CRANBERRY MARSH
RESTORATION PROCESS
Lynde Shores Conservation Area
CRANBERRY MARSH RESTORATION PROCESS
Lynde Shores Conservation Area

Lynde Shores Conservation Area
Lynde Shores C.A. History

- Historical native hunting grounds
- Agriculture was the dominant surrounding landuse
- Active cottage area between two wetlands
- CLOCA began land assembly for the Lynde Shores Conservation Area in 1972
- Property between two wetlands purchased in 1975
- Cranberry Marsh acquired in mid 1980’s
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- Lies along shores of Lake Ontario
- Incorporates outlet of Lynde Creek Watershed
- Two provincially significant wetlands
- Extremely important as migratory bird stop-over areas
- 313 ha (approximately 100 ha acquired in the last 10 years)
- 5 km of trails
- CA bisected by major roadway and bordered on north by Hwy. 401
- 50,000 + visitors a year
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Cranberry Marsh - A Coastal Wetland

- Cranberry Marsh is a barrier beach coastal wetland

- Water levels controlled by the quantity of water draining in from their watersheds and by Lake Ontario water levels/storm events

- Large rain events in the watershed or large storm events on Lake Ontario in combination with higher volumes of water in the marsh occasionally cause beach blow-outs - results in a natural draw-downs
  - re-stimulating the seed bed (aerobic)
  - helps to maintain vegetation species diversity
  - leads to better wildlife habitat

- Ideal hemi-marsh conditions occur with a 50:50 ratio of emergent vegetation to open water
The Cranberry Marsh watershed is relatively small (~160 ha) compared to the size of the wetland (47 ha).

Historical land survey records from the 1800's indicate that the western most tributary of Lynde Creek (Kinsale Subwatershed) was once connected to Cranberry Marsh. Today this tributary (~2200 ha watershed) drains into Lynde Marsh.
Cranberry Marsh History

- 1900-1930’s- Cranberry Marsh was drained every spring by landowners by digging a trench through the barrier beach – cattle pasture and cranberry production
- 1940’s - New owners drained the marsh periodically to avoid having their cottage flooded
- Hurricane Hazel blow-out at Cranberry Marsh in 1954
- Great Lakes water level regulation began in 1958
- In 1983, water level regulation ceased
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April 2000
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Aerial View of Lynde Shores Conservation Area (1999)
To Regulate or Not to Regulate - That was the Question

The concept of controlling water levels to improve marsh conditions was not revolutionary:

- **1900-1950’s**: Original owners maintained sluiceways to control water levels

- **1970-1980’s**: Researchers from U of T, MNR, and U of G provided recommendations on manually controlling water levels and draw-downs

- **1988**: Ducks Unlimited Canada provided a plan to control water levels

- Using DUC’s plan CLOCA prepared a recommendation to the Board of Directors to control water levels - public reaction and concern resulted in the project being stalled

**BACK TO THE DRAWING BOARD**
The Web Of Life

A Plan For Two Dynamic Coastal Wetlands

Lynde Shores Conservation Area Management Plan - Initiated in 1997
Management Plan Goals

To identify, protect and enhance the current and potential natural heritage attributes, functions and linkages of Lynde Shores Conservation Area in conjunction with public use.

NATURAL HERITAGE GOAL:

To maintain and enhance the ecological integrity of the Lynde Shores Conservation Area. The plan will consider the interaction of the two coastal wetlands, the upland meadow and forested habitats as well as connections north to the watershed, south to Lake Ontario, and east/west along the coast.
Natural Heritage Evaluation System

- Ecological Importance
- Health
- Sensitivity
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Areas of Concerns Identified

- Cranberry Marsh
  - High Sensitivity
  - Low Health

Fig. 17

Lynde Shores Management Plan
Areas of Concern
Cranberry Marsh Evaluation

Health
- Low productivity of species
- Low biodiversity (loss of key vegetation and wildlife)
- High habitat disturbance
- Presence of non-native species

Sensitivity
- Wildlife and vegetation with limited tolerance to disturbance
- High dependency on surface water
- Later stage of succession
- Presence of numerous species of concern
Cranberry Marsh Restoration Plan

- Management Strategy recommendations were to restore the health of the marsh by:
  - De-watering marsh
  - Installing a control structure

- Draining the marsh would allow aquatic vegetation to rejuvenate (restoring 50:50 ratio) and therefore provide enhanced wildlife and aquatic habitat

- The control structure would help to simulate more natural low and high water level cycles, usually between 7-10 years
Public Involvement

- Brought together surrounding residents, interest groups, government and watershed residents
  - Obtain comments on current status of the area
  - Identify additional environmental knowledge of the area
  - Review potential management options – work through concerns
  - Identify the need for additional public use infrastructure
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Restoration Plan Implementation

- Partnership developed with Ducks Unlimited Canada
  - DUC to design and install a water control structure at Cranberry Marsh
  - CLOCA responsible for monitoring the marsh and long-term maintenance of the structure

- Approvals obtained - DFO, EC, MNR, MOE
- Structure installed in March 2001
- Marsh was de-watered to expose the seedbank (aerobic conditions)
- Vegetation flourished - aquatic (e.g. softstem bulrush, broadleaf arrowhead) and semi-aquatic (e.g. smartweed) species
- In fall 2001, the control structure was closed to insulate the new vegetation from the cold winter temperatures
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May 1947
CRANBERRY MARSH RESTORATION PROCESS
Lynde Shores Conservation Area
April 2002
CRANBERRY MARSH RESTORATION PROCESS
Lynde Shores Conservation Area

April 2005
CRANBERRY MARSH RESTORATION PROCESS
Lynde Shores Conservation Area
August 2007
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Lessons Learned

- **DO YOUR RESEARCH**

- **Digging up the past history**, e.g. that previous owners had opened up the barrier beach to drain out the marsh regularly

- **Using scientific methods** to convince public of worthiness of project, e.g. health, sensitivity, etc.

- **Keep design simple** - how dynamic a barrier beach is, so difficult to keep outlet clear (understand the need for breakwalls and dredging with more complex designs)

- **Monitor baseline conditions** - should have taken place before actual restoration took place – CLOCA did not have the in-house capacity and knowledge at that time to undertake this work (that has since changed)

- **Post monitoring** – Durham Region Coastal Wetland Monitoring Project

(continued)
Lessons Learned (continued)

- Involve interest groups early and get support for project – done correctly, these people can represent your greatest support in the future

- “You can’t please all the people all the time”

- The need for continuous communication, education and re-education about the success of the restoration work and what this success actually means

- Control structure and water level control – common misconception that water can be controlled with precision, but is only a spring/fall effort where excess water is released

- Tamper-proof construction of water control structure

- May have to deal with things such as invasive species due to draw down
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Beatles Hard At Work
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Build It And They Will Come
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