International Joint Commission

Annual Report for 2008

Boundary Waters Treaty Centennial Edition

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Commissioners



Sterk may

Herb Gray Chair, Canadian Section January 2002-present



(in Tip Pierre Trépanier

Commissioner April 2008-present



June B. Grooks

Irene B. Brooks Chair, United States Section December 2002-present (Chair, March 2008-present)



allen A. Clim

Allen I. Olson Commissioner December 2002-present



Samuel W. Speck

Samuel W. Speck Commissioner May 2008-present



sell 04

Lyall D. Knott Commissioner April 2009-present





Commissioner March 2001-March 2009



Celebrating a century of cooperation in protecting our shared waters

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. Boundary Waters Treaty, Article IV The Boundary Waters Treaty was signed in 1909 to prevent and resolve disputes over the use of the waters shared by Canada and the United States and to settle other transboundary issues. The treaty established the International Joint Commission (IJC) to help the two countries carry out its provisions. At the time, disputes over water were already creating tension along the border. Settlers in Montana and Alberta were building competing canals to divert the waters of the St. Mary and Milk Rivers for their own use. On the Niagara River, it was increasingly clear that the two countries needed a management plan that could balance the growing demand for hydroelectric power with the interests of navigation, while safeguarding the unique natural beauty of Niagara Falls. The treaty provided a framework to deal with these disputes. The IJC held its first meeting in 1912 and has worked to resolve more than 100 matters raised by the two federal governments.

The clarity and simplicity of the treaty have contributed greatly to its success over the past 100 years. The Treaty provides general principles, rather than detailed prescriptions, to guide the two countries in matters such as approving dams that would affect natural water levels or flows across the boundary. In light of the cholera and typhoid outbreaks of the time, the countries also made the far-sighted commitment not to pollute the waters to an extent that would cause injury to health or property in the other country. The specific application of these principles is decided on a case-by-case basis. This approach has made the treaty adaptable over time as new issues arise. Yet the original principles have provided clear guidance and stood the test of time.







Canada and the United States each appoint three of the six IJC Commissioners, including one chair from each country. The two chairs serve concurrently. The Commissioners are appointed by the highest level of government in each country, but once appointed they do not represent the national governments; they operate at arm's length. The Commissioners traditionally work by consensus to find solutions that are in the best interest of both countries. The Commissioners work as a single body and are supported by U.S. and Canadian Section offices in Washington, D.C. and Ottawa, Ontario.

The IJC acts as a quasi-judicial body by deciding on applications for projects, such as dams, diversions or bridges that would affect the natural level or flow of boundary waters, or dams on transboundary streams that would raise the level across the boundary in the upstream country. When it approves a project, the IJC considers interests in both countries in accordance with the treaty and may require, in its orders of approval, that certain conditions in project design or operation be met to protect interests on either side of the boundary.

In cases where the operation of the project, such as setting flows through a dam, must meet certain conditions, the IJC appoints a board to monitor compliance with the order of approval on an ongoing basis.

Each Commissioner upon the first joint meeting of the Commission after his appointment, shall, before proceeding with the work of the Commission, make and subscribe a solemn declaration in writing that he will faithfully and impartially perform the duties imposed upon him under this treaty. Boundary Waters Treaty, Article XII The treaty also established the IJC as a mechanism to study and recommend solutions to transboundary issues when asked to do so by the national governments. Such requests, called "references," have focused on water quality and air quality, as well as issues related to the development and use of shared water resources. Usually when the IJC receives a reference, it appoints a board consisting of equal numbers of experts from each country. Board members jointly establish the facts in their personal and professional capacities, not as representatives of a The High Contracting Parties further agree that any other questions or matters of difference arising between them involving the rights, obligations or interests of either in relation to the other or to the inhabitants of the other, along the common frontier between the United States and the Dominion of Canada, shall be referred from time to time to the International Joint Commission for examination and report. Boundary Waters Treaty, Article IX

particular organization or region. Reports by the IJC in response to references are advisory only. However, they are made to the governments and the public following an impartial investigation by the IJC board, consulting with the public and building consensus among the Commissioners from both countries.

Some references may result in a continuing role for the IJC such as monitoring compliance in certain watersheds with international water quality objectives or alerting the two national governments to transboundary issues of concern. The IJC receives regular reports from its boards to help it fulfill these responsibilities. One notable example is the Great Lakes Water Quality Agreement, which was first signed in 1972 following an extensive IJC study. The agreement asks the IJC to report on progress by the governments toward restoring the chemical, physical and biological integrity of the waters of the Great Lakes basin ecosystem, and establishes a binational Great Lakes Regional Office in Windsor, Ontario.





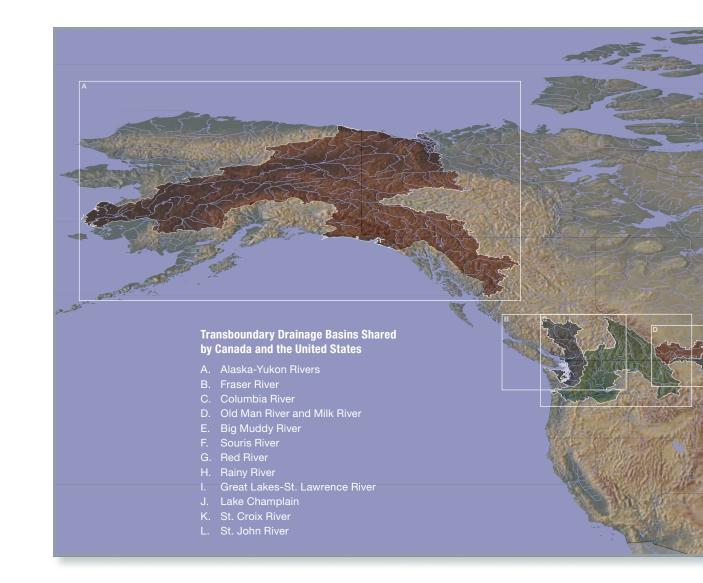
Another far-sighted provision in the treaty requires that the IJC listen to the views of all interested parties. Typically, the IJC meets this requirement by holding public hearings at the onset, and before it completes its deliberations on applications and references. The IJC also may involve the public in its work through a variety of other means such as appointing stakeholders to its boards, convening advisory groups, hosting web dialogues or holding public information sessions.

Looking to the future, the two national governments asked the IJC in 1997 to consider how it might best help them meet the environmental challenges of the 21st Century within the framework of the Boundary Waters Treaty. The IJC responded that same year with a series of recommendations, including a proposal to establish international watershed boards that "would adopt an integrative, ecosystem approach to the full range of water-related issues that arise in the transboundary environment." The governments welcomed the IJC's proposal and provided a reference to develop the International Watersheds Initiative on a pilot basis. The underlying premise of the initiative is that local people are often best placed to resolve water resource and environmental issues before such issues become international disputes.

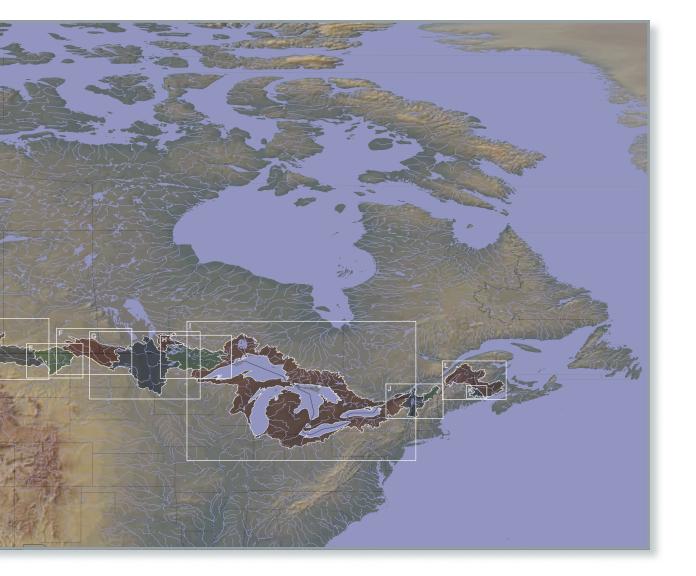
The Boundary Waters Treaty and the institution it created, the IJC, have served the citizens of Canada and the United States for nearly a century. Both have been able to meet new challenges while continuing to prevent and resolve disputes over the shared waters

and other transboundary issues. As population growth, climate change, and the global transport of pollution and invasive species place new stresses on transboundary ecosystems, reliable structures for cooperation like the Boundary Waters Treaty and the IJC will be more important than ever.

... in any proceeding, or inquiry, or matter within its jurisdiction under this treaty ... all parties interested therein shall be given convenient opportunity to be heard ... Boundary Waters Treaty, Article XII



The Boundary Waters Treaty and the IJC:



at work across a continent



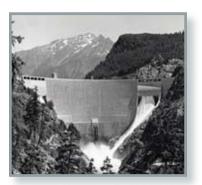
Skagit River

Basin: Fraser River Issue: Planned inundation of a valley Response: Seattle-B.C. agreement to provide power from alternate source IJC involvement: 1942-1984

Through skillful use of its authority and sheer determination, the IJC helped the City of Seattle and Province of British Columbia find a creative solution to a decades-long dispute over raising a dam on the Skagit River. The river flows from British Columbia into the State of Washington. The City of Seattle had received IJC approval to raise the elevation of Ross Dam in 1942, but did not proceed with its plans until 1967. During the intervening years, the recreational value of the Skagit River grew in the eyes of the region's residents, and the planned flooding of an additional 2,025 hectares (5,000 acres) in British Columbia generated enormous opposition.

In 1980, the IJC initiated a conflict-resolution strategy by appointing special expert advisors from both countries to jointly establish the facts, and by facilitating direct negotiations between British Columbia and Seattle. In 1984, the agreement between British Columbia and Seattle, which is sometimes referred to as a "paper dam," gave Seattle access to power produced in British Columbia at rates comparable to what it would have cost to finance the High Ross Dam. Other aspects of the agreement included an environmental endowment and cooperative efforts to restore and manage the environment in the Skagit River valley.







Osoyoos Lake

Basin: Columbia River Issue: Operation of a dam affecting water levels across the boundary Response: Binational rules for regulating levels and flows IJC involvement: 1942-present

Osoyoos Lake straddles the boundary between British Columbia and Washington and empties at its southern end into the Okanogan River. In 1947, the IJC issued an order requiring that an existing structure, called Zosel Dam, at the outlet of the lake be altered and operated to meet certain conditions. Over the years, the dam fell into disrepair. The State of Washington assumed ownership and proceeded to replace the dam with a new structure after receiving IJC approval in 1982. The IJC's current order of approval terminates in 2013 and Washington's governor has advised the IJC by letter that the state intends to apply for renewal. To prepare for the decisions it will need to make, the IJC approved a plan of study prepared by a contractor. The plan of study includes eight sub-studies that address a wide range of issues related to the operation of the dam that have emerged since the 1980s, including many raised by basin residents at the annual public meetings of the IJC's International Osoyoos Lake Board of Control. A number of the issues, such as potential water quality impacts related to the dam, are not addressed by the current order. In September 2008, the IJC initiated the first sub-study, an investigation of water levels for Osoyoos Lake during drought years, in close collaboration with the IJC's board and the Washington State Department of Ecology. A draft report discussing findings and recommendations is scheduled for completion in 2009. All eight sub-studies are expected to be completed by 2011.







Columbia River

Basin: Columbia River

Issue: Operation of a dam affecting water levels across the boundary **Response:** Arrangements to protect and indemnify affected interests **IJC involvement:** 1940-present

In 1940, the U.S. Government applied to the IJC for approval to construct and operate the Grand Coulee Dam and reservoir on the Columbia River. The river flows from British Columbia into the State of Washington. At certain stages the reservoir could raise water levels at the boundary by 75 centimetres (2.5 feet). The IJC approved the project in 1941 and required that the applicant protect or indemnify, to the IJC's satisfaction, any interests in British Columbia that would be impacted by backwater from the dam. The IJC's International Columbia River Board of Control monitors how operation of the dam affects British Columbia and the board's annual reports show that the raising of levels at the boundary has been minimal.

Issue: Coordinated development of water resources Response: Principles for cooperation recommended by the IJC IJC involvement: 1944-1959

Due to conflicting views on the use of waters in the Columbia River basin, the two governments asked the IJC in 1944 for its advice on whether further development of water resources would be practicable and in the public interest. In 1959, they asked the Commission to recommend principles for the apportionment of the downstream benefits of that development, particularly with respect to power generation and flood control. The principles and abundant technical information in the report on the IJC's binational study substantially helped the two governments negotiate the 1961 Columbia River Development Treaty. Although the Columbia River treaty does not expire, it may be renewed, terminated or renegotiated in 2024 if either country gives notice in 2014.





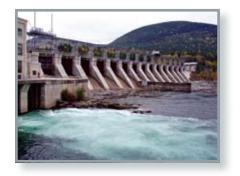
Kootenay Lake

Basin: Columbia River Issue: Operation of a dam affecting water levels across the boundary Response: Arrangements to protect and indemnify affected interests IJC involvement: 1924-present

Kootenay Lake is located in British Columbia just north of the border with Idaho. In 1938, the IJC approved the operation of Corra Linn Dam and the storage of 1.8 metres (six feet) of water in Kootenay Lake. The order of approval contains conditions to protect agricultural interests in Idaho that are affected by increased water levels in the portion of the Kootenay River that drains into Kootenay Lake. The IJC established the International Kootenay Lake Board of Control to oversee the regulation of Kootenay Lake water levels.

Between 1927 and 1970 the IJC approved several applications to construct and improve dikes adjacent to Kootenay River and in the Duck Lake area for the reclamation of flooded lands. Duck Lake is located just north of the border at the south end of Kootenay Lake. In 2003, the IJC terminated the Duck Lake orders after determining that protection afforded by Libby Dam further upstream had reduced, to nearly zero, the potential for Duck Lake's dikes to cause backwater effects in Idaho.







Flathead River

Basin: Columbia RiverIssue: Impacts of a proposed coal mineResponse: Postpone development until parties agree on mitigating the risksIJC involvement: 1985-1988

The two national governments asked the IJC to investigate the water quality and quantity implications of a proposed, private coal mine in the Flathead River basin in the mid-1980s. The proposed location for the mine was in British Columbia on the North Fork of the Flathead River, which flows into Montana.

The IJC found that the bull trout spawning grounds adjacent to the mine site were likely to be impacted. This was an issue of transboundary concern since the migratory species was an important game fish in the basin that spent part of its life cycle in each country. The IJC said that the Boundary Waters Treaty requires that the waters not be polluted to the injury of health or property in the other country, even if the injury does not result from the pollutants crossing the boundary.

In its 1988 report, the IJC said that there was a mutual obligation to protect the fishery through a range of management practices in both countries that would ensure that the provisions of the treaty were jointly honored. The IJC recommended that the mine not be approved until the risks were acceptable to both countries and it could be demonstrated that the potential impacts on the sport fishery would either not occur or could be fully mitigated. The mine has not been built, though a private sector proposal for a similar project in British Columbia is currently under consideration.







St. Mary and Milk Rivers

Basin: Old Man River and Milk River
Issues: Diversion and apportionment of water
Responses: A binational apportionment regime and ongoing discussions
IJC involvement: 1914-present

There have been conflicts between irrigators in the United States and Canada over using the waters from the St. Mary and Milk rivers since the 1890s, and this issue figured prominently in the negotiation of the Boundary Waters Treaty.

The St. Mary River, which flows north across the boundary from Montana into Alberta, has a fairly regular and dependable flow during the summer irrigation period because its source is high in the Rocky Mountains. The Milk River traverses a greater distance, but is less regular and dependable than the St. Mary River as a source of water. The Milk River flows from Montana into Alberta and then flows eastward roughly parallel to the international boundary before recrossing back into Montana. A substantial portion of the Milk River drainage lies in Saskatchewan. Irrigated land in the basins of these two rivers includes 160,000 hectares (400,000 acres) in Canada and 40,000 hectares (100,000 acres) in the United States.

Various plans were advanced in the United States to store water from the St. Mary River and divert it to the Milk River for use downstream, where the Milk River reenters Montana. Work on a St. Mary storage reservoir began in 1906. At about the same time, work began on the Canadian Milk River Canal, also known as "Spite Ditch," to demonstrate that Canada could redivert water from the Milk River back to the St. Mary River on its side of the border. A framework for sharing the waters was included in the Boundary Waters Treaty, and this brought some measure of order to the chaotic situation. The U.S. St. Mary Canal, diverting water from the St. Mary to the Milk River, was constructed in 1917.





The Boundary Waters Treaty provided for equal apportionment of the St. Mary and Milk Rivers between the two countries, but a number of issues as to how this would be carried out were left for the IJC to decide. In 1914, the two national governments provided the IJC with a reference asking for advice on the administration of the treaty apportionment. Following lengthy and sometimes difficult debate, the IJC issued an order in 1921 prescribing an apportionment regime. The terms of the 1921 order are still in force.

While the order has provided a stable basis for sharing the waters of the St. Mary and Milk rivers, questions have been raised from time to time by parties in both countries. In 2003, the Governor of Montana asked the IJC to review its order. The IJC held public consultation sessions in the basin and appointed a binational task force to examine the administrative procedures used to apportion the waters within the framework of the existing order. Following the release of the task force's 2006 report, the governments of Montana and Alberta initiated high-level discussions aimed at reaching a practical solution within the existing orders, to address Montana's concerns. The Governor and Premier signed terms of reference for a Montana-Alberta St. Mary and Milk Rivers Water Management Initiative and appointed a Joint Initiative Team in early 2009 to evaluate options for improving both Montana and Alberta's access to the shared waters of the two rivers. A report containing joint recommendations to the state and province is due in 2010.









Poplar River

Basin: Big Muddy River Issues: Water apportionment and water quality Response: Binational investigation and recommendations IJC involvement: 1975-1981

The Poplar River flows from Saskatchewan into Montana. The IJC recommended an approach to apportioning water in the Poplar River in 1978. Its report to the two national governments noted that the identified potential future uses of Poplar River water would far exceed the natural water supply in most years. In 1981, the IJC reported on the transboundary water implications of a coal-fired power plant that was already under construction near Coronach, Saskatchewan. The IJC found that the plant would likely have some adverse effect on water quality in Montana, but that injury to U.S. interests could be prevented without delaying operation of the power station. It also recommended a bilateral group to monitor water quality and quantity and a mechanism by which users in Montana could seek compensation for losses that might be attributed to the project. The governments acted on these recommendations and appointed a bilateral monitoring group. In addition, the power company made substantial changes to the ash disposal system in 1979, based on the report of the International Poplar River Water Quality Board, which was established by the IJC to carry out the technical investigations.



FSASKATCHEWAN Regina MANITOBA Weyburn Souris River Estevar ND Minot

Souris River

Basin: Souris River

Issues: Apportionment of water and preventing disputes **Responses:** A binational apportionment regime and merging of oversight groups **IJC involvement:** 1939-present

The IJC administers the apportionment of Souris River flows between Canada and the United States and helps prevent disputes over water use in the basin in a variety of ways. In 1941, the two national governments approved interim measures for apportionment recommended by the IJC after its investigation of Souris River water resources. The interim measures have been updated three times, most recently to reflect the 1989 Canada-United States Agreement for Water Supply and Flood Control in the Souris River basin.

The Souris River originates in Saskatchewan, passes through North Dakota, and then crosses into Manitoba. Since 1948, the IJC has kept a watch over development activities in the basin that could have transboundary impacts. In 2002, the IJC combined the apportionment and alerting responsibilities of its two separate boards into a single International Souris River Board. The board gained additional responsibilities and members after the federal governments asked the IJC to assist with the implementation and review of a Joint Water Quality Monitoring Program and perform an oversight function for flood operations, both of which had previously been carried out under the 1989 Canada-United States agreement. The IJC's 2007 directive reflects the full range of the single board's new responsibilities, which include ensuring compliance with the apportionment measures, reporting on activities that could affect transboundary water flows, providing oversight of flood operations, reporting on compliance with water quality objectives, reporting on aquatic ecosystem health issues and involving the public in its work.







Red River

Basin: Red River Issues: Flooding and pollution Responses: Monitoring of flood-mitigation recommendations and water quality objectives IJC involvement: 1948-present

The IJC has kept a watch over natural and human-caused factors that could affect transboundary flows since the study of the Red, Pembina and Souris river basins that it undertook in response to a 1948 reference from the two national governments. In response to another request in 1964, the IJC recommended international water quality objectives for the Red River to help the two governments meet their treaty commitments. In 2001, the IJC combined the water quality monitoring and alerting responsibilities of two separate boards into a single International Red River Board in order to promote a more efficient and better integrated approach to issues in the basin.

The Red River flows between North Dakota and Minnesota into Manitoba to Lake Winnipeg. The river is subject to periodic flooding, and in 1997 there was a huge and disastrous flood the full length of the river down to the city of Winnipeg. At the request of the two national governments, the IJC appointed a task force and produced a comprehensive report in 2000 called Living with the Red. Since floods of the same magnitude, or even greater can be expected in the future, the IJC considered a comprehensive range of flood preparedness, mitigation, emergency management and decision support measures. The report made 42 recommendations, including the redesign and major expansion of the floodway around Winnipeg, which was completed in 2008. The IJC's International Red River Board continues to follow the governments' implementation of the IJC recommendations.







Garrison Diversion Proposal

Basin: Red River

Issue: Water diversion and transfer of species and pollutants **Response:** Postpone diversion until parties agree on mitigating the risks **IJC involvement:** 1975-1977

The Garrison Diversion, an irrigation project in North Dakota proposed in the 1960s, was controversial on both sides of the border, and particularly in Canada. The concern was that the transfer of water from the Missouri River basin could introduce new fish, parasites and diseases across the continental divide to the detriment of fishing and the aquatic ecosystem in the Hudson Bay drainage. Transfer of pollutants and increased flooding downstream were also concerns. In 1975, the IJC was asked to investigate by the two national governments. In its 1977 report, the IJC recommended against building the portions of the project that could affect water flowing into Canada until the risk of transferring organisms could be eliminated or the two countries agreed that it was no longer a concern. The governments have abided by the recommendations.

As part of its ongoing responsibilities, the IJC's International Red River Board reports to the IJC on other proposed interbasin transfers of water in the region such as the Northwest Area Water Supply Project and Red River Valley Water Supply Project.



Photo credit: U.S. Geological Survey



Devils Lake

Basin: Red River Issue: Water diversion and transfer of species and pollutants Response: Coordinated scientific assessment of risks IJC involvement: 2005-present

Devils Lake is located at the end of a closed basin in North Dakota with no natural inlet and no natural discharge until the lake reaches elevation 445 metres (1,459 feet) above sea level and spills into the Sheyenne River, a tributary of the Red River. Heavy rains throughout the Devils Lake basin in 1993 marked the beginning of an ongoing wet hydrological cycle within the basin. By 2006 the lake had risen nearly 7.6 metres (25 feet). Rising lake levels have damaged agricultural lands, private homes, businesses, roads and other infrastructure.

In 2003 the U.S. Army Corps of Engineers recommended construction of an outlet that would drain Devils Lake into the Sheyenne River. Canada objected on the grounds that the water could transfer biota and pollutants into Canadian waters. After the Corps of Engineers project was abandoned because of the expense of the filtration system, North Dakota constructed its own outlet, which began operating in August 2005. Last-minute negotiations involving federal, state and provincial authorities resulted in the installation of a rock filter to act as a barrier against transfer of fish and some plants. The barrier does not protect against viruses and other organisms smaller than about two millimeters in diameter.

The IJC's International Red River Board is coordinating a scientific assessment of fish parasites and pathogens in Devils Lake, Sheyenne River, Red River and Lake Winnipeg in accordance with a request from the two federal governments in 2005. A final report on the results of the three-year monitoring program will be completed in 2010 with a risk analysis to follow.

Flooding in the Devils Lake basin continues unabated at present. The basin experienced an extremely wet fall in 2008, receiving approximately 300 percent of normal precipitation.









Lake of the Woods

Basin: Rainy RiverIssue: Water levelsResponse: International regulation when levels fall outside certain limitsIJC involvement: 1912-present

Lake of the Woods is located on the boundary between Minnesota and Ontario, with a small portion located in Manitoba. The outflow from the lake is controlled by a dam and power generating station located in Kenora, Ontario. In 1912 the two national governments asked the IJC to investigate regulating Lake of the Woods water levels. Recommendations from the IJC's five-year study provided the basis for the 1925 Lake of the Woods Convention and Protocol. Under the convention and protocol, whenever the level of the lake rises above or below prescribed elevations, the outflow is set subject to the approval of the International Lake of the Woods Control Board. A Canadian Lake of the Woods Control Board has responsibility for regulation of the lake under normal lake levels. With relatively few exceptions, the lake has remained within the range where it is under the authority of the Canadian board.



Photo credit: Tom Thomson



Rainy River

Basin: Rainy River Issue: Pollution Response: Monitoring of international water quality objectives IJC involvement: 1959-present

The Rainy River flows along the Ontario-Minnesota boundary from Rainy Lake to Lake of the Woods. The two national governments asked the IJC to investigate water pollution in the Rainy River and approved the recommendations contained in the IJC's 1965 report. To assist with its continuing supervision of water quality in the Rainy River, the IJC established the International Rainy River Water Pollution Board. The board reports on compliance with the water quality objectives approved by the governments, loadings from point sources in the basin and other issues related to water quality. From time to time, the Board may recommend amendments to the water quality objectives.





Rainy and Namakan Lakes

Basin: Rainy River Issue: Water levels Response: International regulation of levels IJC involvement: 1925-present

The IJC's investigations and 1934 report provided the basis for the 1938 Rainy Lake Convention between the United States and Canada. The convention gives the IJC the power to determine when emergency high or low water conditions exist in the Rainy Lake watershed, which lies along the border between Minnesota and Ontario. To avoid emergency conditions, to the extent possible, the convention directs the IJC to adopt measures of control for the dams at Kettle Falls, at the outlet of Namakan Lake, and the dam at International Falls and Fort Frances, at the outlet of Rainy Lake.

The IJC appointed the International Rainy Lake Board of Control to investigate the issue of emergency conditions and issued an order for regulating Rainy and Namakan lakes in 1949, after a detailed study by the board. The order was amended several times, most recently in 2000 after public hearings and a review of the impacts of water levels regulation on all affected interests. These included fish and wildlife resources and downstream interests. In addition to ensuring compliance with the order, the board conducts studies for the IJC, meets with the public and reports on concerns, initiatives and activities within the Rainy and Namakan lakes basin. A separate environmental monitoring workgroup, established by Minnesota and Ontario, has several studies underway to assess the effects of the changes to regulation made by the IJC in 2000.

Water levels were high on Rainy and Namakan lakes during the late spring and summer in 2008 due to high precipitation over the basin, including record high inflows to Namakan Lake during the first half of June. Outflows at the dams were increased to their maximum, but the inflows to the lakes exceeded the outflow capacity, which resulted in high water and flooding.









The Great Lakes and St. Lawrence River

WATER QUALITY

Basin: Great Lakes-St. Lawrence River Issues: water quality and ecosystem integrity Responses: Water quality objectives and a variety of programs IJC involvement: 1912-1918; 1948-1970; 1972-present

Pollution of boundary waters was already significant in 1912 when the two national governments asked the IJC to examine this vexing problem and recommend possible remedies. Sanitary engineers appointed by the IJC analyzed water samples from the Lake of the Woods to the Saint John River in what observers consider the largest bacteriological survey ever conducted, either before or since. At the time, the population along these boundary waters numbered more than seven million with the largest concentrations in the growing cities on the Great Lakes system. The IJC found that sewage from municipal and industrial sources resulted in gross pollution and that indiscriminant discharges from ships contributed materially to the problem.

The IJC's final report to governments in 1918 described the situation along the Canada-U.S. frontier as being "generally chaotic, everywhere perilous and in some cases disgraceful." The IJC found that pollution was crossing the boundary and causing injury to health in the other country, particularly in the channels connecting the Great Lakes, in contravention of the Boundary Waters Treaty. The IJC recommended that it be given "the necessary jurisdiction and authority … to make such rules, regulations, directions and orders as in its judgment may be deemed necessary" to regulate and prohibit pollution of boundary waters. As requested by the governments, the IJC prepared a draft treaty, but it was not negotiated by the federal governments to conclusion. It was not until after World War II that the two governments returned their attention to specific pollution problems along the boundary.





The governments gave the IJC a reference to address pollution problems in the St. Clair River, Lake St. Clair, Detroit River and St. Marys River in 1946, and the Niagara River in 1948. The IJC carried out comprehensive surveys and, in 1950, recommended that remedial measures and water quality objectives be put into place. Following approval of these recommendations by the two federal governments, the IJC appointed the Lake Superior-Lake Huron-Lake Erie Board with responsibility for the St. Marys River, St. Clair River, Lake St. Clair and the Detroit River and the Lake Erie-Lake Ontario Board with responsibility for the Niagara River. These two advisory boards reported to the IJC on a semi-annual basis through the late 1960s.

The first Great Lakes Water Quality Agreement was concluded by the two national governments in 1972 based on technical investigations and recommendations made by the IJC. The agreement, which focused on nutrients, suspended solids and other conventional pollutants, was replaced by a new agreement in 1978, which included a landmark commitment to virtually eliminate the discharge of persistent toxic substances. The governments also pledged to carry out programs addressing monitoring needs, airborne toxic substances, and a range of other issues, in annexes to the agreement. Subsequent amendments guided two major efforts. The first set target loads and compliance schedules for each country to follow in reducing total phosphorus loadings to the lakes. The second required a three-stage program for restoring beneficial water uses in each of 43 highly-degraded local areas, called Areas of Concern. Only three of these areas have been restored to the point where they are no longer considered to be Areas of Concern.





The two governments have concluded a comprehensive review of the Great Lakes Water Quality Agreement and are considering next steps. To gather early public input on the review of the agreement, the IJC held 15 public consultation sessions and a web dialogue involving over 4,000 people in 2005. The IJC also provided a special report to the governments in 2006 with its own advice concerning the review.

The IJC makes a report every two years on progress toward achieving the objectives of the agreement and also assists with agreement implementation. The IJC's biennial report assesses the adequacy of each country's programs and recommends actions in urgent need of attention. In its 13th Biennial Report, the IJC Commissioners departed from the usual practice to focus on the need for greater accountability under the agreement and recommended a reporting framework to help address this need. The forthcoming 14th Biennial Report will focus on progress to control municipal discharges.

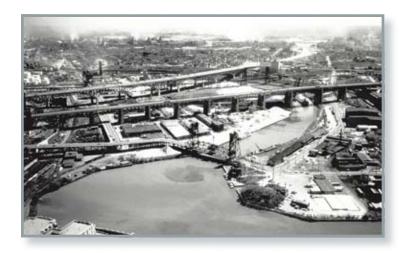
Several advisory bodies and the Great Lakes Regional Office in Windsor, Ontario support the IJC as it carries out its agreement responsibilities. Three IJC groups work exclusively under the agreement: the Great Lakes Water Quality Board, Great Lakes Science Advisory Board and Council of Great Lakes Research Managers. Support is also provided by the IJC's International Air Quality Advisory Board and Health Professionals Task Force.

Every two years the IJC asks its advisory bodies under the agreement to investigate a set of priority issues in order to focus the development of its advice to governments. Pressing issues in the nearshore waters of the Great Lakes, where important dynamics between land and water take place, provide the framework for the 2007-2009 priority work cycle. A workgroup with members from different advisory bodies has been set up to investigate each of the five priorities.



The eutrophication workgroup is focusing on why blue–green algae blooms (cyanobacteria) and rotting masses of the green alga, Cladophora, are becoming more abundant in shallow waters and on beaches of all the Great Lakes except Lake Superior. One question for this workgroup is the significance of the "nearshore phosphorus shunt," a process in which large colonies of zebra mussels redirect the flow of nutrients and energy in the ecosystem. The chemicals of emerging concern workgroup has developed a database of new chemicals being released into Great Lakes waters. Some that are bioaccumulating in Great Lakes fish and wildlife include flame retardants, synthetic musk fragrances and a group of chemicals known as fluorinated surfactants. The workgroup has also reviewed the regulatory policies and programs for these new chemicals. Other workgroups are investigating rapid response policies for aquatic invasive species, the benefits and risks of eating Great Lakes fish, and best management practices for managing water quality issues regarding Great Lakes beaches.

The biennial meeting is a major event held by the IJC to consult with the public on agreement-related issues before preparing its biennial report. The next biennial meeting will take place October 7-8, 2009 in Windsor, Ontario. Draft reports on the nearshore framework and related priorities will be distributed to the public during the summer so that discussions at the biennial meeting can focus on these topics.





Lake Superior

WATER LEVELS AND FLOWS

Basin: Great Lakes-St. Lawrence RiverIssues: Water levels and flowsResponse: Regulation by IJC order of water levels and flowsIJC involvement: 1913-present

Water flows out of Lake Superior at Sault Ste. Marie through the St. Marys River into lakes Huron and Michigan. In 1913, the electric companies on the Michigan and Ontario sides of the river each applied to the IJC to divert water for power generation that would otherwise flow through the St. Marys Rapids. They also requested approval to construct a control structure across the St. Marys River at the outlet of Lake Superior. The IJC held public hearings and approved the requests the following year. Its orders specified that Lake Superior water levels be maintained "as nearly as may be" within a specified range, in a manner as not to interfere with navigation. The International Lake Superior Board of Control was established to ensure compliance with the order, perform studies and otherwise assist the IJC.

Following a review, the IJC adopted a systemic plan in 1979, which recognized that taking the levels of Lakes Michigan and Huron into account while regulating the levels of Lake Superior would provide benefits throughout the Great Lakes system. The IJC also initiated a technical study and consultation process in the 1980s that provided gains for the fishery and the power companies. After the power companies constructed a berm to direct flows in the river over critical habitat, and natural resource agencies in both countries completed an environmental assessment, the IJC issued a supplementary order in 1985 that allocated flows for the fishery and power generation.







International Upper Great Lakes Study

WATER LEVELS AND FLOWS

Basin: Great Lakes-St. Lawrence RiverIssues: Updating the IJC order for water levels regulation at the Sault and
investigating changes in the St. Clair RiverResponse: A binational scientific studyIJC involvement: 2007-present

The International Upper Great Lakes Study is an independent examination of the regulation plan for outflows from Lake Superior to determine whether it can be improved to take into account changes since the current plan was implemented by order almost 30 years ago. The study is directed by a study board appointed by the IJC with five members from each country, including experts from federal, state and provincial governments and academia. Initial questions addressed include whether there is ongoing erosion in the St. Clair River and whether possible changes in conveyance might be the cause of a change in the relative levels of Lake Huron and Lake Erie. Supported by peer-reviewed science, the study will provide credible findings regarding the causes of low water levels and recommendations to improve the management of levels and flows in lakes Superior, Huron, Michigan and Erie.

More than 150 scientists are engaged in the study and more than 40 specific investigations related to the St. Clair River have already been completed. Recognizing the importance of public input, the study's Public Interest Advisory Group includes members with extensive experience from a wide range of interests, including ecosystem and environmental organizations, tourism and recreational boating, municipal and industrial water users, hydropower facilities, shoreline property owners and the shipping industry. In 2008, the study hosted 15 public meetings attended by more than 1,500 residents of the region. A draft report on the St. Clair River was released in May 2009 with a final report due to the IJC in the fall, following another extensive series of public meetings. A final study board report on Lake Superior regulation is expected in early 2012.







Niagara River

Basin: Great Lakes-St. Lawrence River

Issue: Competition over water for scenic beauty and power production; pollution **Response:** Allocation of water by treaty; international water quality objectives **IJC involvement:** 1912-1918; 1925; 1948-1969; 1950-1953; 1961-present

Disagreement over the use of Niagara River water for generating electricity was one of the two conflicts that were specifically addressed by the Boundary Waters Treaty. The treaty limited the amount of water that could be diverted from above Niagara Falls for power generation and specified a daily maximum rate to be used by the hydroelectric power plants on each side of the river. During World War II, the two countries authorized an emergency measure that increased diversions of Niagara River water for power generation. In 1950, the two national governments concluded a separate treaty concerning the diversion of the Niagara River that made it possible to redevelop the power plants. The Niagara River treaty specifies the minimum flow over Niagara Falls during daylight hours in the tourist season and at other times. Compliance is monitored by a committee appointed by the governments.

The two governments asked the IJC to assist with implementing the Niagara River treaty in various ways. Studies by the IJC under references in 1950 and 1961 guided the construction and extension the International Niagara Control Works, a gated control structure above Niagara Falls that provides for the most beneficial use of the river's waters and maintains the required minimum flows over the falls. The IJC also approved the removal of a shoal that had caused ice jams above the falls and the annual installation of an ice boom in Lake Erie near its outlet to the Niagara River. The ice boom helps a stable ice cover to form and reduces ice jams in the river. The IJC's International Niagara Board of Control oversees the operation of the control works and installation of the Lake Erie-Niagara River Ice Boom.





The IJC also studied the preservation and enhancement of the American Falls. In its final report in 1975, the IJC recommended against interfering with natural geologic processes to ostensibly enhance the beauty of the American Falls through measures such as removal of talus or artificial stabilization. It also recommended that governments discourage development that would detract from the visual enjoyment of the Niagara Falls.

Other activities in the Niagara River included the previously mentioned 1912 reference on pollution of boundary waters and the 1948 reference on pollution of the Niagara River. The IJC also approved construction of the Peace Bridge between Fort Erie and Buffalo in 1925 because it only has a minor effect on flows. In 1999, the IJC approved the construction of a second bridge adjacent to the Peace Bridge, but the project did not go forward.





Lake Ontario and St. Lawrence River

Basin: Great Lakes-St. Lawrence River Issue: Water levels and flows Response: Regulation by IJC order of water levels and flows IJC involvement: 1952-present

For decades, the two national governments pursued development of the St. Lawrence Seaway and international hydroelectric power project on the St. Lawrence River. A 1932 St. Lawrence Deep Water Treaty and 1941 Great Lakes-St. Lawrence Basin Development Agreement were signed by both governments, but did not receive the consent of the U.S. Senate. The governments decided that approval for a project could be sought, while protecting interests in both countries, through the application process under the Boundary Waters Treaty.

In 1952, the governments applied to the IJC for an order of approval to develop the power project at Cornwall and Massena on behalf of the U.S. and Canadian power entities. The governments also provided the IJC with a reference to study whether water level fluctuations on Lake Ontario, which was experiencing record high water levels at the time, could be reduced while taking all other interests into account. The IJC determined that these goals could be met and recommended criteria that addressed the needs of shoreline interests upstream and downstream of the project, as well as navigation and hydropower interests. After the governments approved the criteria, the IJC held public hearings and issued an order of approval in 1956 for regulating Lake Ontario outflows through the Moses-Saunders Dam.





The IJC initiated a study in 2000 to review its order to take account of the environment and recreational boating, interests that were not considered in 1956. The review also examined the changing needs of the other interests, climate change scenarios and advances in science and technology. After more than five years of study and two years of deliberation, the IJC released a proposed new order and regulation plan for public comment in March 2008. Public information sessions were held in 10 communities on Lake Ontario and the St. Lawrence River, followed by hearings in the same communities. The hearings and public comment revealed serious divisions by political unit and by interest, and there was little support for the IJC's proposal. The IJC has concluded that the regulation of Lake Ontario outflows in the international section of the St. Lawrence River should be based on revised goals. Since the IJC had said in its plan of study that it would seek the concurrence of the two federal governments, it has proposed forming a working group made up of representatives of the IJC, the federal governments, and the governments of New York, Quebec and Ontario. The purpose of the working group would be to provide advice on a regulation package that would meet revised goals and be mutually acceptable to the federal, state and provincial governments, and to the IJC.





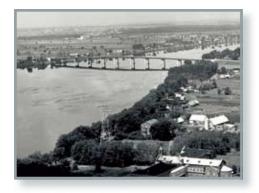


Lake Champlain and Richelieu River

Basin: Lake ChamplainIssue: Navigation and flood controlResponse: Binational investigation and recommendationsIJC involvement: 1936-1938; 1962-1967; 1973-1981

In response to a reference from the two national governments, the IJC investigated a potential deep waterway from Lake Champlain to the Hudson River in 1936, and again in 1962, but found that the waterway was not economically feasible. In 1937, the Government of Canada applied to install remedial works in the Richelieu River near St. Jean, Quebec to reclaim lowlands in southern Quebec and improve navigation. The IJC approved the works and a dam was constructed. However, the IJC has not exercised active oversight because the approved works were never completed and effective regulation of the Richelieu River for flood control and other purposes was never achieved.

The issue of regulating water levels in Lake Champlain and in the Richelieu River was raised again in a reference from the two national governments in 1973 during a period of high water levels. The IJC conducted technical investigations, carried out environmental studies and noted the need for effective management of development in the floodplain. The IJC's 1981 report found that a control structure at St. Jean could be operated to meet the environmental criteria. However, the IJC did not address the desirability of the control works, concluding that it would be appropriate for Governments to make that determination.







Missisquoi Bay

Basin: Lake Champlain

Issues: Effects of a causeway and phosphorous on water quality **Responses:** Recommendation to remove causeway and initiation of a study of critical phosphorous sources **IJC involvement:** 2004-2005; 2008-present

In 2004, the two national governments asked the IJC to provide advice on a proposal for the partial removal of the causeway to the Alburg-Swanton Bridge in Vermont at the outlet of Missisquoi Bay on Lake Champlain. The reference from the governments asked whether removal would cause pollution to the injury of health or property in Canada or the United States. Residents were concerned that the causeway impaired the quality of the water and people's health. In its 2005 report to governments, the IJC recommended removal of the causeway and that the IJC be granted a reference to re-examine conditions in the bay and the success of efforts to restore water quality.

In 2008 the governments asked the IJC by way of reference to coordinate initiatives in both countries to reduce phosphorus loading to Missisquoi Bay. The IJC established a study board to oversee monitoring, modeling and identification of critical source areas of phosphorus in the basin. It held two public hearings in December 2008 to consult with the public on the plan of study.







St. Croix River

Basin: St. Croix RiverIssues: Water levels and water qualityResponse: International monitoring of water levels and environmental conditionsIJC involvement: 1914-present

The St. Croix River flows along the boundary between Maine and New Brunswick. Beginning with an application in 1914 to construct a dam across the St. Croix River at Grand Falls, the IJC has issued orders of approval for four dams and several project modifications in the St. Croix River. A board of control was established by the IJC to monitor compliance with the requirements of IJC orders of approval for dams at Forest City, Vanceboro, Grand Falls and Milltown. A comprehensive review of the orders of approval was completed in 1997.

In 1955, the two national governments asked the IJC to recommend actions to improve the use, conservation and regulation of the St. Croix River basin's waters. The IJC's report included recommendations for improving water quality to a level that would permit restoration of runs of anadromous fish, which migrate from salt water to spawn in fresh water. In 1961, the governments formally adopted the water quality objectives recommended by the IJC and agreed that pollution abatement measures would be undertaken to meet these objectives. The governments also asked that the IJC maintain continuing surveillance over boundary waters pollution through an advisory board.





By 1984, municipal and industrial treatment facilities along the river were, with minor exceptions, operating well. The IJC concluded that its work regarding the water quality objectives had essentially been fulfilled, but recommended a further role for the IJC to monitor and report on changes in ecosystem quality, and propose corrective environmental actions. The governments formally concurred the following year. Annual reports regarding water quality conditions, the status of pollution abatement efforts, the state of the fishery and other environmental issues were prepared by the IJC's advisory board.

To encourage an ecosystem approach and greater operational efficiency, the IJC merged its board of control and advisory board in the St. Croix River basin in 2000, and designated the International St. Croix River Watershed Board as its first full-fledged international watershed board in 2007. Continuing the monitoring and reporting functions of the two former boards is among the watershed board's duties. The watershed board also monitors compliance with IJC orders of approval for a different Grand Falls Dam located on the St. John River. The first St. Croix River State of the Watershed Report was released in 2008.







St. John River

Basin: St. John River
Issue: Water levels and water quality
Response: Approval of dams and recommendation for a water quality agreement
IJC involvement: 1912-1918; 1925-1926; 1931-1935; 1950-1971; 1972-1977

The IJC activities in the St. John River basin began with investigations under the 1912 pollution of boundary waters reference. The St. John River originates in Maine, forms part of the international boundary and then flows into New Brunswick. The IJC approved the construction of a dam across the St. John River at Grand Falls (Grand Sault) in 1926. It also approved a small dam on a tributary to the St. John River in Quebec in 1935 because the dam raised water levels at the boundary. IJC studies on the possible development of water resources in the St. John River were carried out under a 1950 reference from the two national governments until 1971, when work under the reference was deemed to have been completed. In 1972, the two governments established a Canada-United States Committee on Water Quality in the St. John River. At the same time, the governments gave the IJC a reference to recommend action in regard to matters examined by the committee and to advise on further institutional arrangements. The IJC held public hearings on the report it received from the committee and, in 1977, recommended a Canada - U.S. Water Quality Agreement for the Saint John River basin and the adoption of water quality objectives recommended by the committee. The committee continued its work and revised its water quality objectives, which the two governments adopted through an exchange of diplomatic notes in 1984.













International Watershed Initiative

A greater focus on preventing disputes over the use of the waters shared by Canada and the United States will play an important role in the IJC's future work. Since 1998, the IJC has been developing its International Watersheds Initiative to encourage a more integrated and participatory ecosystem-based approach in dealing with transboundary water basins within the framework of the Boundary Waters Treaty. This initiative promotes an integrated, ecosystem approach that looks, not just at the quantity or the quality of water of specific border lakes or rivers, but at the complex interrelationships in the entire watershed. The IJC continues to exercise its jurisdiction while collaborating more closely with local stakeholders. The underlying premise is that local people and institutions, given appropriate assistance, can best anticipate, prevent or resolve many problems related to water resources and the environment.

The IJC began by identifying the St. Croix, Rainy, Red and Souris River basins as pilot areas for establishing international watershed boards. The boards provide citizens, stakeholders, scientists and officials at all levels of government the tools to communicate, share information, and deal more effectively with ongoing and emerging issues. For instance, access to complete, compatible and comparable data is essential to a board's ability to effectively and rapidly respond to floods, spills and other disasters within a watershed. To increase the availability of such data, the IJC established a Transboundary Hydrographic Data Harmonization Task Force in 2008 that is assisting Canadian and U.S. federal agencies in standardizing and integrating their hydrologic and geographic data into seamless datasets. Working with basin stakeholders and taking an ecosystem approach has produced noteworthy accomplishments in the pilot watersheds. In the St. Croix River watershed, the IJC's board has produced the first state of the watershed report and initiated discussions on combined sewer overflows. In the Red River watershed, the IJC's board is tracking government efforts to reduce damage from floods in light of recommendations made by the IJC after the disastrous 1997 flood. In the St. Croix and Red River watersheds, IJC boards have provided scientific information that is contributing substantively to ongoing discussions over contentious fishery and ecosystem health issues. In the Rainy River, the two IJC boards have set up an informal group that brings the hydropower interests and other stakeholders together on the management of water flows to reduce negative impacts on fish spawning.

To date, the IJC has, with funding provided by the two governments, supported over 40 IWI projects conducted or overseen by IJC Boards. In 2008 the IJC initiated a series of workshops with board members and other basin groups to further refine the International Watersheds Initiative and chart a path forward. The resulting recommendations were presented in a report to governments released in April 2009.

Increasingly, the emergence of environmental, economic and social challenges such as population shifts, invasive species and climate change are necessitating the adoption of a watershed approach. The International Watersheds Initiative provides a model for the management of transboundary basins that highlights the Commission's ability to harness the strengths of both countries to help solve problems of common concern and avoid cross-border disputes.







Air quality

The two national governments have relied on the Boundary Waters Treaty to address transboundary issues related to air as well as water. In 1928, they asked the IJC to investigate and report on the extent of damages in the State of Washington caused by fumes from a smelter at Trail, British Columbia. They also asked the IJC to assess the amount of compensation due for past damages and to identify possible corrective measures. The IJC made an extensive investigation and its report in February 1931 recommended payment of \$350,000 to cover claims for damages through the end of 1931. Remedial works were to be completed that year and the report expected that they would bring an end to the transboundary damages. The report was not accepted by both governments. As the problem continued, the two governments submitted the dispute to an arbitration tribunal that they appointed in 1935. Two years later, the tribunal required the Government of Canada to pay \$350,000 for damages through 1931 and \$78,000 for subsequent damages, based on the formula developed by the IJC. The tribunal also established a preventive regime and the possibility for future compensation. The Trail Smelter dispute became a landmark decision in international environmental law because two countries relied on arbitration to settle a transboundary pollution issue.

The IJC assisted with several transboundary air pollution issues in the Detroit-Windsor, Port Huron-Sarnia corridor over the years. In 1949, the governments asked the IJC to recommend remedial measures with respect to smoke from ships on the Detroit River. The IJC was then asked to monitor compliance with the objectives it had recommended until effective domestic laws were in place. A 1966 reference concerning air pollution in this corridor led to an ongoing role for the IJC to take note of air pollution problems in all boundary areas and, if considered appropriate, to draw such problems to the governments' attention. The IJC has continuing responsibilities under subsequent references in 1975 and 1988 to report on threats to human health from pollution in the Detroit-Windsor, Port Huron-Sarnia corridor.



The IJC established an International Air Quality Advisory Board to assist with its ongoing role to alert the governments to transboundary air quality issues of concern. In 2008, the IJC released the board's Second Summary of Critical Air Quality Issues in the Transboundary Region. The board made recommendations in several areas, including: strategies to encourage private sector air quality research and development; leadership to reduce aviation and marine emissions; coordination of transboundary air quality monitoring systems; collaboration with provinces, states, cities and regional authorities to green government operations; and assessment of current regulatory regimes for newly developed substances such as nanomaterials.

Also in 2008, the board reviewed environmental factors regarding strategies to meet future energy needs in both countries and began to look at air quality issues along the border that separates Alaska from British Columbia and the Yukon Territory.

In 1991, the governments signed the Canada-United States Air Quality Agreement and committed to achieving objectives for sulfur dioxide and nitrogen oxides, as well as intensifying scientific and technical cooperation. A subsequent annex addresses the management of ground-level ozone. The agreement directs the IJC to invite public comment on a progress report prepared every two years by the governments' Air Quality Committee and provide a synthesis of comments to the governments and public. In 2008, the IJC released its synthesis of public comment on the committee's 2006 Progress Report. Overall, the comments expressed satisfaction that substantial progress has been made by both countries in reducing emissions of sulfur dioxide, nitrogen oxides and volatile organic compounds, but stated that more needs to be accomplished to mitigate transboundary air pollution.

Twinning the North American and African Great Lakes

In the course of its work, the IJC meets with organizations from watersheds around the globe that wish to share experiences and learn about cooperation between Canada and the United States under the Boundary Waters Treaty. The IJC has participated in exchanges with many delegations visiting North America and participated in conferences such as the International Conference on Aquatic Invasive Species, World Water Forum and World Water Week. It is also a member of the International Network of Basin Organizations and the World Water Council.

One ongoing exchange involves "twinning" organizations from the great lakes regions of North America and Africa. In 2008, the IJC participated in a twinning workshop on the shores of Lake Victoria in Entebbe, Uganda funded by the Global Environment Facility and hosted by the Lake Victoria Basin Commission and United Nations University. The purpose was to strengthen the knowledge base on issues common to both areas and share experiences on making better use of science in resource management and policy decision-making. Among the more than 60 people participating in the workshop were representatives from IJC, the Great Lakes Fishery Commission, Lake Victoria Fisheries Organization, Lake Victoria Basin Commission, Lake Tanganyika Authority, governmental agencies and academia.



Boundary Waters Treaty Centennial Celebration

June 13 2009: Niagara Falls Centennial Commemoration

An event held on the Rainbow Bridge in Niagara Falls commemorated the centennial of the unique accord that created the IJC and led to a century of cooperation protecting our shared waters. The event capped a week of cultural and educational activities in the Niagara region, which included the launch of a Canada Post Boundary Waters Treaty Centennial commemorative stamp. Niagara Falls is the location of one of the two issues that were specifically addressed by the Boundary Waters Treaty.

A complete schedule of the Niagara events organized by the Niagara Boundary Waters Treaty Centennial Committee can be found at: www.oursharedwaters.com

Conferences, public meetings by IJC boards, and other activities to recognize the centennial will take place throughout 2009. For more information, visit the following website: www.bwt.ijc.org









Imagine two countries

sharing hundreds of lakes and rivers along their border

without conflict





A century of cooperation protecting our shared waters.