

OVERVIEW

Few issues have captured as much concern from the more than 33 million people living around the Great Lakes over the past 30 years as the contamination of those precious freshwaters with persistent toxic substances.

Over those years, governments in Canada and the United States have joined together with industry, citizen groups and other stakeholders in a concerted effort to address the potential impact these substances are having on human populations and the entire Great Lakes ecosystem. And while the work is far from done, a great deal of progress has already been made to reduce the input of persistent toxic substances from numerous sources and to restore the health and integrity of the Great Lakes for generations to come.

A key step toward that progress was achieved in 1978 when the governments of Canada and the U.S. revised the 1972 Great Lakes Water Quality Agreement. The 1978 Agreement embraced for the first time a philosophy of "zero discharge" of persistent toxic substances to the lakes and the "virtual elimination" of those substances from the waterbodies as an end goal.

The Great Lakes Water Quality Agreement was revised again in 1987 to include the concepts of Lakewide Management Plans for identifying and eliminating any and all "critical pollutants" that pose risks to humans and aquatic life. The Agreement also called for the development of Remedial Action Plans for restoring such "beneficial uses" as drinking, fishing and swimming in 42 previously identified Areas of Concern throughout the Great Lakes Basin.

In 1989, the Government of Canada launched the Great Lakes Action Plan, a coordinated effort among eight federal departments, the objective of which is to ensure that Canada's commitments under the Great Lakes Water Quality Agreement were met. The Great Lakes Action Plan was renewed in 1994 as the Great Lakes 2000 Initiative. In 2000, the Government of Canada announced the Great Lakes Basin 2020 Initiative targeted at restoring

environmental quality in designated Areas of Concern within the Great Lakes Basin.

The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA) which was originally signed in 1971, is the mechanism through which Canada and Ontario meet their obligations under the Canada-United States Great Lakes Water Quality Agreement. In the U.S., federal and state governments were able to address the Agreement's requirements through a host of Congressional statutes, including the Federal Insecticide, Fungicide and Rodenticide Act for restricting or banning the use of pesticides, the Toxic Substances Control Act for regulating the storage and disposal of PCBs (polychlorinated biphenyls), and the Clean Air and Clean Water Acts for regulating such persistent toxic substances as HCB (hexachlorobenzene), B(a)P (benzo(a)pyrene), dioxins and mercury. The U.S. has also been able to address and, where necessary, order the cleanup of contaminated sites around the Great Lakes Basin through 1986 Superfund amendments to the Comprehensive Environmental Response Liability and Compensation Act and the Resource Conservation and Recovery Act.

Canada and the U.S. took another key step in April, 1997 when they signed the Great Lakes Binational Toxics Strategy: Canada-United States Strategy for the Virtual Elimination of Persistent Toxic Substances in the Great Lakes (referred to as the Strategy or GLBTS).

The driving force for the Strategy was a recommendation made in 1994 by the International Joint Commission's Virtual Elimination Task Force in the Commission's Seventh Biennial Report on Great Lakes Water Quality. That recommendation called on the federal governments of both countries to "adopt a specific, coordinated binational strategy within two years with a common set of objectives and procedures for action to stop the input of persistent toxic substances into the Great Lakes environment."

The Strategy takes its overall direction from the Binational Executive Committee, which is co-chaired by Environment Canada and the



U.S. Environmental Protection Agency and is responsible for co-ordinating the implementation of "binational aspects" of the Great Lakes Water Quality Agreement.

In summary, the Strategy builds on and compliments the objectives of the Great Lakes Water Quality Agreement and other initiatives. It also sets the framework for one of the most comprehensive efforts to date by the federal governments and other stakeholders to fulfill the goal of virtually eliminating persistent toxic substances from the Great Lakes through pollution prevention and a variety of other programs and actions.

Following the signing of the Strategy, Environment Canada and the United States Environmental Protection Agency (USEPA), in co-operation with other stakeholders, embarked on a "four-step process" for building on the successes of programs that had already led to reductions in concentrations of persistent toxic substances in the Great Lakes. Those steps include:

1. Identifying any and all sources of persistent toxic substances in the basin;
2. Assessing the effectiveness of existing programs for addressing those sources;
3. Identifying other "cost-effective options" for further reducing inputs of substances from those sources; and,
4. Implementing actions to work toward the goal of virtual elimination.

Actions implemented under the Strategy have focused primarily on a list of "Level I" strategy substances that warrant "immediate priority" for virtual elimination in the Great Lakes. Substances on the Level I list include mercury, PCBs, dioxins and furans, B(a)P, HCB, OCS (octachlorostyrene), alkyl-lead and five cancelled pesticides (aldrin/dieldrin, chlordane, DDT, mirex and toxaphene). A "Level II" list, consisting of substances identified by one or both countries as having the potential to harm the Great Lakes ecosystem through their use and/or release, has also been developed. That list includes such substances as cadmium, endrin, 1,4-dichlorobenzene, pentachlorophenol and tetrachlorobenzene targeted for pollution prevention reduction.

ABOUT THIS REPORT

In 2001, implementation of the Strategy continued into its fourth year. This report details actions taken from November 2000 through November 2001. A time line of reduction activities undertaken by substance-specific workgroups since the Strategy's inception, as well as other related events, is presented in Appendix A.

These workgroups are made up of government and non-government stakeholders and are co-led by federal government representatives from the Canada the United States. A few highlights of the progress achieved since the publication of the 2000 Progress Report, along with steps being taken to achieve further progress, are summarized below.

Integration Workgroup

The Integration Workgroup, composed of government agencies, industry, environmental organizations, and other interested stakeholders, was established in 1998 to address issues relevant to but falling outside the scope of workgroups that are addressing specific Strategy substances.

The main responsibilities of this workgroup are of a leadership and guidance nature, focusing on cross-cutting activities of interest to more than one of the other groups. This workgroup also has the responsibility of broadening public awareness and maintaining the interest of stakeholders in meeting the Strategy's overall reduction goals.

Meeting quarterly in alternating locations in Canada and the U.S., the workgroup has concentrated its attention during the past year on finding new ways of moving the Strategy forward. Among the options being explored is a pilot "sectoral approach" that could pave the way for more effectively and efficiently meeting the strategy's goals. That option involves working with sub-classes of sectors to achieve reductions of more than one Level I or Level II substance at a time.

The workgroup is also exploring ways to better coordinate the Strategy and the Lakewide Management Plan activities to meet the overall goals of both programs.



Mercury Workgroup

This workgroup reports significant reductions in uses and releases of mercury on both sides of the border. The reductions have been achieved in co-operation with numerous stakeholders from the makers and users of mercury-containing batteries, thermometers and lighting switches for vehicles, to power utilities that emit mercury to the atmosphere in the process of burning coal.

The workgroup continues to reach out to stakeholders that use mercury in products or that engage in activities that have the potential to release mercury to the environment. On the U.S. side of the border, for example, a Memorandum of Understanding between the USEPA and American Hospital Association, led through Hospitals for a Healthy Environment, a program to develop a Mercury Virtual Elimination Plan for U.S. hospitals. This program is working to eliminate the use of mercury containing products in both health care and non-health care settings.

United States Environmental Protection Agency's Great Lakes National Program Office supports a "Mercury-Free Medicine" campaign led by the National Wildlife Federation that has resulted in numerous hospitals and other health facilities signing a pledge to stop using mercury containing products.

On the Canadian side of the border, a Switch Out Program spearheaded by Pollution Probe and funded by Environment Canada, Ontario Power Generation and the Ontario Ministry of Environment in partnership with the Ontario Automotive Recyclers Association, has resulted in the collection of more than 2,500 mercury-containing lighting switches from 11 auto dismantlers across Ontario in 2001. The success of this pilot project holds promise for implementing the program across the rest of Canada.

The workgroup plans to focus more attention in the future on sources of mercury contamination that are significant and are not currently being addressed by government regulations. Efforts will also focus on seeking the co-operation of industries and other stakeholders that are not yet participating in the Strategy.

PCB Workgroup

Canada and the U.S. continue to report major progress in reducing inventories of high-level PCBs (polychlorinated biphenyls) nationally and throughout the Great Lakes Basin.

In Ontario alone, approximately 80 percent of high-level PCBs which had the potential to enter the lakes have been destroyed as of April, 2001 and the overall volume of high-level PCB wastes has fallen from 25,000 tonnes in January, 1993 to 6,000 tonnes in April, 2001. Progress is also being made toward the destruction of low-level PCB wastes.

The U.S. is working toward a 90 percent reduction of high-level PCBs nationally by 2006. The number of PCB transformers registered and in use across the U.S. was approximately 20,000 in 2000, indicating a reduction of 90 percent. However, figures on the amount of PCBs disposed of show that the number of PCB transformers fell from 200,000 in 1994 to approximately 137,000 in 2000, indicating a reduction of 32 percent. The U.S. expects that not all PCB transformers were registered and that the 32 percent reduction is an underestimate, and is taking a closer look at both figures.

The workgroup continues to develop and distribute information to as many stakeholders as possible in both countries to facilitate the identification and safe removal of PCB transformers and other PCB containing equipment.

Dioxins/Furans Workgroup

The workgroup continues to report reductions in dioxin and furan releases in both countries.

Ontario has achieved a 79 percent reduction in dioxin and furan releases since 1988 and is working toward a 90 percent reduction by 2005 under a new Canada-Ontario Agreement aimed at addressing ecosystem issues in the Great Lakes. A set of Canada Wide Standards for dioxins and furans could result in further significant reductions of the substances in such sectors as iron sintering plants, electric arc furnaces and waste incinerators by the end of the decade.

The U.S. has achieved a 77 percent reduction in dioxin emissions since 1987 and expects to achieve



a 92 percent reduction by 2004.

The workgroup is gathering information on dioxin contaminants in pentachlorophenol-treated wood and has identified backyard trash-burning as an emerging issue that may prove to be the largest source of dioxin and furans. To deal with this issue, the workgroup has established a “Burn Barrel Subgroup” to develop and implement a strategy for reducing backyard trash-burning emissions of the substances from burn barrels.

Other sectors with information gaps, including landfill fires, incinerator ash management, foundries, pulp and paper, petroleum refineries and secondary aluminum and copper smelters, are also being reviewed and encouraged to participate in studies aimed at identifying and reducing dioxin and furan releases.

More recently, the Dioxin/Furan Workgroup held a joint meeting with the HCB/B(a)P (hexachlorobenzene/benzo(a)pyrene) Workgroup to address sources of common interest to both groups.

HCB/B(a)P Workgroup

Major reductions in HCB and B(a)P emissions have been reported on both sides of the Canada/U.S. border since the early 1990s.

The workgroup is now in the process of evaluating the significance of trace HCB levels in a select group of pest control products. This evaluation is a response to information suggesting that these products may possibly be the major HCB source in the Great Lakes Basin.

The workgroup will continue to fill emission data gaps, obtain voluntary reductions from major sources and encourage wood stove changeout programs that involve replacing older stoves with advanced technology systems that reduce emissions of a number of pollutants.

Work is also underway to more accurately determine B(a)P emission levels from petroleum refinery fluid catalytic cracking units.

OCS Workgroup

This workgroup has previously reported major reductions in levels of OCS (octachlorostyrene) in

the Great Lakes from Canadian and U.S. sources.

In recent years, both countries have reported declines in concentrations of OCS in suspended sediment, fish and other key features of the Great Lakes environment following the phasing out in the 1970s of manufacturing processes that produce the substance.

Additional focus is being placed on issues of common concern with the HCB/B(a)P and Dioxins/Furans workgroups to determine if further reductions can be achieved.

Pesticides Workgroup

A state of “near completion” has been reached when it comes to meeting the Strategy targets for Level I pesticides and the workgroup is now in the process of exploring the potential for making progress on Level II pesticides, including endrin, heptachlor, lindane, HCH and pentachlorophenol.

Canada and the U.S. have been active in talks with Mexico and Central America to phase out the use of DDT that may be reaching the Great Lakes through the atmosphere. Efforts are being made to better manage the lifecycle of products treated with the wood-preservative pentachlorophenol.

Alkyl-Lead Workgroup

Canada has achieved a 98 percent reduction in the production, use and release of alkyl-lead, exceeding the GLBTS challenge target of 90 percent for this substance.

The U.S. has eliminated its use in on-road vehicles and is now working with stakeholders to find substitutes for alkyl-lead in fuels used in both the aviation and racing industries.

Research is underway in the U.S. for a safe alternative for alkyl-lead in aviation fuel but developing an alternative may take another 8 to 10 years. Ontario is collaborating with the U.S. on this research.

Contaminated Sediments - Even while sources of Strategy substances to the Great Lakes are being cut off, one of the more complicated and potentially most costly issues to deal with is that of what to



do with the substances still lingering in bottom sediments throughout the basin.

Environment Canada, the U.S. Environmental Protection Agency and the Great Lakes Commission, in cooperation with the Strategy, met in April, 2001 in Ann Arbor, Michigan for what they described as a “milestone” two-day workshop. Sessions focused on technologies for treating contaminated sediment and on what steps can be taken to overcome barriers to sediment remediation.

In the meantime, work has continued on removing and treating contaminated sediment from several Areas of Concern throughout the basin. Governments on both sides of the border are tracking progress through the Strategy by keeping detailed records of the efforts stakeholders are making to identify and remediate areas of sediment contamination.

Atmospheric Deposition

One of the major emerging issues in the Great Lakes Basin over the past decade has been that of the atmospheric deposition of Strategy substances onto the waterbodies from sources that, in some cases, are located in distant parts of the world.

To address this issue, governments on both sides of the border have put into operation an integrated monitoring network for identifying potential sources of mercury, DDT and other persistent toxic substances that enter the Great Lakes from the atmosphere.

Work is also underway to develop and test comprehensive models for determining the movement of strategy substances from their place of origin to the Great Lakes and for better understanding the behavior of these substances in the atmosphere.

Outlook 2002

The year 2002 marks five years of binational reduction efforts under the GLBTS. The coming year therefore offers an opportunity to review progress to date and to identify priority actions for fulfilling the objectives of the Strategy over the next five years.

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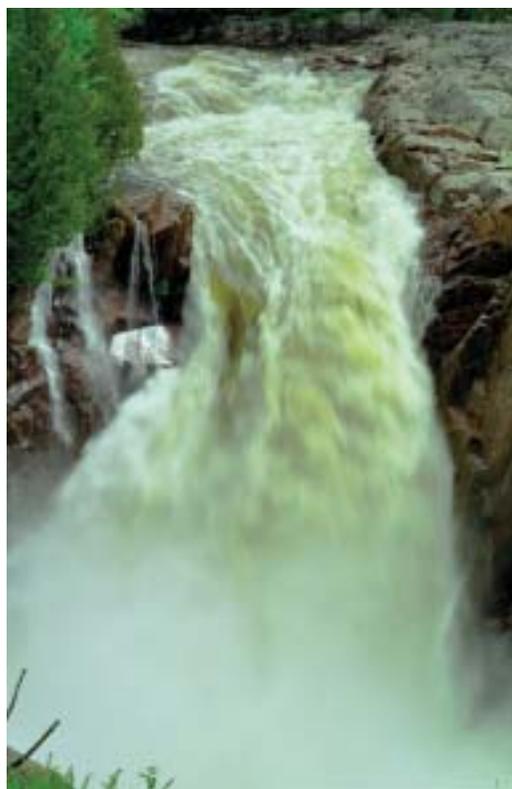
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Aguasabon River, Ontario
Photograph by Patrick T. Collins, Minnesota
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