

# Chapter 2

## RAPs and LaMPs

### 2.1 Annex 2 - Remedial Action Plans and Lakewide Management Plans (RAPs and LaMPs)

The 1987 Protocol to the Agreement formalized the concepts of Lakewide Management Plans (LaMPs) for Critical Pollutants in open lake waters and Remedial Action Plans (RAPs) for restoring beneficial uses in Areas of Concern (AOC). RAPs and LaMPs define the actions needed to restore the integrity of the waters of the Great Lakes. Annex 2 outlines stages for planning and implementation and specifies fourteen possible beneficial-use impairments in AOCs that would require remediation in the RAPs.

RAP and LaMP processes began officially in 1987. Recently, the Parties have taken steps to accelerate their work. This report addresses two initiatives: a streamlined LaMP process culminating in the LaMP 2000 reports and the Four Agency Framework. This report also addresses the Lake Superior Zero Discharge Demonstration Program, which has been incorporated into the Lake Superior LaMP.

### Concerns

RAP progress has been slow. Recent staff reductions and budget cutbacks in federal, state, and provincial agencies are frequently cited as obstacles to progress. However, this situation need not result in a lack of implementation, merely slower implementation. Reduced resources could be reflected in schedules showing implementation proceeding as resources



*"I think that the public is the real guardian of the Great Lakes Water Quality Agreement. We have put so much effort into ensuring its integrity for 15 years or so."*

*Manfred Koechlin  
Chair, Bay of Quinte PAC*

become available. Although the Parties are reluctant to issue schedules, the public has a right to know when they might expect progress toward restoration of beneficial uses. (U.S. Department of State and U.S. Environmental Protection Agency, Great Lakes National Program Office August 1999; Environment Canada 1999)

Planning is important, but it is remedial action flowing from plans that restores beneficial uses. Together with the need for increased levels of resources, progress under Annex 2 will require moving beyond pollution prevention at point sources and will increasingly depend on the remediation of in situ contaminants and the control and management of urban and agricultural nonpoint sources of pollution.

For example, in 1999 the Great Lakes Science Advisory Board advised the Commission that, despite significant improvements in water quality during the past two decades, current concentrations of polychlorinated biphenyls (PCBs) in samples of Great Lakes water are still about 100 times higher than the water quality criteria under the Great Lakes Initiative.<sup>1</sup> (Great Lakes Science Advisory Board 1999) Without sediment cleanup, injury to the health of humans, fish, and wildlife will continue and will impose increasing future costs on both the United States and Canada. A survey of Great Lakes anglers in New York state between 1988 and 1996 revealed that almost half of those surveyed no longer plan to fish in the Great Lakes, citing contaminants in fish as the reason. This decline in fishing, measured by angler-days, is a small example of the cost of inaction. (Connelly, et.al. 1999; Connelly, et.al. 2000)

## Status Assessments

In 1996, in response to the perceived slow rate of action on RAP implementation, the Commission instituted a status assessment process in selected AOCs. The purpose is to identify roadblocks to progress with a view to reenergizing remedial action in these areas. To date, the Commission has reported on the Detroit River AOC, the St. Marys River AOC, and the Hamilton Harbour AOC. The Commission also examined examples of successful restoration activities, where these exist, in an effort to share success stories throughout the basin. (IJC 1997a; IJC 1998; IJC 1999a; IJC 1999b)

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<sup>1</sup> The Great Lakes Water Quality Initiative was developed under the Great Lakes Critical Programs Act of 1990. The final "Water Quality Guidance for the Great Lakes System" promulgated by the U. S. Environmental Protection Agency established minimum water quality criteria, anti-degradation policies, and implementation procedures as a basis for controlling discharges of toxic pollutants into the Great Lakes system.

## Reporting

Annex 2 requires the Parties to develop RAPs and LaMPs in cooperation with the local jurisdictions. These plans are to be submitted at appropriate stages for review and comment by the Commission. The Parties are also to report biennially to the Commission on progress in developing and implementing RAPs and LaMPs and in restoring beneficial uses. Some jurisdictions no longer prepare RAPs by stages, and it appears that the development of LaMPs by stages has already ceased or will cease shortly. This ad hoc modification of Annex 2 of the Agreement has resulted in spotty progress reporting and has reduced the Commission's ability to track the restoration of beneficial uses. Some jurisdictions continue to make steady progress toward the goals of Annex 2.

The public often expresses its concern that information on RAP implementation progress is not readily available in a standardized, consolidated report. The present situation requires visiting several Internet web sites containing a disparate collection of information.

### THE COMMISSION RECOMMENDS THAT:

**Given the public's right to know the achievements in each AOC and what actions to expect in the future, the Parties should prepare a consolidated report on RAP progress that lists the accomplishments to date, funds expended, what remains to be done and the funds and timing required to finish the necessary work. Governments must clearly state what role they will be playing with each AOC and what resources they will be dedicating to restoring the impaired beneficial uses.**

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## Lakewide Management Plans (LaMPs)

In 1999, the Parties emphasized accelerating the production of LaMP documents. The Parties adopted April 2000 for the publication of LaMP 2000, with updates proposed for every two years (BEC 1999). The Commission agrees with streamlining the LaMP process, provided the original intent of the plans as stated in the Agreement is maintained.

In this regard, the Great Lakes Science Advisory Board has expressed concern that LaMPs may contain outdated or incomplete information and thus convey an inaccurate or misleading message. Adaptive management techniques and iterative planning processes, as the Parties propose, are not substitutes for the data and information necessary to support decision-making to develop and implement a plan.

The SAB recommends the following:

**The IJC advise the Parties to collaborate on the preparation of a comprehensive statement, for the entire Great Lakes basin, of the threat to human health posed by critical pollutants and that this comprehensive assessment be used in the preparation of Lakewide Management Plans.**

*Great Lakes Science Advisory Board  
1997-99 Priorities Report*

The Commission's review of previously submitted LaMPs raised the issue of human health. A Stage I LaMP must define the threat to human health or aquatic life and evaluate the available information on concentration, sources, and pathways of critical pollutants related to these threats. For example, the Commission's review of Lake Ontario's Stage I LaMP concludes that "shortcomings exist particularly in the area of defining the threat to human

health and estimation of total loadings of critical pollutants" (IJC 1999c). This comment characterizes long-standing Commission concerns about LaMP development and the inadequate integration of human health issues related to critical pollutants. The Commission concurs with the Science Advisory Board's recommendation for a comprehensive assessment, for the entire Great Lakes basin, of the threat to human health posed by critical pollutants. For example, this assessment should clearly identify the critical subpopulations exposed to persistent toxic substances through their consumption of contaminated Great Lakes fish.

## **2.2 The Four Agency Framework**

The Letter of Commitment regarding the Four Agency Framework ("the Framework"), signed in April 1998, is an agreement of the following four agencies: the U.S. Environmental Protection Agency, Environment Canada, the Michigan Department of Environmental Quality, and the Ontario Ministry of Environment. The Framework facilitates cooperation through a binational program focussed on AOCs shared by Ontario and Michigan in the connecting channels of the St. Marys, Detroit and St. Clair rivers.

The major accomplishment by February 2000 has been the development of position papers on the four major components of the Framework: administration, binational delisting, public involvement and outreach, and progress reporting. The papers focus more on reporting and administrative processes than on cooperative priority setting and remedial action. Also, it is unclear from the papers what mechanisms will be used to coordinate Canadian and U.S. remedial efforts on the Detroit River. However, the Parties are reporting increased collaboration particularly with respect

to flow modelling. They are putting in place complementary structures on both sides of the Detroit River to assist coordination and facilitate teamwork.

The Framework emphasizes restoration and the delisting of AOCs. The position papers concentrate on “delisting criteria” or “benchmarks used to assess the progress toward restoration of use impairments” (Environment Canada, Michigan Department of Environmental Quality, Ontario Ministry of Environment, and U.S. Environmental Protection Agency 1998a). The Commission’s understanding is that the term “delisting” is used when an area is no longer designated an Area of Concern because all the beneficial uses are restored. Although the Commission agrees that every opportunity should be taken to recognize milestones and to celebrate accomplishments it believes that the overall goal of restoring beneficial uses should always be paramount. Any confusion regarding the term “delisting” carries the risk that the emphasis will appear to be directed more to the removal of a label than to restoration. The use of the term “restoration criteria” might clarify the issue and avoid this problem.

The Parties have committed to producing reports on each RAP every two years. (Environment Canada, Michigan Department of Environmental Quality, Ontario Ministry of Environment, and U.S. Environmental Protection Agency 1998b) It has taken two years to draft the position papers. Devoting more resources to these AOCs will ensure that such biennial reports will not be developed at the expense of programs that address the salient issues in the Areas of Concern. The Parties have recently stated that additional resources have been provided to implement the RAPs. The Commission encourages the Parties to issue the Detroit River and St. Clair River reports simultaneously to aid in coordinating the restoration of the connecting channels from Lake Huron to Lake Erie.

Another component of the Framework is public involvement and outreach activities. In the status assessment of the St. Marys AOC and the Detroit River AOC, the Commission concluded that inadequate consultation with citizens is an obstacle to progress in these two areas. (IJC 1997; IJC 1998) The Parties’ commitment to provide financial and in-kind support for a set of core binational public involvement activities may go a long way toward overcoming some of the problems of public involvement that historically have troubled these AOCs.

## Lake St. Clair

Two of the Areas of Concern under the Four Agency Framework are located to the north and to the west of Lake St. Clair – the St. Clair River AOC and the Detroit River AOC. This region comprises the full length of the corridor between Lake Huron and Lake Erie.

In its Ninth Biennial Report, the Commission recommended that the Parties review the current environmental status and programs in place to address environmental issues in Lake St. Clair in order to consider its designation as an Area of Concern. Both Governments responded that an AOC designation was not warranted and that “the AOC program would not be the most efficient program to address these issues” (U.S. Department of State and U.S. Environmental Protection Agency, Great Lakes National Program Office August 1999; Environment Canada 1999) .

At the Lake St. Clair: Its Current State and Future Prospects conference held from November 30 through December 1, 1999, participants concluded that remediation requires a coordinated, binational approach. The Commission is pleased to note that the Parties have recently agreed to include Lake St. Clair in

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the Four Agency Agreement in recognition of the interrelationship between the lake and the nearby AOCs. They have agreed “to address the environmental issues regarding Lake St. Clair in context of the St. Clair River/Detroit River Corridor, rather than as three discrete water bodies, when appropriate” (Environment Canada, Michigan Department of Environmental Quality, Ontario Ministry of Environment, and

U.S. Environmental Protection Agency). The four agencies have already started to assess monitoring activities and identify existing data gaps as first steps in the establishment of a comprehensive monitoring approach to the corridor. Similarly, the Parties are examining research and modelling practices to help assure coordination of efforts in the corridor. The Commission commends the Parties for taking these steps and looks forward to future progress reports on these binational areas.

### **2.3 Lake Superior: Zero Discharge Demonstration Program**

In 1990 the Parties designated Lake Superior a zero discharge demonstration zone where no point source discharge of any persistent, bioaccumulative toxic substance would be permitted. The demonstration program was based upon the Agreement concepts of virtual elimination and zero discharge. The original thinking was that the program would be small enough to be completed in about five years, big enough to be a role model for the other Great Lakes, and a symbol of hope. There are only 41 major dischargers to Lake Superior, and it was

assumed that it would be easy to report on the quantities discharged. The discharge data should have been used to report current loadings and track trends in quantities discharged, as measures toward achieving the goal of virtual elimination. The Parties agreed to use the Lake Superior LaMP report to document progress on the Demonstration Program (Superior Work Group 1995; Lake Superior Binational Program 1999)

While the LaMP states that it is reporting on the program, it does not detail the successes of the program, nor does it provide the information necessary to assess the program's progress and effectiveness. In their 1999 Stage 2 Report on Load Reduction Targets for Critical Pollutants, the Parties acknowledge that the necessary information is not available to quantify the point source loadings into Lake Superior, even for the 41 major dischargers. The absence of the necessary baseline information makes it impossible to assess progress in meeting the zero discharge goal. (Lake Superior Binational Program 1999)

A notable accomplishment occurred when the pulp and paper industry changed its process for pulp bleaching by substituting chlorine dioxide for elemental chlorine. This substitution virtually eliminated the production of dioxins from pulp and paper mills.

Significant contaminant reductions have also followed plant closures. For example, two mine closures in the Lake Superior basin resulted in the elimination of their discharges of mercury and dioxins. The iron sintering plant in Wawa, Ontario, annually released 600 kg of mercury and 21.8 g of dioxins and furans prior to the plant's closing in June 1998. Similarly, the Copper Range smelter in White Pine, Michigan, annually released 550 kg of mercury before its closure in 1995. Although these emissions are significant, there are no estimates available that show the percentage contribution from these sources to the open lake waters.

The Zero Discharge Demonstration Program has confirmed the effectiveness of pollution prevention. For example, switching to batteries manufactured without mercury resulted in reduced amounts of mercury going into waste disposal. Waste pesticide collections in the basin yielded considerable amounts of banned pesticides, including dichlorodiphenyltrichloroethane (DDT), chlordane, and toxaphene for proper treatment and disposal. The Canadian PCB inventory recorded the destruction of large amounts of materials of high- and low-level PCBs between 1990 and 1997.

The Zero Discharge Demonstration Program exemplifies the difficulty of reconciling collecting data and compiling it into information for informed decision-making, versus the desire for immediate action. A further challenge arises from the different reporting schemes among the various jurisdictions, and particularly between

the two countries. The reporting requirements for the demonstration program would be enhanced by developing an institutional mechanism for ensuring that compatible data are collected and reported.

The initial challenge of zero discharge still provides a useful focus for assessing and controlling sources of critical pollutants from the 41 major point source discharges on the lake. (Lake Superior Binational Program 1999) However, the need to develop a comprehensive inventory on a multimedia basis, taking into account loadings from both inside and outside the Lake Superior basin, is clearly evident and remains unmet. Of particular note is the lack of information on the airborne pollution load, known to be significant, that is entering Lake Superior.