

# **Importance of the lower Great Lakes for waterfowl**



**Scott Petrie,  
Research Director  
Long Point Waterfowl and Wetlands Research Fund**

# **Brief History of Waterfowl ecology and management:**

**where do the Great Lakes fit in?**



# First English colonialists to North America

Era of exploitation – colonization until 1900





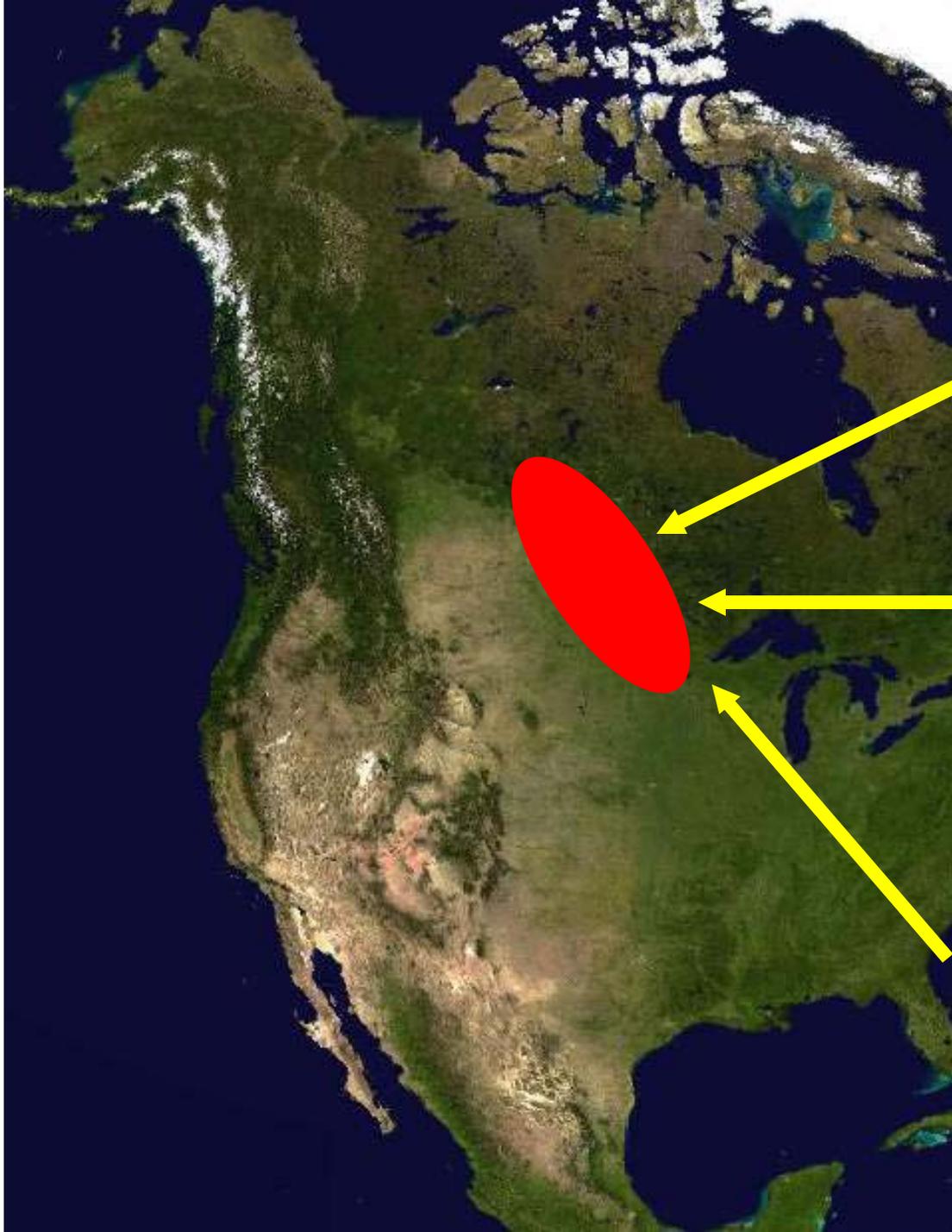
# Era of protection – 1900-1929



**Era of waterfowl conservation, management and research – 1930s till present.**









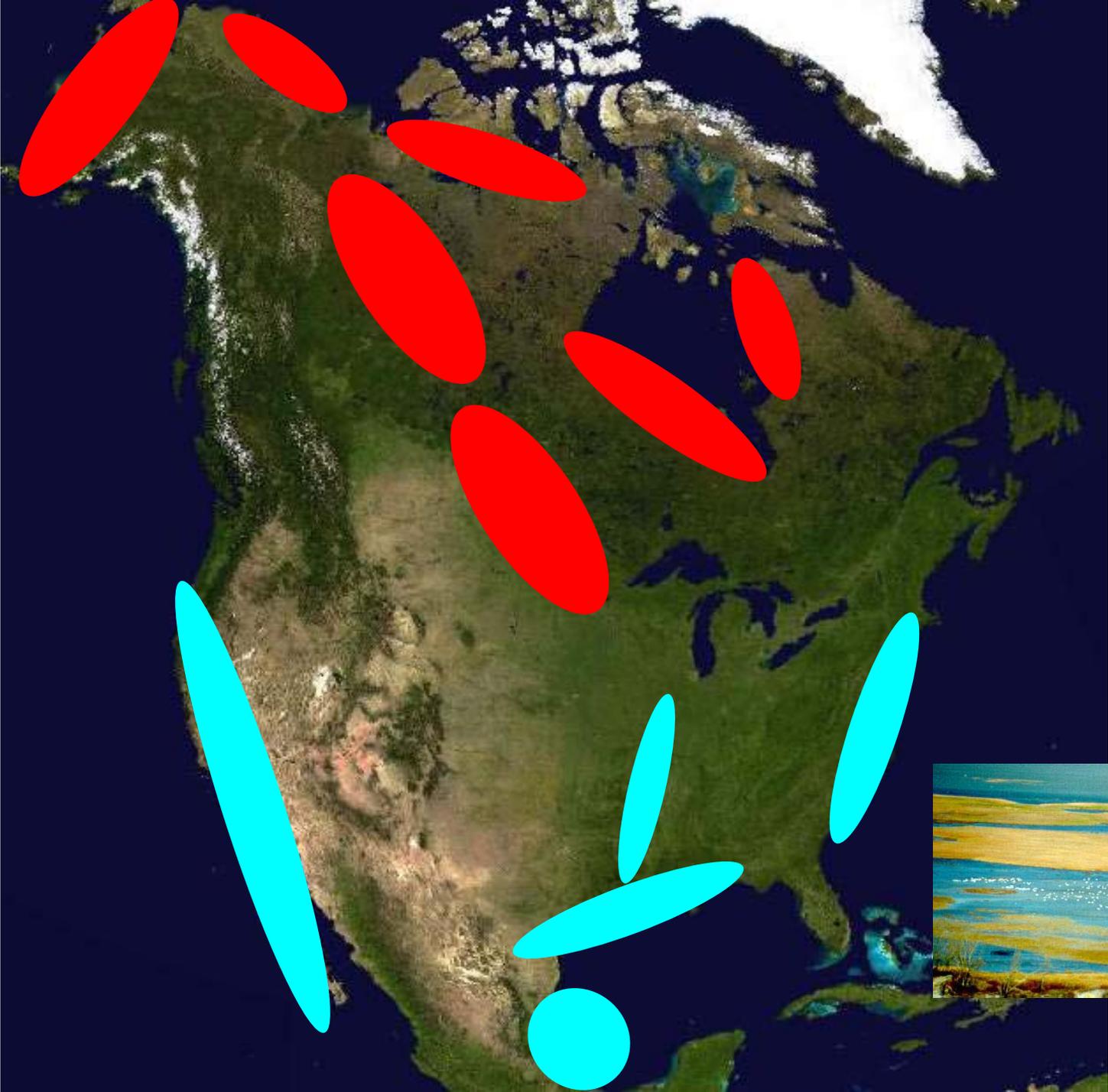
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**As of 1980, 95% of research papers published were published on breeding ecology (Reinecke 1981)**





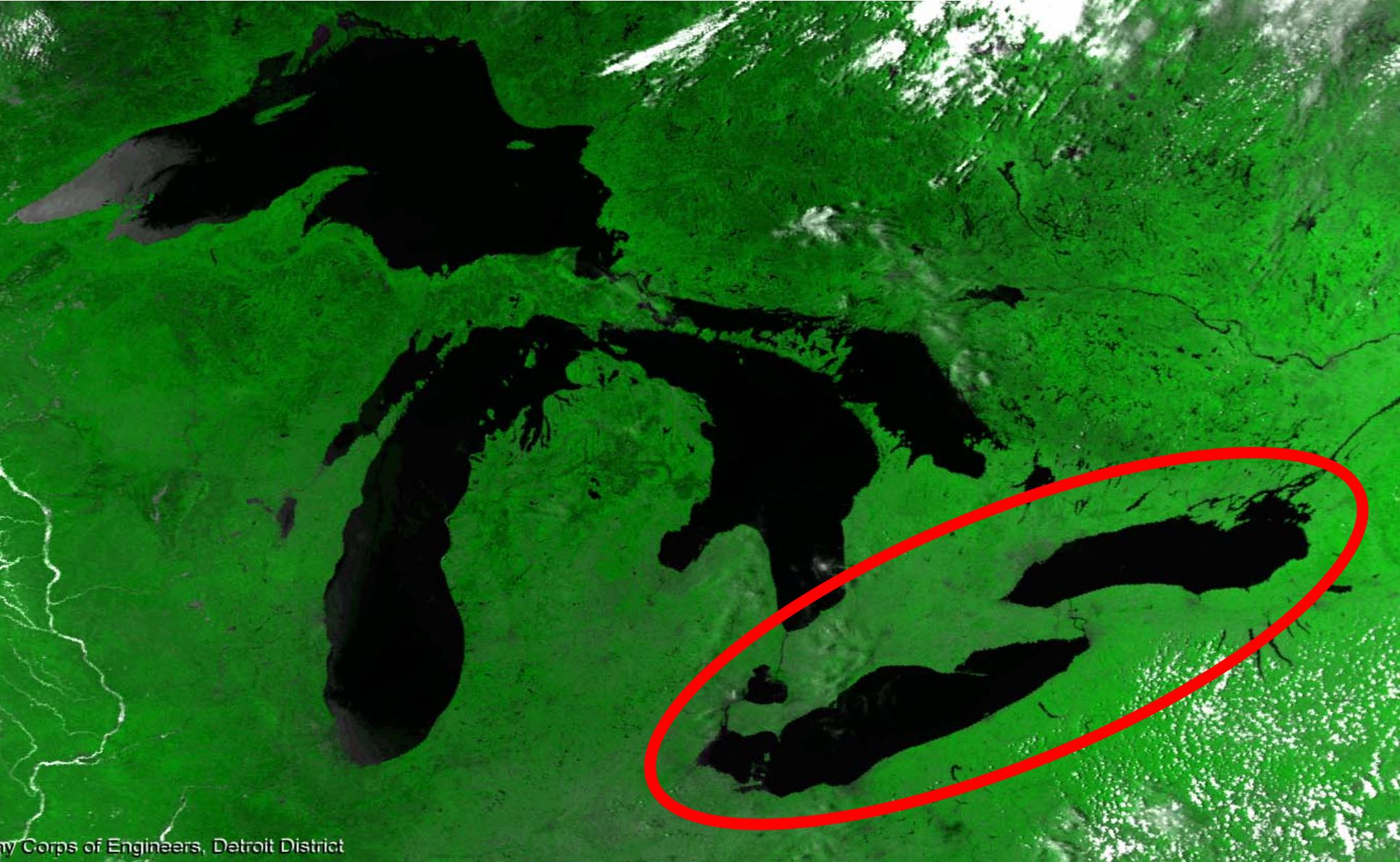
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# Lower Great Lakes (LGL)



# Major Habitat Types

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- open water (Lake and River)



# Major Habitat Types

## - coastal wetlands



# Major Habitat Types

- inland agricultural and aquatic habitats



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H-0705 / Roger Bryan



# **Waterfowl Species Using the LGL**

# Waterfowl Species Using the LGL

Geese

Canada Geese

Snow Geese

# Waterfowl Species Using the LGL

Geese

Canada Geese

Snow Geese

Swans

Tundra Swan

Trumpeter Swan

Mute Swans

# Waterfowl Species Using the LGL

Dabbling Ducks

Wood Duck

Green-winged Teal

American Black Duck

Mallard

Northern Pintail

Blue-winged Teal

Northern Shoveler

Gadwall

American Wigeon

# Waterfowl Species Using the LGL

Diving Ducks

Canvasback

Redhead

Ring-necked Duck

Lesser Scaup

Greater Scaup

Ruddy Duck

# Waterfowl Species Using the LGL

## Sea Ducks

Long-tailed Duck

Black Scoter

Surf Scoter

White-winged Scoter

Common Goldeneye

Bufflehead

Hooded Merganser

Red-breasted Merganser

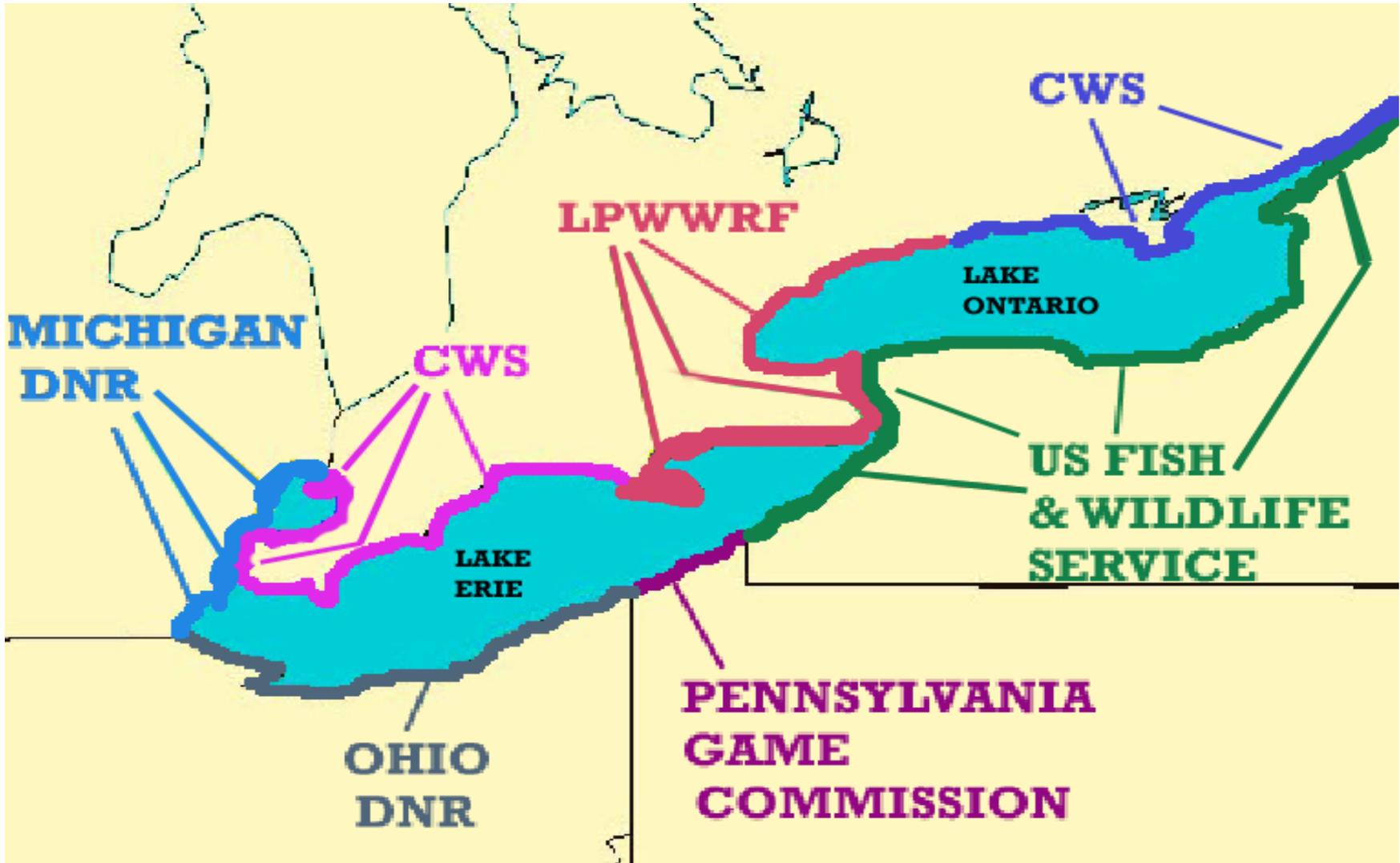
Common Merganser

**Aerial Surveys to monitor trends in the distribution and abundance of staging and wintering waterfowl.**



© Theodore Smith

# Survey Regions



# Breeding?



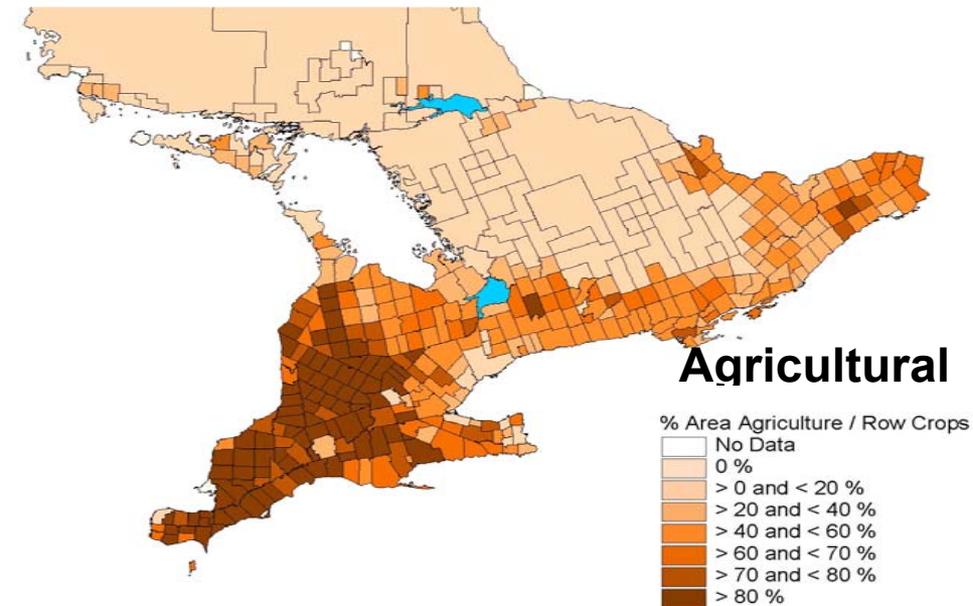
# Breeding?



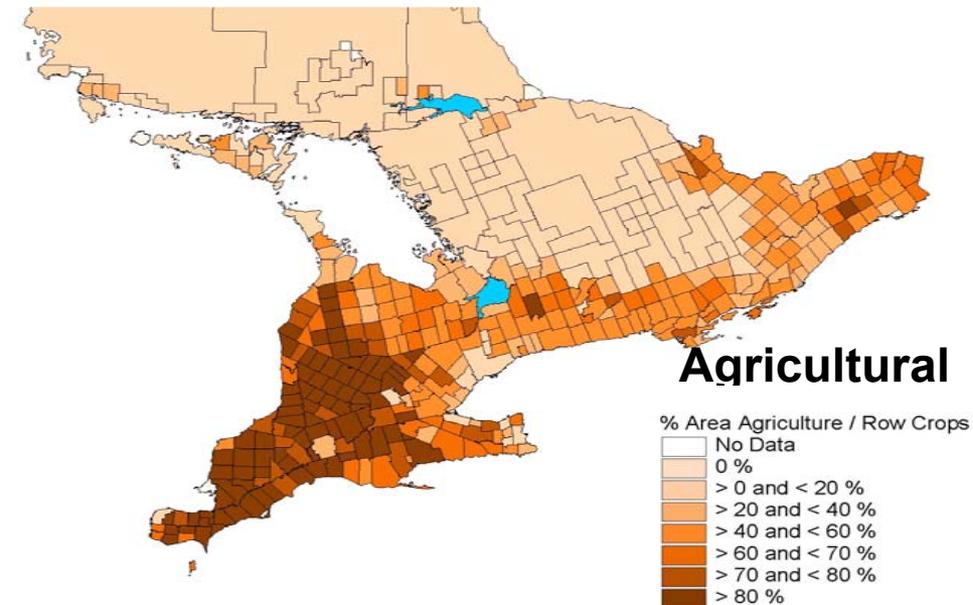
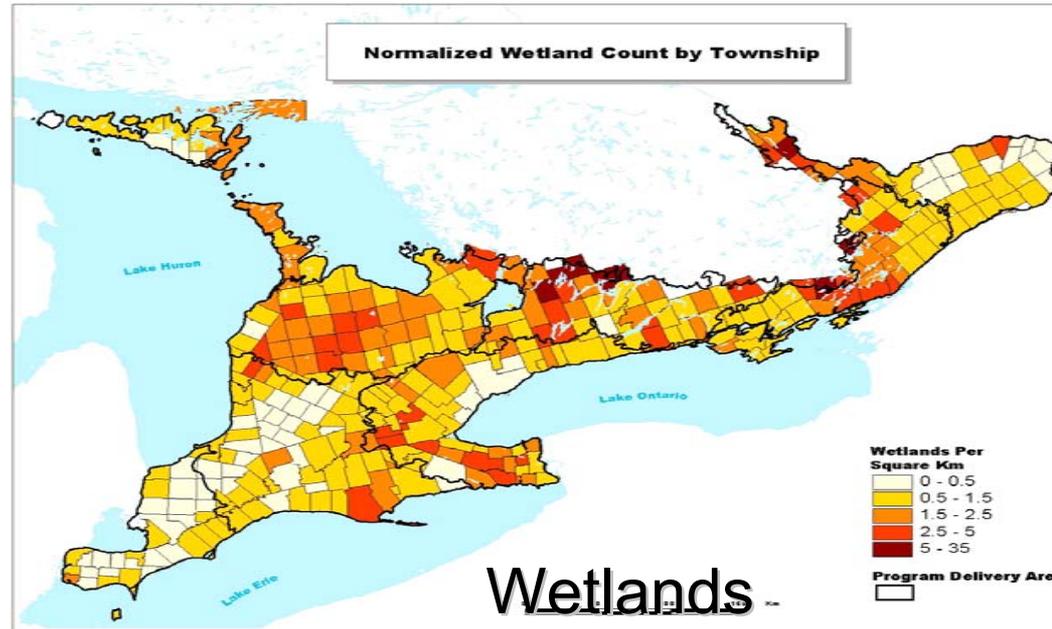
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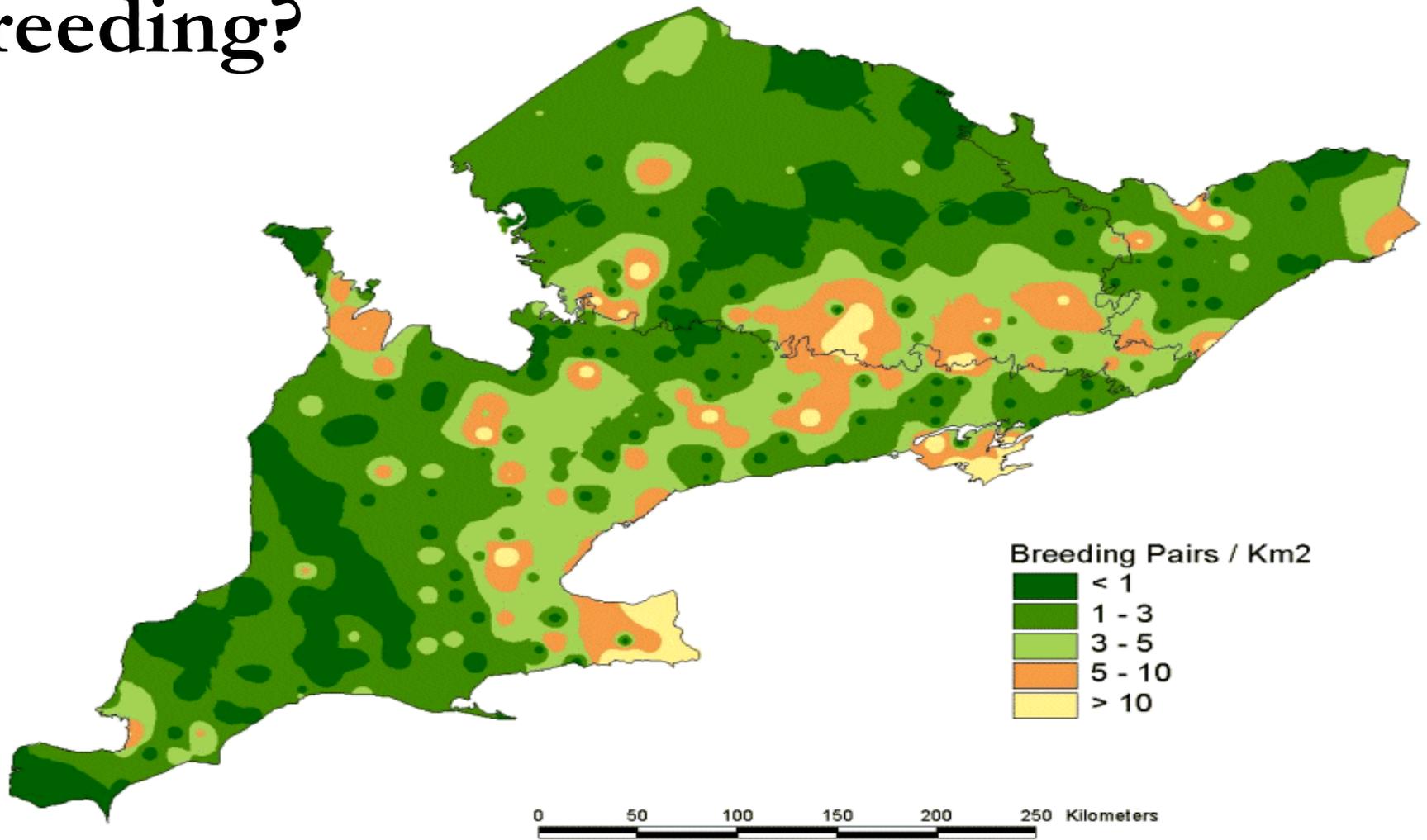
# Breeding?



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## Duck Breeding Pair Densities

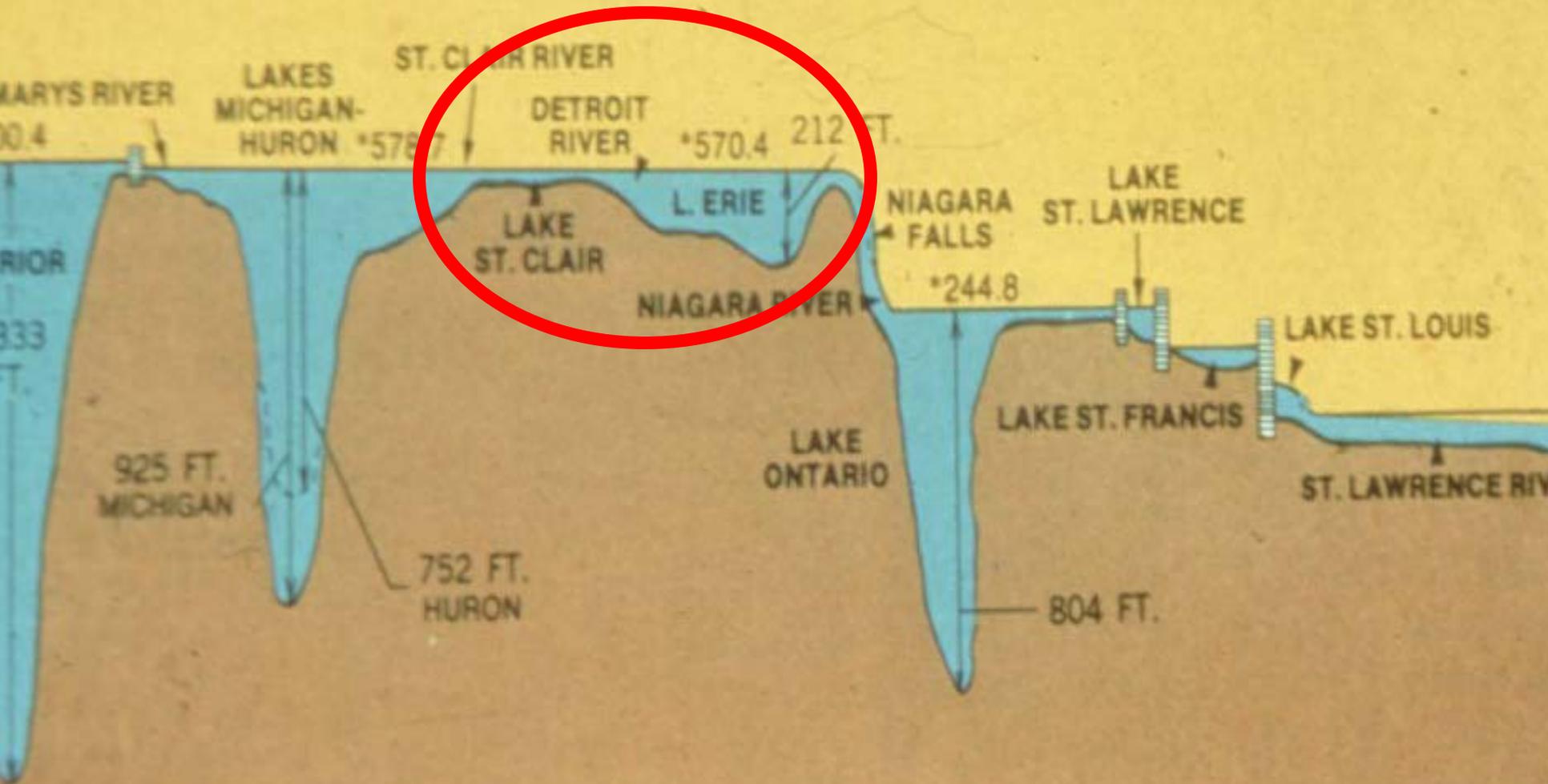
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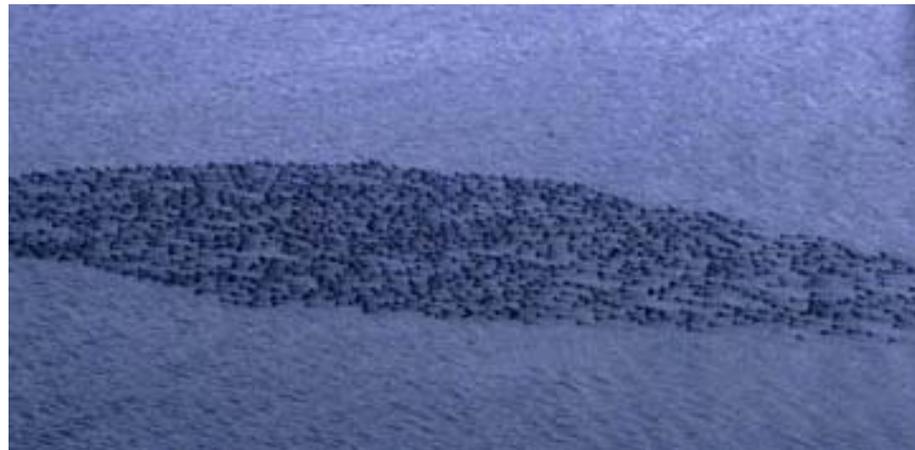


# Staging/migration



PROFILE OF THE GREAT LAKES - ST. LAWRENCE RIVER DRAINAGE SYSTEM





# Lower Great Lakes Significance to Migratory Waterfowl

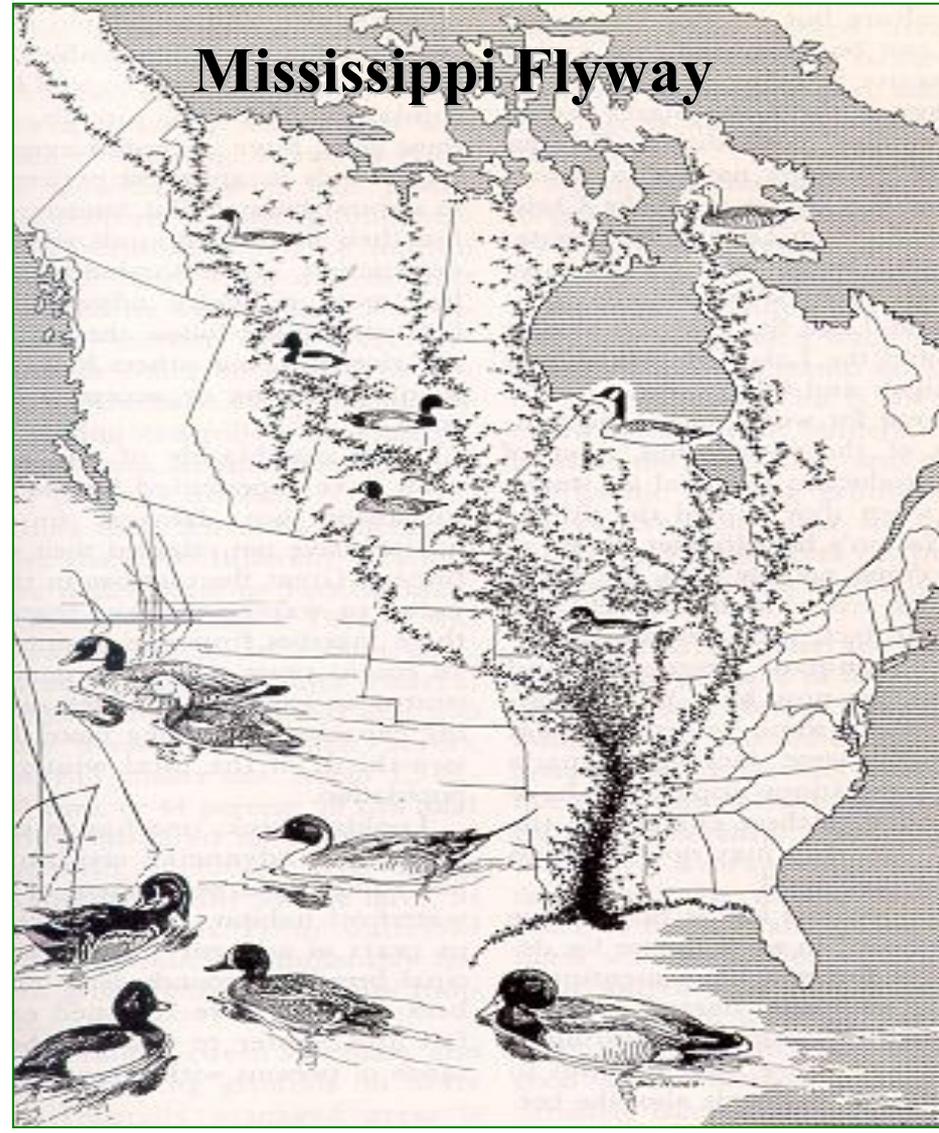


# Lower Great Lakes Significance to Migratory Waterfowl

**Atlantic Flyway**

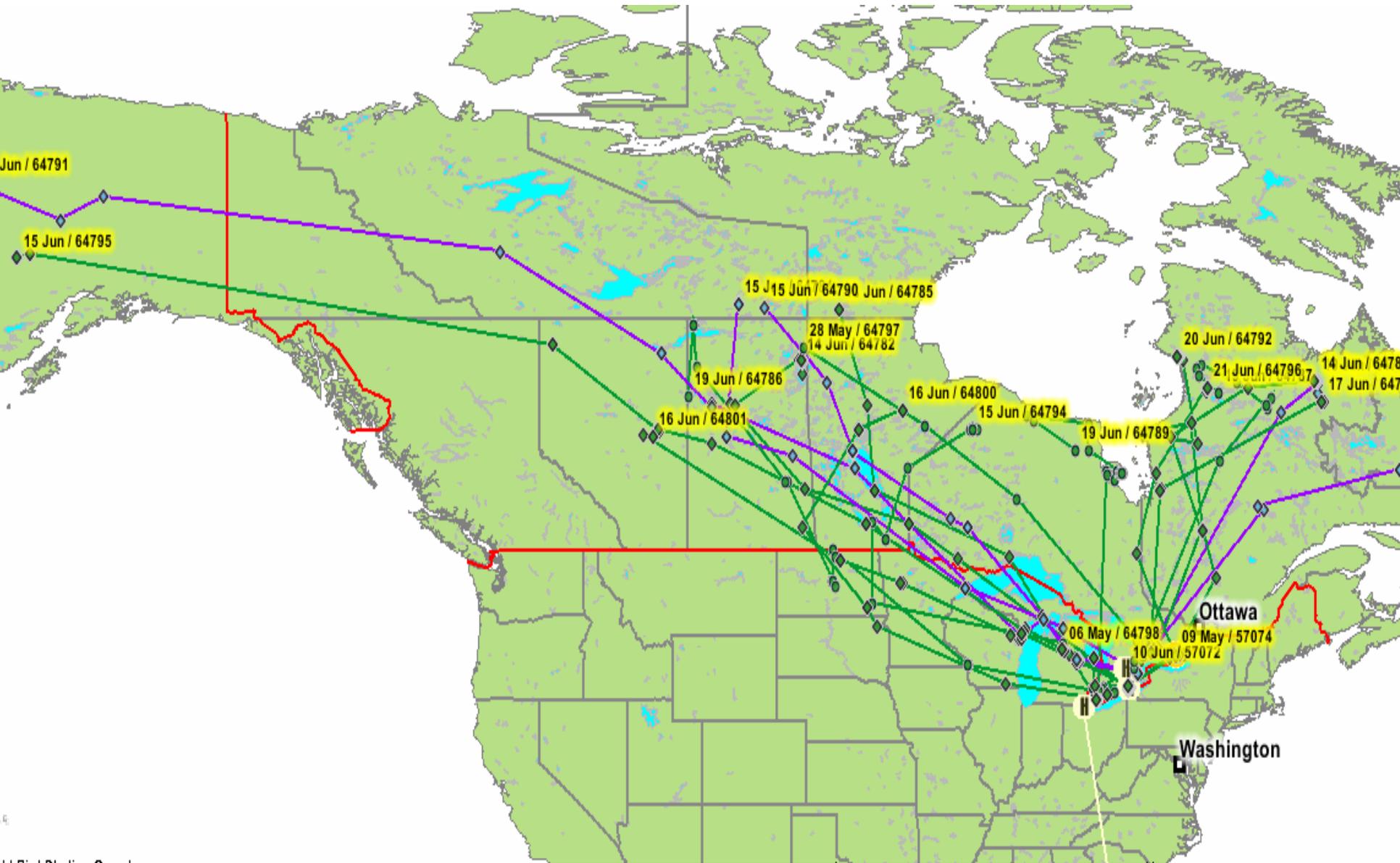


**Mississippi Flyway**

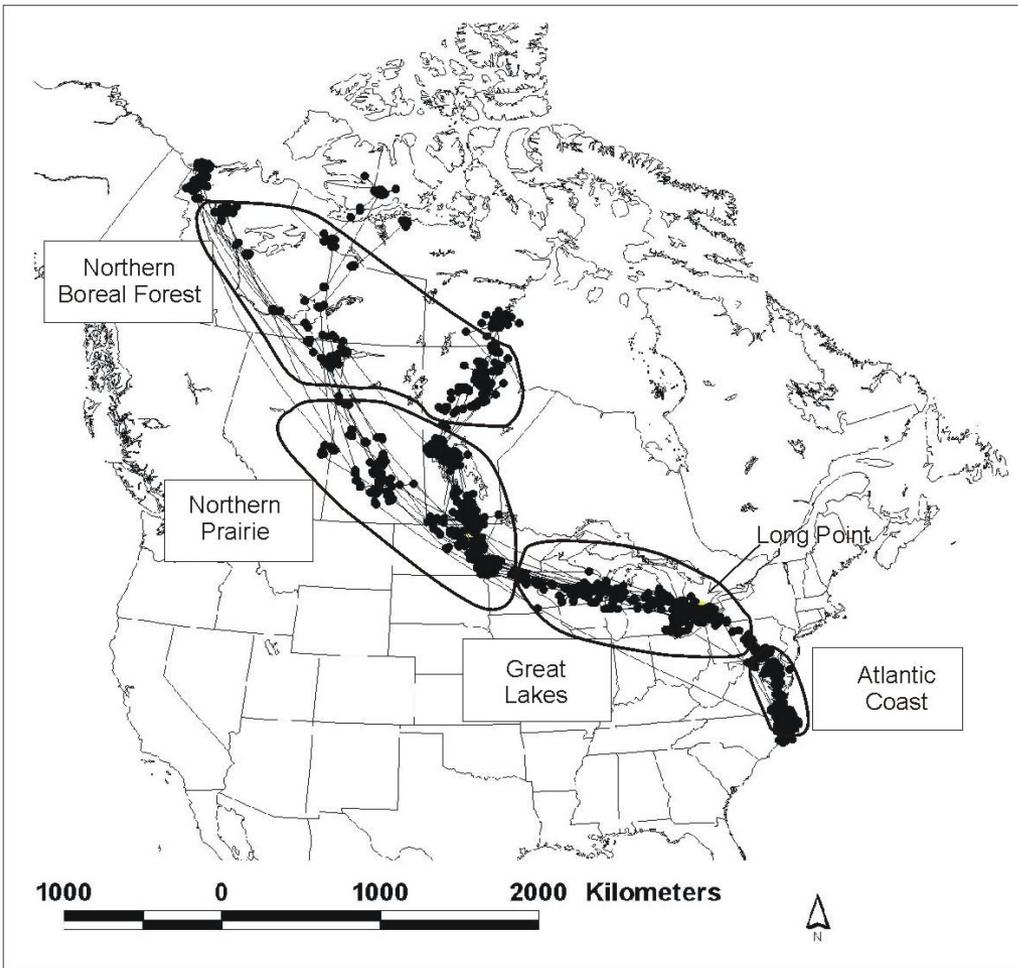


# Satellite Tracking Lesser and Greater Scaup





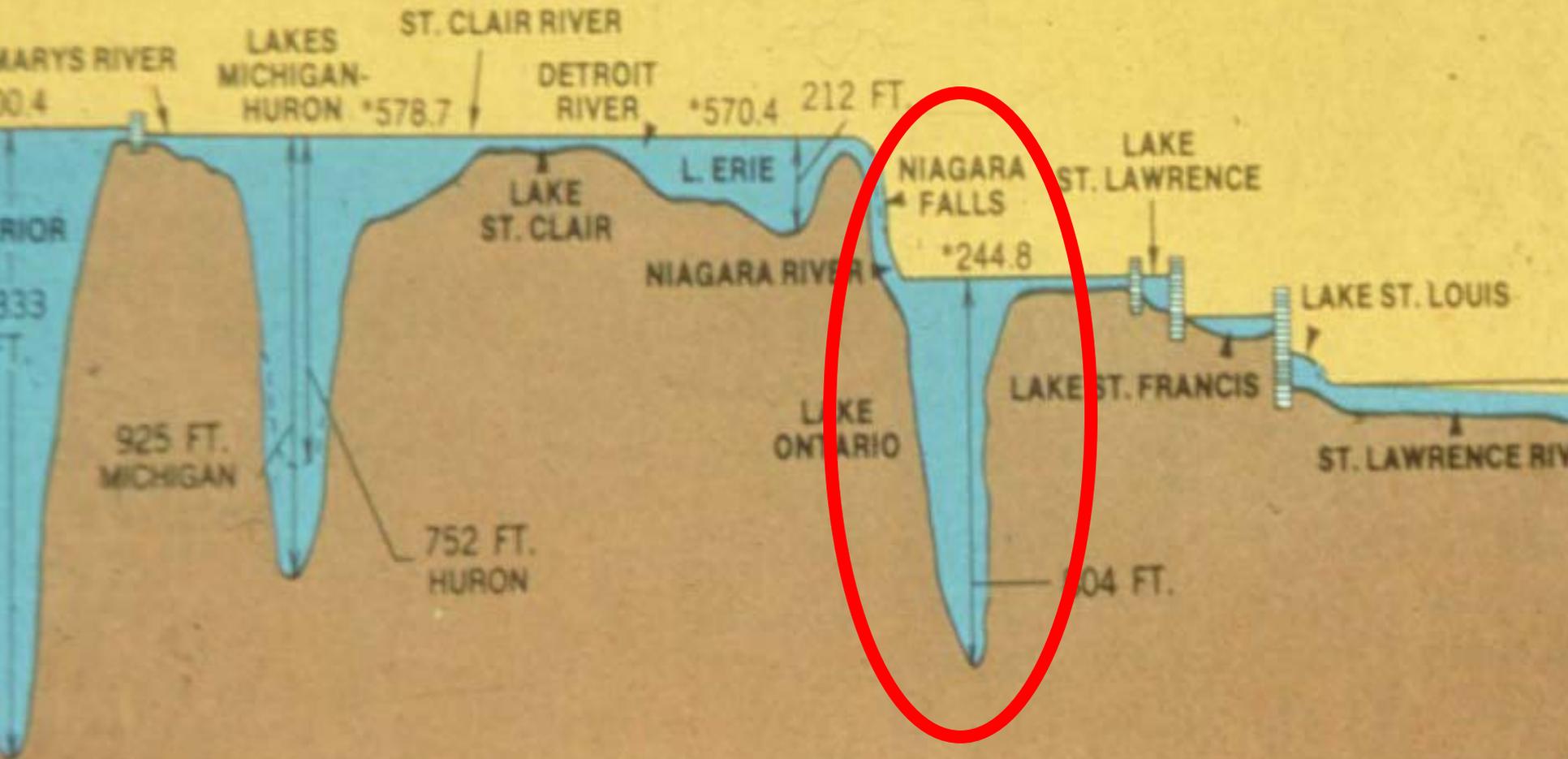
# Satellite Tracking Tundra Swans



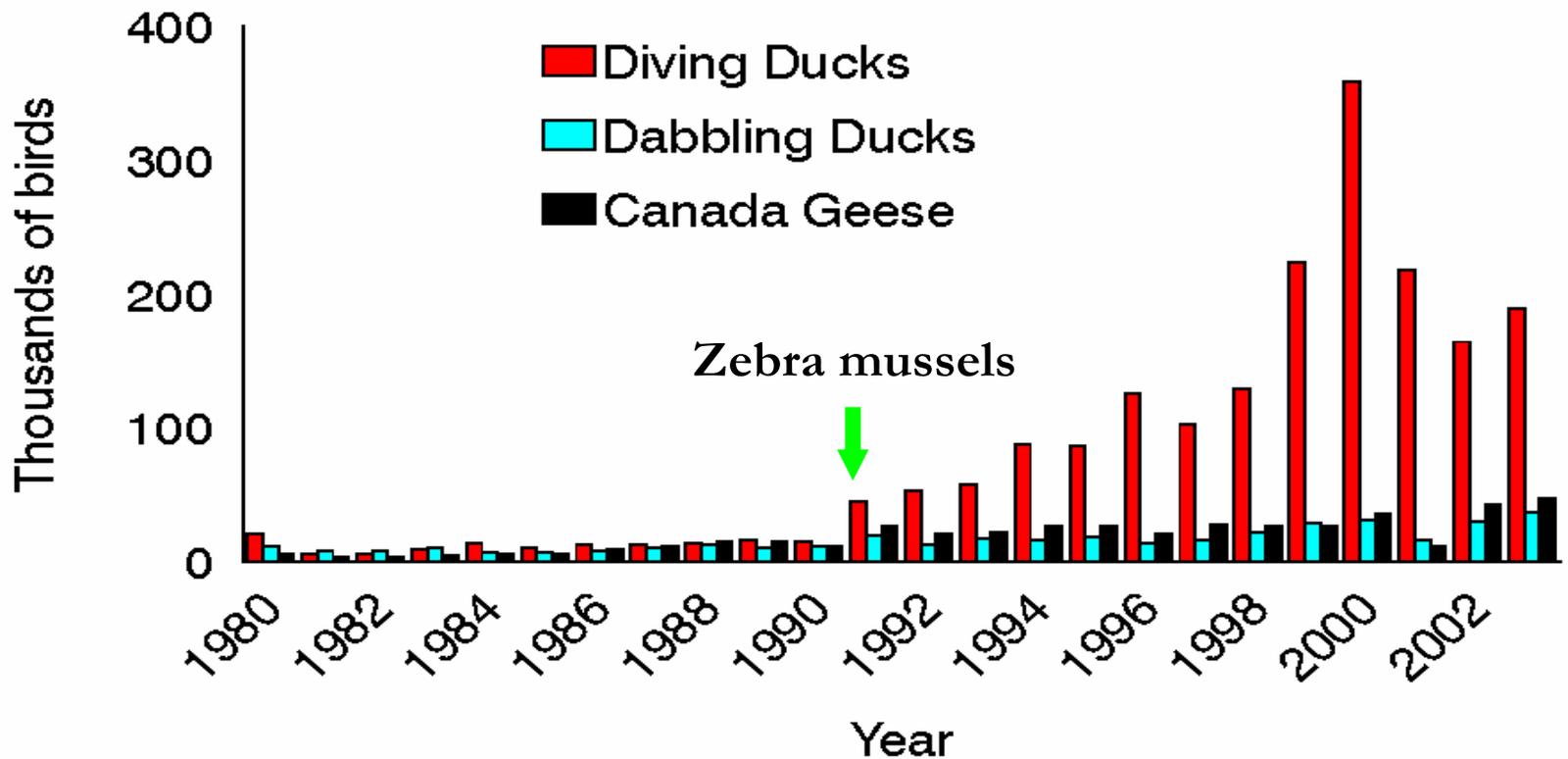
# Wintering?



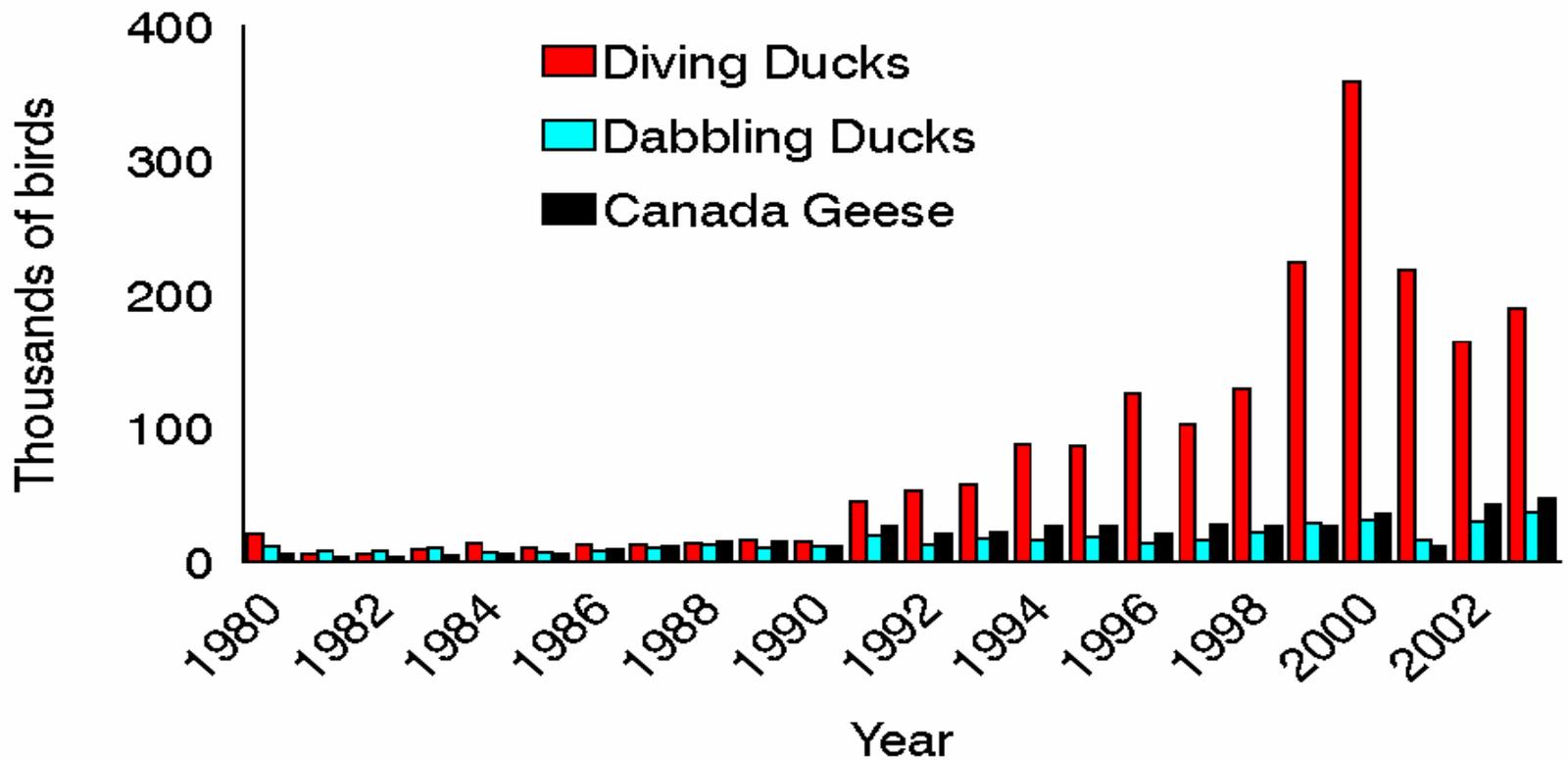
PROFILE OF THE GREAT LAKES - ST. LAWRENCE RIVER DRAINAGE SYSTEM







**Change in numbers of diving ducks (including scoters & merganser), dabbling ducks, and Canada Geese counted during the ground-based Mid-winter Waterfowl Inventory on the Canadian shoreline of Lake Ontario, 1980-2000.**



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# Threats?



# Coastal Wetland Loss



# Introduction of Exotic Species



*Phragmites australis*



Mute Swans

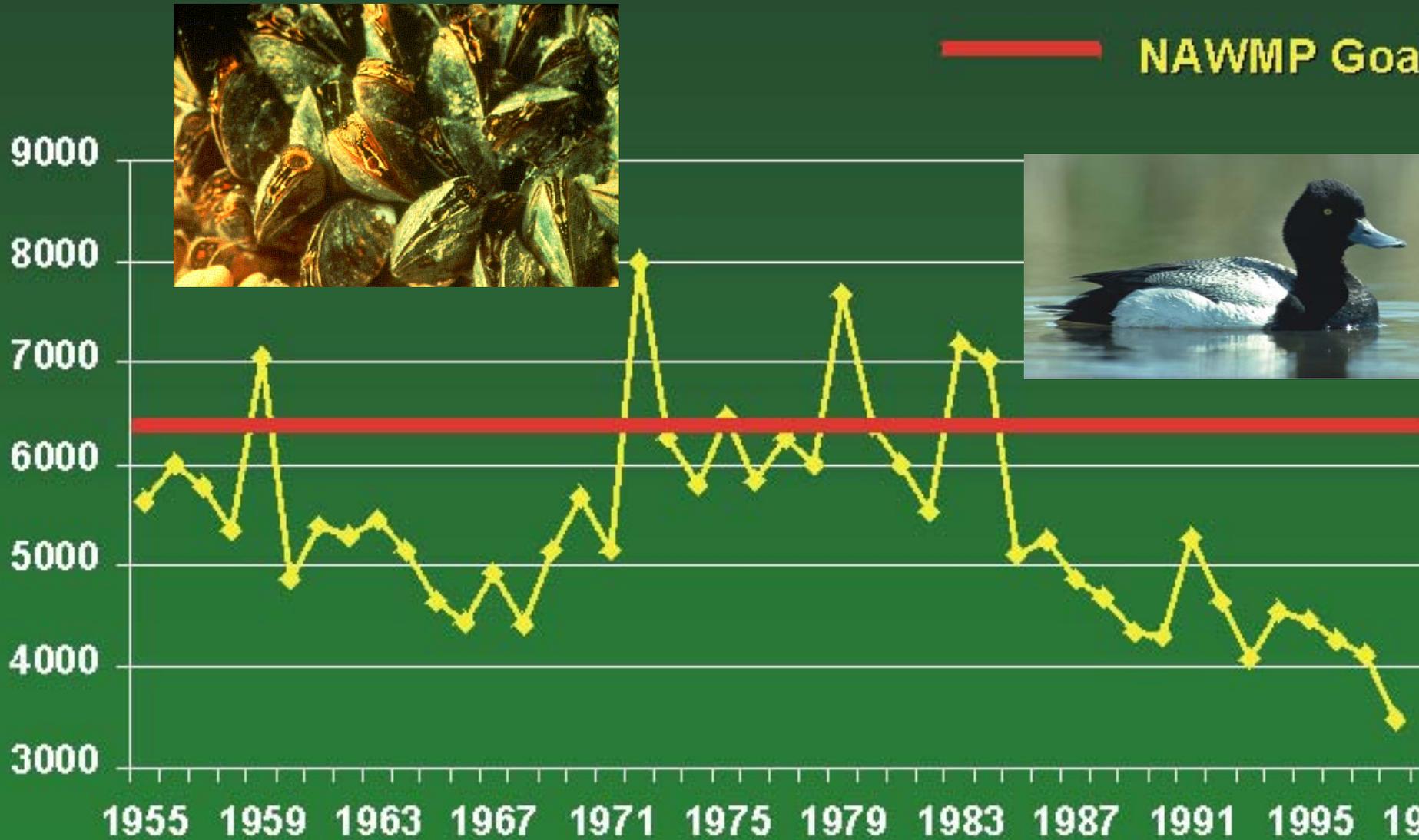


Zebra and Quagga Mussels

# Pollution



# Scaup Population Trends



e.g., Selenium

**Greater Scaup**  
**94% elevated**



**Lesser Scaup**  
**77% elevated**



# Wind Turbines?



# Danish Recommendations

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- ⌚ Do not place windfarms on flight corridors between roosting and feeding areas
- ⌚ Do not place windfarms in areas where the windfarm +500 meter buffer zone occupies more than 1% of the known feeding areas at a site unless mitigation measures are taken.

# Wind Turbines?

Breeding waterfowl

- likely very little impact



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Breeding waterfowl

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Staging waterfowl

- due diligence/mitigation



# Wind Turbines?

Breeding waterfowl

Staging waterfowl

Wintering waterfowl

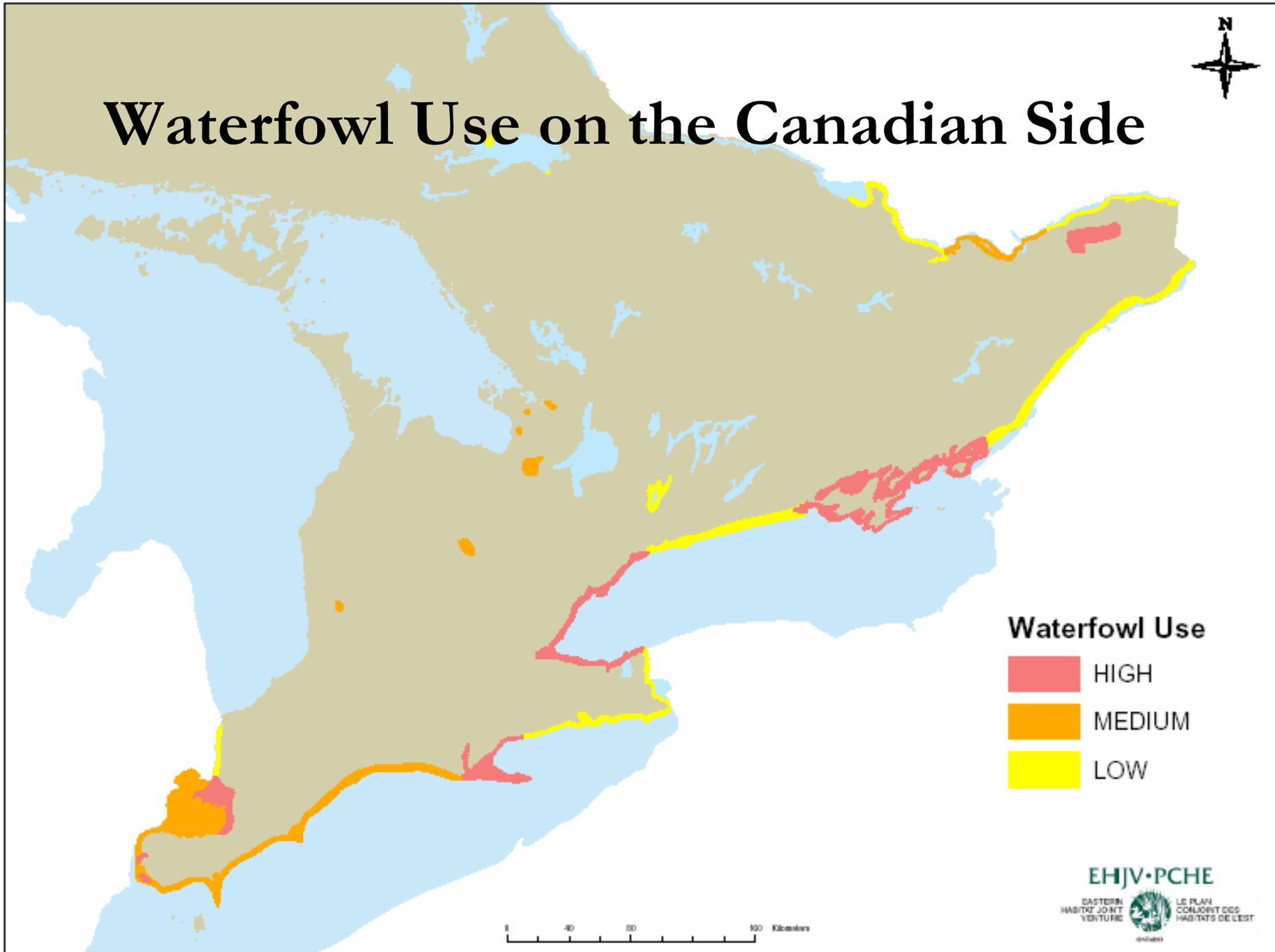
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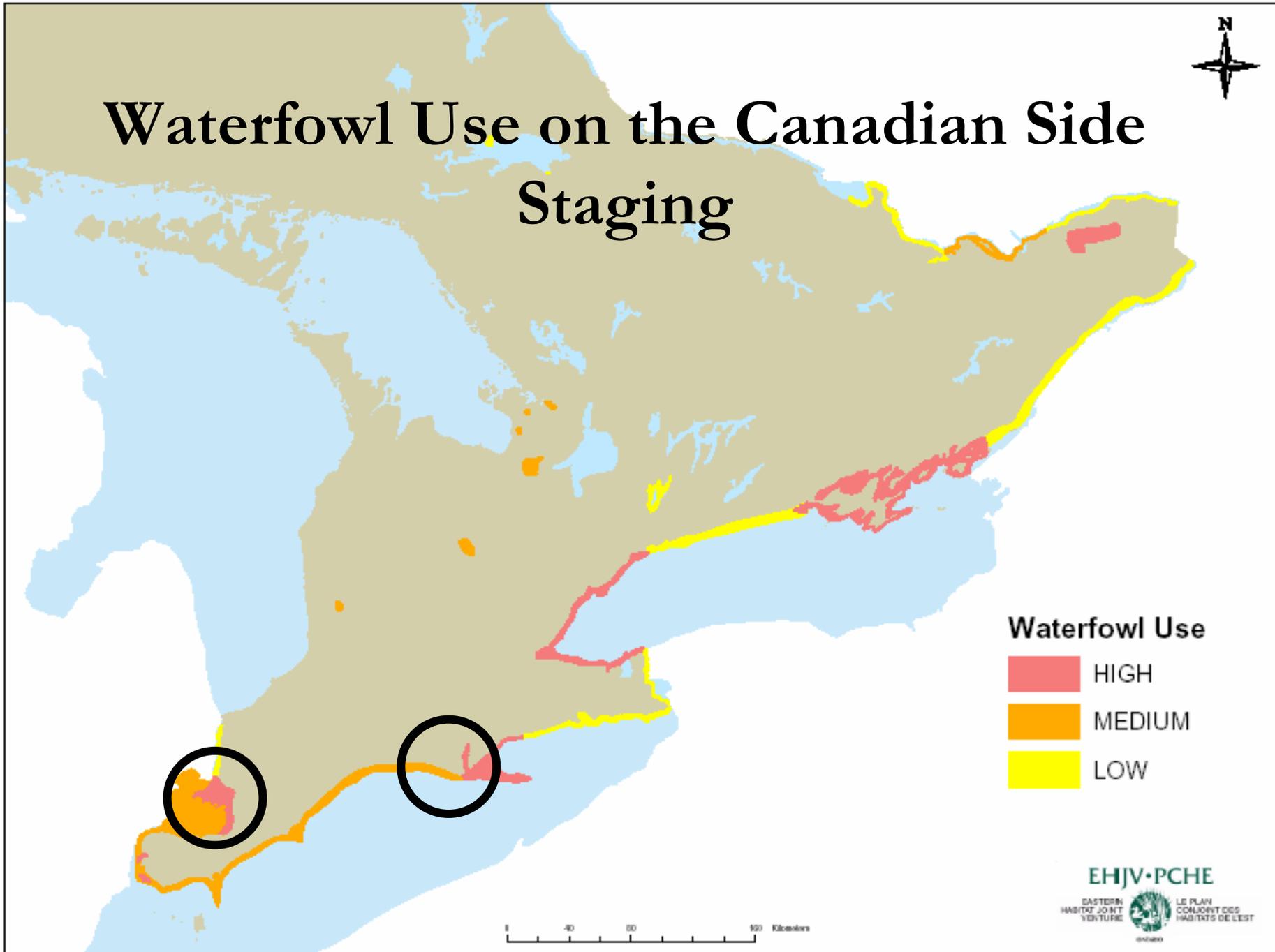


# Waterfowl Use on the Canadian Side



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## Staging

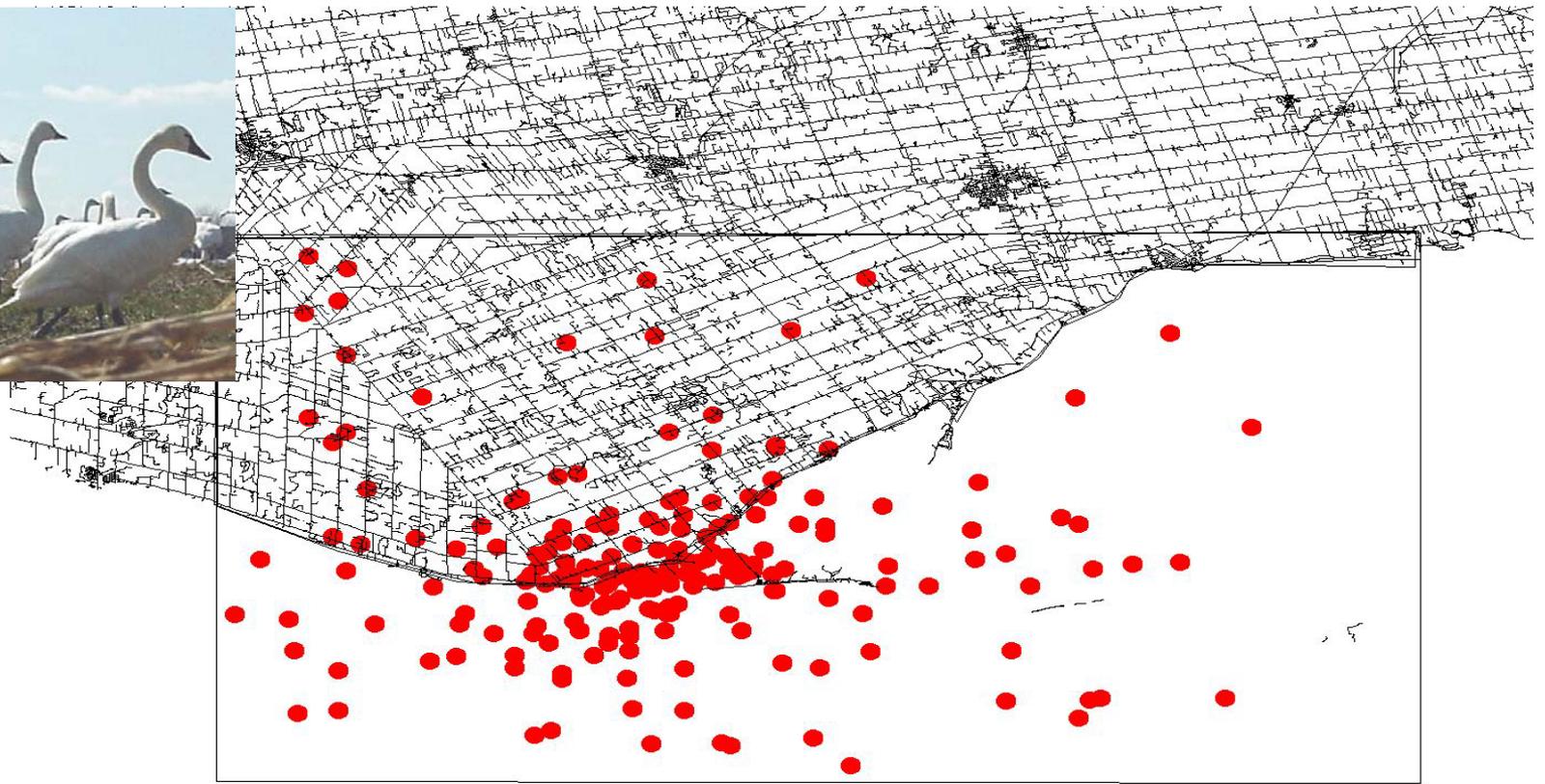


### Waterfowl Use

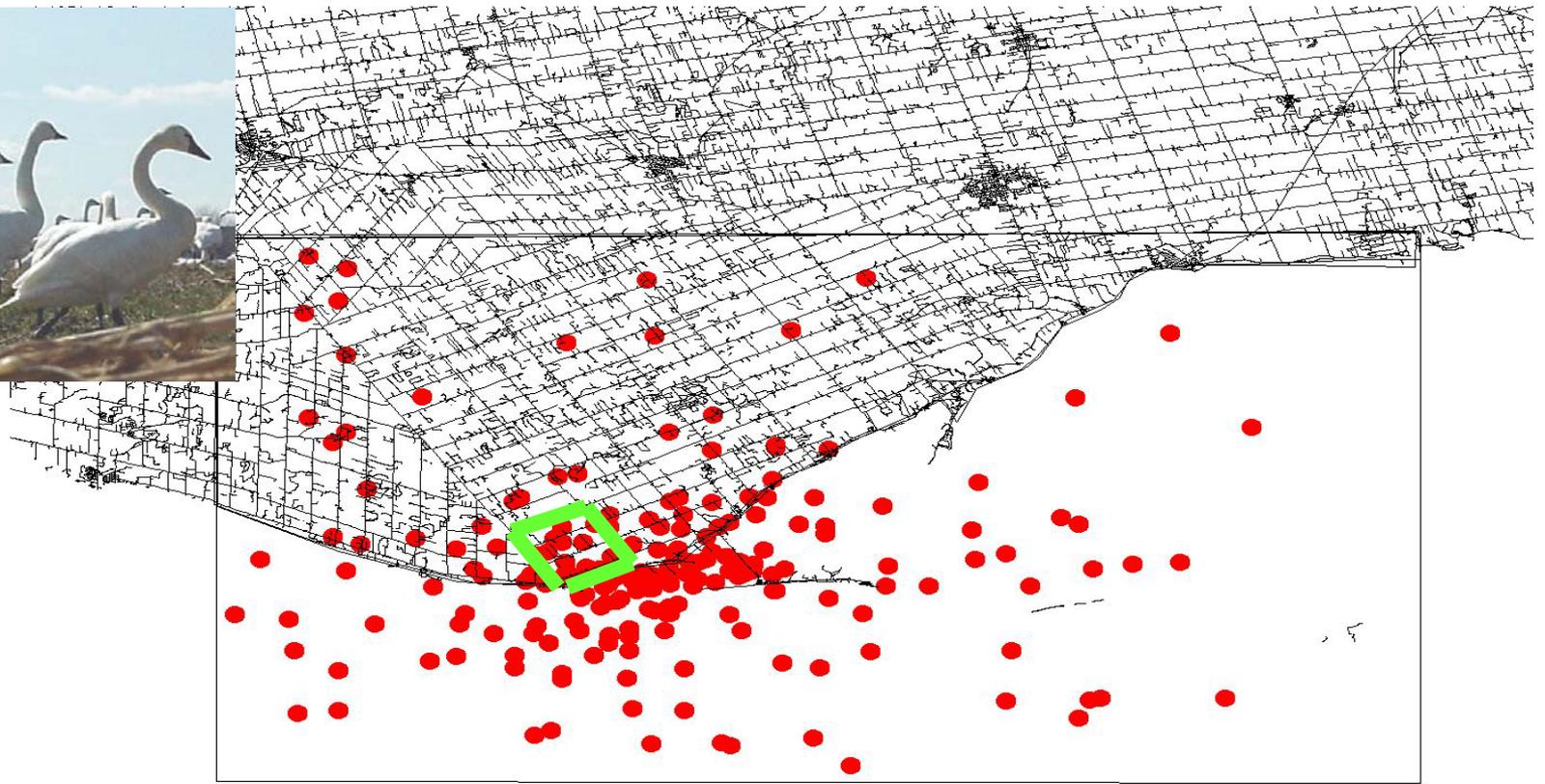
- HIGH
- MEDIUM
- LOW

0 40 80 160 Kilometers

# Spring satellite locations of Tundra Swans at Long Point – 76% of diurnal locations in agricultural fields.

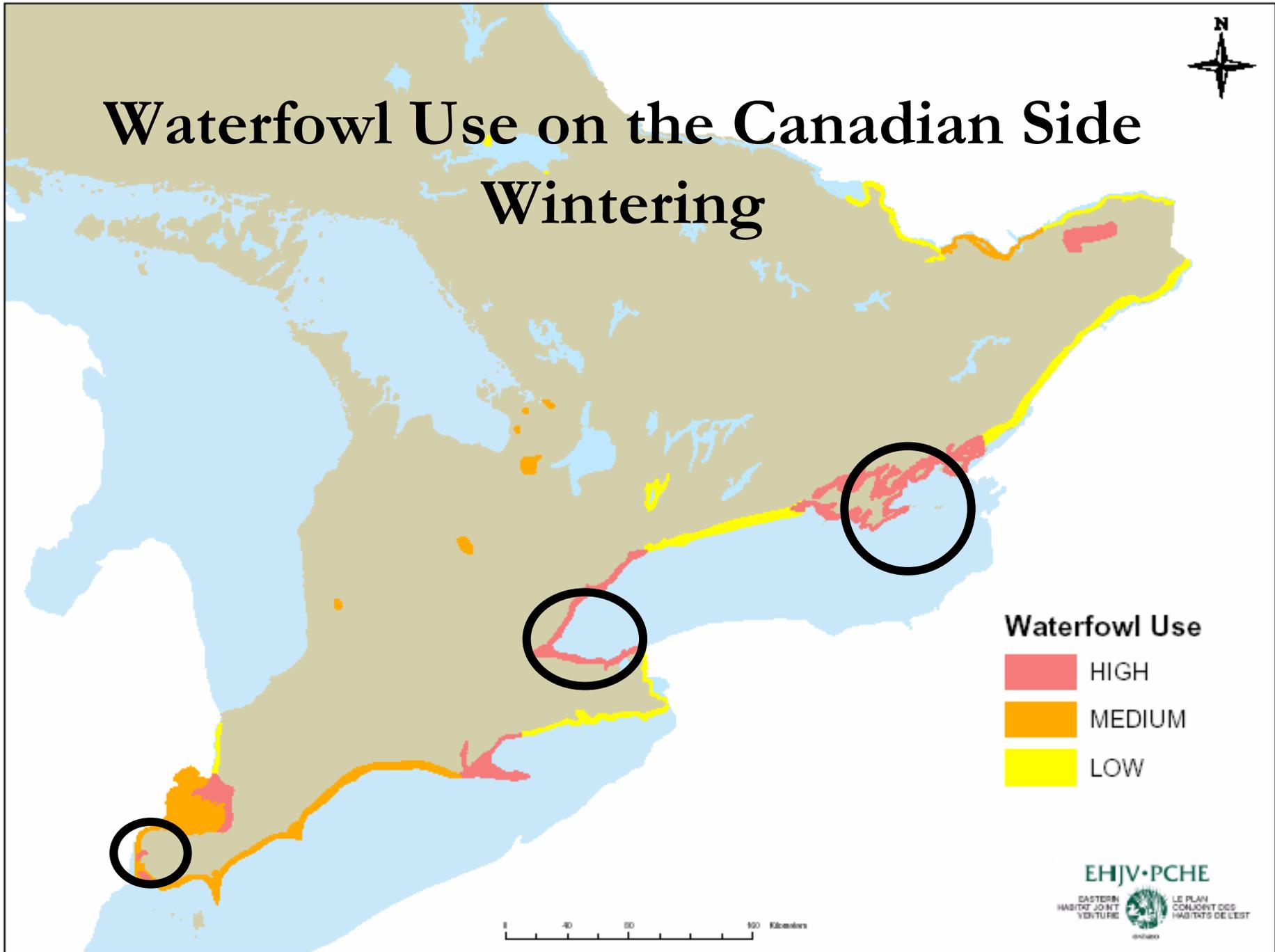


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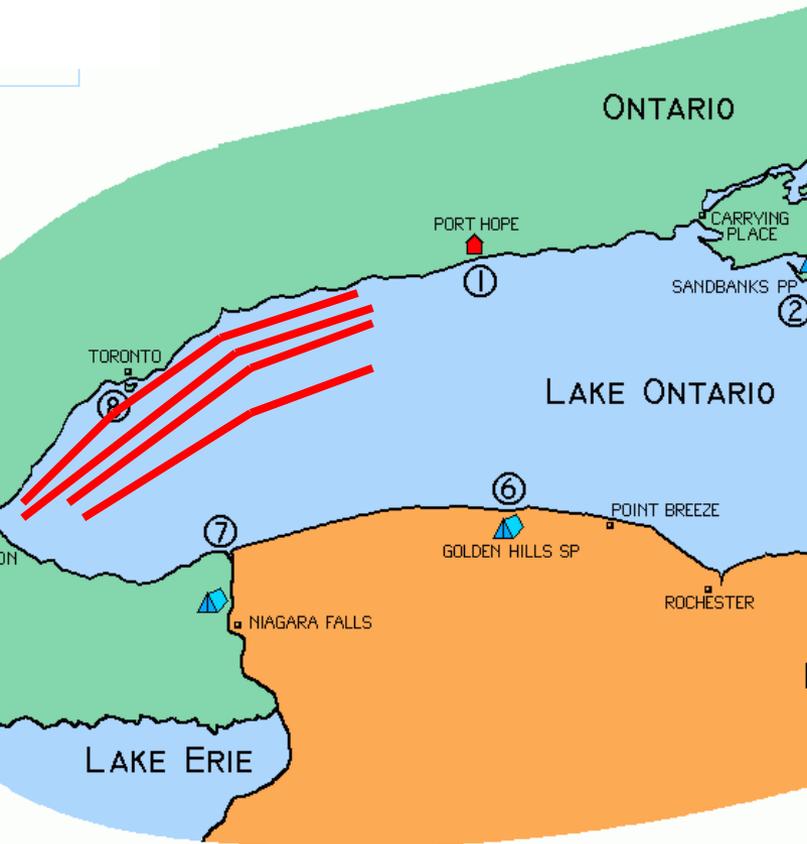


# Waterfowl Use on the Canadian Side

## Wintering

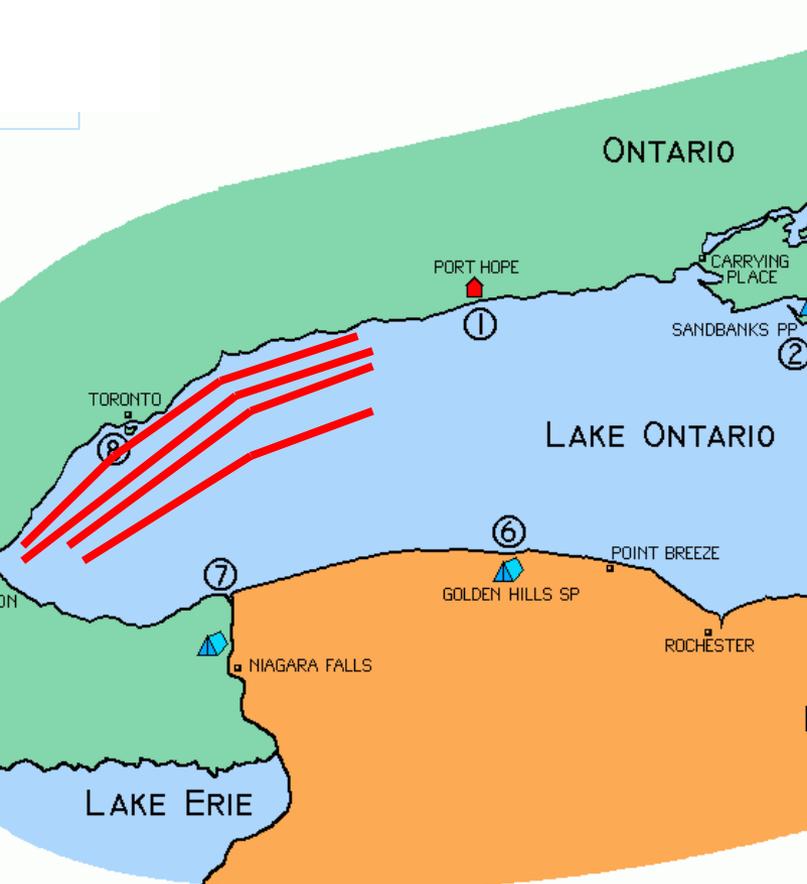


# LPWWRF Seaduck Survey



Shoreline  
2km offshore  
4km offshore  
10km offshore

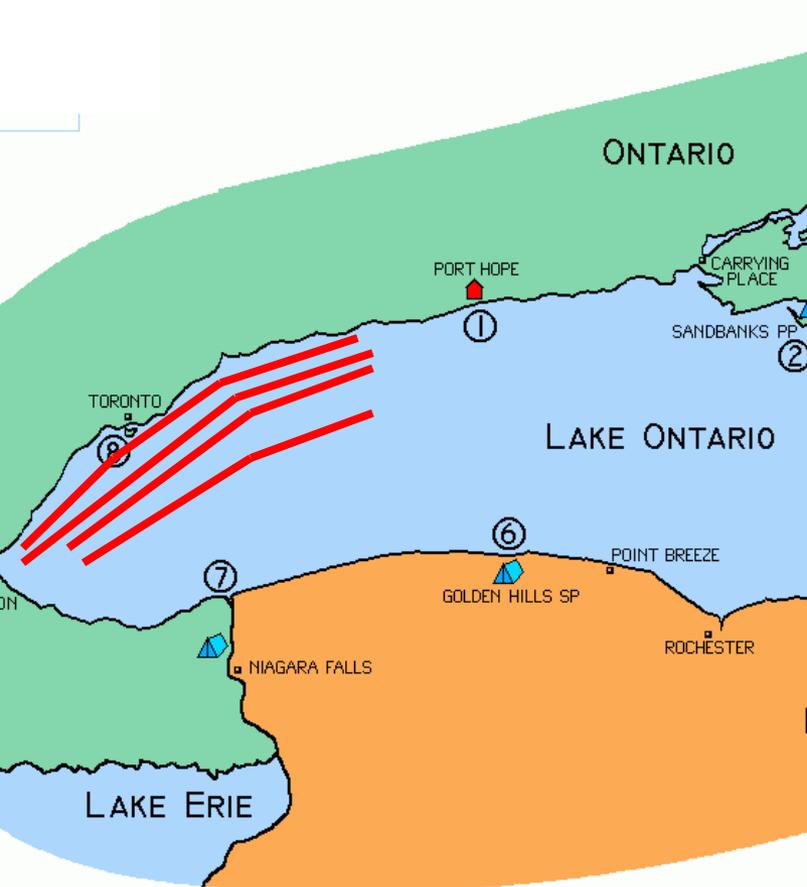
# LPWWRF Seaduck Survey



Shoreline  
2km offshore  
4km offshore  
10km offshore

Scaup  
Long-tailed Ducks  
White-winged Scoter  
Common Goldeneye  
Bufflehead  
Mergansers

# LPWWRF Seaduck Survey



Shoreline	=	61,440
2km offshore	=	33,526
4km offshore	=	7,925
10km offshore	=	1,153

Scaup  
Long-tailed Ducks  
White-winged Scoter  
Common Goldeneye  
Bufflehead  
Mergansers

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- ⌚ **Between 0.5 and 1 million ducks, geese and swans winter on the LGL annually.**
  
- ⌚ **Therefore, the LGL provides critically important staging and wintering areas for several species of migratory waterfowl**
  
- ⌚ **Waterfowl use of the LGL had increased due to:**
  - **Population increases for many species**
  - **Warmer temperatures**
  - **Local improvements in water quality**
  - **Loss of inland habitat**
  - **Introduction of zebra mussels**

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- ⌚ Increase consultation with government wildlife agencies and NGOs and be sure to query all existing data sets.
- ⌚ Stress the importance of pre-construction monitoring/studies. Too much emphasis has been placed on post-construction assessments.
- ⌚ Establish strict protocols for the peer review of environmental impact statements.

Thanks



**The Long Point  
Waterfowl & Wetlands  
Research Fund**