularly regarding the division of territories and definition of the border. Indeed, GLB meant rivalry between France and Great Britain up to 1763, when New France was waived to the British crown. However, London kept direct control of the basin and did not share it with its thirteen colonies in the East coast; this increased the discontent of colonists with British policies. After the American Revolutionary War, Great Britain waived the Mississippi shoreline and the Ohio Valley to the U.S. in the Treaties of Versailles, 1783, and recognized a border drawn across the Great Lakes, leaving Michigan Lake on U.S. soil. This border was contested neither before nor after the 1812-1814 war, or at the later border treaties that defined the border to the west of the Great Lakes either (Lasserre, 2019).

Map 1. The Great Lakes Basin



Source: Own elaboration, Department of Geography of Université Laval.

Concerns regarding the governance of the North America Great Lakes intensified with the development of society, mainly as of the early 20th century. These two countries agreed from the start to jointly rule the use of transborder waters with a view to keeping an adequate water level that allowed for sailing. Challenges modified the industrialization processes; in this way, the use of water to produce electricity, hand in hand with

pollution, made neighbor countries negotiate the depollution of the basin and control the toxic wastes discharged with no control directly into the waters.

Later, in the face of global water scarcity, given the uncontrolled increase in its use for industrial and agricultural activities, adding to the increase of the world's population, the willingness of the lakeside inhabitants to preserve the water of the basin was contested by the possibility of selling it to Canada, and other southern U.S. states. As stated below, the history of the evolution of the management of this immense basin follows the main challenges that the countries might face, producing at once a regulatory framework according to the concerns that trigger them.

Concerns related to sailing preservation

In 1909, the signature date of the Boundary Waters Treaty between the U.S. and Canada, the main concern was to preserve the water level in the Great Lakes and Saint Lawrence River, natural border between the countries above, specifically for the purpose of navigation. This meant that the economic uses of water were still scanty significant, while water pollution was not a problem back then: on the contrary, waterway transportation was already a strategic sector that had to be developed and preserved. In Europe, there were already a number of international waterway commissions for the purpose of framing maritime transport such as the Central Commission for Navigation on the Rhine, 1815, and the Commissions of the Danube River, 1856.

In the context of these concerns, the International Joint Commission (IJC) created by the 1909 Treaty referred to Canadian projects to move water from Long Lake in 1941, and from Ogoki Lake to Lake Superior in 1943; and later, about the drop in the levels of Niagara River in 1950. These projects were deemed controversial because of their impact on the water level of the Great Lakes (Lasserre, 2005b).

The role of the International Joint Commission was defining to settle water controversies between the U.S. and Canada. Then, by means of this commission written agreements were celebrated, with due protocols between the countries, thus contributing to clear and consensual water management. It is worth underscoring that, despite the commission is not responsible for the management of shared waters, since such obligation is still part of the central administration of each country, its mediating role has contributed to pacifically manage waters between countries.

Indeed, the Commission has a defining role in the solution of conflicts over water, particularly because the well-known Harmon doctrine was expressly consecrated in the 1909 Treaty. According to this doctrine, each country is absolutely sovereign on the waters inside their territory, even though they flow toward the neighboring country, in Article 2 the following is stated:

- 6 Governance around the Great Lakes between Canada and the United States. Always in agreement?
Lasserre, F. & Vega Cárdenas, Y. E.

Each of the High Contracting Parties reserves to itself [...], the exclusive jurisdiction and control over the use and diversion whether temporary or permanent, of all waters on its own side of the line which in their natural channels would flow across the boundary or into boundary waters (Boundary Waters Treaty, 1909, n.d.).

Despite the article above, the Commission has intervened in various occasions to mediate between the parts in cases where the use or exploitation of the water by one of the parties might affect the water level, thereby, commercial navigation. Hence, IMC mediated to facilitate concertation, though not necessarily to promote joint water management. It is worth pointing out that back then the goal was not protecting the watercourse, but stabilizing the level, to not compromise commercial navigation. From this standpoint, the countries entered into the 1932 Treaty of Navigable Waterway in deep waters of the Great Lakes / Saint Lawrence River, which made room for the construction of the Saint Lawrence Seaway, inaugurated in 1959.

Certainly, back then uses of water such as navigation and hydroelectricity were given priority, despite they did not imply water extraction as such. Therefore the sufficient water level to navigate was prioritized, and the water current where turbines were installed, protected.

Well now, presently, the uses of water have evolved owing to population growth and the diversification of economic activities. However, water consumption is considered moderate, while there are some significant variations from one sub-basin to another, as shown in Tables 1 and 2.

Table 1. Water extraction by sector and sub-basin, 2019

	Total extraction	Urban	Agriculture	Industry	Thermoelectricity	Hydroelectricity	Other
Lake Superior	3 502.54	79.94	40.15	378.14	177.03	2 817.8	9.49
Lake Michigan	13 936.07	2 044	442.38	2 006.04	9 111.5	0	332.52
Lake Huron	10 787.58	275.94	79.57	205.86	10 223.29	0	2.92
Lake Erie	8 918.41	2 035.61	79.57	1 628.63	5 110.37	0	64.24
Lake Ontario	14 397.79	1 269.47	66.43	868.34	11 068.99	85.78	1 038.79
Total	51 542.38	5 704.95	708.1	5 087.01	35 691.16	2 903.58	1 447.96

Note. In million cubic meters. Hydroelectricity: with extraction, excluding production by the current.

Source: Great Lakes Council (2019).

Table 2. Water consumption by sector and sub-basin, 2019

	Consumption	Urban	Agriculture	Industry	Thermoelectricity	Hydroelectricity	Other
Lake Superior	53.29	8.76	1.1	41.25	2.19	0	0
Lake Michigan	1 038.79	116.07	332.52	359.53	230.68	0	0
Lake Huron	177.39	33.58	31.03	21.17	91.615	0	0
Lake Erie	574.88	262.07	58.04	134.685	112.79	0	7.3
Lake Ontario	486.91	163.155	29.57	106.945	142.35	0	44.9
Total	2 331.26	583.64	452.24	663.57	579.62	0	52.2

Source: Great Lakes Council (2019).

In the tables above, we notice the importance of extractions for the thermoelectric sector, while only in terms of consumption this use is relatively moderated, as it only consumes 0.01% of the total volume. Likewise, we notice that the magnitude of consumption is similar in the four sectors.

Later, in the sixties there was an express concern related to water quality in the basin due to the proliferation of diseases caused by direct contact with water, as presented following.

A growing concern related to water pollution

Industrialization severely affected the quality of the Great Lakes water. Public opinion was increasingly concerned with this pollution, particularly after the seventies, when grave public health issues related to water appeared (Vega & Vega, 2013). Important symbolic events such as the fire in Cuyahoga River in Cleveland, Ohio, induced by heavy concentrations of volatile chemical compounds deliberately discharged into the river, made municipal politicians react and U.S. public opinion manifest. It was said that Cuyahoga River had caught fire 13 times between 1868 and 1969 (see images 1 and 2). Which allowed glimpsing the heavy load of pollutants discharged in the river with no restrictions, thus the urgency to intervene in environmental regulation came to light (Desrochers, 1999).

Additionally, it has been documented that these fires were caused by wood waste, objects and oils at the riverbanks, which demonstrated the lack of ecologic awareness in the region at the time (Desrochers, 1999).

- 8 Governance around the Great Lakes between Canada and the United States. Always in agreement?
Lasserre, F. & Vega Cárdenas, Y. E.

Image 1. Cuyahoga River fire, 1952



Source: Ohio History Central (n.d.).

Image 2. Cuyahoga River in 1967, shortly before another fire



Source: Lefkowitz (2017).

Back then, abundant water pollution came not only from trade and industry, but from agricultural, urban and forest exploitation endeavors as well. This way, a study carried out by IJC in 1970 that analyzed the pollution in the basin underscored lack of oxygen, bacterial pollution, solid waste accumulation, presence of virus, organic pollutants and toxic material in large amounts, oils and radioactivity (IJC, 1970).

The deterioration of water quality affected public health causing outbreaks of cholera, typhoid and other water-related diseases (IJC, 1970). This worrying situation made the government of both countries enter into the first agreement on the water quality of the Great Lakes in 1972. Following, we quote a passage from its preamble that refers to the context of the time:

Determined to restore and enhance water quality in the Great Lakes System; seriously concerned about the grave deterioration of water quality on each side of the boundary to an extent that is causing injury to health and property on the other side [...] (U.S. Government and Canadian Government, 1972, p. 1).

This important treaty on water quality was reformed in 1978, 1983, 1987, and 2012. In the last reform, concerns related to acid rain and climate change were expressed (Alm, 1997; Alm and Parker, 2004). The application of these agreements that imply plans of depollution, control, dredging to clean the bottom of the lakes, research, monitoring by Canada and the United States, supervised by the International Joint Commission. These agreements entail cooperation and joint work of the two countries in the elaboration of programs and technology development for better the management of the Great Lakes ecosystems.

In 2003, Great Lakes Cities Initiative (GLCI) was created, which later became Great Lakes and St. Lawrence Cities Initiative, a binational organization comprised of mayors and local functionaries, pressure groups and other agencies, with a view to promoting the protection and restoration of the Great Lakes. It is worth noticing that cities or counties are key entities in the protection of the basin, as they are responsible for caring, cleaning and supplying potable water. Since they are closer to the population's water-related concerns, they actively participate in these topics and work in coordination with provincial and state governments on which they depend (Vega Cárdenas and Vega, 2010).

Such agency works in parallel to the Great Lakes – St Lawrence River Basin Water Resource Council, composed of governors of lakeside states and the prime ministers of Canadian provinces, which coordinates and makes decisions. Provincial and state governments, in the U.S. and Canada, are competent to legislate regarding water, territory and environment within their respective territories, given the division of powers between federations and territorial entities, as stipulated in the federal constitutions (Vega Cárdenas and Vega, 2010). Although the Great Lakes Initiative has distinguished itself because of the importance entailed to various administrative structures in the states, counties and localities in charge of water management, its lack of strength before the agricultural lobby, which causes a great deal of pollution, has also been criticized.

These numerous agreements to control water quality in the Great Lakes have been fruitful for the quality of water has importantly improved as of the seventies. The various uses of the basin water and chemical compounds hard to eliminate need advanced

- 10 Governance around the Great Lakes between Canada and the United States. Always in agreement?
Lasserre, F. & Vega Cárdenas, Y. E.

wastewater treatment processes impose discharge controls, and continual improvement of water-cleaning technology.

Well now, the Great Lakes hold about 20 percent of fresh water at global level, something that is of the interests of states and countries that experience droughts, given the disproportionate increase in the worldwide consumption of water.

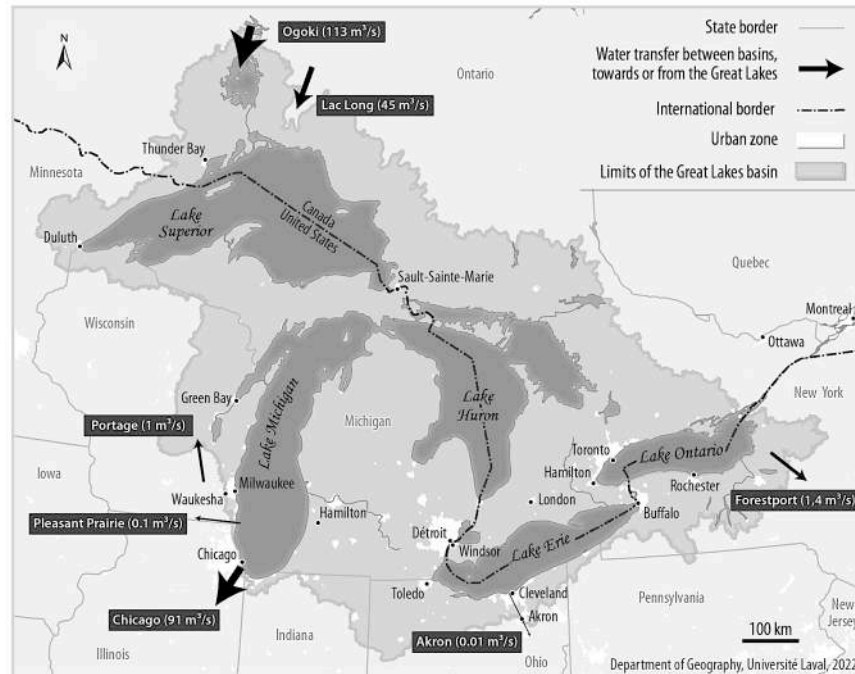
The fear of diverting waters from the Great Lakes

In the sixties and seventies, severe droughts and increase in water demand in the state of California fueled the inception of mass water transfer projects from Canada toward the U.S., particularly from the Great Lakes. Up to the early eighties, by-then incumbent Wisconsin governor, Lee Dreyfus put forward the transference of certain volumes of water from the Lake Superior toward west U.S. States that experienced severe droughts. In this context, the Great Lakes Commission was created in 1968, a concertation agency to regroup U.S. states and Canadian provinces in the basin. Political authorities rejected the possibility of exporting water from the Great Lakes; nevertheless, this commission seemed to have consultative authority only, as it was unable to revert a controversy that entailed the diversion of important amounts of water toward the city of Chicago. Finally, in 1997, under the auspices of other agency, the Council of Great Lakes Governors, the global management of possible water diversions was intervened.

Indeed, given the political restrictions of the Great Lakes Commission, lakeside states decided to create the Council of Great Lakes Governors (n.d.); founded in 1983, this Council gathered the governors of eight U.S. states in the basin; later, the provinces of Ontario and Quebec joined.

It is a Council with no legal or constitutional substantiation, in this way, it is a merely political council for the decision making of lakeside member states. Coordinating water management in the Great Lakes is one of the goals that served as a basis for its inception. The 1985 Great Lakes Letter was signed by lakeside-state governors and the prime ministers of Quebec and Ontario, and had as a main objective to prevent any diversion or exportation of water from this basin toward regions with lower water availability far from it; for example, the U.S. southwest.

Map 2. Mass transfers from the Great Lakes basin in 2010



Source: Own elaboration based on Lasserre (2005b).

Projects to export water persisted in spite of the creation of the Governors' Council (see Map 2) and the joint declaration by the federal governments of the United States, Canada, and Mexico in 1994 (Vega Cárdenas and Vega, 2010), by means of which the three leaders expressed that water was no part of the commercial agreement (North America Free Trade Agreement, NAFTA), save it would become a commodity. Therefore, the members of the council, realizing the weaknesses of the Great Lakes Letter, asked the International Joint Commission to declare on the risk of water exportations for the basin in 1998.

By then, two water exporting projects were objects of considerable discussion at both sides of the border. However, it is distinguishable that on the Canadian side, some governments considered that those projects had an important potential for the incomes of this country. What is more, back then water transfers from Canadian provinces toward the U.S. southwest had already been authorized. This was the case of the permit to export water granted by the British Columbia government and the authorizations of the governments of the provinces of Newfoundland and Quebec to start the mass trade of waters (Lasserre, 2005b; Vega Cárdenas & Vega, 2010).

These authorizations caused demonstrations and heated debates among the Canadian population; a large number of citizens, academicians and non-governmental organizations (NGOs) openly opposed the trade of water at large scale (Vega Cárdenas and Vega, 2010). In this context, the creation of the Governor's Council to stop such projects was

- 12 Governance around the Great Lakes between Canada and the United States. Always in agreement?
Lasserre, F. & Vega Cárdenas, Y. E.

fundamental, more so when the Canadian provinces were invited to be part of the council and it became transnational (see Map 2). In 1998, the members of the council, aware of the weaknesses of the Great Lakes Letter, asked IJC to pronounce on the risk of exporting water for the basin preservation.

After exhaustive research carried out by IJC, in which several actors were interviewed, namely: lakeside inhabitants, agricultural, industrial and scientific users, among others, this commission ruled not authorizing mass transfers of water outside the basin. On one side, this decision was made considering that the Great Lakes water is not renewable, since only one percent is renewed a year; and on the other, because of their high vulnerability to possible climate variations foresaw for subsequent years (IJC, 2000). Because of this recommendation and pressured by citizens and NGOs, the federal government of Canada managed to create a pact between provinces to formally oppose water exportations (Vega & Vega, 2013).

Furthermore, and aware of the variability of political decisions, on the basis of their local and environmental management powers, the members of the Council decided to reinforce the existing legal framework to meet the recommendation of IJC on a permanent basis. In this regard, they signed the 2001 Charter Annex, which was a commitment of the lakeside U.S. states and Canadian provinces to developing a binding agreement to prevent any water transference outside the basin.

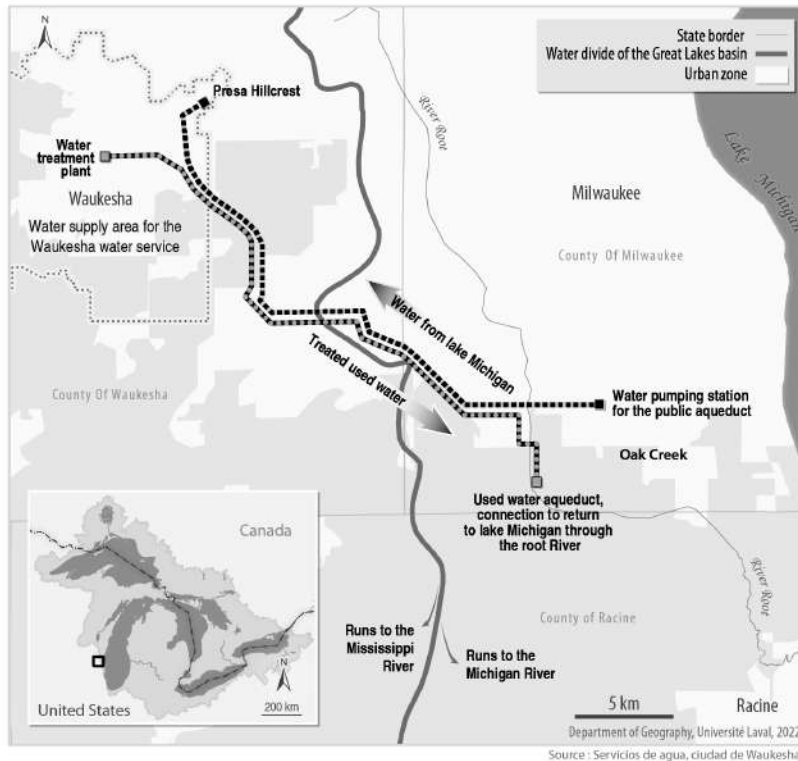
It is in this context that the members of this Council signed in December 2005 the *Great Lakes St. Lawrence River Basin Sustainable Water Resources Agreement*, which was incorporated into the legislation of the provinces of Ontario and Quebec, Canada, and in like manner, it was passed by the U.S. Congress, since legislators from the involved federated states had promoted that the agreement reached the rank of U.S. federal legislation (Lasserre, 2005a; Dempsey, 2008; Vega & Vega, 2013; Annin, 2009; Jetoo, Thorn, Friedman, Gosman & Krantzberg, 2015; Lasserre, 2018).

Although the 2005 agreement enables lakeside states to use water, it imposes the obligation to return the utilized waters to the basin, after properly treating them. This obligation is fundamental to maintain the amounts of water necessary for life in the basin, because as previously exposed the rate of water renewal is only one percent. This new transnational legal framework means a plain denial to every project to export water for commercial purposes, or water transferences with no restitution, which affect the sustainability of the basin and its biodiversity.

Nevertheless, counties outside the basin may ask the Council to authorize them to use water for domestic purposes, as long as they are relatively close to it and return the waters treated after using them. The case of water transferences toward Waukesha County, outside Milwaukee, Wisconsin, was emblematic. This case challenged the consultation and decision mechanism of the council and, in general, the juridical framework adopted in 2005. Although this county is close to the basin and its territory is outside its limits, the

county resorted to the mechanism in the agreement whereby it request the governors' authorization to take water from the Great Lakes (see Map 3).

Map 3. The project to transfer water from Lake Michigan to Waukesha County, 2016



Source: Own elaboration based on Behm (2016).

It is worth pointing out that according to U.S. jurisprudence, the pact allows water transferences outside the basin if it is proven there is no other alternative and the obligation to return the water used duly treated is accepted. However, it prohibits long-distance transferences of water, as for example, toward the southwest, which the lakeside states have always been keen on preventing.

As previously expressed, the transference was approved by the majority of the Council, despite the discontent of Canadian provinces, a minority in decision making. The relevant concerns are related to the possibility that the U.S. majority in the Council may replace, in the mid and long terms, the historic common decision making with Canadian provinces.

PRESENT AND FUTURE CHALLENGES

Water management agreements between the U.S. and Canada pose a series of challenges, mainly those related to the application of the 2005 international treaty, which implied

management by mutual consent between a clearly dominating party, the U.S. governors, and a minority of Canadian provinces.

Following, we analyze the challenges implied in protecting the quality of the basin's waters and biodiversity, particularly in the face of the climate change that affects it, for its effects, which seem to be intensifying in recent years, influence the water cycle. In this regard, the continuity of research programs engaged in identifying, among other things, the influence of climate change on the basin, or water quality control, was compromised by U.S. presidential decisions during the 2017-2021 period. In this context of political vulnerability, we wonder about the relevance of providing the basin with a particular status, for the purpose of not entrusting the protection of water solely to the political willingness of governors, prime ministers and presidents, not only for the benefit of future generations, but a livelihood for the various species in the basin.

Challenges entailed by the fulfillment of the 2005 transnational agreement

Since the signing of the Agreement in 2005, the governments of the eight lakeside U.S. federated states and the two Canadian Provinces, setting up an integrated management of such large basin has been one of the main challenges for the governments at various scales; bearing in mind that management, protection, control of uses and discharges implies the intervention of different government levels –municipal, state, regional, international–, magistral coordination is required, such as that of an orchestra conductor.

Sure enough, the main challenge for the 2005 Agreement has been its own implementation by member states, since it has required specific actions, such as adopting laws and mechanisms harmonized in the agreement. As it is an international treaty celebrated between two countries, its binding character came from a pact that imposed on each federated body the adoption of a law that incorporated the clauses of such agreement in their national legislations. In this situation, the provincial legislations of Quebec and Ontario, and those of the U.S. federated states, had to be in concurrence with the obligations defined in the Agreement (Vega & Vega, 2013).

It is in this context that the province of Quebec adopts the first law on waters in 2009, whereby the provincial legislation was incorporated into the 2005 Agreement (Éditeur officiel du Québec, 2009). In harmony with the other parties in the agreement, regulations and authorizations were issued to allow for management and information gathering of the uses of water. Likewise, controls as per the agreement, were set for every water transference outside the Saint Lawrence River and Great Lakes basin. For its part, the province of Ontario adopted the 2007 Safeguarding and Sustaining Ontario's Water Act, whose main goal was to meet the demands of the 2005 Agreement (Safeguarding and Sustaining Ontario's Water Act, S.O. 2007, c. 12 - Bill 198, 2007). While each lakeside U.S. federated state adopted laws and regulations in concurrence with the 2005 Agreement to incorporate them directly in the existing regulatory framework.

The second greatest challenge is the complex coordination and treatment of data, in particular by the Great Lakes Regional Council, which was created by agreement. Each state and province are responsible for the regular issuing of reports on the consumption, extraction, management and return of used waters to the council above. Adding to this, as agreed, each member of this consortium must submit large-scale projects that may have considerable impacts on the basin to be approved by the Council. The challenges of handling abundant information on water use in such an immense basin between two industrialized countries are highly complex. Not only are the implicated states and provinces large water consumers, but also have several state structures that further complicate coordinating the information at provincial, state, regional and county level (Paquerot, 2007; Vega & Vega, 2013).

Finally, a third challenge stands out in relation with accomplishing actual cooperation between the various users, who compete with one another because of their water needs. It is plain to see that conciliating consumption, but mainly waste water discharges from various activities, not necessarily treated, implies actual commitment from agricultural, industrial, and urban sectors. Owing to this, tensions arise among cities, indigenous peoples and non-governmental organizations that advocate for biodiversity protection (Paquerot, 2007). The conciliation of the users' interests in the governors' Council must be carried out by the provinces and states in the council, which, as previously underscored, experience a power imbalance.

In the case of water conflicts between Americans and Canadians from different sectors (for example, the agricultural sector v. household use, or v. bottled water industry), the resolutions will always be favorable for the U.S., for its representatives are more numerous, except for conflicts between U.S. states. Moreover, when there is need to protect the basin as a livelihood or ecosystem from water extraction or pollutant discharges by upstream U.S. states, the decision will be according to power relationships (Paquerot, 2007).

Finally, since the Agreement contemplates the application of the mechanism to control water uses in case of large extractions, analyses on the impact of numberless small projects in the basin are put aside. With the increase of micro-extractions, the impact on the basin might be as significant as a large-scale extraction project, particularly in the case of bottled water industry (Paquerot, 2007; Vega & Vega, 2013). Lastly, it is worth underlining that the complexity of jointly managing a basin as large as this by various states and provinces of different countries is stressed by the challenges imposed by climate change.

However, the U.S. and Canada are well aware that climate change imposes a reconsideration of the mutual interest in preserving the basin beyond the interests of the various users. Concertation and dialogue in IJC must be combined with clear goals to preserve the basin as a livelihood, prioritizing goals, not the parties' private interests. Producing plans, programs and consultations considering the basin an indivisible whole

- 16 Governance around the Great Lakes between Canada and the United States. Always in agreement?
Lasserre, F. & Vega Cárdenas, Y. E.

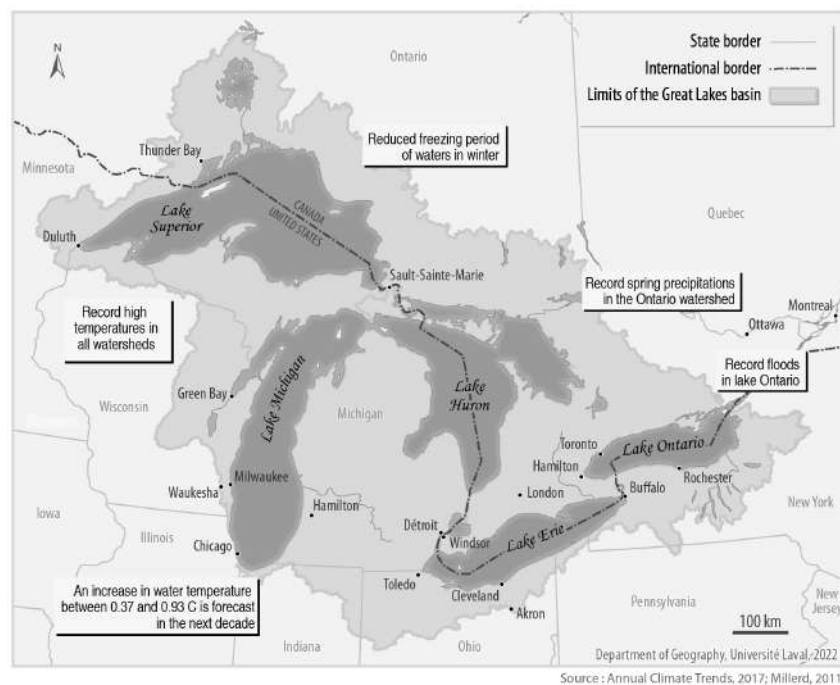
will always be the best ways to coexist and share the waters of a basin as important as this.

To sum up, despite that the 2005 Agreement aspires to preserve the St. Lawrence River and Great Lakes basin, the challenges posed by the text of the Agreement for the involved parties call its effectiveness into question. Therefore, it is important to add components that allow considering the basin a livelihood, improving the parties' controls and responsibilities so that it can be preserved for future generations, particularly in a context of climate change.

Protection of the basin in the face of climate change and uncertainty in political decisions

Climate change will have a considerable impact on the Great Lakes region. It is calculated that by the year 2100, temperature in the region may increase between 3 and 11 degrees Celsius, which will also increase water temperature (Great Lakes Mapping, n.d.). Scientific reports suggest that it might change between 0.37 and 0.93 degrees Celsius over the next decade. The impact will be undeniable on the basin ecosystem, as it will affect endemic species, favoring the proliferation of some versus the disappearance of others. As well, the proliferation of invasive algae, which at some time become toxic, is foreseen. As temperatures rise, water evaporation increases in summer, which causes the concentration of pollutants, affecting not only humans, but other species in the ecosystem (Binational.net, 2018) (see Map 4).

Map 4. Climate tendencies and impact on the Great Lakes basin



Source: Own elaboration based on Great Lakes Integrated Sciences and Assessments program (GLISA) (2019).

Climate change may set into motion various agreements entered between the parties and bring them to the negotiation table with a view to taking measures to address the concerns that were seemingly solved. In this way, navigation would have to be agreed upon once again, since evaporation data may compromise this important activity in the lakes. Likewise, the periods for this activity would have to be studied again, since a diminution in the duration of water freezing in winter is expected (Millerd, 2011).

Actually, river swelling from ice melting, earlier than usual in recent years, is due to a shortening of the winter caused by climate change. In this way, impacts on biodiversity and water quality are expected; these changes would call into question the agreements signed so far, particularly those that have to do with the quality of waters in the Great Lakes. Permits or authorizations for water consumption shall be reassessed by all the involved lakeside states, since, owing to temperature variations, the quantity and quality of the waters, the various uses may come into conflict more often.

Trump's administration did not seem to pay attention to data from scientific studies. The president announced his intention to decrease, suppress almost 90 percent of the budget for the Environmental Protection Agency (EPA), particularly affecting the program President Obama had created in 2010, called Great Lakes Restoration Initiative.

This initiative responded to a commitment between Canada and the United States to protecting and restoring the basin. Without such budget, the controls of water used by private actors, counties and agricultural sector would be affected, making the application of residual water regulations flexible. This would mean tolerating higher pollution levels in water, not only affecting the Great Lakes, but the quality of the water of St. Lawrence River, main water supply for the province of Quebec.

This political decision, at the time, was an object of opposition and protests on the Canadian side and republicans and democrats of the lakeside states on the American side. In the face of this generalized opposition, Trump's administration had to step down in 2018, expressing its intention to cut the budget in years to come (Matheny, 2017; Winowiecki, 2017). After strong protests of democrats and republicans, the former president totally changed his approach and stated that a large part of the EPA budget would be restored (Beitsch, 2019; Carmody, 2020), in any case, the intervention capacity of the agency was very limited.

It is worth pointing out that these challenges are certainly a specific political issue of Trump's administration, as in previous years, collaboration between the countries was developed in a context of exemplary cooperation and collaboration. However, in view of the uncertainty of political decisions that must be made in coming years, linked to hard evidence of climate change impacts on the basin, it is expectable that uses of water come into conflict with the conservation of the environment more often.

Related to the above, we wonder whether the cooperation regime established between the parties might be reinforced by recognizing the basin as an autonomous, subject of rights. Providing the basin with legal personality might play a preponderant role to ensure decision making. This way, the interest of the basin as a subject of rights (Stone, 1972; Vega Cárdenas & Turp, 2021) would guide the decisions made regarding the management of water use and consumption, as it considered an ecosystem, a livelihood, that must be protected, leaving behind the vision that it is only a source of water for human beings.

The rights of the basin, understood as a legal entity, seem to offer a more relevant and efficacious protection within the context of climate change and the global degradation of biodiversity. It is the right time to transcend simple political wills, susceptible to be influenced by actors, pressure groups, or preponderant users. Biden's assumption of office has already generated many expectations in the U.S. and Canada since environmental protection has turned into an undelayable responsibility. Certainly, the need to sustain a cooperation relationship between these countries is important (Alliance for the Great Lakes, 2021; Bryk Friedman, 2021; Henry, 2021).

CONCLUSIONS

The case of the Great Lakes of North America is a positive example of consensual governance, particularly because of the autonomy and mediating role of the International Joint Commission, created by the Boundary Waters Treaty of 1909. In this way, seeing the various conflicts, particularly those that deal with navigation and depollution of the basin, the intervention of the Commission has enabled pacifically and satisfactorily solving a number of challenges these countries have had to face. Then, the Commission has promoted the celebration of new binational agreements to protect this important basin.

It is worth noticing that projects to export water were designed to take it from this basin toward other countries and regions, the opposition did not mean signing a new binational agreement to protect the waters (Tarlock, 2007). This protection was not the object of an international treaty between the federal governments of the United States and Canada. Neither was there need to amend the Boundary Waters Treaty of 1909.

This protection was the result of a transnational pact or agreement entered between Canadian provinces and U.S. federated states in 2005, within their respective competences. It is worth noticing that this is not a mere coincidence: at federal level, the U.S. government would have probably authorized projects to export water from the Great Lakes toward other states in its territory that experience scarcity such as California, Arizona or Texas.

It is in this context of express willingness to preserve the waters of the basin that a framework to intervene, protect and control them was almost exclusively developed by

the lakeside states in close collaboration with the Canadian provinces of Ontario and Quebec. This pact comprised that of lakeside cities in the Great Lakes and St. Lawrence River, with a view to further protecting the basin.

To sum up, generating consensuses with clear objectives (as the one that motivated the signing of the 2005 agreement, in which exportation of water from the basin was cut down) is the key for a so complex collaboration to function. More so, when most of the members are from a single border side, that is, the U.S.

Well now, given the political inconsistency of the United States that may influence the fate of the basin, we wonder about the relevance of entering into a new pact. Surely, in the face of challenges imposed by climate change, providing the basin with the status of autonomous subject of rights, with the goal of protecting it as a livelihood for various species, might ensure the preservation and restoration of the Great Lakes and St. Lawrence River, particularly before the challenges imposed by climate change.

Translation: Luis Cejudo-Espinosa

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