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THE GREAT LAKES: A REPORT CARD

John Mills†

Thank you very much, Jon, and good evening, ladies and gentlemen. It is indeed a pleasure for me to be here this evening. One of the prerequisites of being an after-dinner speaker is to make sure that your remarks are kept short. Actually, Jon has already given the report card, so my job is done. Thank you very much.

I would like to thank the Canada-U.S. Law Institute for inviting me to speak this evening at the session on Great Lakes and the St. Lawrence Basin—the report card. This is a subject that has certainly been part of my working life for the past ten years.

And, I am going to provide some statistical information as I go through the presentation, but they are all from the Canadian side of the Basin, and if you want to get a sense of the magnitude of some of those on the U.S. side, you can multiply them by anywhere from three to eight times, depending on the particular statistic.

I have organized the presentation into four sections. The first section provides some of the basic facts about the Great Lakes and St. Lawrence Basin; this will give you some indication of the magnitude of the impacts on the Basin from a Canadian perspective. I will then provide a short overview of the institutional arrangements and the management structures for managing the resources in the Basin. Also, I will talk a little about some of the successes that we have had. Lastly, I will offer what I think are some of the main challenges that we will continue to face in the Basin over the coming years.

Before I start, I want to bring your attention some of the background material that was provided to you. Recently, we released a series of nine important portraits describing what governments, industries, individuals, communities and environmental groups have achieved on the Canadian side of the Basin. These portraits provide us with some important lessons on what can be accomplished through both cooperation and partnerships, and also tell us much about what needs to be done.

† Ontario Region Director General, Environment Canada, Downsview, Ontario. Additional biographical information available at page xiv.

An interesting aside on that: one of the portraits – on the international atmospheric deposition network, which looks at the amount of pollutants coming out of the atmosphere and into the lakes 2 – was really a story of the fact that the Lakes are actually clean now, to the extent that the lakes themselves are becoming a source of some of these pollutants. That story was picked up by news media all the way to Japan.

THE GREAT LAKES/ST. LAURENCE BASIN: AN OVERVIEW

To give you an indication of the size and significance of the Basin, I will offer some statistics.

Figure 1. Map of the Great Lakes Basin

Figure 1 is a picture of the Basin, which runs from Thunder Bay on the west through to the mouth of the St. Lawrence River on the east. The Basin is some 1200 kilometres long from east to west and contains some 23,000 cubic kilometres of water. It contains 20 percent of the world’s surface fresh water. To give you some sense of what that volume is, if you covered North America, Canada, U.S. and Mexico with its water, the entire land area would be covered with water to depth of one meter.

The Great Lakes Basin is home of some 9 million Canadians (39 million people on both sides of the border). 3 It sustains 45 percent of the Canadian


industry, 25 percent of Canadian agriculture, and a commercial and recreational fishery that is valued at CAN$350 million annually. It also contributes to CAN$180 billion of trade between Canada and U.S. each year. Simply put, Canada and Canadians have a major stake in assuring both a thriving economy and a healthy environment in the Great Lakes Basin.

GREAT LAKES GOVERNANCE

Binational Level

The first international environmental agreement between Canada and the U.S. was the Boundary Waters Treaty of 1909, under which Canada and the U.S. agreed not to pollute the waters of the Great Lakes to the detriment of the other side. The treaty also created the International Joint Commission, which assists both the parties, both Canada and the U.S., in carrying out the treaty obligations and to address some of the disputes that arise, particularly those regarding the use of those boundary waters. Notwithstanding that agreement, the Industrial Age had a significant negative impact on the Basin over the number of years that followed, such that the problems had already been identified by the early 1960s. There was significant degradation and other problems; Lake Erie was identified as “dead,” and the Cuyahoga River caught on fire.

This led the IJC to study these problems, and it identified the serious problems, particularly in the lower Great Lakes. The findings led to the signing of the Great Lakes Water Quality Agreement (GLWQA) in 1972.

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4 Id.
6 Id.
8 Id., art. IV (“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.”).
9 Id., art. III.
11 Lake Erie was declared “dead,” although it was always been teeming with life, but not always the right kind. See, e.g., Teach: Water Pollution in the Great Lakes, at http://www.great-lakes.net/teach/pollution/water/water5.html (Aug. 1, 2002).
Over the next number of years, the GLWQA has been amended, first in 1978 and again in 1987.\textsuperscript{14} The Agreement provides a focus for a more coordinated approach to water quality management of the Basin. The greatest strength of the Agreement is that it helps the two federal governments to better coordinate their actions in respect to the objectives of restoring and protecting the waters of the Great Lakes. However, I think that the Agreement, since the last update 25 years ago, is starting to show its age, particularly in some of the annexes of the agreement. It is time we looked at updating it to bring the Agreement into alignment with the needs of today.

Domestic Initiatives

Canada-Ontario Agreements

To deliver on our commitments under the GLWQA on the Canadian side of the border, we have two domestic initiatives. The first is the Canada-Ontario Agreement\textsuperscript{15} (which actually predates the GLWQA), established back in 1971. It is an agreement between Canada and the province of Ontario, enabling both levels of government to coordinate our actions that address the issues and to meet the commitments under the GLWQA. We have completed negotiations on the fifth iteration of that agreement, and we are ready, once we get our political masters on side, to announce that agreement very soon.\textsuperscript{16} It is similar to the Great Lakes Strategy that was recently announced by the U.S. EPA Administrator, Governor Whitman.\textsuperscript{17} It is merely a mechanism through which the senior levels of government can coordinate their activities.

Federal Great Lakes Program

The second domestic initiative I want to talk about is the Federal Great Lakes Program, which is a mechanism to coordinate the actions of the eight federal departments on activities in the Great Lakes. In the last iteration of

\textsuperscript{11,551.}
\textsuperscript{14} Id.
\textsuperscript{15} Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (1971).
the Program, we increased the funding to that by about $40 million to focus on Areas of Concern (AOCs) – those hot spots in the Great Lakes Basin.

St. Lawrence Action Plan

And, lastly, I want to note that on the St. Lawrence River side, there is still the St. Lawrence Action Plan, an agreement between the federal government and the government of Quebec, to address the water quality issues in the St. Lawrence River. The latest version of that agreement is known as “Vision 2000,” and they are in the process of updating that agreement.

SUCCESS STORIES IN GREAT LAKES MANAGEMENT

I would like to mention a few success stories; these stories are indicative of the results that we have had from the work that we have done on the Great Lakes.

Severn Sound

The first is Severn Sound, which is located in the Georgian Bay on Lake Huron. Some of you will recall, back in 1994, Collingwood Harbor, also in the Georgian Bay area, just south of Severn Sound, was restored and removed from the list of AOCs. Collingwood Harbor was the first and continues to be the only AOC that has been restored and removed from that list.

I am pleased to report that we are very close to being able to remove Severn Sound from that “to-do” list. The story of Severn Sound is somewhat remarkable. Some ten years ago, there was a significant restriction on fish and wildlife consumption and serious complaints that the drinking water tasted funny and smelled somewhat awful. Through the actions of government – and, more importantly, through the actions of local community – those issues were addressed over a ten-year period. There was significant investment from all levels of government that involved investment of the local level, both in-kind of direct contributions, that allowed those issues

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20 Great Lakes Report Draws Environmentalists’ Ire, GLOBE & MAIL, Sept. 23, 1999, at A8. (noting that the Collingwood Harbour clean-up was the only one of nine promised remedial clean-ups that was finished).
dealing with the sewage treatment plant upgrades and the degradation of some of habitat and wildlife areas to be addressed.

One of the things about Severn Sound that is noteworthy is that it is an example of how a local community can come together; the Severn Sound community developed and created a Severn Sound Environmental Association on its own volition. It is a wonderful example of a place-based shared environmental responsibility of working arrangements between governments and the local community that created and fostered the development and the advancement of our environmental agenda.

I am also pleased to report that Severn Sound was not the only AOC that is close to getting off that list. Places like Spanish Harbour, Jackfish Bay, Peninsula Harbour, Nipigon Bay and Wheatley Harbour are also very close to being taken off the list of AOCs. 21

Wetlands Management

As the urban landscape creeps further across the Great Lakes - St. Lawrence Basin, we are at risk of losing a valuable natural water filtration system – the wetlands. This is a system that removes suspended particles, nutrients, and even toxicants, from our water supply.

These losses have been significant. Over the years, two-thirds of the Great Lakes wetlands have been lost; 22 once they are lost, they are not easily recoverable. Therefore, governments and organizations have been working to both recognize the importance of those wetlands and to take steps to rehabilitate those threatened sights and rehabilitate damaged ones. In addition to our rehabilitation and protection projects, we continue to monitor and study wetlands to better understand the role they play in the maintenance of the environmental balance and health of the Basin.

This work is not limited to either local or regional action. The Government of Canada is also working with the U.S. government, through the Binational Great Lakes Wetlands Consortium, to develop indicators of coastal wetlands health. 23 We are actively involved with the United States, Mexico, and many other government partners in habitat protection under the North American Wildlife Management Plan. 24 These trilateral, bilateral,

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24 That is, the U.S. FISH AND WILDLIFE SERVICE, U.S. DEPARTMENT OF THE INTERIOR & CANADIAN WILDLIFE SERVICE, ENVIRONMENT CANADA, NORTH AMERICAN WATERFOWL
regional and local wetland partnerships and actions will help to restore
anthropic fish and wildlife habitat in the Great Lakes and St. Lawrence
Basin.

Over the last few years, working together with the priority sector and
community partners, some 5,000 hectares have been acquired, and a further
12,700 hectares have been rehabilitated. The restoration of some 1,400
hectares is currently underway.25

Mercury Abatement

We also are working hard to improve the quality of the ecosystem health
in the Basins as it particularly relates to toxic substances, and I want to talk
about one of those – mercury.

Mercury is one of the toxic substances we are working to reduce because
of its threat of direct impact on both on human and ecosystem health. From
the outset, we recognized that if we were going to reduce mercury discharges
into the environment, we would need to act on several different fronts.
Working with our partners in Canada and the U.S., we have implemented
programs that have led to reduction in direct mercury discharges by 78
percent since 1988.26 The annual releases of mercury into the Great Lakes
has been reduced from 14,000 kilograms per year in 1988 to 3,000 kilograms
today.27 However, that is still not good enough; there is more that needs be
done.

In 1997, the governments of Canada and the U.S. signed what is known as
the Binational Toxics Strategy.28 The Strategy provides a collaborative
framework that allows the government of Canada and the U.S. to work
together to virtually eliminate persistent toxic chemicals like mercury from
the Great Lakes Basin. The Strategy enables the governments on both sides
of the border to coordinate binational action to reduce those substances.

There are also other small but significant activities that are underway
concerning mercury. The Mercury Elimination and Reduction Challenge
(MERC) is an example of how government can be in a working partnership
with industry and environmental organizations and make a difference. In
June 2001, in Canada, Pollution Probe, Ontario Power Generation, the
Ontario Ministry of the Environment and Environment Canada launched a

MANAGEMENT PLAN (1986).

25 GOVERNMENT OF CANADA & GOVERNMENT OF ONTARIO, CANADA-ONTARIO AGREEMENT
26 Id.
27 Id.
28 Strategy for the Virtual Elimination of Persistent Toxic Substances in the Great Lakes
pilot project called “Switch Out” as part of MERC. Switch Out’s goal is to achieve an effective, cost-efficient and sustainable process to recover a minimum of 90 percent of the mercury switches in cars before it is released into the environment when those vehicles are recycled. Key industrial partners, such as the Ontario Automobile Recyclers Association and Canadian Vehicle Manufacturers Association, are also part of that program.

It is through creative partnerships such as these that we continue to move forward in restoring and protecting the Great Lakes and St. Lawrence Basin. In addition, last May, Canada played a significant role in negotiations that led to the United Nations Convention on POPs – persistent organic pollutants. This Convention, when implemented, will significantly reduce the emissions of the “dirty dozen,” including PCBs, dioxins, furans, and DDT.

Under NAFTA, Canada is also committed to report on mercury releases as part of the Commission for Environmental Cooperation’s regional action plan (RAP) on mercury. Furthermore, within our borders, under the Council of Great Lakes’ Council of Environmental Ministers, mercury is also a targeted substance.

CHALLENGES FOR THE FUTURE

I would like to now turn to what I think are some of the significant challenges that face the Great Lakes if we are to maintain and continue the progress of restoring and maintaining that ecosystem.

Urban Growth

Over the next 20 years, the Great Lakes/St. Lawrence Basin will account for one-half of the total population growth in Canada.
Figure 2 shows southwestern Ontario, where most of the growth will occur. The western end of Lake Ontario is referred to as the “Golden Horseshoe.” This region is now the third most densely populated center in North America, behind Los Angeles and New York and the third fastest growing area behind Los Angeles and Seattle.\footnote{34} The result of this population growth will be a higher demand for water and other natural resources; an increase in solid and liquid wastes; greater demands on recreational space; more intense land use that may threaten sensitive shorelines, wetlands and other habitats, thus placing even more pressure on species-at-risk, disrupting navigation and having a negative economic impact on the commercial fishery and forests. It also has the potential to increase urban and rural runoff of non-point source pollution. Further, the trend of the loss of agricultural land will likely continue. During the past 20 years, the Great Lakes Basin has lost more than 1.6 million hectares of farmland; 4 million acres of farmland has been lost as a consequence of urban sprawl.\footnote{35}

\footnote{34} That is, if we leave out Mexico City, the most populous metropolis in North America.

Climate Change

Climate change and variability may be the most problematic environmental issue that we face, partially because of its synergy and influence on other environmental issues. While much is yet to be learned about the specific regional impacts of climate change, science does agree that the Basin will become warmer, while water supplies and lake levels will decline.\(^{36}\) Soil conditions may become drier, and extreme weather events may become more frequent and more severe.

Without appropriate action, the Basin may see increased vulnerability to urban infrastructure due to more frequent and severe storms; greater competition for water supply; loss of critical and restored shoreline habitat due to receding water levels; challenges to human health due to greater heat and stress; and increased pollution of hazardous weather events.

Introduction of Exotic Species

The continued introduction of non-native invasive species has already caused significant environmental and economic impact on the Basin. They exploit aquatic habitat and compete for food resources; they affect the diversity of the area, the distribution of abundance of native species, and increase the economic costs for many water users.

The Great Lakes Basin represents probably the best-documented aquatic system with regard to endangered species. On the other hand, very little is known about alien species in the St. Lawrence River. Currently, there are about 160 aquatic species of fish in the Great Lakes Basin, and about 130 of them are non-native species. Non-native species have threatened the Basin ever since the Europeans settled the region, but fully one-third of these organisms have been introduced in the past 30 years, at considerable cost to fisheries. For example, the cost associated with control of the sea lamprey \((Petromyzon marinus)\) and restocking the Basin with trout has amounted to tens of millions of dollars.\(^{37}\) The accidental introduction of the zebra mussel \((Dreissena polymorpha)\) is threatening the commercial and recreational fishery of Lake Erie and causing unprecedented changes to the Lake’s ecosystem; and, again, more recently, the round goby \((Neogobius melanostomus)\) has been linked to the botulism events in Lake Erie that have


The Great Lakes continue to suffer the impacts of aquatic non-native invasive species. Controlling those non-native species, and, more importantly, understanding the vectors of their introduction, will be a major challenge for the Basin as a whole.

Natural Resource Management

While the Great Lakes/St. Lawrence Basin will experience rapid growth in population and development over the next 20 years, the natural resources and the capacity of the environment to support this growth will remain constant. Assuring that the growth does not degrade or diminish the legacy left for further generations is a challenge that we face.

The main challenge here is to develop broad-based partnerships, undertake demonstration projects, and promote the applications of successful models and approaches towards long-term sustainable resources use. The Government of Canada is developing a framework to better integrate water management activities in keeping with the philosophy of integrated water resource management, from source to tap and back to source. By using management frameworks to meet those challenges of the 21st century, we will be in a position to achieve the vision that Canada has of people making responsible decisions about the environment.

Lastly, I want to mention the importance of the Great Lakes and St Lawrence Basin sustainable indicators. They provide the “big-picture” perspective on the state of the entire Basin, and allow the community, the government, NGOs, industry and individuals to work within that consistent framework. Further work must be done on these indicators and the monitoring that supports them, so that the decision-makers at all levels can make the most informed policies.

During the past few years, municipalities in Canada have undergone an unprecedented level of change. These changes include the size and structure of many of the municipalities and the funding and scope of the programs, many them having to do with both the human health and environmental management services previously delivered by the provincial level of government. Many municipalities simply lack the capacity to deliver on their environmental responsibilities. This is a challenge for all levels of government to come together to provide that support so that, within the legal structure we have in place, they can deliver the services that are required of them. Similar challenges exist with the 63 native communities that exist in the Basin, and we are working with them to try to provide that synergy and support that is necessary.

CONCLUDING REMARKS

First, we need continuous monitoring and evaluation in the Basin in order to anticipate future challenges, changes and opportunities. Our main challenge in developing management approaches are the mechanisms that allow us to better deal with the forthcoming challenges facing that Basin. The Basin is cleaner today than it has been in 50 years; however, urban growth, climate change, aquatic invasive species and unsustainable human activity all have the capacity to undermine the progress we have achieved to date. Management tools that incorporate these evolving themes need to ensure that this does not happen.

Second, the raw engagement of the local community is of paramount importance. Tens of thousands of people across the Basin are currently engaged in local activities in terms of restoring AOCs, controlling pollution, and other activities. We need to see that this is continued and expanded.

Third, we are confident that high-level government leadership has contributed to the benefit of the aquatic life of the Basin, our continued prosperity, as well as to the scientific knowledge and the understanding of the interactions of the ecosystem. The Great Lakes Water Quality Agreement and our domestic programs pioneered the application of the ecosystem approach to science, and we expect it will become an international model of effective resource management involving private, public and non-profit partnerships.

Finally, while the ecosystem of the Great Lakes and St. Lawrence River is shared between Canada and the U.S., and stresses to the ecosystem have potential impact on both countries, the responses to those stresses do not take the same form. The important thing is that, through continued bilateral and binational cooperation, our actions will further the goal of protecting and restoring the Great Lakes ecosystem. This can only be achieved through the engagement of a broad spectrum of Great Lakes stakeholders within and outside the government. Although our two countries have different regulatory regimes and mechanisms in place to deal with Basin issues, it is important to understand that different solutions can and may yet lead to the same result.

With that, I would like to thank the Canada/U.S. Law Institute, Case Western Reserve University, and the organizers of this conference for permitting me to come and talk to you this evening. Thank you very much.