# Cormorant Overpopulation

## *Prove Fish & Wildlife Conservation Requires Management*

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# OVERVIEW

- Overpopulation concerns
- Double-Crested Cormorant – History, Distribution
- Impacts – Ecological, Social, Economical
- Management – Addressing DCC Impacts

# CONCERN

- *Overpopulation and range expansion of Double-crested Cormorants has had significant impacts on fisheries, habitats, other species, and human socio-economics*

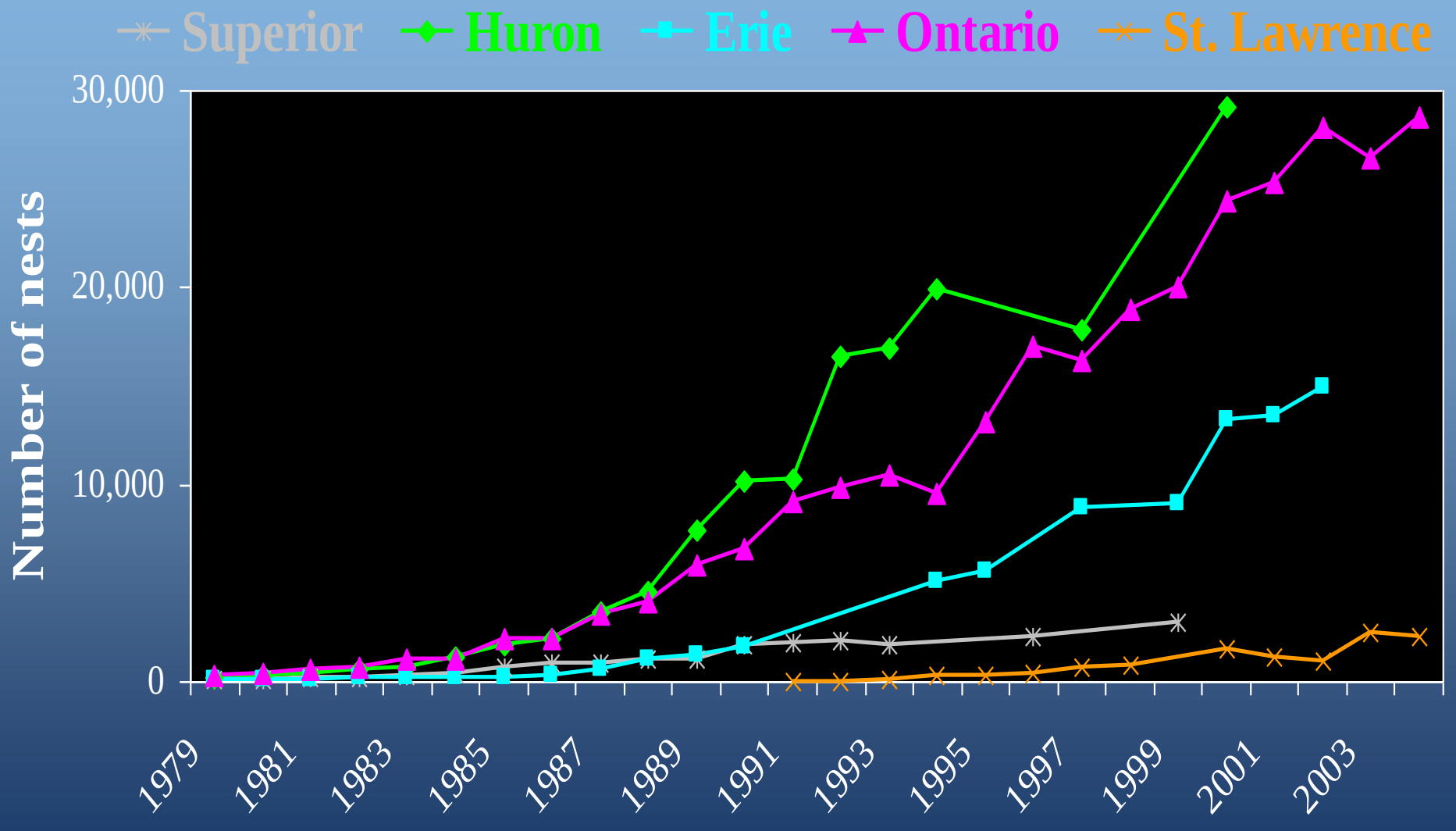
- *When not managed, cormorants threaten ecosystem stability and natural biodiversity*

# Double-crested Cormorant (Phalacrocorax auritus)

Photo Credit: Jill Roedding

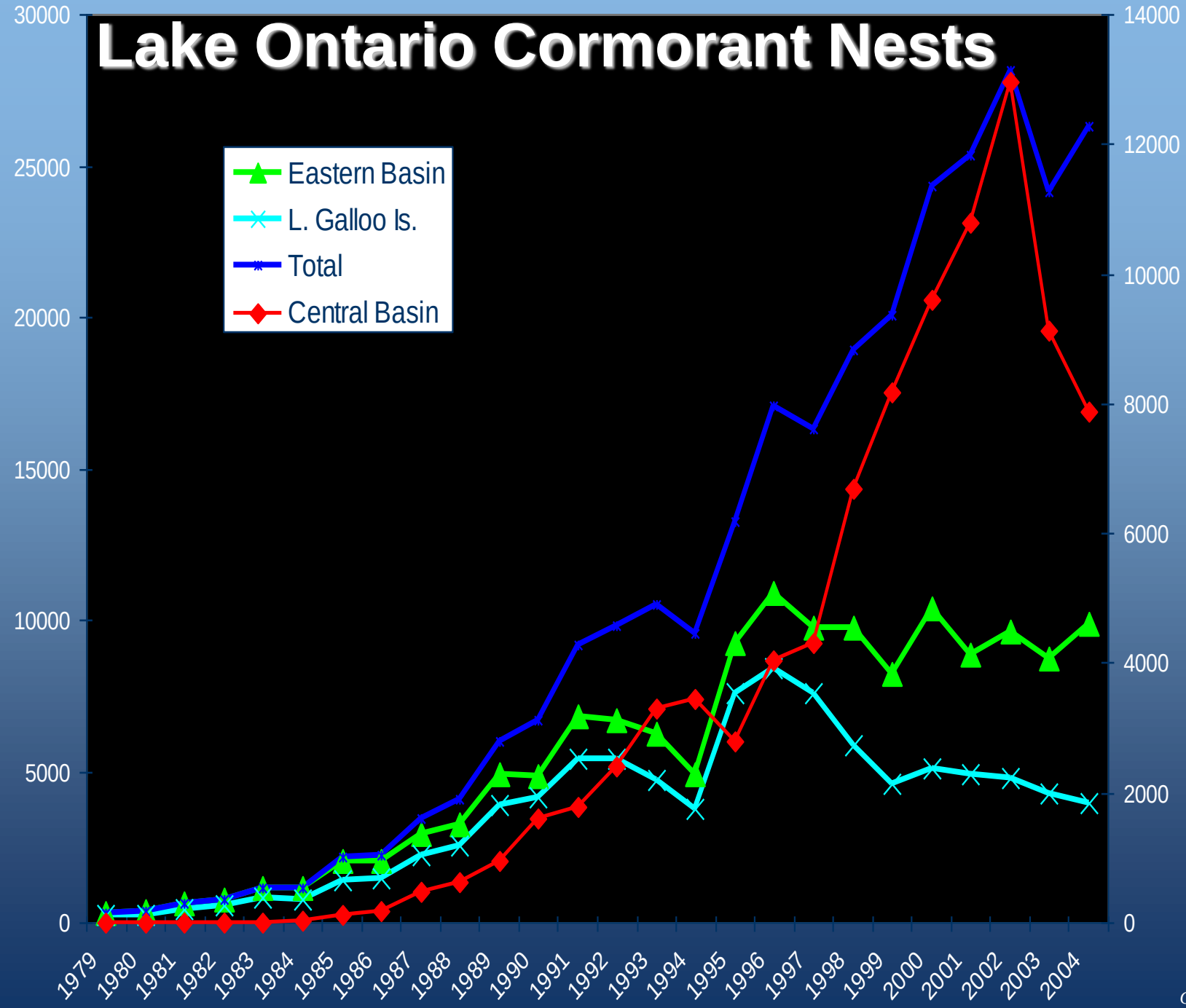
- Fish eating migratory bird
- Colonize all of the Great Lakes
- Rapid range expansion and population growth in the last 2 decades
  - Expansion includes many inland lakes/large waterbodies adjacent to the Great Lakes

# Great Lakes Cormorant Nests*




•Superior and Huron data are Canadian colonies only; 03 & 04 Lk Ontario/SLR only

*Courtesy of NYSDEC*




*Courtesy of NYSDEC*

# Overpopulation Impacts

- Habitat

  - Habitat loss number one threat to biodiversity
    (*Canadian Biodiversity Strategy, Ontario Biodiversity Strategy*)
    - vegetation mortality (degradation of ecosystems)
- Fisheries
  - sport and commercial fisheries
- Impact other species (colonial nesters, fish species & Species at Risk)
- Impact on humans (socio-economic)

# Impacts

## Habitat

- Significant negative impacts on island habitats where cormorants nest
  - **Physical** (i.e. breaking branches, stripping foliage, loss of canopy cover, tree mortality)
  - **Chemical** (i.e. large quantities of guano change soil chemistry, affect photosynthesis and plant respiration)
  - Degradation of ecosystems *(i.e. Carolinian ecosystem on Middle Island, Lake Erie which includes a number of species at risk)*

# Impacts


## Habitat – other species

- Loss of potential nesting and roosting habitat for other colonial birds
- Direct competition for existing nest sites
- Displace other colonial nesters (i.e. Great Blue Heron, Great Egret, Black-crowned Night-Heron)

*Management Strategy for Double-crested Cormorants at Presqu'ile Provincial Park, 2004*

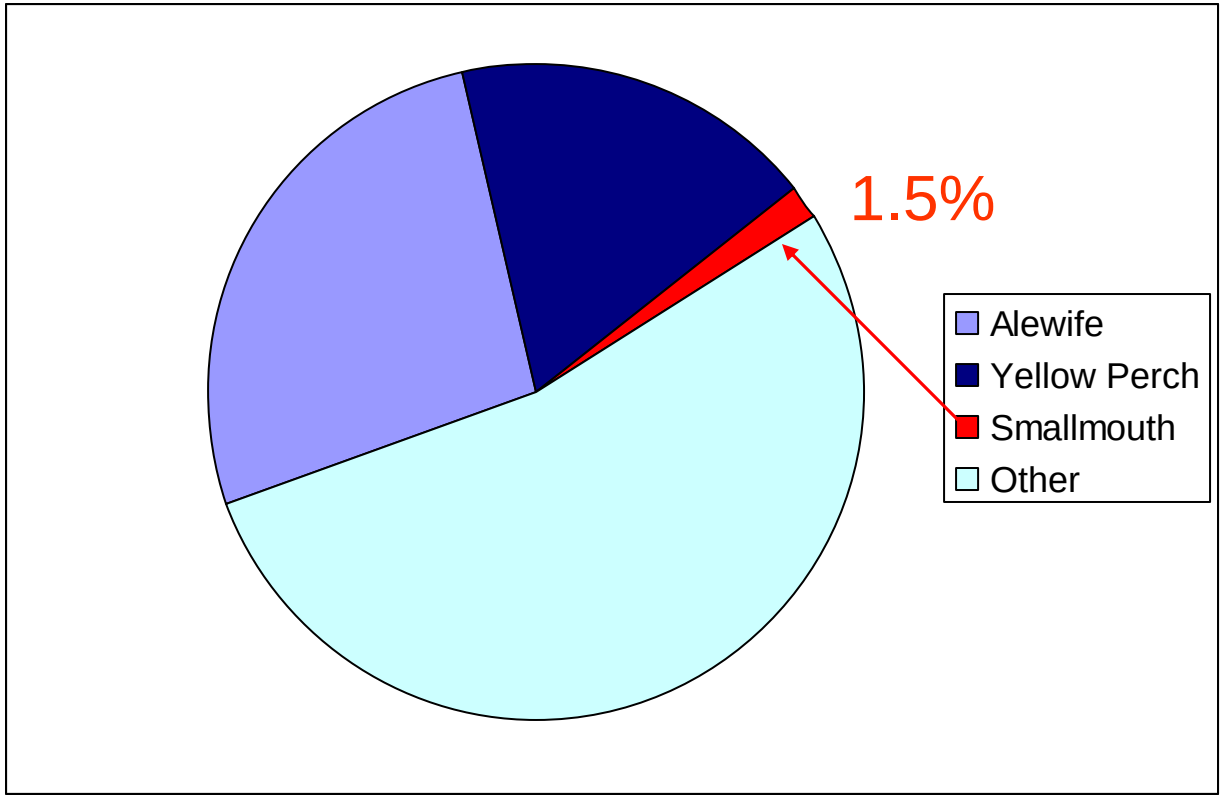
Photo Credit: Jill Roedding

# Impacts

## Fisheries

- Overpopulation of cormorants can negatively impact fish abundance and production
  - Consume 20 - 25% of their body weight (~ 1lb of fish/day)
  - Increased foraging pressure on local fish population
  - Nutrient run-off into surrounding water

## *1998 Percent Cormorant Diet by Number, Little Galloo Island*



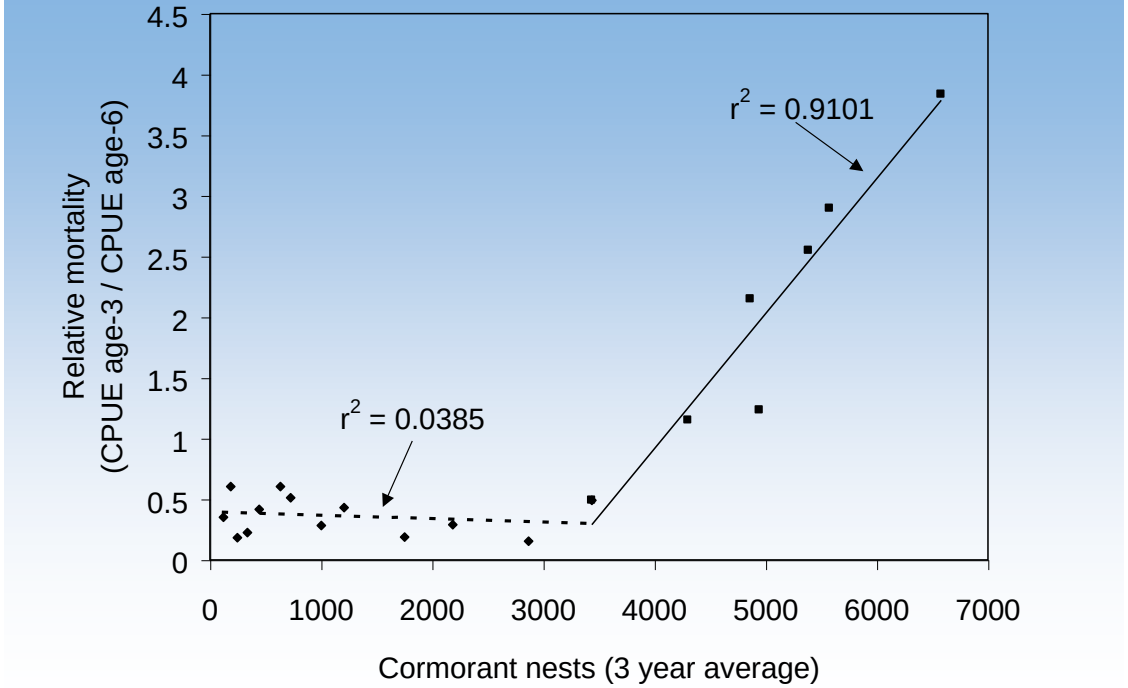

*Courtesy of NYSDEC*

**Frequency of occurrence of prey fish consumed by double-crested cormorants, Little Galloo Island, eastern Lake Ontario, 1999-2003 (J. Johnson, pers. comm. 2004). Mean weight by species = 108.1 g and by individual = 39.8 g. Per cent by number and weight: sports species = 3.8% and 26.4%, commercial species = 40.4% and 46.9%, and prey fish species = 49.1% and 26.4%.**

| Name | Body weight | Number | | Weight | |
|---|---|---|---|---|---|
| | | Rank | % | Rank | % |
| Alewife | 26.4 | 1 | 35.0 | 3 | 23.2 |
| Yellow perch | 37.3 | 2 | 25.6 | 1 | 24.0 |
| Cyprinids | 10.6 | 3 | 9.8 | 8 | 2.6 |
| Pumpkinseed | 53.6 | 4 | 8.7 | 4 | 11.7 |
| Three-spine stickleback | 1.5 | 5 | 6.6 | 10 | 0.2 |
| Rock bass | 49.3 | 6 | 6.0 | 5 | 7.4 |
| Smallmouth bass | 260.1 | 7 | 3.6 | 2 | 23.5 |
| Slimy sculpin | 3.3 | 8 | 2.7 | 11 | 0.2 |
| Trout-perch | 6.0 | 9 | 1.6 | 9 | 0.3 |
| Brown bullhead | 250.0 | 10 | 0.6 | 6 | 3.8 |
| Other sport fish | 577.1 | 11 | 0.2 | 7 | 2.9 |
| Others (goby, etc.) | 20.8 | 12 | 0.1 | 12 | 0.1 |

Courtesy of NYSDEC

# Smallmouth Bass Population Dynamics

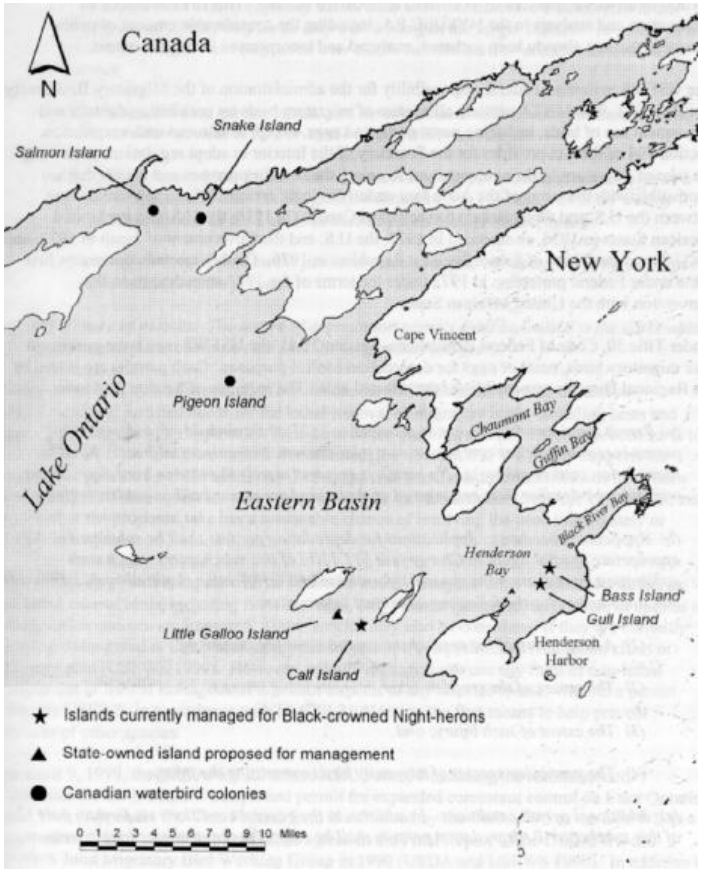



# Impacts

## Fisheries

- Declines in smallmouth bass and yellow perch abundance in the eastern basin of Lake Ontario have been associated with cormorant population increases

*(NYSDEC Lake Ontario Annual Report 2008)*



# Impacts

## Socio-Economical


- Economic losses to fisheries, and fishing-related businesses
  - Millions of anglers participate in recreational fishing Ontairo
  - Contribute billions of dollars to Ontario's economy annually ($2.5 billion 2005)
- Losses to private resources (private lakes and damaged trees)
- Water quality – nutrient run
- Damage to private property
  - *Private landowners have specific rights under the Fish and Wildlife Conservation Act to deal with cormorants causing property damage*

# ON Legislation & Policy

- Not included under the federal *Migratory Birds Convention Act,* and thus are not protected by federal law
- Protected under Ontario's *Fish and Wildlife Conservation Act* 1997 (FWCA)
  - prohibits the hunting and trapping of cormorants;
  - prohibits the destruction, taking and/or possession of nests or eggs without authorization from the Minister of Natural Resources.

# Management Required

## Addressing Impacts of Double-Crested Cormorants

- O.F.A.H. recommends having the cormorant added to the list of provincially unprotected birds
  - Private Members Bill 156 introduced will remove the protection that cormorants currently enjoy, treat these birds the same as common crows and grackles and allow for culling of the birds in addition to other population control methods currently being used

# Methods of Control

- Culling – most rapid means of reducing adult breeding birds from the population
- Egg oiling – Ground nests reduces population growth – impractical for tree nests
- Mechanical nest destruction – enhances predation and abandonment – requires more than one visit per colony (time consuming)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# Acknowledgements

*Fisheries information and data courtesy of Steve LaPan, New York State Department of Environmental Conservation*

*NYSDEC Lake Ontario Annual Report 2008*
*NYSDEC Lake Ontario Annual Report 2007*
*Review of the Status and Management of Double-crested Cormorants in Ontario 2006*