

Section 9: Remedial Action Plan Updates

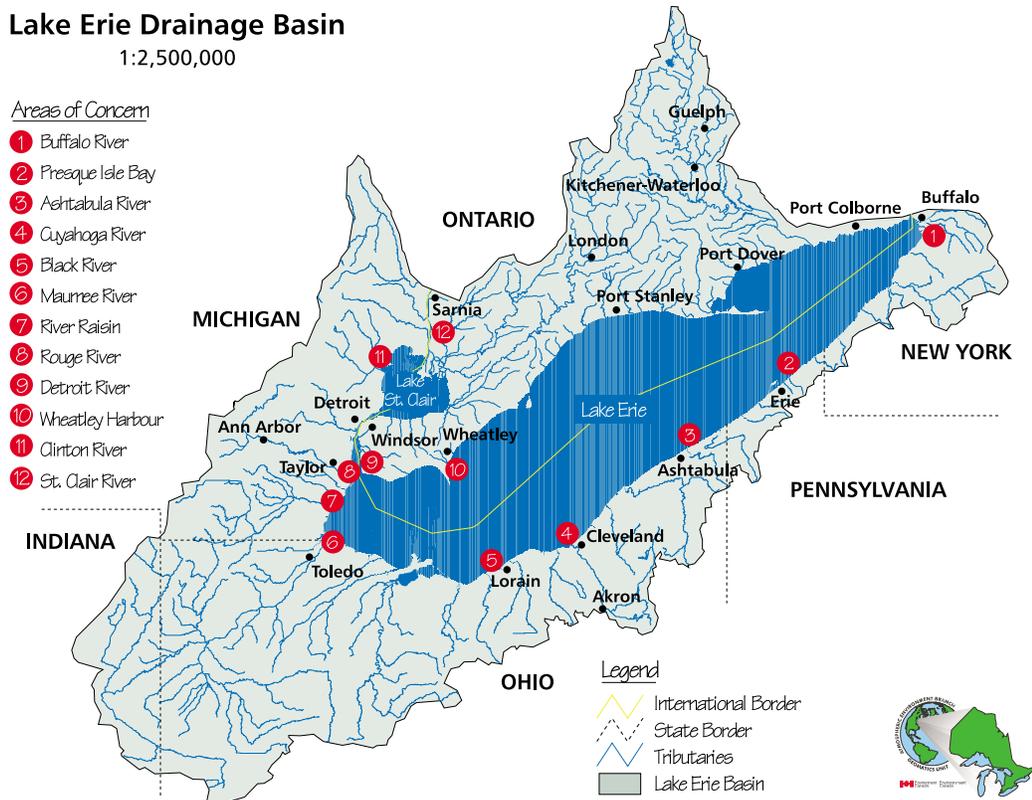
9.1 Introduction

In addition to the development of LaMPs, Annex 2 of the Great Lakes Water Quality Agreement called for the development of Remedial Action Plans (RAPs) for the most environmentally degraded Areas of Concern around the Great Lakes. There are 12 Areas of Concern in the Lake Erie basin: two binational RAPs, one Canadian and nine U.S. The RAPs have a much smaller geographic focus than the LaMP, but they have the same goals – to restore beneficial uses using an ecosystem approach. Implementation of remedial actions has been underway in most RAPs for over ten years, using a combination of federal, state, provincial and local resources. The results of these remedial efforts are much more visible and measurable locally, and will ultimately help to improve Lake Erie.

There is a strong potential that source track-down for many of the stressors affecting Lake Erie will point toward the RAPs. It is likely that many of the management decisions made to restore Lake Erie will need to be implemented in the Areas of Concern. There is also the potential that certain management decisions made for the lake itself will benefit the RAPs. It is essential for the Lake Erie LaMP to continue to cultivate communication with the RAPs and to benefit from the successful partnerships and programs that the RAPs have already created. In many ways, the success of the LaMPs depends on the success of the RAPs.

Appendix A of the Lake Erie LaMP 2000 document provided a brief history of each of the Lake Erie RAPs along with major milestones, projects underway, projects pending and future needs. The following sections highlight the major activities completed or underway in the Lake Erie RAPs since the 2000 report. Note that these activities are only a small representation of the work initiated and accomplished under the RAP program.

Figure 18: Map of Areas of Concern Around the Lake Erie Basin



9.2 Buffalo River RAP, New York

(<http://www.epa.gov/glnpo/aoc/buffalo/>)

NOTE: The Buffalo River actually discharges to the headwaters of the Niagara River, not Lake Erie. As a result, the Buffalo River is not really part of the Lake Erie ecosystem. However, because of its unique geography, we list the Buffalo River with Lake Erie LaMP.

- o The Buffalo River RAP process was developed as a working partnership between the New York State Department of Environmental Conservation (NYSDEC) staff and the Buffalo River Citizens' Committee and its work groups. A Remedial Advisory Committee continues to assist NYSDEC in RAP implementation. Remedial activity efforts are focused in six major areas: stream water quality monitoring, river bottom sediments, inactive hazardous waste sites, municipal and industrial wastewater treatment facilities, combined sewer overflows, and fish and wildlife habitat. RAP strategies and remedial activity progress are updated in the most current Buffalo River RAP Status Report dated June 1999.
- o Ongoing assessment activities include the evaluation of remedial options through the modeling of scour and deposition characteristics.
- o Needs include further sampling, treatment assessment, and sediment criteria guidance development to assist the decision making process in addressing contaminated sediments.
- o Three habitat improvement projects have been constructed to address habitat impairments with funding provided through U.S. EPA. Habitat project plans were developed by Erie County in cooperation the City of Buffalo, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and NYSDEC. These habitat projects have been completed.
- o The Buffalo Sewer Authority has received Bond Act funding to address sewer overflows.
- o Currently working to develop a feasibility study to address contaminated sediments with the U. S. Army Corps of Engineers.

9.3 Presque Isle Bay RAP, Pennsylvania

(<http://www.epa.gov/glnpo/aoc/presque.html>)

Presque Isle Bay is located in the northwestern corner of Pennsylvania on the southern shore of Lake Erie. Most of the watershed comprises urban (80%) and industrial areas within the City of Erie and Millcreek Township. Being a relatively closed system with a flushing time of 2.5 years, the bay has suffered from the accumulation and degradation of wastes discharged by point and nonpoint sources.

In January 1991, the U.S. State Department and the International Joint Commission (IJC) designated Presque Isle Bay as the 43rd Great Lakes Area Of Concern (AOC). The AOC received priority attention from the Pennsylvania Department of Environmental Protection (Department), which formed the Presque Isle Bay Public Advisory Committee, a multi-stakeholder group, to assist in developing a Remedial Action Plan (RAP).

The Stage 1 RAP Report identified *restrictions on dredging* and *fish tumors or other deformities* as the two beneficial use impairments. Both are directly related and have been linked to elevated levels of nitrosamines and Polycyclic Aromatic Hydrocarbons (PAH) in the sediments.

- o Since 1992, more than 3,200 brown bullheads have been captured, tagged and released, or necropsied. The earlier studies revealed that 64% had developed skin tumors and 22% had liver tumors. Follow-up studies conducted in 1999 by

- Penn State University and the Department showed these numbers have since decreased to 19% and 1%, respectively. The subcommittee, tasked with developing objectives for this BUI, will deliver their recommendations to the Public Advisory Committee in February 2002.
- o The U.S. EPA and Gannon University conducted a sediment study in 2000 as a follow-up to their 1994 investigation. Ten sites were revisited and core samples were taken. Toxicity tests and macroinvertebrate analysis were performed to further characterize the sediments. At the request of the Public Advisory Committee, dioxin levels were also examined to complete the chemical investigation and determine their impacts, if any, to the system. Results of the study supported earlier findings of widespread, low-level contaminants throughout the bay without any identifiable hot spots requiring active remediation. To complete the findings, the Department, with the support of U.S. EPA, collected five species of fish resident to the bay for dioxin analysis of the tissue to determine if additional fish consumption advisories are warranted. Results of the study will be available in February 2002.
 - o A milestone for the RAP occurred in December 2001, as the City of Erie completed its obligations under a 1989 Consent Decree with the Department and U.S. EPA to spend an estimated \$100 million to upgrade and double the capacity of the sewage treatment plant and eliminate the combined sewer overflows that discharged to the bay. These efforts, along with additional non-point source control measures in the watershed, should allow for natural recovery of the system. This natural recovery option for sediment management has been presented to the Public Advisory Committee and is currently under consideration.
 - o Based upon objectives currently being developed and proposed for adoption, the Public Advisory Committee will decide the appropriate next steps to take in the RAP process in early 2002. These options include: 1) delisting as an AOC; 2) re-designation to the newly adopted "Recovery Stage;" or 3) continuing under Annex 2 of the Agreement until all beneficial uses have been completely restored.

9.4 Ashtabula River RAP, Ohio

(www.epa.gov/glnpo/aoc/ashtabula.html)

The goal of the Ashtabula River Partnership is to look beyond traditional approaches to determine a comprehensive solution for the impairment of beneficial uses posed by the contaminated sediments in the lower Ashtabula River and Harbor. Over the past two years the following major accomplishments are noted.

- o Revised and updated Ashtabula River Comprehensive Management Plan and Environmental Impact Statement. The final draft was released for public comment in December 2001. A public meeting was held on January 3, 2002.
- o Completed additional radionuclide testing and prepared radiological risk assessment for river sediments.
- o Prepared landfill design criteria report and conducted evaluation of alternative landfill sites and dewatering/transfer sites.
- o Completed Value Engineering Study, a report required by the USACE for projects in excess of \$2 million.
- o Ashtabula City Port Authority signed on as the local sponsor for the disposal facility.
- o Prepared six restoration project proposals, including economic and ecological valuations, in support of a Natural Resource Damage Assessment claim.
- o A contractor is currently conducting pilot studies to determine dewatering criteria.

- o Engineering design and a Project Cooperative Agreement are currently in progress.
- o Construction of the landfill and dewatering facility are expected to begin in 2004, with dredging scheduled for 2005.

9.5 Cuyahoga River RAP, Ohio

(www.epa.gov/glnpo/aoc/cuyahoga.html)

The Cuyahoga Coordinating Committee works in coordination with the Cuyahoga River Community Planning Organization (CRCPO) to design and implement the RAP. The priorities in the Cuyahoga River area of concern over the past two years have been to update the RAP action agenda and extend stream stewardship projects, continue the phased TMDL on the ship channel, support of funding/plans to reduce/eliminate combined sewer overflows and sanitary sewer overflows, and continue habitat and wetland restoration and protection projects. Accomplishments include:

- o All committees have established additional goals.
- o Big Creek and Yellow Creek stream stewardship programs held many public and educational events, and continue to develop and implement comprehensive watershed plans.
- o A workshop for public officials was held on “Legal Issues and Economic Benefits of Wetland Protection.”
- o Four stream bank rehabilitation/habitat restoration projects were completed as funded under a grant from U.S. EPA/GLNPO and matched by local funds.
- o Three workshops were held on streamside management, targeting decision makers and those working specifically in streamside maintenance positions.
- o Produced a document entitled “Life at the Water’s Edge – Living in Harmony with Your Backyard Stream.” A total of 30,000 copies were printed and it has been widely distributed.
- o Over 100 sites were sampled in an intensive survey of the lower river to be used in preparation of a Total Maximum Daily Load (TMDL) report for that area in 2002.
- o The Northeast Ohio Regional Sewer District initiated construction of the Mill Creek Tunnel that will significantly reduce combined sewer overflow discharge.
- o Final work on the larval fish project in the lower river as part of the phased TMDL for the ship channel was completed.
- o A State of the Cuyahoga River Symposium was held in October 2001 and an updated beneficial use impairment status report was drafted.
- o Working on a \$110,000 grant from U.S. EPA/GLNPO to investigate the extent and causes of fish tumors and contaminated sediment in the old navigation channel of the Cuyahoga River.
- o Working on an Ohio Lake Erie Protection Fund project to inventory wetlands and potential sites for wetland restoration.

9.6 Black River RAP, Ohio

(www.epa.gov/glnpo/aoc/blackriver.html)

The priorities of the Black River RAP over the past two years have been to investigate low dissolved oxygen levels in the lacustrine/river mouth area, continue to investigate major source areas of non-point source pollution, continue to implement education programs, and promote Lake Erie Buffer and Conservation Reserve Enhancement programs throughout the watershed to preserve and restore riparian habitat and reduce sediment load to the river. Accomplishments include:

- o Coordinated beginning of a two-year comprehensive dissolved oxygen modeling effort of the lower river with several state and federal agencies as well as the four major dischargers to that segment of the river. Intensive field sampling was conducted in 2001.
- o Continued implementation of a 319-funded project to demonstrate the use of precision farming in lessening the impacts of agricultural non-point source pollution impacts, and to identify areas of failed and failing home sewage disposal systems to assist local health departments in developing and implementing a Home Sewage Disposal System maintenance and inspection program.
- o Continued to work with the Lorain Port Authority on the Grove Site brownfield redevelopment site at the mouth of the river. Much effort has gone into protection of natural shoreline and establishment of additional habitat.
- o Working with the U.S. Army Corps of Engineers and the Lorain County General Health District to develop:
 - o A countywide operation and inspection system of Home Sewage Disposal Systems.
 - o A watershed inventory of the French Creek sub-basin.

Failed or failing home sewage disposal systems and land use around French Creek have been identified as possible contributors to the lower Black River dissolved oxygen problem. French Creek is a major tributary to the lower Black River and is being impacted by urban sprawl as Greater Cleveland spreads westward. The French Creek inventory is being planned to include a “French Creek specific” watershed owner’s manual for landowners and decision makers; and the identification of unexplained periodic toxicity within the basin.

Fish tumor incidence in brown bullhead has declined significantly and removal of the beneficial use impairment for fish tumors is under consideration. The Ohio Department of Health is also considering the removal of a PAH-related contact advisory in the lower river that has been in place since 1983.

9.7 Maumee River RAP, Ohio

(www.maumeerap.org)

The Maumee RAP is a community effort to restore the health and beauty of the Maumee River ecosystem for the benefit of all who live there. The priorities over the last two years have been to continue to implement Ohio Lake Erie Buffer and CREP programs to reduce non-point source pollution, continue a very active public outreach and education program, continue efforts to remediate dumps and landfills, and continue to focus concentrated efforts on the Ottawa River and Swan Creek. Accomplishments include:

- o Drafted a 10-year activities and accomplishments report to be completed in 2002.
- o Continued highly successful Toussaint River Improvement Incentive Program to promote implementation of set-asides, filter and buffer strips and conservation tillage to reduce impacts from agricultural runoff.
- o Assisted in establishing Duck and Otter Creek Partnership as a nonprofit organization.
- o Initiated project to identify wetlands in AOC to be protected, enhanced or expanded when mitigation is needed for other projects in the AOC.
- o Completed floodplain-mapping project for Swan Creek.
- o Continued efforts to establish Maumee River Regional Storm Water Management District.
- o Held numerous public events and educational workshops.

- o Continued to participate in multi-agency effort to determine long term management plan for Toledo Harbor sediments removed under navigation channel maintenance dredging.
- o Continued to coordinate with the Ottawa River Remediation Team in a concentrated effort to remediate degraded environmental conditions and dredge a recreational navigation channel in the lower Ottawa River.

9.8 River Raisin RAP, Michigan

(<http://www.epa.gov/glnpo/aoc/rvraisin.html>)

At the April 2001 meeting of the River Raisin Watershed Council, the RAP's Public Advisory Committee (PAC) was accepted as a standing committee of the council. This action provides the PAC with a nonprofit designation and will enhance both groups' status for grant eligibility.

- o \$4 million was secured in 2001 for PCB remediation on a portion of the Consolidated Paper Co. site. This only starts the removal of contaminants from the Consolidated site. Future funding is needed to remediate the highly contaminated PCB lagoons (estimated at \$20 million).
- o In May 2001 it was announced that a \$12 million rehabilitation project would be started at Sterling State Park. The Ford Motor lagoon area, which is included in the State Park project, will result in miles of wetland walking paths accessible in an area that has been closed to the public since the early 1900s.
- o Harding ESE Inc. announced in March 2001 that they were ready to proceed with the final work plan for the River Raisin. The plan includes identifying gaps in existing data, collecting river sediment samples, evaluating PCBs and heavy metals, evaluating permitting issues, conducting two public meetings, determining sediment volumes to be removed, and developing alternatives for remediation of sediments. Results from the sedimentation testing are expected in early 2002.
- o The PAC endorsed a U.S. EPA grant to the Monroe Public Schools to continue the school's environmental outreach program. The program utilizes students to collect fish for analysis to determine levels of contaminants, especially PCBs. Other water quality testing projects for students are included.

9.9 Rouge River RAP, Michigan

(<http://www.epa.gov/glnpo/aoc/rougriv/>)

Below is a summary of recent and ongoing projects in the Rouge River AOC:

- o Work on the status of most of the impaired beneficial uses is under review and a final draft is expected in mid-2002. Draft delisting criteria for the Rouge River AOC are in production and will be finalized in 2002.
- o Work continues on the voluntary permit to reduce or eliminate the adverse effects of storm water runoff from the watershed communities. Watershed management plans and storm water pollution prevention initiatives have been completed and submitted to Michigan Department of Environmental Quality (MDEQ) for comment. Both identified excessive flow variation, high bacteria counts, low dissolved oxygen and high nutrient concentrations as the major factors degrading the Rouge River.
- o The Rouge Gateway Project continues to focus on the environmental restoration of the lower several miles of the river. Ongoing projects include pilot demonstrations of phyto-remediation of PAH-contaminated soils, the effectiveness of porous pavement for reducing storm water runoff from parking

- lots, and the reconnection and restoration of a small oxbow lake to a channelized portion of the river. Future projects are expected to include a fish passageway around a historic dam, and “softening” the edge of the channelized concrete channel using bioengineering techniques.
- o The Friends of the Rouge (FOTR) trained several hundred volunteers to conduct frog and toad surveys this spring. A volunteer macroinvertebrate monitoring program began this year. The Friends of the Rouge continue to organize a school-based water quality monitoring program, which this year included 79 schools.
 - o Several citizen “creek groups” have organized and are addressing issues ranging from river-friendly lawn care practices to streambank restoration. The Rouge Program Office hosted two workshops in 2001 to provide the groups with technical resources and opportunities to network.
 - o MDEQ staff continued a multi-year survey of mussel populations in the watershed. Five species have been found with significant beds in the headwaters of the main branch of the river.
 - o MDEQ and the Michigan Department of Natural Resources sampled resident fish near the Newburgh Lake remediation site this fall to investigate the effectiveness of the contaminated sediment cleanup. It is hoped that fish PCB concentrations will be low enough to remove the fish consumption advisory in the river’s middle branch.

9.10 Detroit River RAP (U.S. and Canada)

The Detroit River RAP is a binational program implemented through separate Canadian and American RAP committees working toward completing local implementation actions. Regular communication is ensured by the four responsible agencies: Environment Canada, U.S. EPA, Ontario Ministry of the Environment, and Michigan Department of Environmental Quality.

Jointly, the Detroit River Remedial Action Team and the Canadian Clean Up Committee are developing the delisting criteria for impaired beneficial uses within the Detroit River AOC.

U.S.

(<http://www.epa.gov/glnpo/aoc/detroit.html>)

The Detroit River Remedial Action Team has been busy coordinating and contributing to several projects underway simultaneously.

- o Initiated steps to organize the Detroit River Remedial Action Team as a nonprofit watershed organization to oversee the implementation of the RAP.
- o Mercury and PCB contamination activities included a downriver community thermometer exchange, and a program to remove PCB contamination at small and medium-sized companies in the City of Detroit.
- o Initiated a habitat visioning process and completed an inventory of possible natural habitats along the Detroit River Shoreline. The habitat visioning process and inventory serve as the basis for a habitat management and non-point source pollution plan for the U.S. side of the area of concern.
- o The U.S. passed legislation (H.R. 1230) in December 2001, authored by Representative John Dingell (MI-16), to establish an International Wildlife Refuge along the Detroit River. The 18-mile wildlife refuge will stretch from Zug Island south to Sterling State Park in Monroe County. A binational vision has been created for the refuge.
- o A comprehensive rehabilitation plan for Detroit River lake sturgeon was initiated in 2000 to understand population dynamics and habitat requirements at all life stages. Their life cycle makes them a potential indicator species for monitoring tissue contaminant levels and fish habitat.

- o The City of Detroit Water and Sewerage Department began completion of the Water Works Park II Treatment Plant with: a water museum and learning center; replacement of aging water mains in Detroit; department-wide instrumentation and systems upgrades to 52 water and wastewater facilities; implementation of program management at the Wastewater Treatment Plant; and construction of additional combined sewer overflow facilities.
- o Brownfield redevelopment activity was initiated on several riverfront sites including: 35 acres in Southwest Detroit as expanded and enhanced marine terminal operations; the Pleasant Avenue site in the City of River Rouge west of Zug Island; and a 16.5 acre site on the Trenton channel of the Detroit River.

Canada

(<http://www.on.ec.gc.ca/glimr/raps/connecting/detroit/intro.html>)

The Detroit River Canadian Cleanup Committee (DRCCC) was established in 1998, and represents a restructuring of previous Remedial Action Plan activities. Projects underway and/or completed include:

- o Rural Non-point Source Pollution Remediation Program, through the Essex Region Conservation Authority, offers incentive grants to individual landowners to implement agricultural best management practices. In the last two years there have been 40 tree planting, 27 buffer strip, 19 soil erosion reduction structure, 16 septic system upgrade, and four no-till planter projects implemented.
- o Biodiversity Conservation Strategy Implementation Program, through the Essex Region Conservation Authority, has implemented five large-scale projects totaling 54 hectares (134 ac) to restore upland and wetland habitats in the area of concern.
- o Led by the University of Windsor's Great Lakes Institute for Environmental Research (GLIER), the Detroit River Management and Modeling Framework computer model has been developed to predict the transport and fate of contaminants in the Detroit River. Related food web modeling has also occurred.
- o U.S. EPA and GLIER completed a comprehensive annotated bibliography of research on the Detroit River at www.uwindsor.ca/dreams (choose DR Bibliography).
- o The City of Windsor led the Combined Sewer Overflow Retention Treatment Basin Study that assessed the performance of various factors in achieving high-rate treatment of particles from combined sewer overflows.
- o Building on the programs already in place, the focus of the DRCCC over the next two years is to finalize binational delisting criteria for the area of concern, and fine tune implementation activities to achieve these criteria.

9.11 Wheatley Harbour RAP, Ontario

(no specific web site is available)

This Canadian RAP operates through an informal communication between government and the local community. The focus has been on implementation-oriented projects with the following remediation projects completed:

- o The Rural Non-point Source Pollution Remediation Program, administered through the Essex Region Conservation Authority, offers incentive grants to individual landowners to implement agricultural best management practices. In the last two years the following projects have been completed: 25 tree plantings, 14 buffer strips, 10 soil erosion control reduction structures, and 2 septic system upgrades.

Photo: Lake Erie Management Unit, OMNR



- o The Biodiversity Conservation Strategy Implementation Program, also offered through the Essex Region Conservation Authority, focuses on implementation of large-scale habitat restoration projects throughout the region. The program is only one year old and, to date, one 2.4 ha (6 ac) project incorporating forest and wetland restoration has been completed.

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9.12 Clinton River RAP, Michigan

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<http://www.epa.gov/glnpo/aoc/clinriv/>

The Clinton River Watershed Council (Council) has resumed its role as administrator of the Public Advisory Council. The Council will gather information on actions recommended in the RAP, review new technologies for monitoring and mitigation, reorganize the Public Advisory Council in preparation for the 2002 RAP update and promote critical recommended actions.

- o Over 2,000 students participated in a student-monitoring program in 2001 collecting physical, biological and chemical data across the watershed.
- o More than 30 events were held in the Clinton River watershed as part of the fourth annual River Day held in June 2001. Notable was a fish habitat enhancement project on Paint Creek in the Village of Lake Orion made possible by donations and volunteers from General Motors, Boy Scouts, Village of Lake Orion, Oakland County Drain Commissioner and local businesses.
- o In November 2001, a new river cleanup event, "Clean the Clinton," drew over 150 volunteers to a stretch of river between Rochester Hills and Shelby Township. An estimated three to four tons of debris were removed from the riverbanks.
- o The U.S. Coast Guard committed to creating a single database for consolidating U.S. and Canadian federal and state/provincial data on spills and discharges.
- o The Macomb County Commission announced that they had agreed to work together with the Oakland County Drain Commission to coordinate county efforts to reduce pollution in the Clinton River.
- o A recent study of the sources of fecal contamination at Blossom Heath Beach in Saint Clair Shores identified bird droppings as the major contributor to beach closings.

9.13 St. Clair River RAP (U.S. and Canada)

(<http://www.on.ec.gc.ca/glimr/raps/connecting/st-clair/intro.html> or <http://www.epa.gov/glnpo/aoc/st-clair.html>)

Activities in the St. Clair River Area of Concern have focused on several key areas in the past two years. These include maintaining incremental progress towards the achievement of habitat and non-point source goals and characterizing and recommending actions for managing contaminated sediments. These are summarized below.

- o Ongoing monitoring to assess improvements in environmental conditions as they relate to RAP implementation activities and delisting targets. This has permitted the RAP and Binational Public Advisory Council to establish that several delisting criteria have been met and determine gaps for those that remain.
- o Significant commitments have been secured in the area of municipal infrastructure improvements. The City of Port Huron is currently engaged in a 15 year \$180 million (U.S.) sewer separation project. Five combined sewer overflows were eliminated in 2001, reducing overflows by 162 million gallons per year. More than 50% of annual average combined sewer overflows have been eliminated, only one-third of the way into the program. The City of Sarnia recently brought its newly upgraded sewage treatment plant online at a cost of \$30 million (Cdn.). This plant now utilizes secondary treatment with ultraviolet disinfection and employs a state-of-the-art sludge management system.
- o A key accomplishment in 2001 was the commitment by Dow Chemical Canada Inc. to remediate contaminated sediments adjacent to their St. Clair River manufacturing facility in Sarnia. This announcement came about as a result of proactive efforts by Dow to work with the Ontario Ministry of the Environment and Environment Canada and is a key milestone in achieving RAP goals. Efforts are ongoing to evaluate two additional areas of priority sediments in the upper St. Clair River.
- o Habitat and non-point source control efforts have been occurring in St. Clair County, Michigan and Lambton/Kent Counties in Ontario due in large part to efforts by the Blue Water Task Force (now known as the St. Clair County Water Quality Board) and the Rural Lambton Stewardship Network. Collectively, these organizations have successfully obtained grants from the U.S. EPA and Environment Canada to engage interested landowners in habitat and non-point source improvement projects that have leveraged more than \$1Million in local matching funds in the past 2 years.
- o Through the efforts of the Friends of the St. Clair River (Ontario), and funding from the Ontario Ministry of the Environment, a newly upgraded web site, www.friendsofstclair.ca, came online in October 2001, which serves as a helpful resource to interested citizens and students of all ages looking for information on the St. Clair River.
- o A number of key accomplishments have already been realized and reflect a significant effort to address ongoing sources of contamination and spills. Much of the remaining work deals with addressing concerns from past practices such as remediation of historically contaminated sediments and loss of habitat.