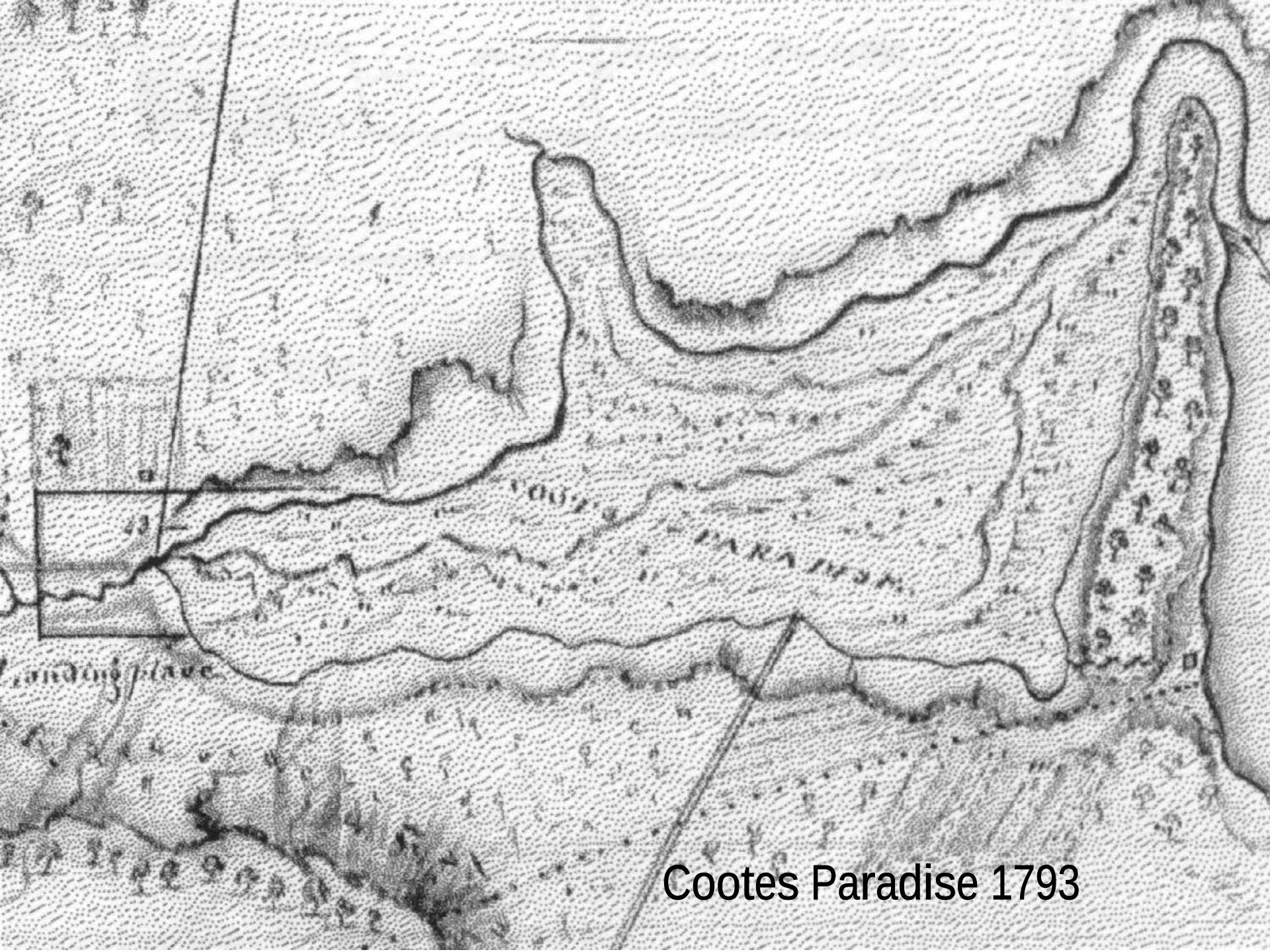
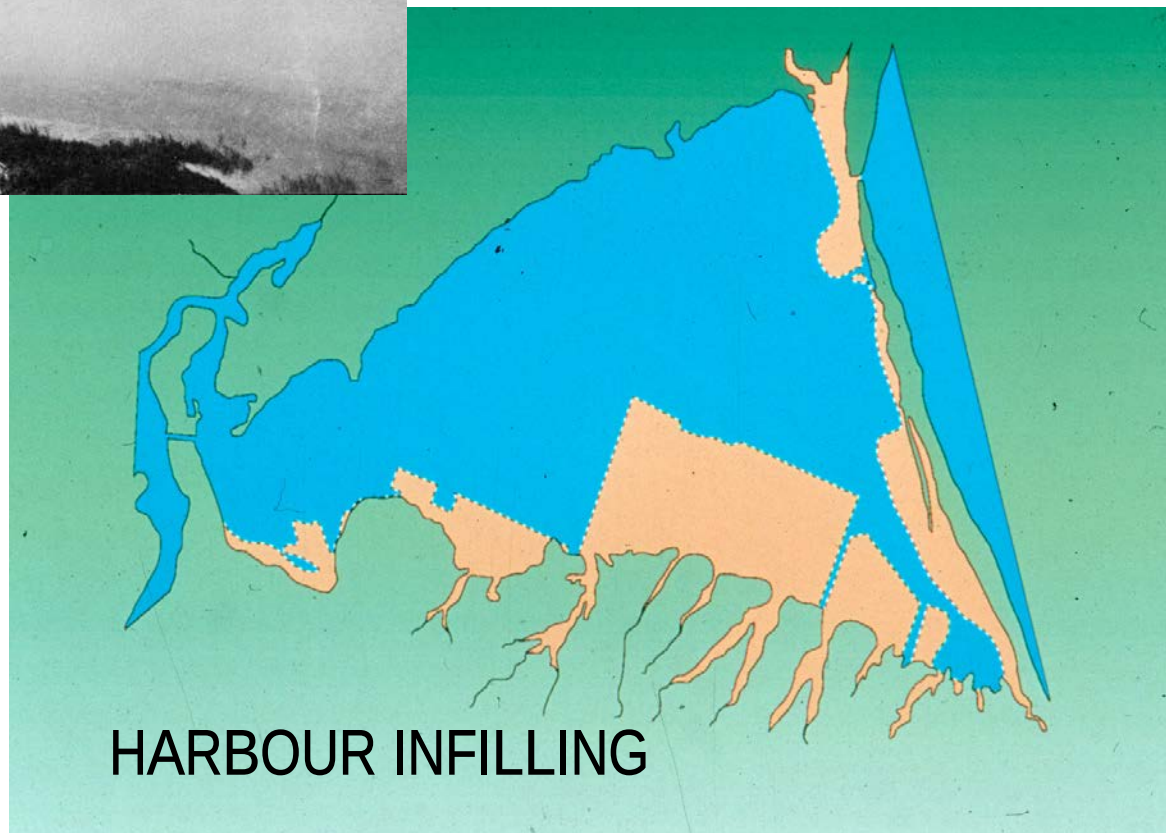
Hamilton Harbour Remedial Action Plan

Lake Ontario, Canada

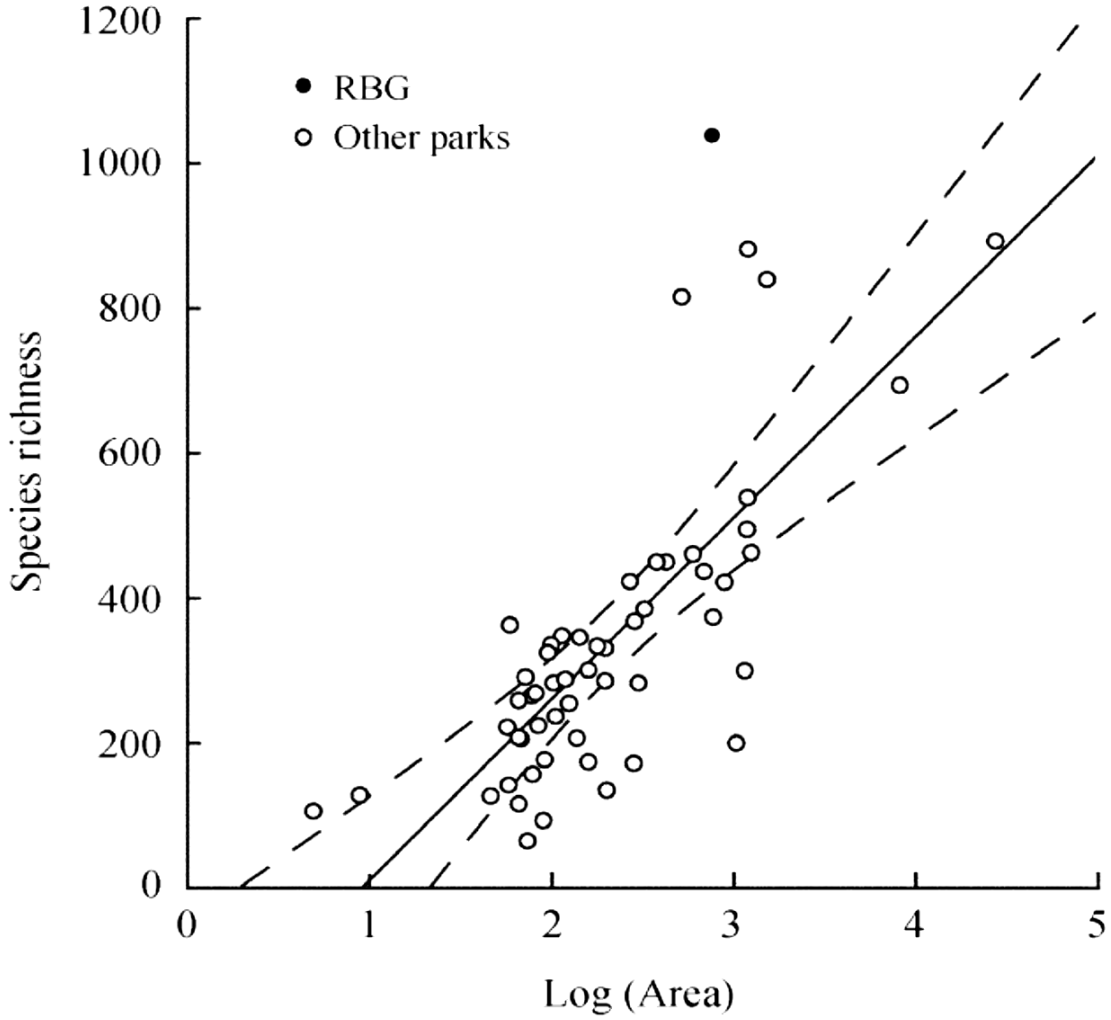


Cootes Paradise 1793



HARBOUR INFILLING

Ontario's Highest Biological Diversity



Galbraith *et al.*, 2011, **Plant Diversity and Resources** 33(1): 123-131

Newspaper Reports

1953

an oil slick from shore to shore for most of the summer

1958

the world's largest and most beautiful septic tank

1969

a stinking rotten quagmire of filth and poisonous waste

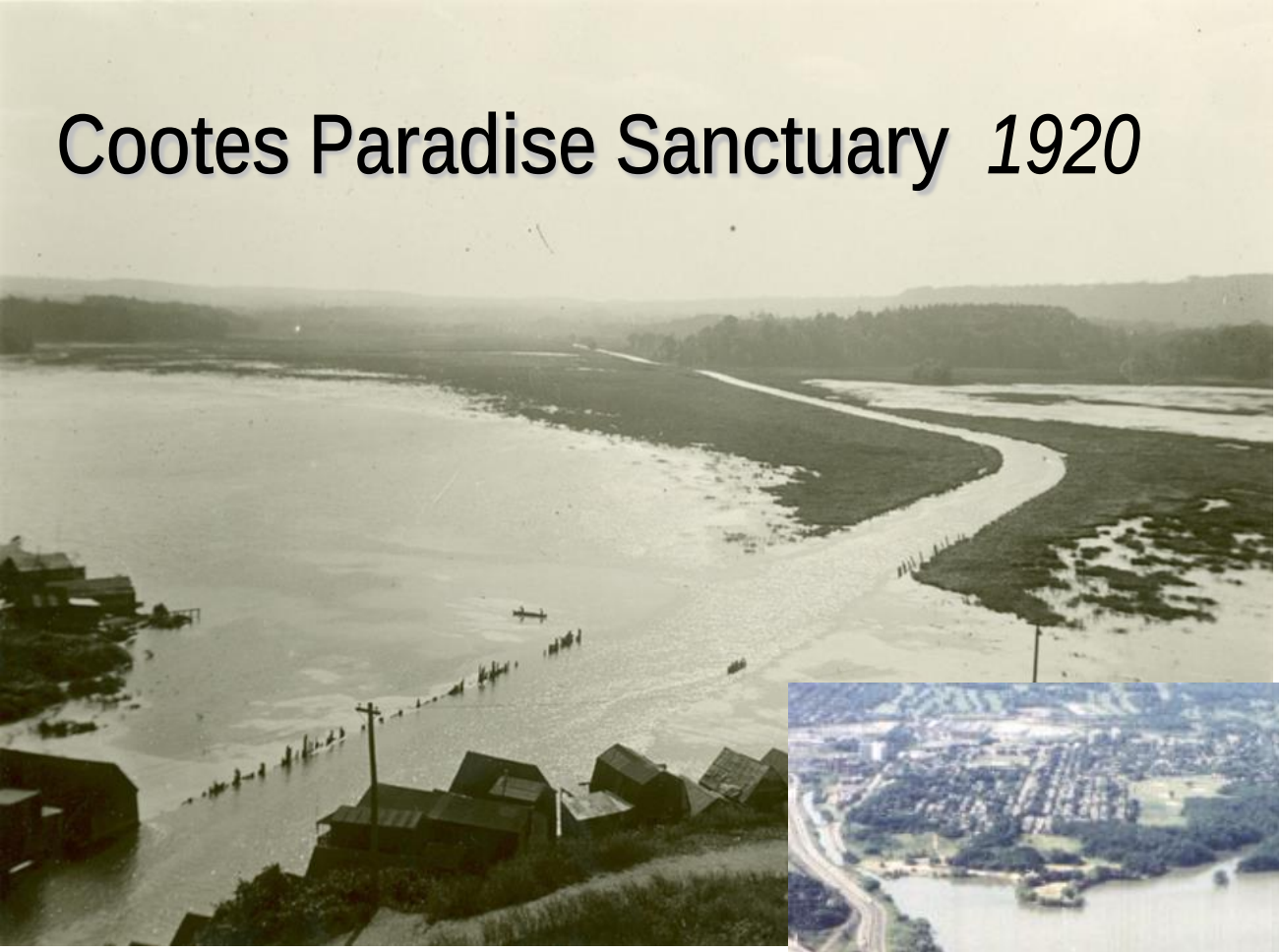
Hamilton Harbour...

...Remedial Action Plan

STAKEHOLDER APPROACH

citizens
civil servants
scientists

Cootes Paradise Sanctuary *1920*



1990

Cootes to Escarpment EcoPark System Vision Map

Produced by Michael Karpovage of Mapformation.com. July, 2015

Legend:

- EcoPark Land Boundaries
- Stewardship Lands
- Hydro Corridors
- Water Bodies
- Roads
- Rail Lines
- Hiking Trails

Vision

Our vision for the Cootes to Escarpment EcoPark System is that it will be known internationally as a protected, permanent and connected natural lands sanctuary from the Harbour to the Escarpment that promotes ecosystem and human health within Ontario's Greenbelt.

Bruce Trail Conservancy · Conservation Halton · Halton Region · Hamilton · Hamilton Conservation Authority · Royal Botanical Gardens · City of Burlington · McMaster University · Royal Botanical Gardens www.rbg.ca

Cootes to Escarpment naturally connected EcoPark System

cootestoescarpment.ca

Bruce Trail CONSERVANCY

CONSERVATION HALTON

Hamilton

McMaster University

Inspiring Innovation and Discovery

Halton REGION

ROYAL BOTANICAL GARDENS

www.rbg.ca

HAMILTON NATURALISTS' CLUB

CITY OF Burlington

Ontario, Canada

Hamilton Conservation Authority

Healthy Streams...Healthy Communities!

What Have We Learned from the Head of the Lake?

Start with good science

Compelling reasons to act

Get people working together

Timing is everything

Presentation to Society for Ecological Restoration (Text to accompany slides)

Once and Future Great Lakes (Hamilton Style)
John Hall

Slide 1. HHRAP

I'm pleased to be speaking at this conference because it takes me back to my core involvement in the HHRAP and F&WH Restoration.

You identified two objectives for this session today:

1. Understand the unique constraints and opportunities for restoration on sites subject to 200 years of modification and habitat loss; and
2. To understand the evolution of waterfront restoration in the Greater Golden Horseshoe.

You also said you wanted to consider the continuum of terrestrial areas connected to our coastal wetlands. So I will also tell you about the Cootes to Escarpment EcoPark.

I want to tell you our story of ecological restoration in Hamilton Harbour, the "Head of the Lake". But I will tell you this story from the perspective of a geographer and planner. For the most part my story is that of an observer and at times facilitator.

Also in my story telling I will use mostly words and only a few slides for illustration. I will not be telling the details of restoration and techniques employed but the history and process of restoration. I will finish with a bank of slides showing off our natural resources.

Slide 2 (Historical slide of Head of the Lake)

Our first nations knew this area as a place of abundance, a source of food, materials for survival and a crossing point for trade.

Our first Europeans recognized it for its beauty and abundance. Lady Simcoe described the beach strip separating Hamilton Harbour from Lake Ontario as a "park like setting" in fact an Oak Savana. Captain Coote stationed at Fort George in Niagara enjoyed hunting here so much they called it Cootes Paradise. And John McTaggart the surveyor of the Rideau Canal and Burlington Ship Canal described it as the finest natural area he had yet discovered in North America. So what has changed about this place in the past 200 years? What ecological and cultural opportunities remain and what constrains influence our actions?

Slide 3 (filling of Hamilton Harbour)

Hamilton Harbour at the west end is connected with the Cootes Paradise Marsh and surrounded by the Niagara Escarpment. A quarter of the Harbour, the Bay, was filled in. 65% of the fish habitat was lost due to this infilling. By about 1900 most of our forest along the Niagara Escarpment had been cleared, some of it converted to orchards and farm land. Rail lines, hydro corridors and roadways bisected this vital transportation route and urban and industrial growth expanded around the Bay up to and beyond the Escarpment.

So what is left?

Slide 4 (EcoPark data)

On the one hand, where the landscape was left alone, one of Canada's natural hot spots; the Cootes to Escarpment EcoPark area. Why do we have this wealth of ecology that has survived? In my opinion, it is because of its geography; head of the lake, surrounded by the Niagara Escarpment and estuaries of several major creeks. It had the good fortune to be worked over by glacial lake Iroquois and various water levels in Lake Ontario.

Slide 5 (slides of Newspaper quotes)

But Cootes Paradise and Hamilton Harbour by the mid-1980s had been completely overwhelmed.

Hamilton Harbour was described in the Parliament of Canada as a "stinking rotten quagmire of filth and pollution". Citizens organized and by the mid-1980s work on a remedial action plan had begun.

Slide 6 (stakeholders)

Our remedial action plan was one of the first to be drafted and it did a couple of things that were ground breaking. First: It amalgamated the work of scientists, citizens (including industry) and civil servants. The stakeholder practice we all follow now was new in the 1980s. Second: It took an ecosystem approach, another new concept at the time.

In 1990 a couple of workshops were held with local and international experts to determine what opportunities existed to enhance fish and wildlife habitat in Hamilton Harbour and Cootes Paradise. The proceedings of these workshops provided the basis for an ambitious fish and wildlife habitat restoration project that would target restoration of more than 500ha of fish and wildlife habitat.

I'm pleased to say that much of this work has been accomplished. We have exceeded targets for littoral edge and colonial water bird habitat and the return of aquatic vegetation within the Harbour.

Slide 7 (Cootes Paradise Desjardins 1920/Cootes 1990s)

I would like to take a few moments to speak to the restoration of the Cootes Paradise Marsh. This project on the lands of, and led by, the Royal Botanical Gardens is a great example of how the community has to pull together to make something happen. Remember Captain Coote from Fort George. He gave it its name because of its abundance of wildlife. By the 1830s things were changed in Cootes Paradise. A canal had been dredged and reinforced walls were constructed to allow for barge traffic to move goods in and out of the industrial centre of Dundas. The canal went bust in the 1850s but by 1919 Dundas had a wastewater treatment plant outletting to the marsh; still operating today. Folks had plans to fill in the marsh for industrial land or the "Empire Games". Neither of these projects was initiated. In the 1940s TB McQueston used his political prowess to set aside lands for McMaster University and attached Cootes Paradise to the newly established Royal Botanical Gardens. Cootes was safe.

From the 1950s work was initiated to regenerate the Cootes Paradise Marsh but all the king's horses and all the king's men couldn't put Cootes together again. You see the problem was bigger than the marsh itself. The HHRAP working with RBG and a host of partners developed

an approach to restoring the marsh. It was based on reducing the stress placed on the marsh by:

- Turbidity (carp, wind and rain events from the watershed)
- Water quality (Dundas WWTP, urban and rural runoff); and
- Water level regime (Lake Ontario regulation at the Moses Saunders Dam)

Most in this room will be familiar with the fishway at Cootes Paradise. A first of its kind structure designed to keep carp out of the marsh while passing all other species of fish. It did what it was expected to do but it revealed the full extent of impacts from poor water quality in the marsh previously masked by the impact of carp. Jump forward to today and account for over $65million dollars invested in combined sewer and wastewater upgrades along with ongoing improvements to watershed runoff and we are starting to see early season spontaneous resurgence of submerged aquatic plants. This year, a drought year, did however seemed to concentrate phosphorus and a die back of plants was experience along with a huge growth of phytoplankton. It leads to questions of whether in reducing stressors do we manage for the average or the extremes. However, I would suggest, it is no longer a question of will this approach work but only how long it takes to complete the task. We continue to have good public, partner and political support for this restoration.

Slide 8 (Cootes to Escarpment EcoPark)

As we all know sites are not islands unto themselves and so it is with Cootes Paradise. In 2009 the Cootes to Escarpment EcoPark System was brought forward as a conservation vision for lands along the Niagara Escarpment spanning the north side of Hamilton Harbour. This EcoPark System was the result of science, politics and engagement all coming together at the same time. The science came from the Royal Botanical Gardens. A review of plants documented on their property identified these south facing slopes as one of the richest botanical areas in Canada. The information only gets better when adjacent public lands are included. But, the adjacent public lands are fragmented among 9 different public land owners. Lands between the publically owned lands were for the most part undeveloped due to environmental conditions such as ravines or escarpment forests. The politics and engagement came from a mandate review of the RBG that at one point threatened to detach the RBG as custodians of their natural lands. The citizens moved on mass to support the natural areas mandate of the RBG. The HHRAP had already engaged a multitude of partners to remediate the Harbour so why not pull together a similar community of partners to explore the potential for this EcoPark System. A stakeholder process was put in place and after a few years of work a Park Vision was announced. In 2013 a memorandum of understanding was signed among the public agencies and a structure established to move the EcoPark System forward. I should mention that a significant driving force was a concern that these various lands owned by the individual partners were under threat of overuse by the public or development by the private sector. In other words, this may be our last chance to plan for these lands before growth overwhelms them.

The Cootes to Escarpment EcoPark System covers almost 4,000ha in area, is home to a quarter of Canada's wild plants and contains 50 species at risk; but perhaps most significantly it is the only location where there is a continuous corridor between Lake Ontario and the Niagara Escarpment not separated by a four lane highway.

Perhaps the most interesting feature of this EcoPark System is the fact that about half its area is expected to remain in private ownership. A Stewardship program to change lifestyle and

landscapes to be compatible with the EcoPark System is essential for the long term ecological prosperity of these lands.

Slide 9 (agencies in EcoPark)

The partnership among the 9 public and not for profit agencies we believe is a forward looking example of collaboration for management while maintaining ownership with the individual groups.

Slide 10 (Lessons Learned)

I have told you a short story of what has happened at the Head of the Lake with respect to restoration of significant ecological areas. What then does it take in retrospect for this ecological renaissance to occur?

What have we learned from the Head of the Lake?

1. We need to start with good science. Both the HHRAP and the Cootes to Escarpment EcoPark Systems started with an understanding of the areas involved.
2. We need compelling reasons to do something. HH was a stinking rotten quagmire. Cootes to Escarpment was a response to the possibility of losing it all. A last chance to plan for it.
3. We need a way to get people working together. From the HHRAP we have learned that a stakeholder approach works and is transferable to other opportunities. (scientists, citizens and civil servants together at the same table … no more prepare, present and defend)
4. Timing is everything. We need the public, the politicians and the institutions anxious to make change.

Now for the landscape to speak for itself. This bank of slides are all from Hamilton Harbour, Cootes Paradise and the Cootes to Escarpment EcoPark System.