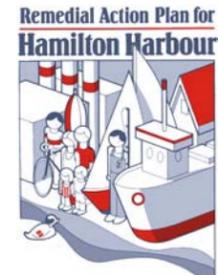


# Hamilton Harbour Remedial Action Plan

## “2000 - 2005 Highlights and Summary”



### Public Access and Aesthetics

#### Progress to 2005

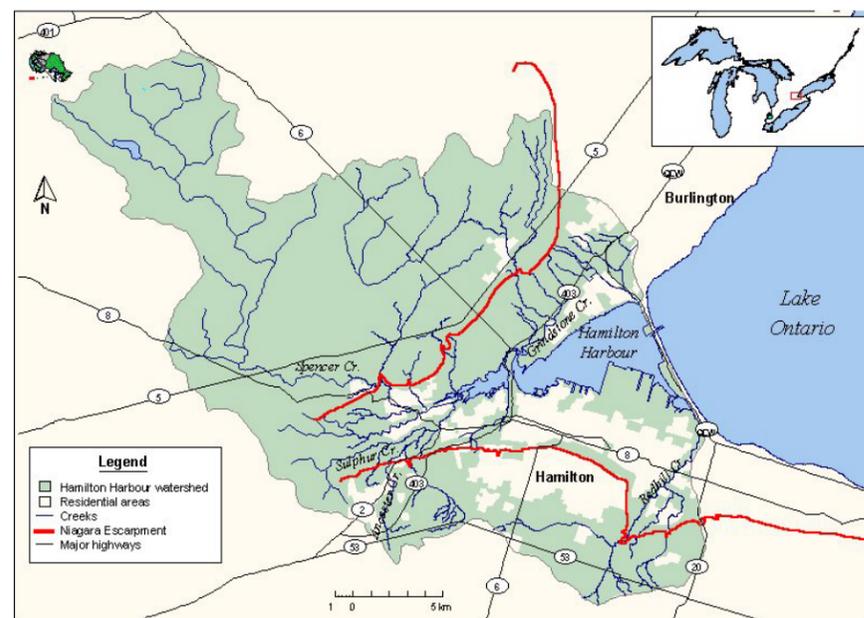
In 1990, less than 5% of the shoreline was accessible to the public; much of the south shore was industrial and fenced. By 2005, 25% of the shoreline was accessible to the public. New access was created and enhanced at LaSalle Park, Northeast Shoreline, Bayfront Park, Pier 4 Park, Hamiltonian Pier, and the Harbour Waterfront Trail connecting Cootes Paradise through to Pier 8. Shoreline recreation includes: relaxing, hiking, biking and roller blading. In-water recreation includes: swimming, fishing, tours boats, board sailing, and many forms of recreational boating.

#### 2000 -2005 Highlights

- In 2001, lands transferred from the Hamilton Port Authority to the City of Hamilton allowed the RAP Forum to set a new target of 35% for public access of the Harbour shoreline. As part of this land transfer the Hamilton Waterfront Trust was formed to further develop waterfront trails and lookouts.
- In 2003, the Hamiltonian, a 12 passenger tour boat, began operation followed by the Hamilton Harbour Queen, a 200 passenger tour/dinner boat, in 2005.
- In 2004, Parks Canada opened the Canada Marine Discovery Centre on Pier 8 and the historic HMCS Haida, Canada’s most decorated naval vessel, was moved to the Harbour.
- The Hamilton waterfront trail was extended from Pier 4 to Pier 8.
- Master planning began for a Hamilton/Burlington trail link at the western end of the Harbour.
- By 2005, 25% (the original RAP target) for public access of the Harbour shoreline had been achieved.

#### Next Steps ...

The trail link connecting Hamilton and Burlington around the west end of the Harbour should be constructed. Trail plans should be developed and construction initiated at the east end of the Harbour to connect Windermere Basin with the Hamilton Beach Strip, Red Hill Valley and the Burlington Ship Canal.



Hamilton Harbour Watershed

#### What is a RAP?

The RAP is a plan to “delist” Hamilton Harbour, one of 43 “Areas of Concern”(AOC), in accordance with the Great Lakes Water Quality Agreement (GLWQA) between Canada and the United States. Three steps are involved: Stage 1, “State of the Harbour”, 1992; Stage 2, “Remedial Action Plan”, 1992 and updated 2002; and Stage 3, “Delisting of AOC”, proposed 2015. The GLWQA is complemented by the Canada-Ontario Agreement (COA) which sets out the interests of the federal and provincial governments in implementing the GLWQA.

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#### Who is Involved?

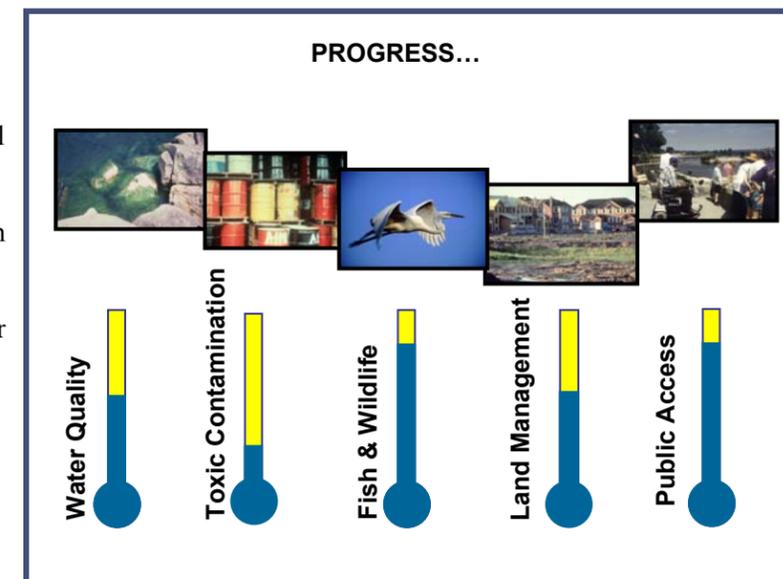
A stakeholder group representing over 40 agencies from industry, environment and government developed the RAP Stage 1 and 2 reports. Implementation is mandated to the Bay Area Implementation Team (BAIT) representing 18 key government and industrial stakeholders, co-chaired by Environment Canada and the Ontario Ministry of the Environment. Overseeing public participation to both scrutinize and encourage remedial actions is the Bay Area Restoration Council (BARC) with its own elected president and board. A “who does what best approach” to implementation is used by the various RAP stakeholders.

#### Timeline and Costs

Work on defining the “State of the Harbour” was first initiated in 1985, a “Remedial Action Plan” followed in 1992, and delisting is anticipated in 2015. It is estimated that: prior to 1990, \$600 million was spent by industry and government; between 1990 and 2000, \$200 million was spent; and from 2000 to 2015, \$650 million is required.

#### Progress to Date

The RAP is just past the halfway point in meeting its objectives and implementing the various remedial actions. As can be seen from the representative thermometers some actions have progressed faster than others. It is important to note that most actions are interrelated and many improvements will not occur until an entire suite of related actions have been completed and nature is given time to respond.





## Water Quality and Bacterial Contamination

### *Progress to 2005*

While monitoring shows levels of nutrients such as phosphorus steadily declining, excessive nutrients still enter the Harbour water from sewers, wastewater treatment plants and the watershed. These nutrients can cause algal blooms, a nuisance to boaters and swimmers, and in the case of some toxic algae, a danger to animals and people. When algae dies and decays, it uses up oxygen in the water that fish and other aquatic life need to survive.

Water clarity has shown a substantial improvement and normally meets initial water quality targets of 2 metres set for 2003. In 1997, high lake levels combined with a cool spring resulted in an unusually high population of algae-eating zooplankton providing water clarity, at times, up to 6 metres in depth.

Bacterial levels of E. coli have dropped dramatically in the Harbour, but swimming beaches are often closed due to contamination by gulls and waterfowl. Chlorination and ultraviolet radiation of treated wastewater effluent during the summer months helps reduce bacteria levels in the Harbour.

### *2000 – 2005 Highlights*

- The Region of Halton's Skyway Wastewater Treatment Plant began in 2004 to meet final RAP water quality targets for its discharge effluent.
- The City of Hamilton has approved/initiated construction of three remaining combined sewage overflow control structures to virtually eliminate raw sewage discharges to the Cootes Paradise Marsh.
- In 2004, the City of Hamilton filed a Strategic Infrastructure Grant for \$330 million shared among the federal, provincial and municipal governments for wastewater treatment system upgrades to meet RAP final effluent water quality targets. Initial funding of \$75 million announced in 2005.

### *Next Steps ...*

City of Hamilton's upgrades to its wastewater treatment system are required to meet RAP water quality targets.



## Toxic Substances and Sediment Remediation

### *Progress to 2005*

By 2001, the Harbour water met provincial guidelines for metals, principally due to large metal loading reductions that occurred before the RAP began. PAHs and PCBs have declined in ambient particles circulating in the Harbour. Industries have been making efforts to improve the quality of discharges in both their effluent and air emissions. The effectiveness of these changes will need to be monitored over time.

The Harbour has a legacy of contaminated sediment from past industrial and municipal discharges. Remediation, while based on the whole Harbour, is principally focused on contamination in the area of Randle Reef.

### *2000 – 2005 Highlights*

- In 2002, a Randle Reef Project Advisory Group provided direction to design an Engineered Containment Facility over top of the most contaminated sediment at Randle Reef. The facility is to be filled with 500,000 m<sup>2</sup> of contaminated sediment from the surrounding area. Final design and environmental assessment are nearing completion in 2007.

### *Next Steps...*

Secure funding and complete construction of the Randle Reef Engineered Containment Facility. This project is estimated to take five to ten years with funding shared federally, provincially and locally. A shorter term, much smaller project is the containment of contaminated sediment in the Dofasco Boat Slip. This is a project for which Dofasco is responsible.



## Urbanization and Land Management

### *Progress to 2005*

Based on its over riding "ecosystem approach", the RAP identified recommendations for the drainage basin of the Harbour. By 2004, watershed plans had been prepared for the three major tributaries; the Red Hill, Spencer and Grindstone Creeks as well as the North Shore and Indian Creek. The Hamilton-Halton Watershed Stewardship Program has contacted over 3,000 landowners; and environmental planning is part of the ongoing development practice of the watershed Municipalities and Conservation Authorities. While the sediment entering the Harbour is now cleaner, the Royal Botanical Gardens has reported very turbid conditions on the Ancaster Creek entering the Cootes Paradise Marsh. The turbid conditions which severely affect the integrity of the marsh habitat are caused by the erosion of soil from subdivision construction.

### *2000 – 2005 Highlights*

- Provincial Greenbelt Legislation and Official Plans of Halton, Burlington and Hamilton further the watershed interests of the RAP.
- Sediment from Ancaster Creek increasing turbidity in Cootes Paradise Marsh.
- Indian Creek sediment load appears to be reduced following actions at upstream shale quarries.
- Grindstone Creek natural channel constructed through Hidden Valley in Burlington with resulting reduced erosion and enhanced fish and wildlife habitat.
- Hamilton-Halton Watershed Stewardship Program won the Countryside Canada Award.
- Stewardship agreements now cover 6,600 hectares (ha) of land, including 124 ha of riparian habitat and 2,900 ha of significant wetland and upland habitat.

### *Next Steps...*

An emphasis should be placed on sediment control from construction sites. The Conservation Authorities and Municipalities should define "How Much Habitat is Enough" in accordance with criteria established by Environment Canada.



## Fish and Wildlife

### *Progress to 2005*

340 ha of habitat have been enhanced or created at six sites around the Harbour. Improvements in water quality and habitat have resulted in: 170 ha of aquatic plants returning to the Harbour; an increase from 10 to 18 native plant species in Cootes Paradise; increased waterfowl diversity in the Cootes Paradise Marsh; secure habitat for 670 nesting pairs of Caspian and common terns in the Harbour; and the return of some amphibians thought to be lost from the Cootes Paradise Marsh. While there was still little overall change in the Harbour's fishery composition, dramatic changes could be seen at restoration sites.

### *2000 - 2005 Highlights*

- Grindstone Creek Christmas tree carp enclosures have resulted in reestablishment of marsh flood plain conditions. In 2005, Trumpeter swans successfully fledged young in this restored marsh.
- Cootes Paradise review ongoing to define strategies to improve water quality for the marsh.
- The Ontario Ministry of Natural Resources initiated a community-based fisheries management plan for Hamilton Harbour and its watershed.
- Habitat restoration planning initiated for Windermere Basin, Indian Creek mouth, Sherman Inlet and Fisherman's Pier.

### *Next Steps...*

A phosphorus model and strategy to reduce loadings is nearing completion for the Cootes Paradise Marsh watershed. Fish and wildlife enhancement projects need to be carried out at Windermere Basin, Indian Creek mouth, Sherman Inlet and Fisherman's Pier. The ongoing restoration of the Cootes Paradise Marsh should continue to be integrated with natural lands management at the Royal Botanical Gardens.



## Research and Monitoring

### *Progress to 2005*

The RAP has a long history of research and monitoring and prides itself on being science based. This is largely a result of having Environment Canada, Fisheries and Oceans Canada, McMaster University, and Royal Botanical Gardens located in the community, along with highly developed technical expertise in water and wastewater technology residing in departments of the Region of Halton and City of Hamilton. Much of the research and monitoring is led by the RAP Technical Team.

### *2000 – 2005 Highlights*

- BARC's Toward Safe Harbours 2002 Report Card provided a qualitative view of progress.
- Initiated in 2001, separate annual "Hamilton Harbour" and "watershed" research and monitoring workshop days.
- Continued Cootes Paradise Research and Monitoring Workshop Days.
- Initiated development of phosphorus model for Cootes Paradise to be completed 2007.
- Developed procedure to determine source and character of beach E. coli and implemented a pilot project to control gulls and waterfowl at Pier 4 beach.
- Prepared a Monitoring Catalogue documenting Harbour monitoring programs.
- Prepared a Harbour Contaminants Loadings Report 1996 to 2002.
- Initiated Windermere Arm contaminated sediment review and subsequent ongoing PCB mass balance study and food web model.
- BARC's Toward Safe Harbours review of RAP delisting criteria and associated monitoring:
  - Fish and Wildlife 2004
  - Water Quality 2005
  - Toxic Substances and Sediment Remediation 2006

### *Next Steps ...*

The RAP will revisit the delisting criteria following completion of the BARC delisting and monitoring review. The Cootes Paradise water quality review will lead to a strategy for phosphorus loading to the marsh. Phosphorus models need to be developed for the mouth of the Grindstone Creek and Hamilton Harbour. Ongoing beach research and pilot projects to control gulls and waterfowl at Harbour beaches is required to facilitate beach openings. The Ottawa slip sediment assessment should be completed. Fisheries habitat, species and food web models need to be completed as part of evaluating delisting criteria.



## Education and Public Information

### *Progress to 2005*

Commitment to education and public information has been a strength of the Hamilton Harbour RAP since its inception. The Bay Area Restoration Council provides the lead role to inform the public - through public meetings, awards presentations, newsletters and workshops. BARC has consistently provided a balanced voice for the Harbour from the community's perspective while recognizing the many uses of the Harbour, and has raised public and political awareness of the benefits of restoring Hamilton Harbour.

Public involvement in the planting of natural habitat along creeks and the Harbour shoreline allows citizens to contribute directly to the restoration efforts. Prime sites have been along the public access trails, Cootes Paradise Marsh, and the Spencer Creek and Grindstone Creek watersheds. The Hamilton-Halton Watershed Stewardship Program encourages individual landowners to make handshake agreements to reduce erosion and protect the natural features on their properties. More than 3,000 landowners now share information about the role individuals can play in habitat protection and restoration

### *2000 – 2005 Highlights*

- Stewardship agreements now cover 6,600 hectares (ha) of land, including 124 ha of riparian habitat and 2,900 ha of significant wetland and upland habitat.
- BARC coordinated more than 600 volunteers over 4 days to plant 13,000 native plants at the Waterfront Trail for Hamilton's millennium project.
- More than 2800 volunteer planting hours were contributed over five years by BARC and more through partner programs.
- The Hamilton Spectator's *Bringing Back the Bay* series was published in 2002.
- The Toward Safe Harbours 2002 Report Card effectively communicated that the Harbour can be revitalized.
- The Ontario Trillium Foundation's Great Grant for the Environment was awarded to BARC in 2003.
- The Mayors of Burlington and Hamilton participated on BARC's Urban Planning Workshop panel in 2003.
- The Yellow Fish Road™ Storm Drain Marking Program returned to Hamilton and Halton in 2005.

### *Next Steps ...*

It will take sustained effort to maintain the progress made to-date regarding watershed protection on private property. New programs such as Adopt-A-Creek, will be developed by BARC to help inform and empower community members so they can do their part in creating and sustaining a healthy Harbour. Community and public support of the major remedial projects ahead is required so that the RAP can be completed by 2015.

### *The Bay Area Restoration Council...*

is at the centre of citizen efforts to restore and protect the ecosystem health of Hamilton Harbour and its watershed. For more information, contact BARC at (905) 527-7111 or visit [www.hamiltonharbour.ca](http://www.hamiltonharbour.ca)



**BAY AREA RESTORATION COUNCIL**

**ECOLOGY • INDUSTRY • RECREATION**