

# **SOLEC 2000**

## **Putting Indicators to Use**

### **Hamilton Harbour Remedial Action Plan**

**Presented by: John D. Hall, M.C.I.P., R.P.P.**

**Prepared by:**

**John D. Hall, RAP Coordinator**

**Kathy Trotter, RAP Administrative Assistant**

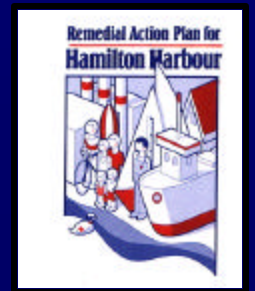
**Murray Charlton, Chair RAP Technical Team, Environment Canada**

**Mark Sproule-Jones, President, Bay Area Restoration Council**

**Marilyn Baxter, Manager, Bay Area Restoration Council**

**Anne Redish, Chair, RAP Forum**

**OCTOBER, 2000**



# Hamilton Harbour Remedial Action Plan

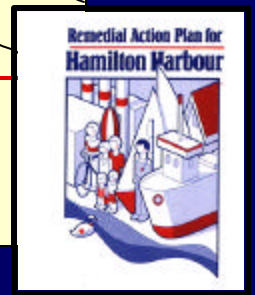
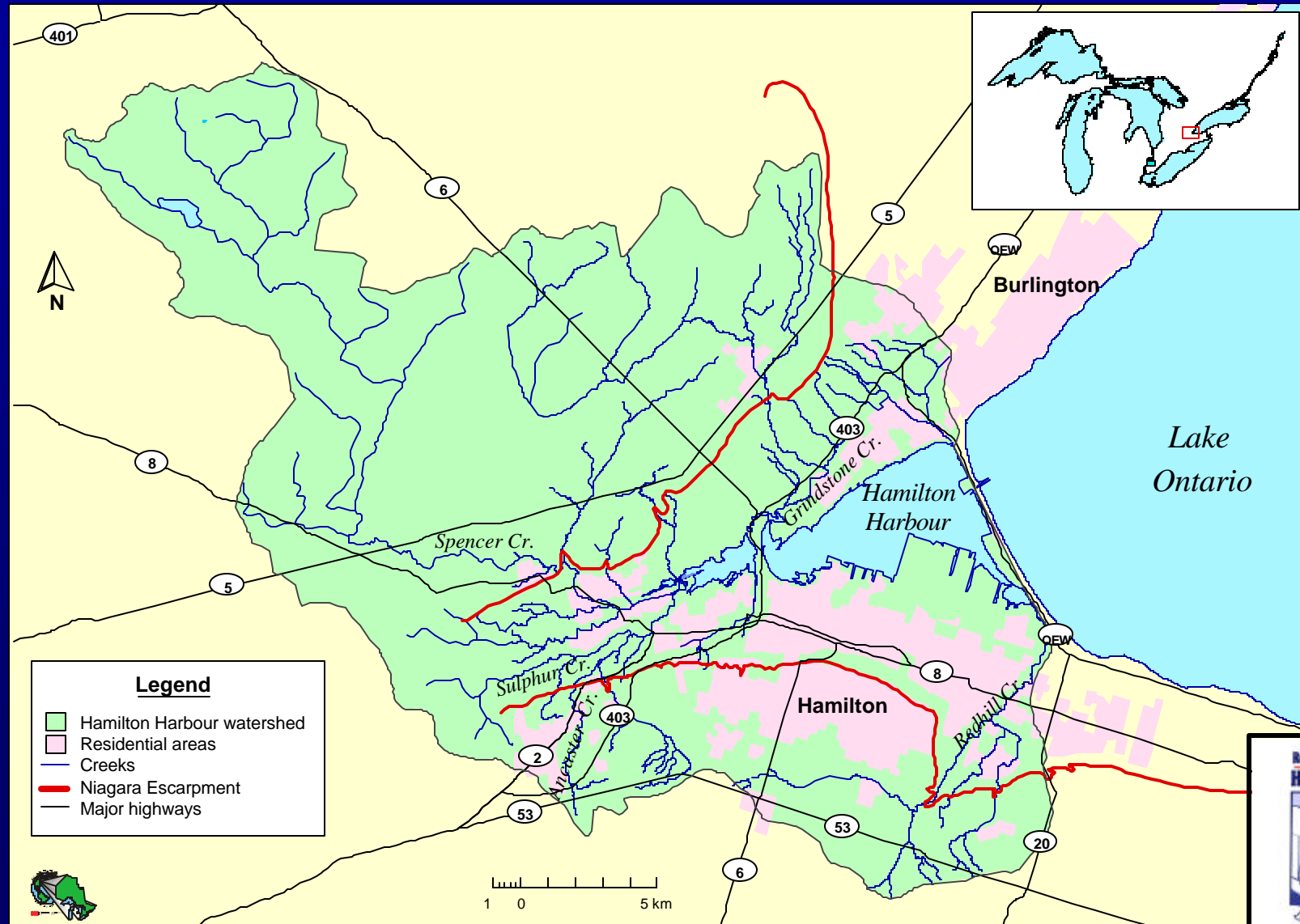


**HAMILTON HARBOUR**

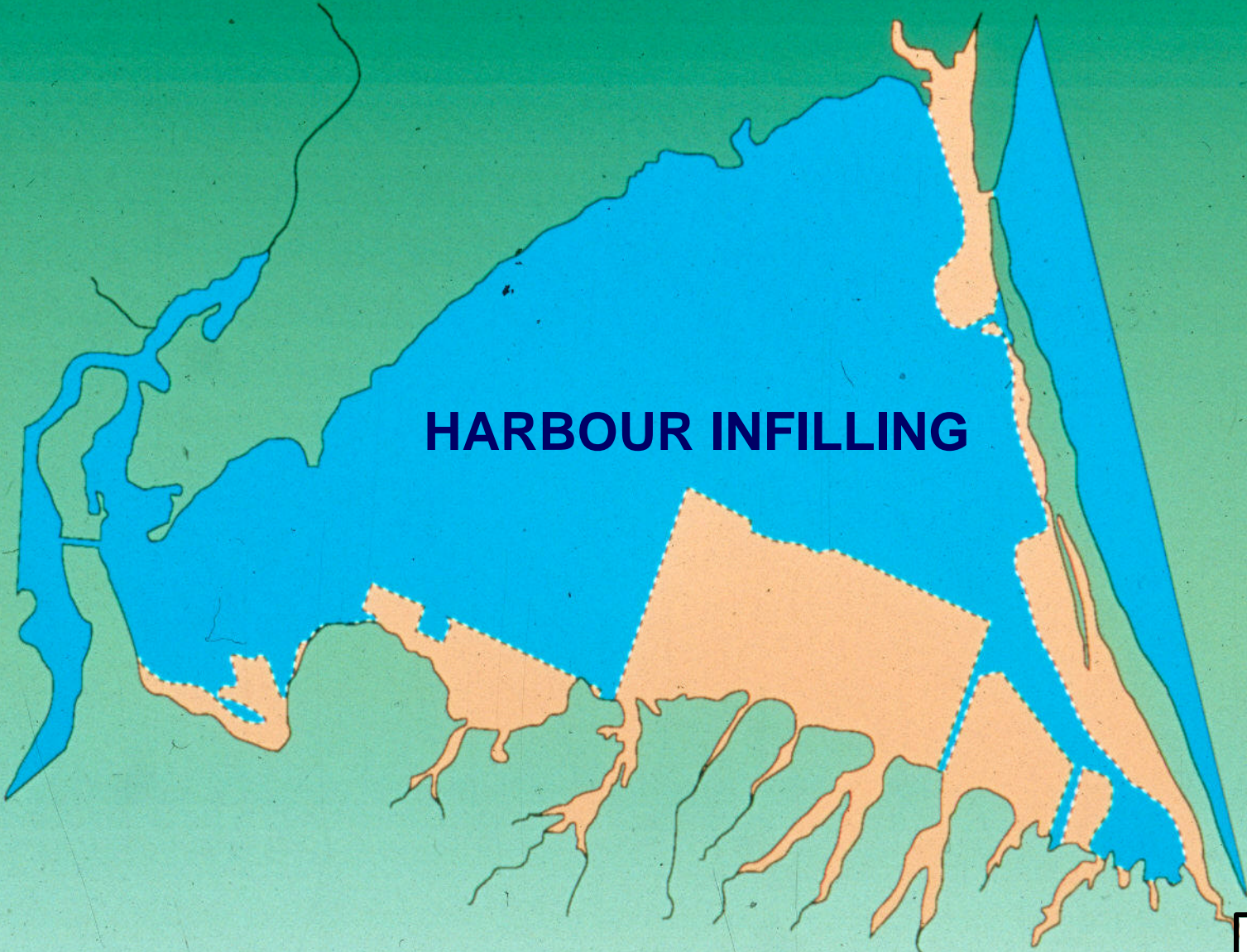


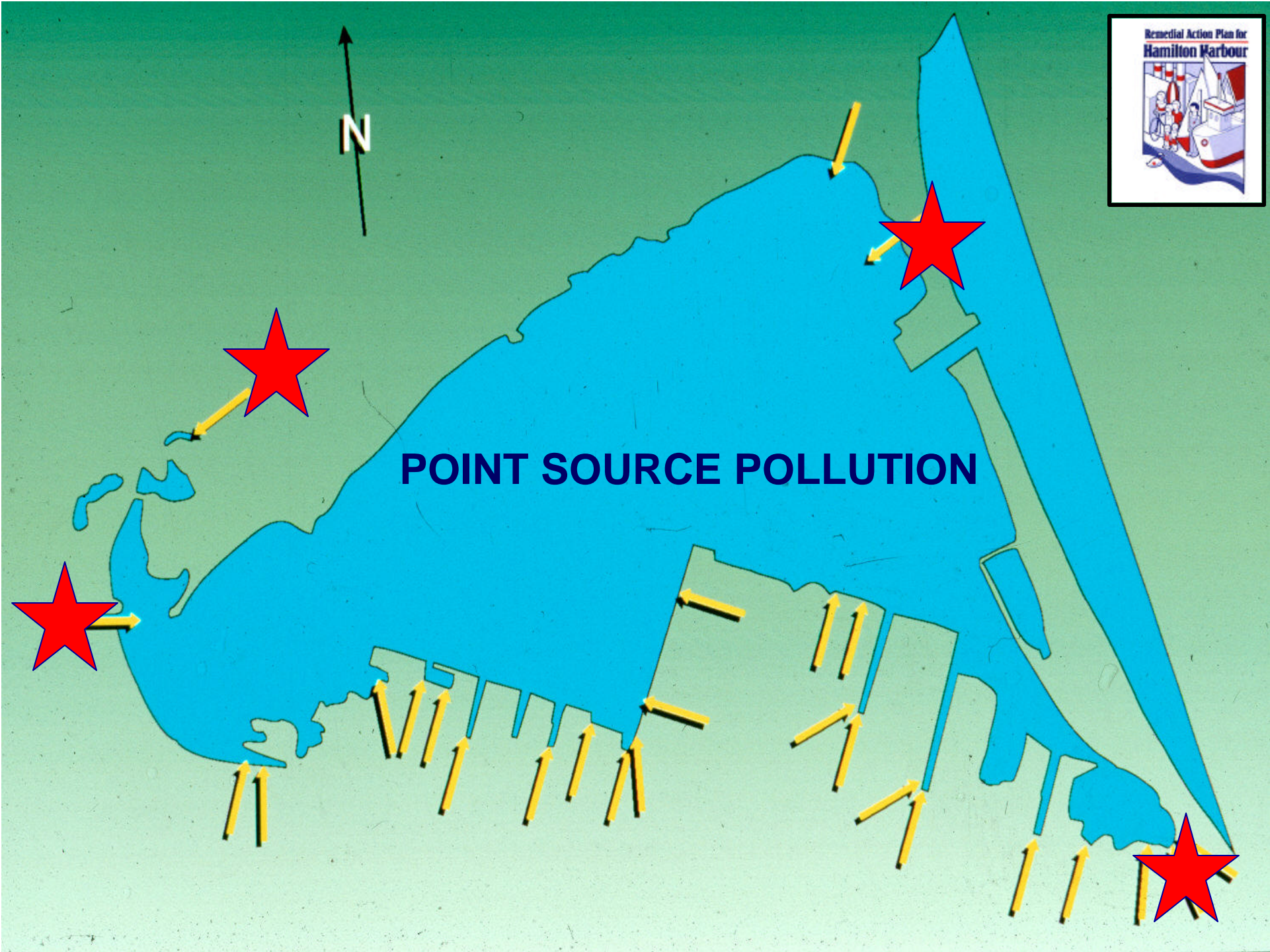


# Hamilton Harbour Watershed



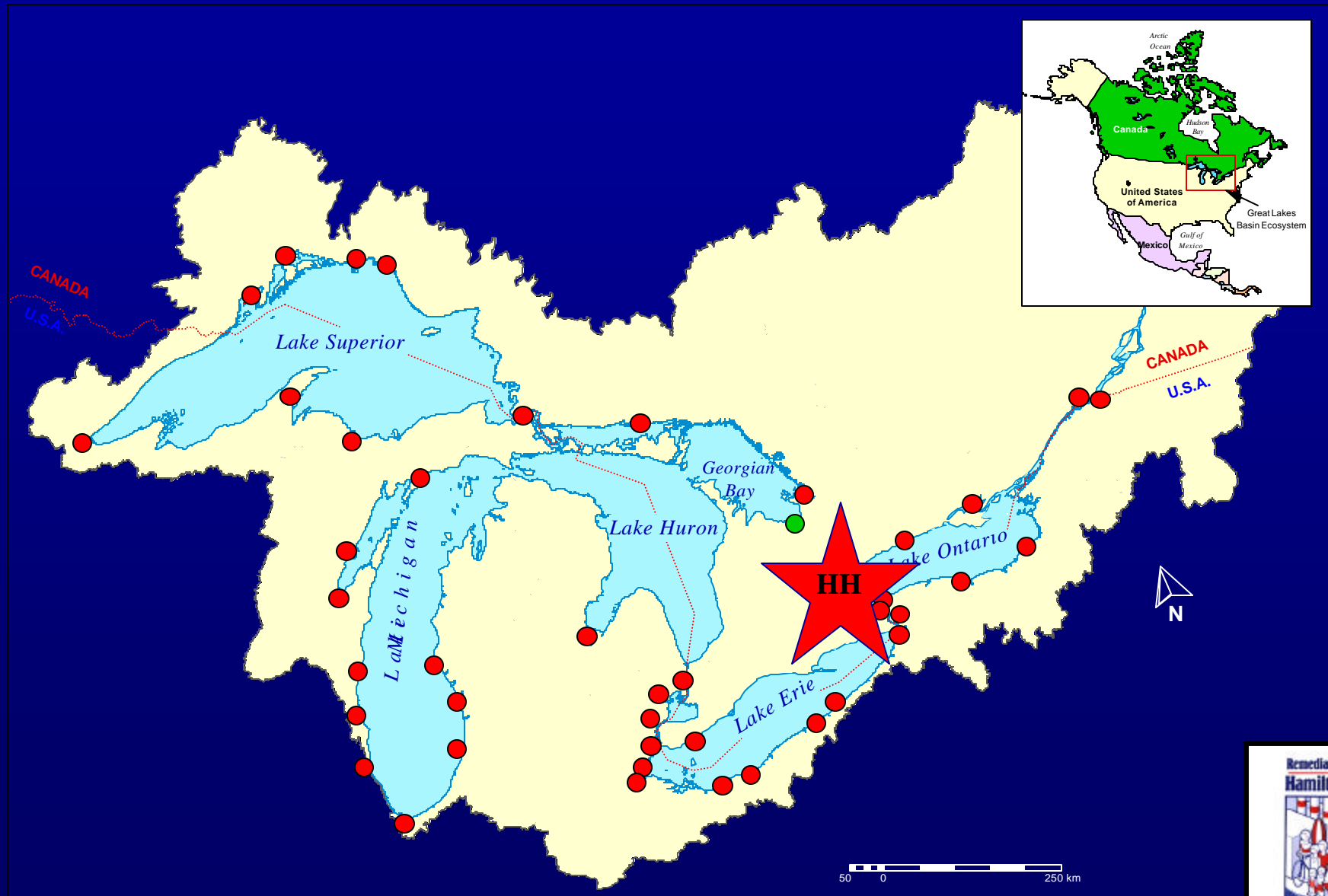
# HARBOUR INFILLING





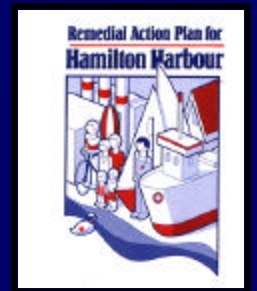
**POINT SOURCE POLLUTION**

# Great Lakes Areas of Concern



# Areas of Concern

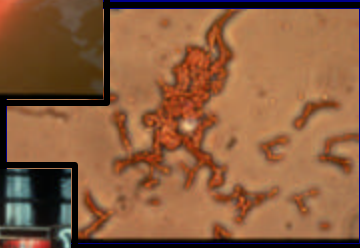
- **Identified under the GLWQA**
- **Delisting criteria defined**
  
- **State of Environment “Stage 1 Report”**
- **Remedial Action Plan “Stage 2 Report”**
- **Delisting of AOC “Stage 3 Report”**





# HAMILTON HARBOUR Remedial Action Plan

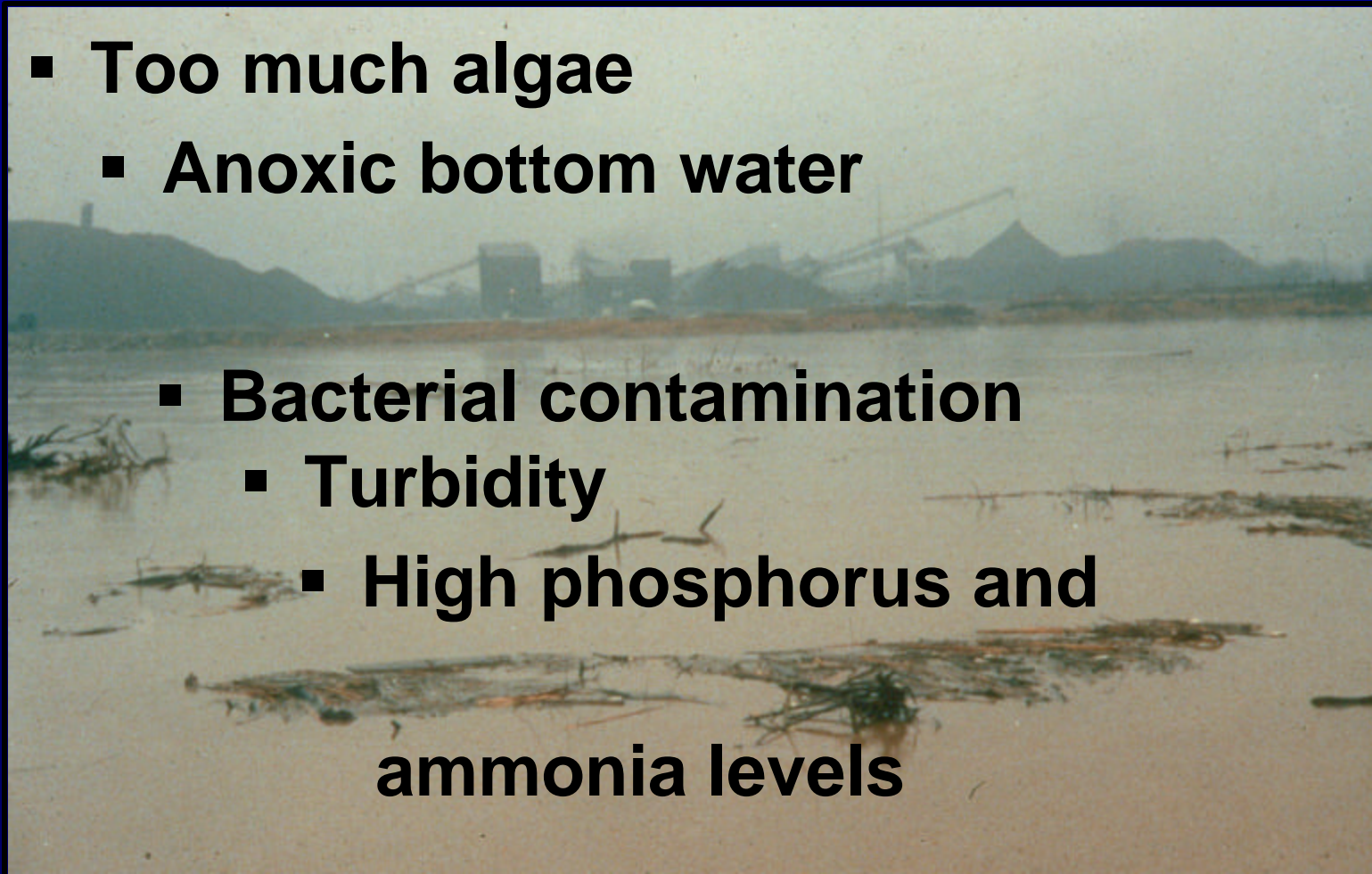
1. **Water Quality and Bacterial Contamination**
2. **Toxic Contaminants**
3. **Fish and Wildlife Habitat Restoration**
4. **Urbanization and Land Management**
5. **Public Access and Aesthetics**



# 1. Water Quality and Bacterial Contamination

## Problems:

- Too much algae
  - Anoxic bottom water
- Bacterial contamination
  - Turbidity
  - High phosphorus and ammonia levels

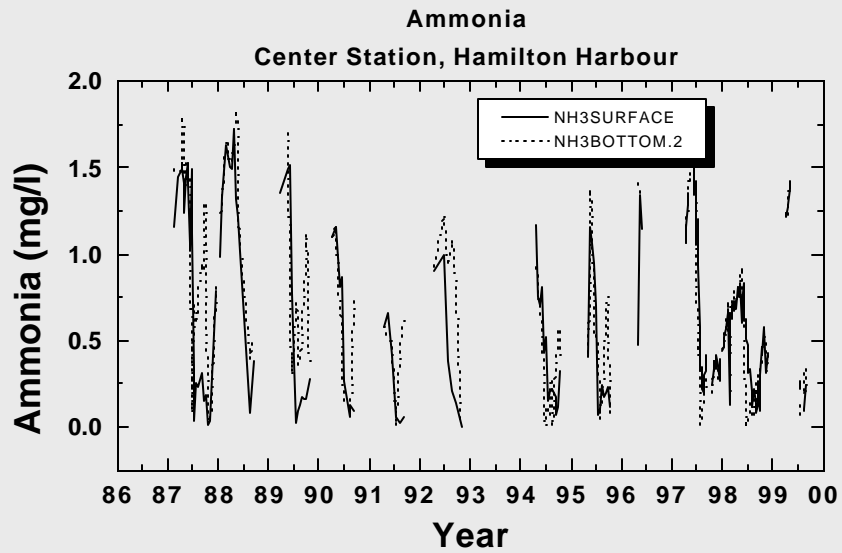


# 1. Water Quality and Bacterial Contamination

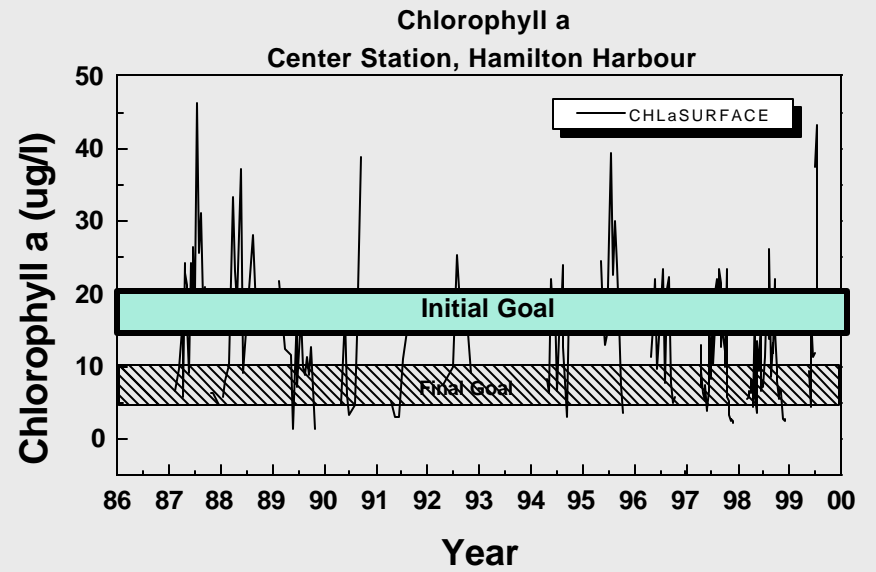
## Goals:

	<u>Initial</u>	<u>Final</u>
■ Phosphorus	34 ug/l	17 ug/l
■ Chlorophyll	15-20 ug/l	5-10 ug/l
■ Transparency	2 m	3 m
■ Bacteria	<100fc/100ml	<100fc/100ml

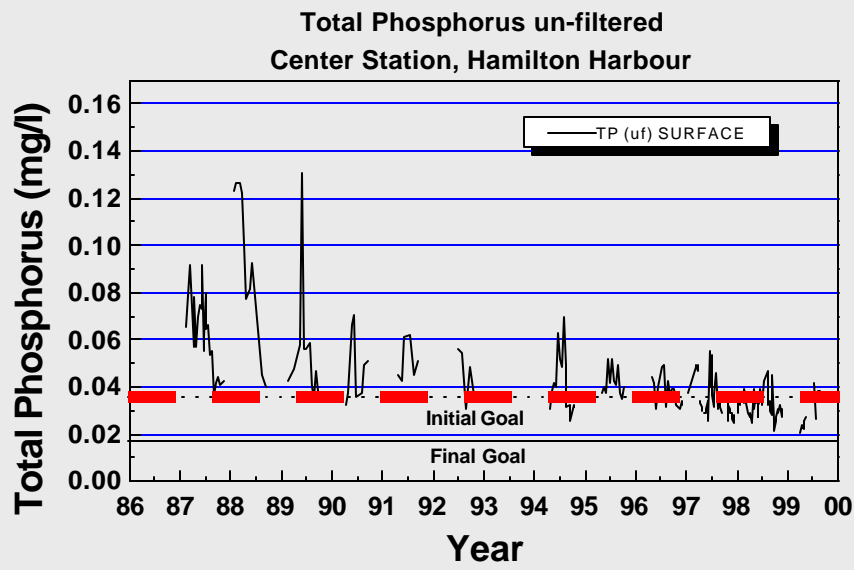




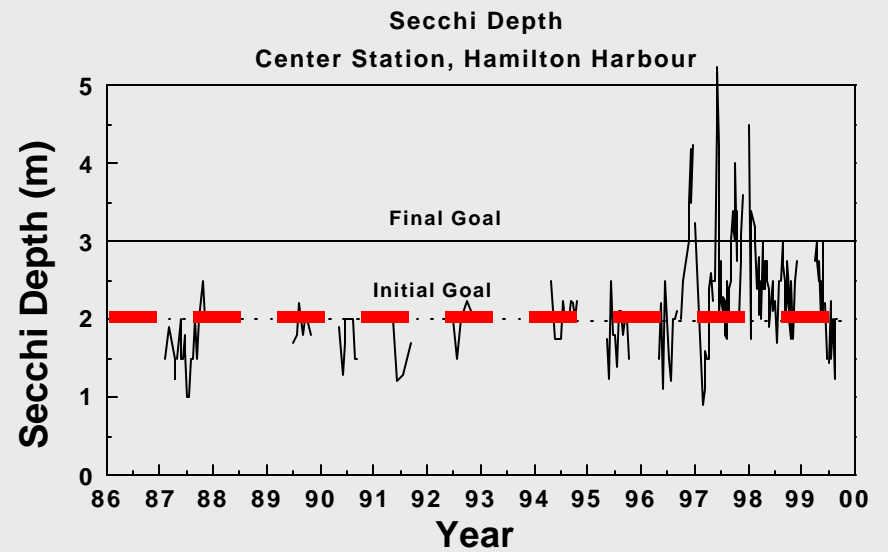
Murray N. Charlton NWRI 



Murray N. Charlton NWRI 



Murray N. Charlton NWRI 

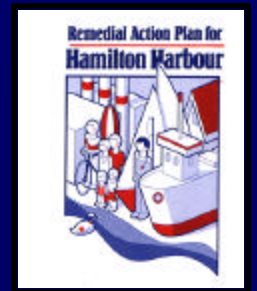


Murray N. Charlton NWRI 

# 1. Water Quality and Bacterial Contamination

## Emerging Issues:

- Population growth requires more sewage treatment.
- Blue-green algae becoming more common - some produce toxins
- Endocrine disrupting substances and pharmaceuticals in treated sewage.



## 2. Toxic Contaminants

### Problem:

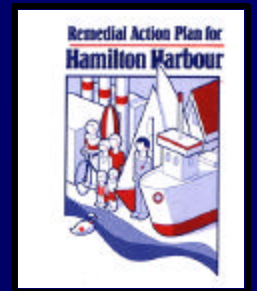
- Legacy of past abuses buried in sediments (metals, PCBs, PAHs)
- PCBs in water are high relative to Lake Ontario
- Airborne contaminants



## 2. Toxic Contaminants

### Goals:

- Clean up Randle Reef and other hot spots
- Find and eliminate toxic contaminants sources



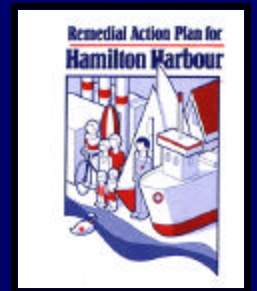
## 2. Toxic Contaminants

### Progress:

- Reductions in heavy metals
- Reductions in PAHs and PCBs



Still waiting to clean up  
Randle Reef...

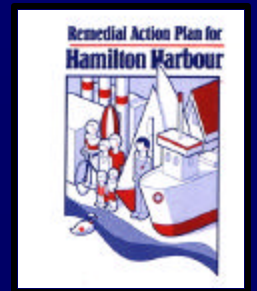




## 2. Toxic Contaminants

### Emerging Issues:

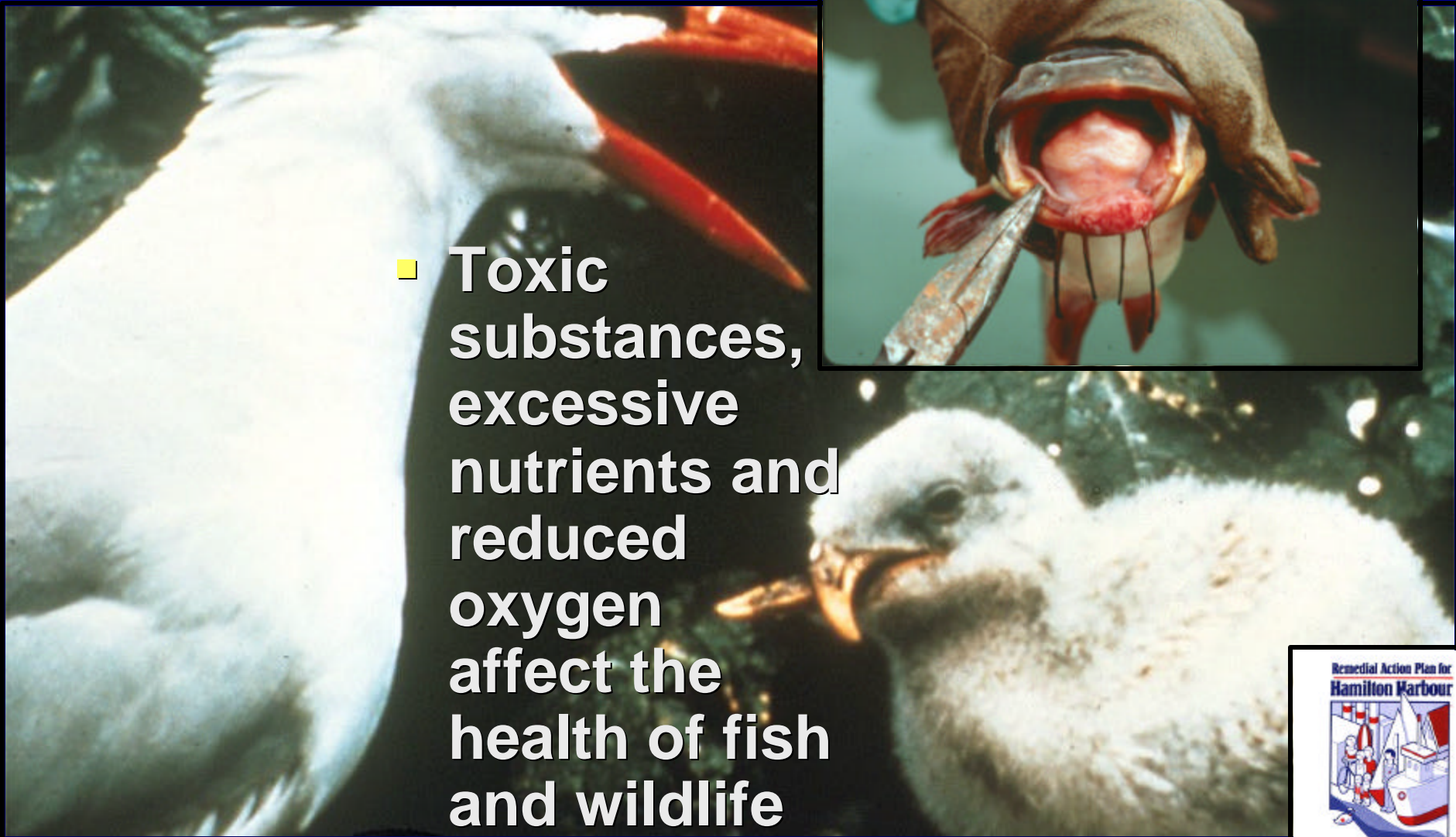
- Sewer sources of toxics
- Nitrate from sewage treatment plants may harm Cootes Paradise marsh amphibians



# 3. Fish & Wildlife Habitat Restoration

## The Problem:

- Toxic substances, excessive nutrients and reduced oxygen affect the health of fish and wildlife



# 3. Fish & Wildlife Habitat Restoration

## Goals:

- Edible reproducing warm-water fishery
- Healthy resident and migratory wildlife populations

*An ambitious plan was prepared to re-establish:*

- *372ha of fish and wildlife habitat at nine sites around the harbour*

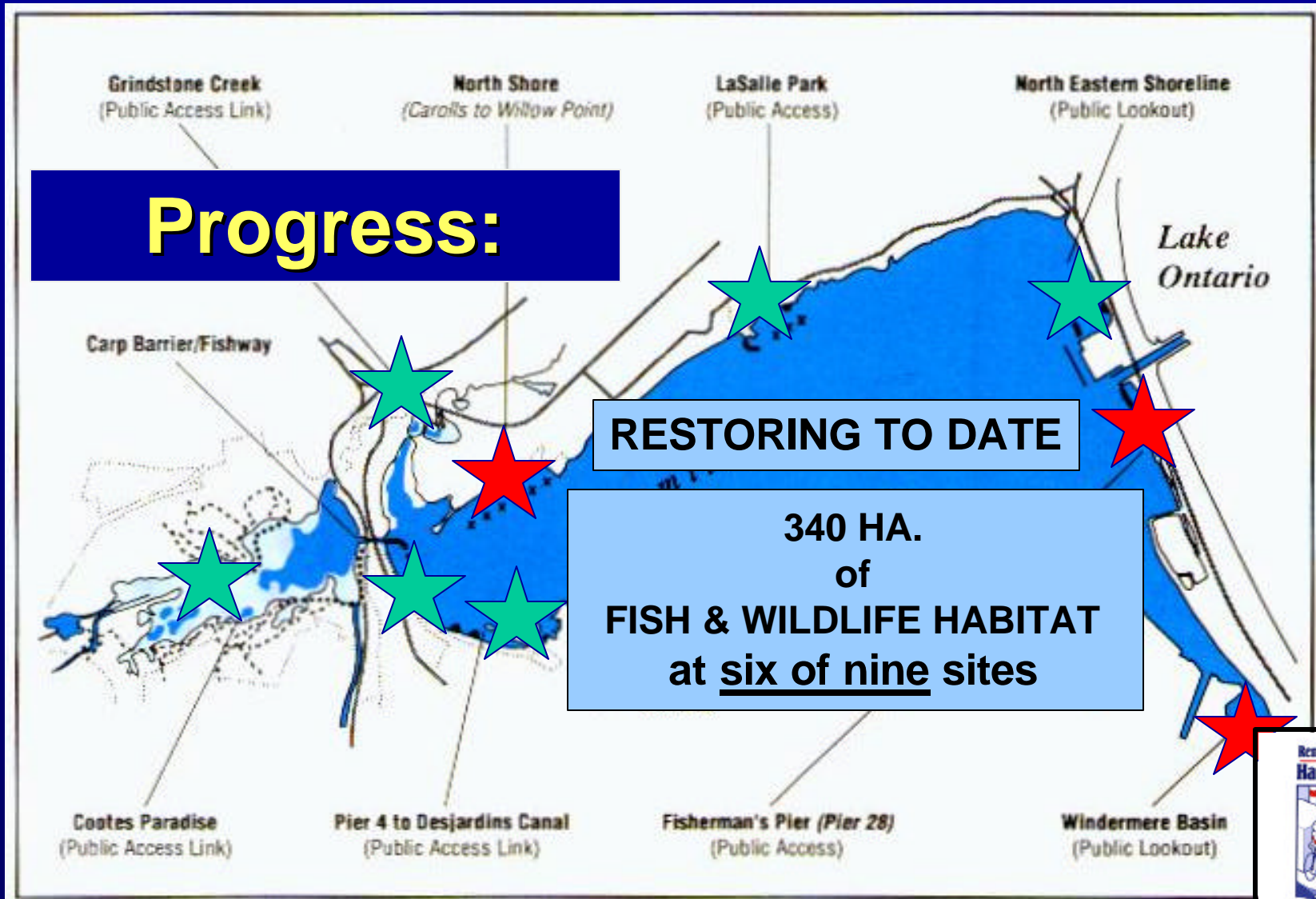


# 3. Fish & Wildlife Habitat Restoration

**Progress:**

**RESTORING TO DATE**

**340 HA.  
of  
FISH & WILDLIFE HABITAT  
at six of nine sites**





# 3. Fish & Wildlife Habitat Restoration

## Progress:

- 170ha aquatic plants
  - 18 species of plants
  - Increased waterfowl diversity
  - 670 nesting pairs of Caspian and common terns
  - Increases in amphibians
- *little overall change in fishery but dramatic changes at restoration sites*
  - *water level regulation of Lake Ontario at odds with marsh restoration*



# 3. Fish & Wildlife Habitat Restoration

## Emerging Issues:

- Management of colonial nesting birds
- Potential to increase habitat targets
- Public access may overwhelm restoration sites



# 4. Urbanization & Land Management

## The Problem:

- Urban sprawl
- Watershed runoff carries contaminants and nutrients





# 4. Urbanization & Land Management

**Goal:** A sustainable natural ecosystem in Hamilton Harbour and its entire watershed



# 4. Urbanization & Land Management

## Progress:

- Watershed plans
- Watershed stewardship
- Vision 2020, an ecological approach to sustainable development
- Environmental planning



# 4. Urbanization & Land Management

## Progress:

- Cleaner sediment now entering Harbour
- Watershed stewardship agreements



# 4. Urbanization & Land Management

## Emerging Issues:

- RAP targets in municipal planning documents
- Pressure to expand urban boundaries and transportation networks
- Implementation of watershed planning strategies



# 5. Public Access and Aesthetics

## The Problem:

- Access restricted
- South shore industrial and fenced



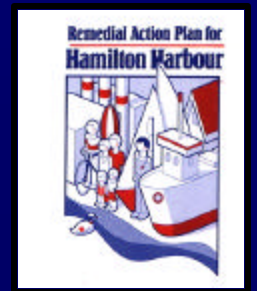
# 5. Public Access and Aesthetics

## Goal:

25% of the shoreline accessible to the public

## Progress:

21% of shoreline now accessible to the public



**We created .... Lookouts!**

**Places to play ...**



**...places to**

**...walk, talk, bike...**



**and hike!**



# 5. Public Access and Aesthetics

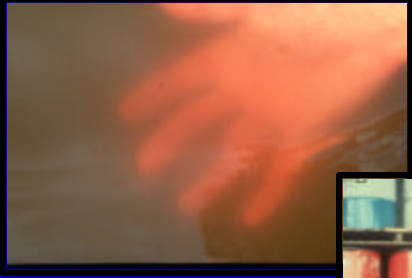
## Emerging Issues:

- Access in east Harbour
- Increase access beyond 25% target
- Improve linkages

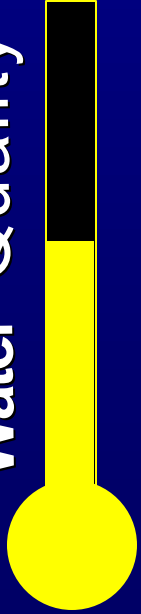




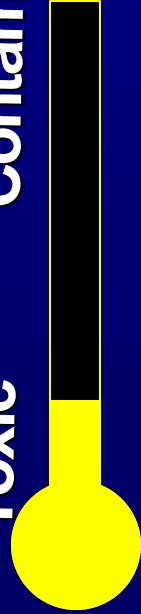
# PROGRESS...



Water Quality



Toxic Contamination



Wildlife



Urbanization

Land



Public



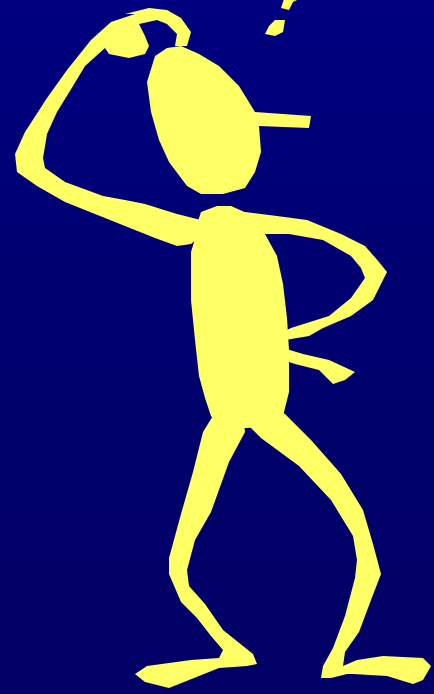
...27%  
forested...

36%  
urban...

...37%  
agricultural

1850...

...2150



# Is Hamilton Harbour a “*local indicator*” for the future of Lake Ontario?



# PARTNERSHIPS IN ACTION FOR SUCCESS



## FISH & WILDLIFE HABITAT RESTORATION PROJECT



Environment  
Canada

Environnement  
Canada



THE REGIONAL MUNICIPALITY  
OF HAMILTON-WENTWORTH



HALTON REGION  
CONSERVATION AUTHORITY



Canada

GREAT LAKES 2000  
CLEANUP FUND

FINANCIEMENT pour le Grand Lac

FONDS D'ASSAINISSEMENT  
DES GRANDS LACS 2000

FINANCEMENT pour le Grand Lac



FRIENDS  
of the  
ENVIRONMENT  
Foundation

McMASTER UNIVERSITY



CITY OF  
BURLINGTON



Royal Botanical Gardens  
Les jardins botaniques royaux



The Hamilton  
Harbour  
Commissioners



BAY AREA RESTORATION COUNCIL  
OF HAMILTON-WENTWORTH AND HALTON REGIONS INC.



Hamilton Region Conservation Authority

Waterfront Regeneration  
Trust



Fiducie de régénération du  
secteur riverain



City of  
HAMILTON



jobsOntario  
boulotOntario



Fisheries and  
Oceans

Pêches et  
Océans



Ministry of  
Environment  
and Energy

Ministère de  
l'Environnement  
et de l'Énergie



Ministry of  
Natural  
Resources

Ministère des  
Richesses  
naturelles