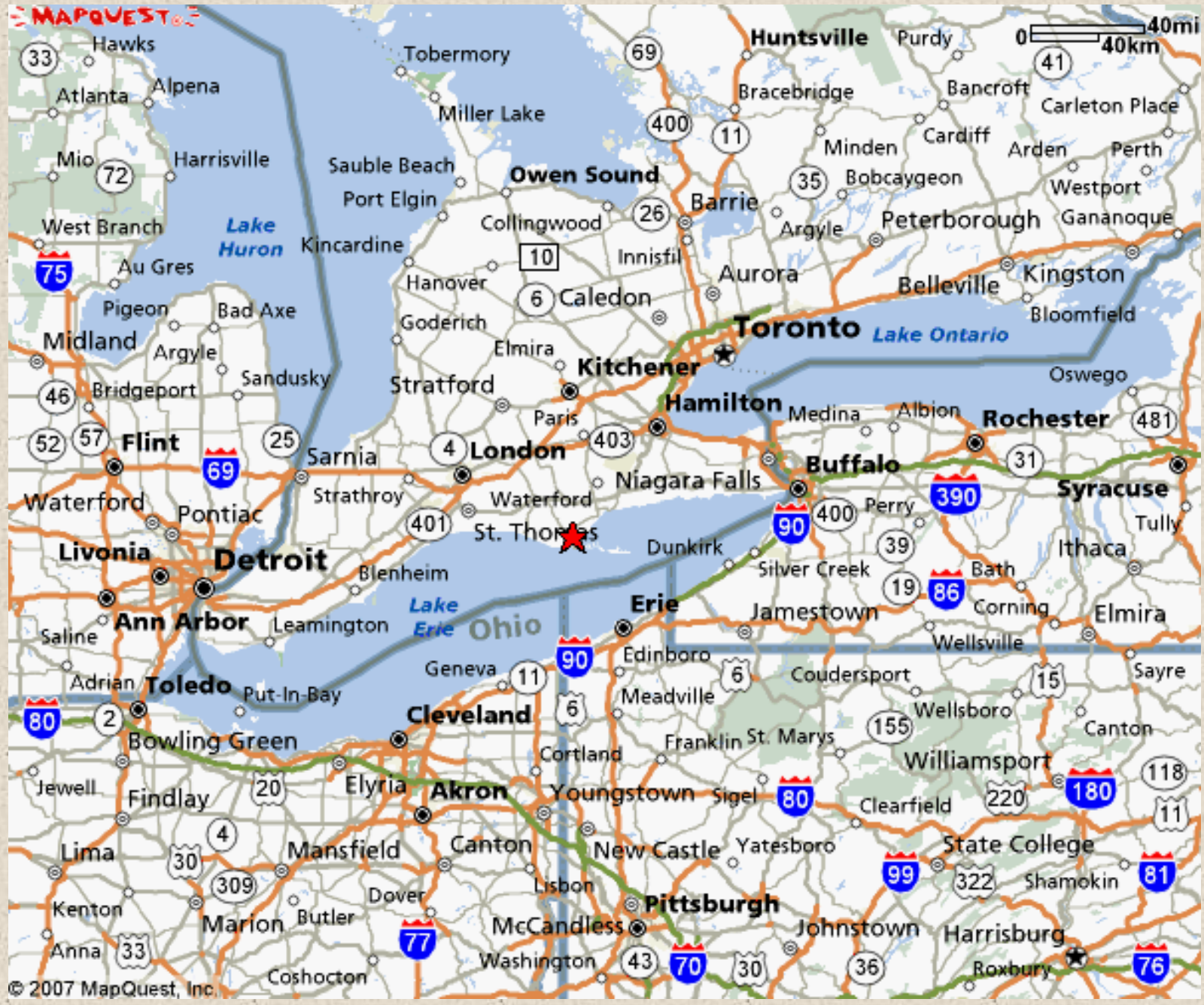
The Long Point Causeway: a history and future for reptiles

Scott Gillingwater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Midland
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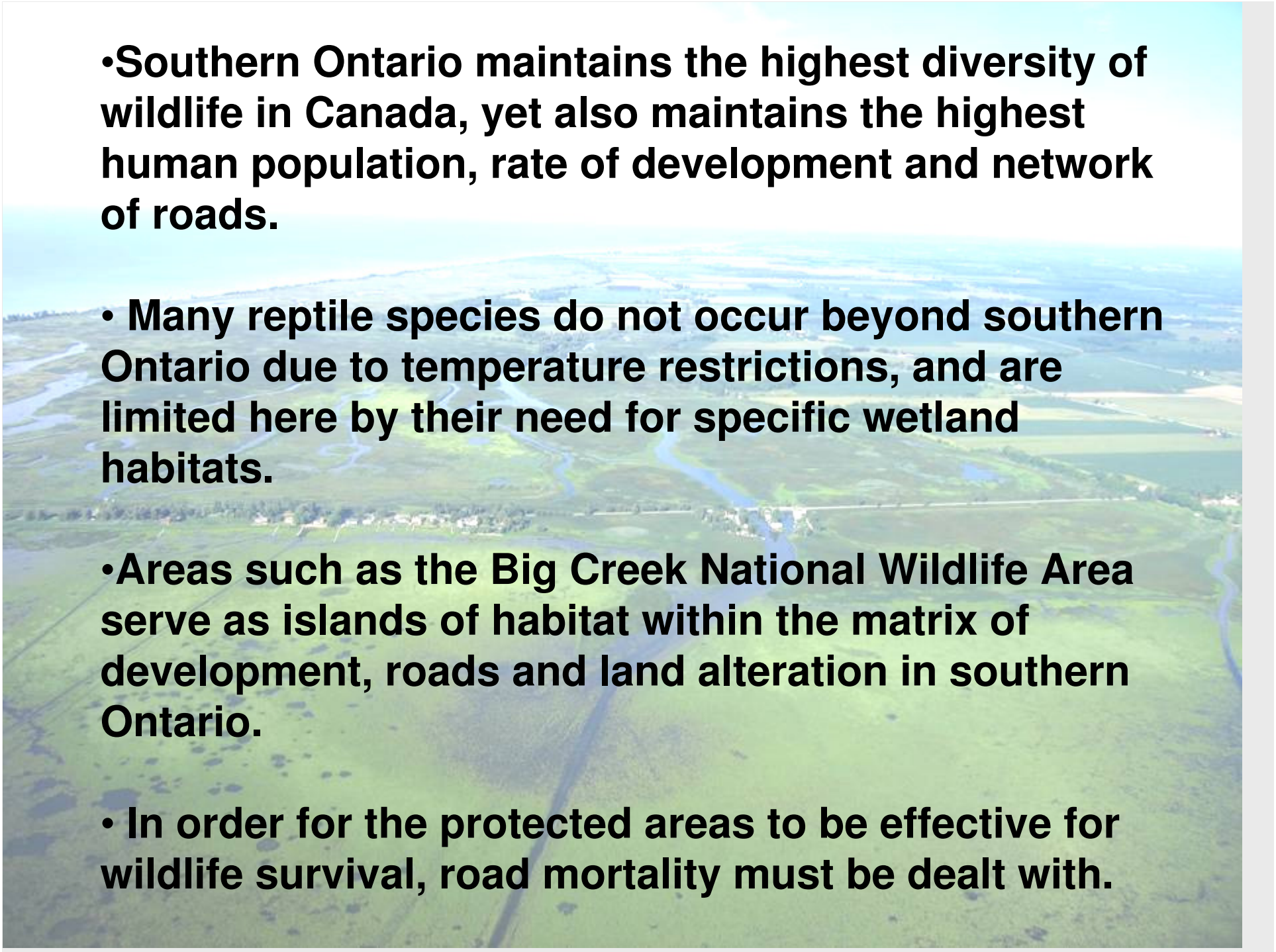
Environmental Effects

Long Point World Biosphere Reserve

- **UNESCO designated the Long Point World Biosphere Reserve in April of 1986.**
- **Long Point was designated as an example of the Great Lakes coastal habitats - long uninterupted beaches, undisturbed sand dunes, grassy ridges, wet meadows, woodlands, marshes and ponds, all of the shallow Inner Bay. Also, the finest examples of Canada's remaining Carolinian forest are found within the watershed of Long Point Bay.**

Two of the largest and most significant protected natural areas remaining in southwestern Ontario occur within the boundaries of the Biosphere Reserve:
Long Point National Wildlife Area
Big Creek National Wildlife Area

- In Canada there are 51 National Wildlife Areas, 10 of which occur in Ontario. National Wildlife Areas are managed by the Canadian Wildlife Service, part of Environment Canada.
- Staff of the Canadian Wildlife Service manage and maintain the lands, conduct and oversee research efforts, and enforce environmental laws.



•Southern Ontario maintains the highest diversity of wildlife in Canada, yet also maintains the highest human population, rate of development and network of roads.

• Many reptile species do not occur beyond southern Ontario due to temperature restrictions, and are limited here by their need for specific wetland habitats.

•Areas such as the Big Creek National Wildlife Area serve as islands of habitat within the matrix of development, roads and land alteration in southern Ontario.

• In order for the protected areas to be effective for wildlife survival, road mortality must be dealt with.

• The Long Point/Big Creek area provides some of the most significant wildlife habitat in Canada and is part of the increasingly small Carolinian Life Zone.

•The area is especially rich in reptile, amphibian and bird diversity with an exceptionally large number of at-risk species utilizing the wetland complexes.

• Some protection is afforded through federal and provincial legislation (including habitat), but threats outside of these boundaries may negate their effectiveness.

• One of the primary threats for reptiles, is the Causeway, a 3.5 km stretch of road bisecting the Big Creek National Wildlife Area and Long Point Bay


Lake Erie
Long Point Bay
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National
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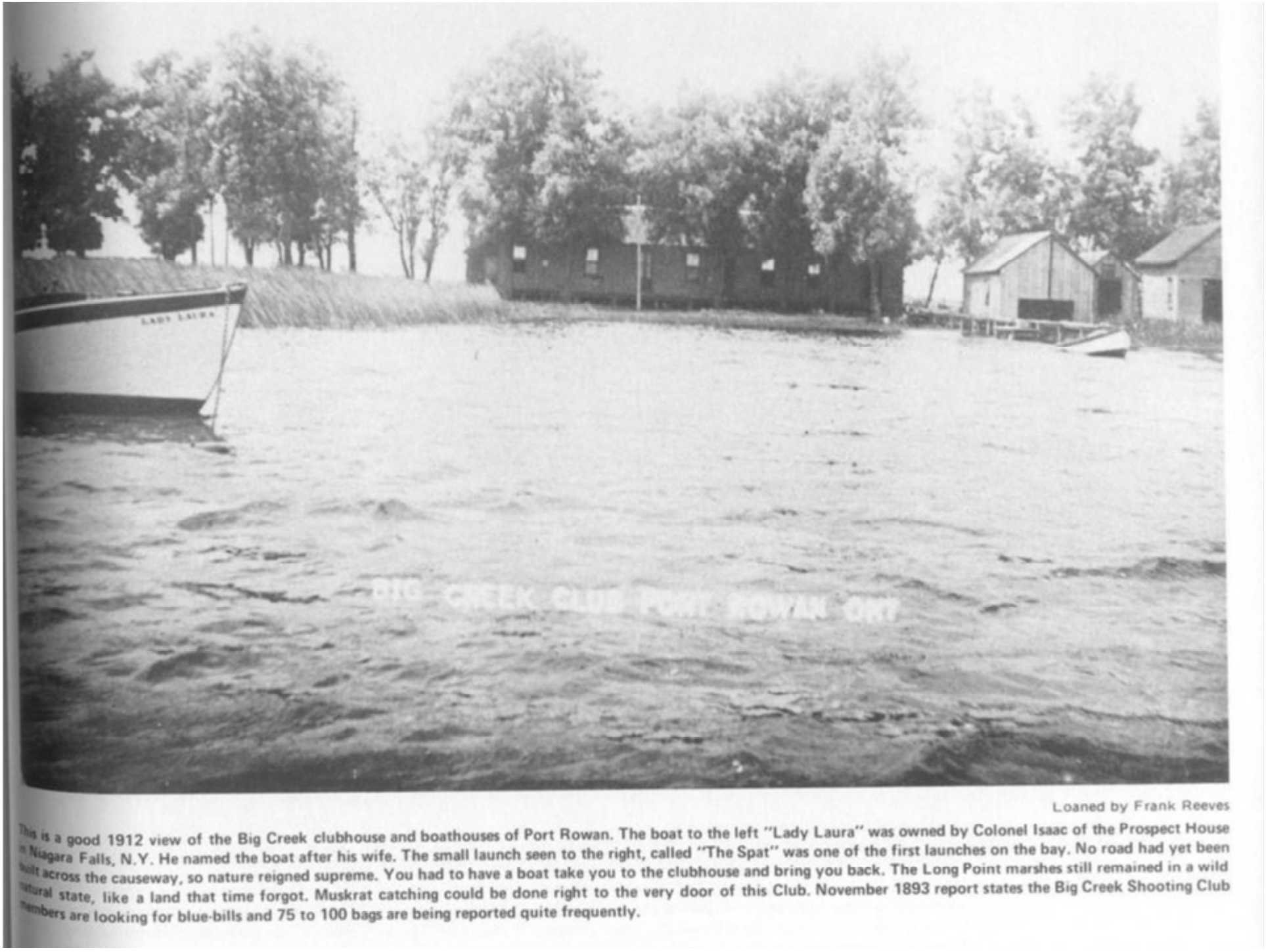
Lake Erie



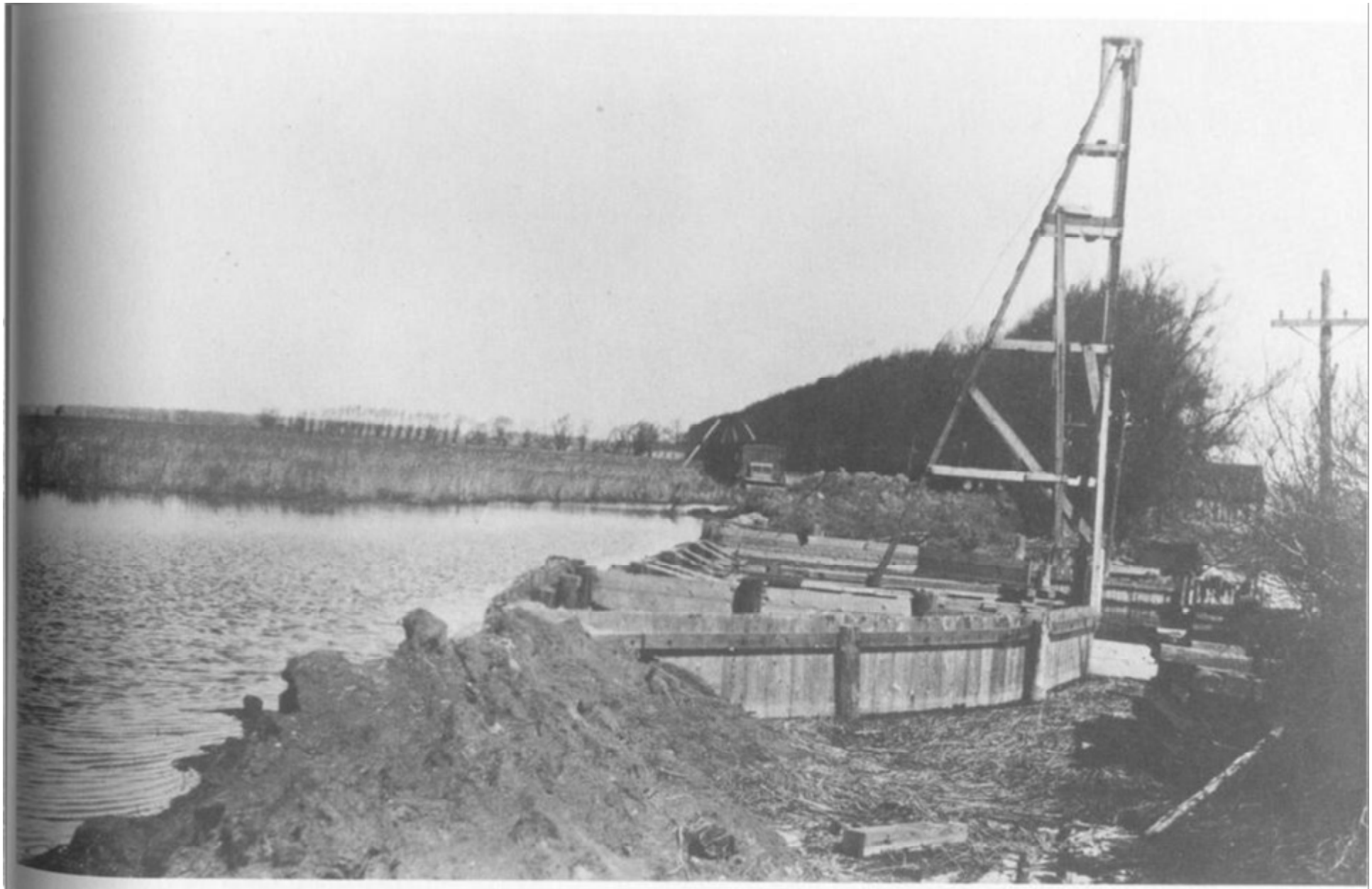
Loaned by Frank Reeves

This is a good 1912 view of the Big Creek clubhouse and boathouses of Port Rowan. The boat to the left "Lady Laura" was owned by Colonel Isaac of the Prospect House in Niagara Falls, N.Y. He named the boat after his wife. The small launch seen to the right, called "The Spat" was one of the first launches on the bay. No road had yet been built across the causeway, so nature reigned supreme. You had to have a boat take you to the clubhouse and bring you back. The Long Point marshes still remained in a wild natural state, like a land that time forgot. Muskrat catching could be done right to the very door of this Club. November 1893 report states the Big Creek Shooting Club members are looking for blue-bills and 75 to 100 bags are being reported quite frequently.

Causeway Construction

- Constructed in 1926 - 1927
- Facilitate development of beach community
- Improve access and movement of materials
- Connected the small “islands” that spread across the wetland sites leading to Long Point


CREEK
RAT FARMS

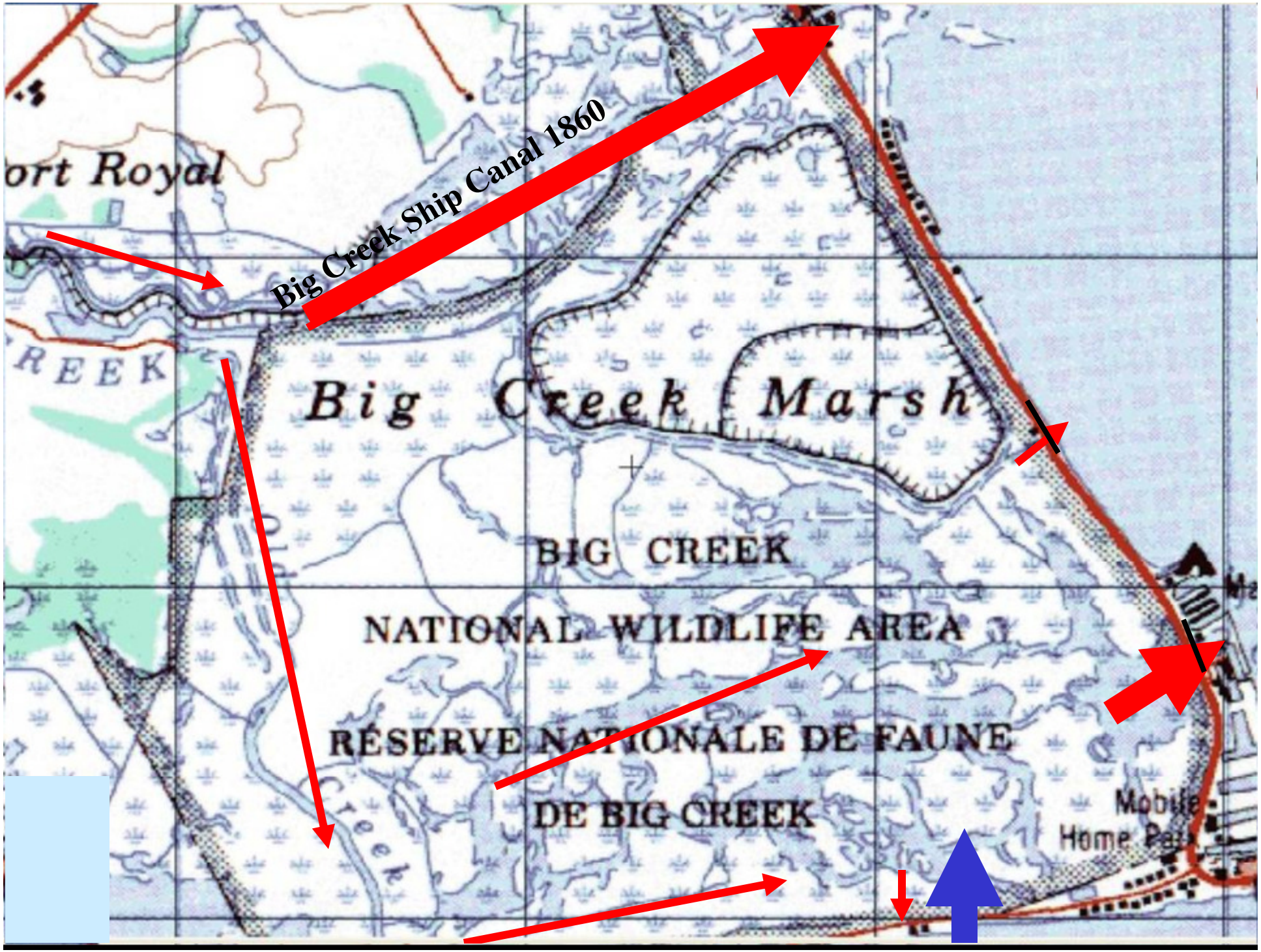


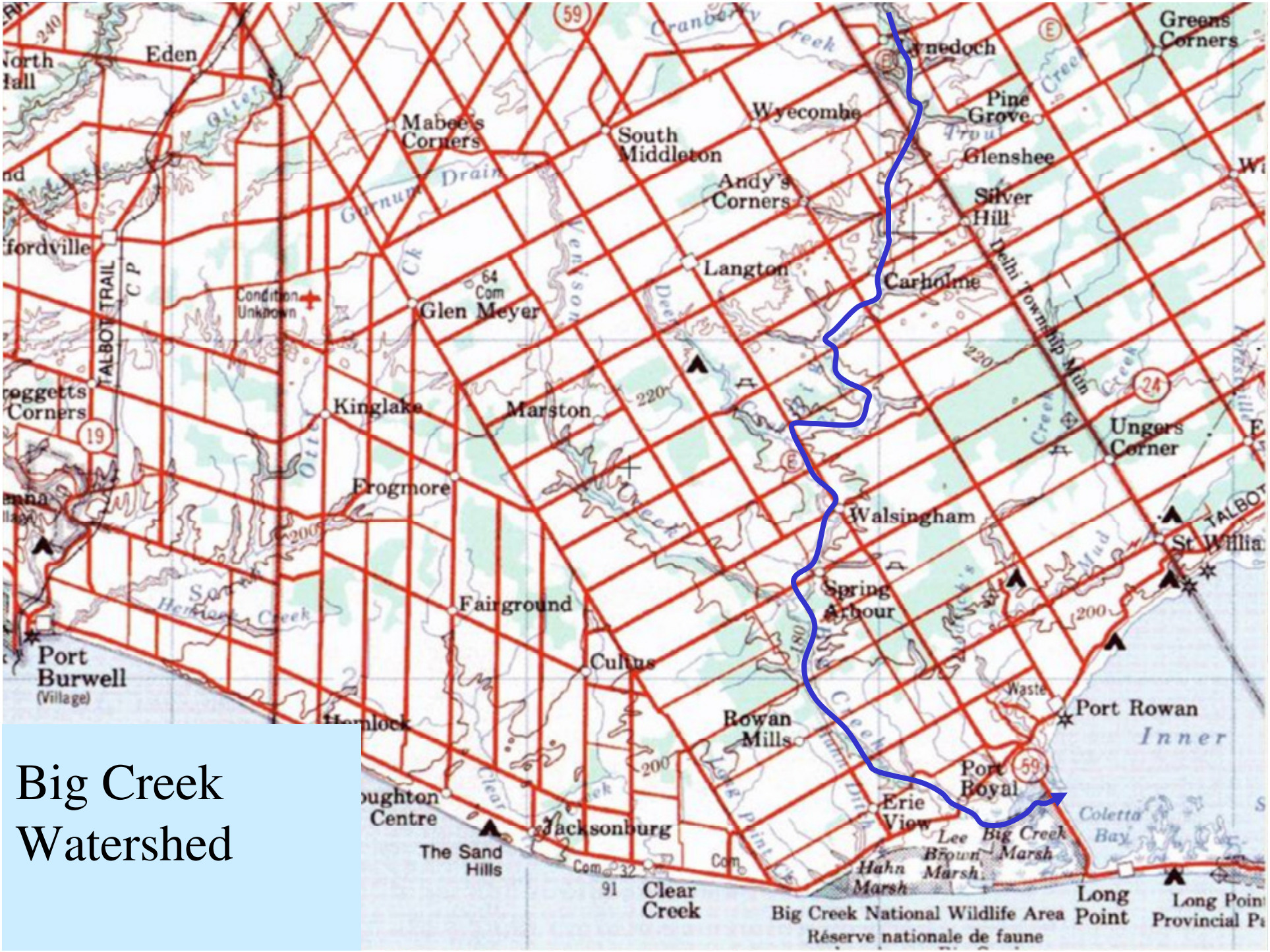
Loaned by Frank Reeves

This is a 1926 construction dam at the dyke. This dam was 1100 feet long and constructed by E. Foster, Chalmers Leighfield, Frank Jr. and Charlie Reeves. The pile driver is in place to drive down piles and sheet pilings. In the back ground is the old dredge. In some places of the Big Creek Muskrat Farms the land was higher than other, there were occasions when water was too high, construction of this dam and dyke and spillway, together with pumps maintained a level that would help the propagation of the muskrats. By replacing in summer, water lost by evaporation and draw off water when the level rose. Some remnants are still visible today from the roadway.

Loaned by Peter Overbaugh

The route of the road across the causeway to Long Point required road maintenance from high water, and storm. This view of high water during the 1950's shows Mr. Preston of Brantford Expositor surveying the revolting development. During the storm of March 1955, Albert Hammond from Port Rowan had his Causeway Restaurant destroyed, block by block. In this same storm new cottages, not yet occupied, costing $6,000.00 each to erect were completely destroyed. A total of 75 cottages were severly damaged or lost with over half a million dollars in damages.


Big Creek Ship Canal 1860
Big Creek Marsh
BIG CREEK
NATIONAL WILDLIFE AREA
RÉSERVE NATIONALE DE FAUNE
DE BIG CREEK
Mobile
Home

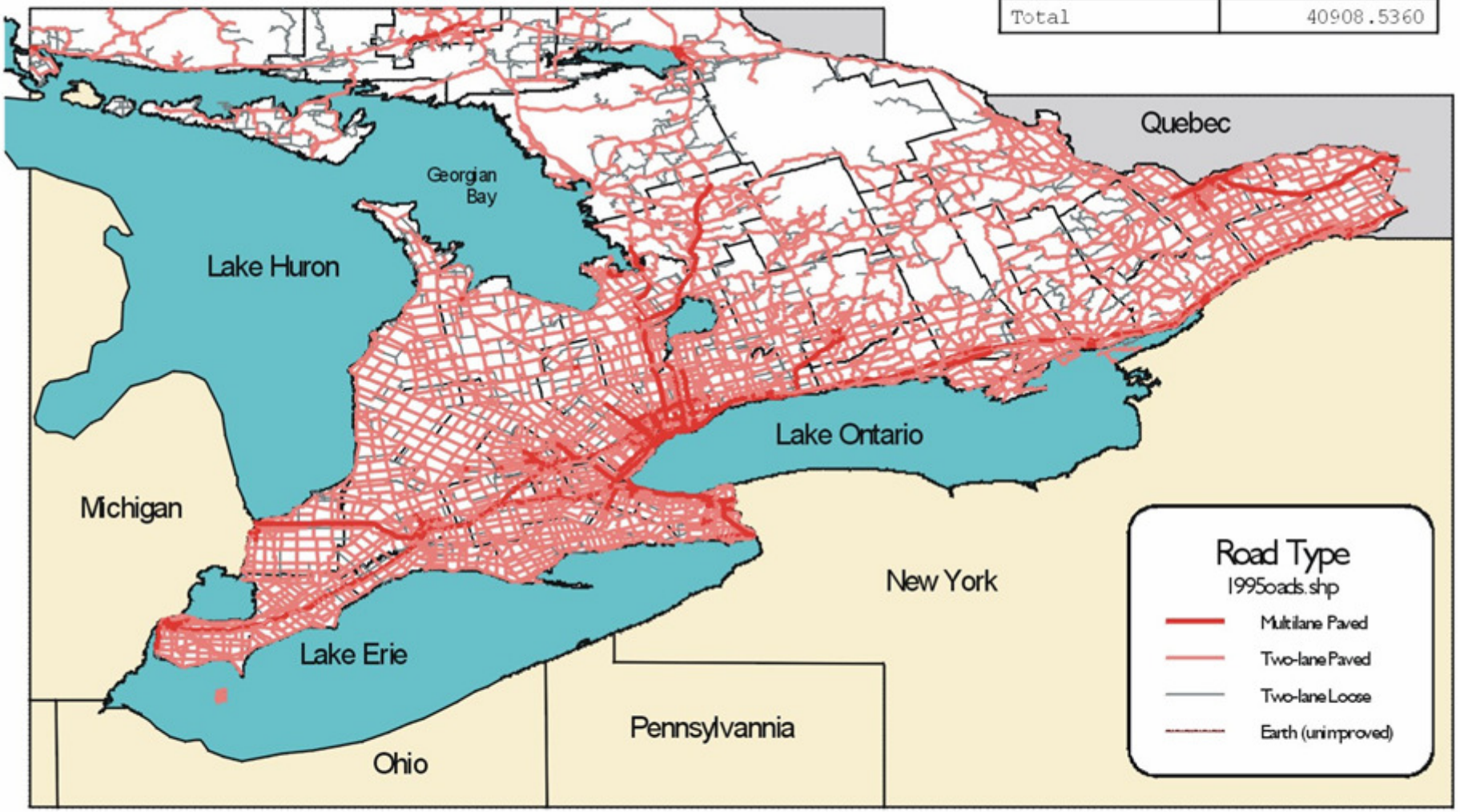

Big Creek
Watershed
Eden
Mabee's Corners
South Middleton
Wyecombe
Pine Grove
Glenshee
Silver Hill
Andy's Corners
Langton
Carholme
Glen Meyer
Kinglake
Marston
Frogmore
Walsingham
Spring Arbour
Ungers Corner
Greens Corners
Fairground
Culloden
Rowan Mills
Port Rowan
Port Royal
Erie View
Jacksonburg
The Sand Hills
Clear Creek
Big Creek National Wildlife Area
Réserve nationale de faune
Long Point
Port Burwell
(Village)
TALBOT TRAIL
Delhi Township Mun
Garnum Drain
Big Creek Marsh
Hahn Marsh
Lee Brown Marsh
Coletta Bay
Inner

Negative Environmental Effects of the Causeway Include

- High rates of wildlife mortality – especially of Reptiles and Amphibians
- Water circulation has been significantly reduced
- Fish movement has been reduced
- Wetlands are aging prematurely
- Long Point Bay water quality is likely compromised without the filter action of the wetland

Southern Ontario Roads 1995

2-lane Paved	32857.4270
2-lane Loose	5271.5272
earth/unimproved	0.0000
Total	40908.5360



With only limited habitat remaining, road mortality is one of the most significant threats to the long-term survival of reptiles

Roads:

- **Directly impact populations through road mortality (population losses, skewing sex ratios)**
- **Can isolate and degrade habitat**
- **Contribute to pollution through gas, oil and salt runoff**
- **Attract snakes for thermoregulation**
- **Continue to be built or "enhanced" throughout southern Ontario, the most significant area in Canada for reptiles**

Solutions are Difficult

- Development will not end
- Subsidized predators adapt easily to new challenges
- The human population in southern Ontario continues to grow
- Out of sight, out of mind – not enough education or funding opportunities exist

Turtles are especially vulnerable to population decline due to:

- **Low reproductive success (egg to adult);**
- **Late age of maturity (up to 18 years);**
- **Turtles have evolved to have a long lifespan, few young that survive to adulthood and only limited adult mortality**

Road Mortality Studies

Ashley and Robinson 1996

- Walked causeway 3 times per week, May to October 1979-1980, 1992-1993
- 100 vertebrate species, 7 amphibians, 10 reptiles, 21 mammals, 62 birds
- > 32 000 road-kills over study period
- Fifth worse documented road mortality world-wide
- Were some of these mortalities intentional?


The reality for the future of turtles living adjacent to the Causeway

Long Point Causeway Steering Committee

- A group comprised of government employees, NGOs, biologists, community members, recreation groups, naturalist groups, stakeholders, municipal and county members.
- Have, within a year's time, held a number of meetings, gained local government support, raised funding and hired a consultant to prepare a feasibility study, to help guide appropriate actions for the area.

Beyond Just Turtles and Snakes

The Feasibility Study

- **Pedestrian and cyclist safety**
- **Driver Safety**
- **Access to Port Rowan**
- **Recreational Limitations**
- **Wildlife Mortality Along Causeway**
- **Water Circulation**
- **Fish Movement**
- **Wetland Disturbance - Aging**
- **Long Point Bay water quality**

Long Point Causeway Feasibility Study

1) History of causeway development and redirection of the outflow of Big Creek

2) Importance of the causeway to Long Point area community, business, commerce and tourism

3) Biological features and importance of Big Creek wetlands

4) Issue statement
--safety – vehicle pullovers, narrow shoulders, bicyclists, trees in shoulder of road, enforcement
--altered hydrology – effects on water quality, fish access, wetland integrity
--road mortality – cite CWS road mortality studies and population impacts of roads on wildlife

Goals of the Report

Require options of how to deal with the issues ranging from do nothing to major re-engineering of the causeway.

Goals of Mitigation **–** mitigation work should**:**

- **be neutral or positive with regard to the economic impact on the local community**
- **improve the hydrological function of the Big Creek marsh**
- **reduce wildlife road mortality**
- **create safer highway conditions for motorists**
- **improve access between Long Point and Port Rowan**
- **improve recreational opportunities (e.g. biking, birding, fishing)**

Reaching Goals

- Community engagement – the consultant will engage the communities regarding their views on the issues and the possible mitigation alternatives.
- The consultant will identify and detail various short and long term alternatives to address the issues taking into consideration biological and hydrological effectiveness, as well as economic constraints , transportation, and safety concerns.
- Consultant will provide Recommendations based on the above findings
- Consultant must take into account the aesthetics of any “ecopassage” approach

- List of relevant literature

Can an Ecopassage approach be implemented to:

- **Effectively re-establish hydrological function of Big Creek Marsh?**

- **Provide effective long-term wildlife passage corridors (Install culverts / bridges etc.) at a site that may experience a range of lake levels, large influxes of sediment, thick ice in the winter and heavy traffic in the summer?**

- **Create a barrier wall that will pass through private lane ways and parking lots (the parking lots account for some of the access wildlife have from wetland to road)?**

- **Allow for an aesthetically pleasing final product, that will not limit the "vista" (this will likely be an issue with the community that have grown to love the marsh and bay view, as well as the large trees along the Causeway)?**

Solutions?

- **What are the characteristics of the funnel walls that have been employed (such as height, materials, orientation, installation experience, costs) and are they working for the target species (especially for snakes and turtles).**

- **What are the characteristics of crossing structures being employed (such as height, width, materials, substrates and other habitat elements, drainage) and how are they working for target species.**

- **What are peoples' experiences with various forms of public education, signage, and other forms of getting the message out concerning wildlife and roads.**

- **What are thoughts on possible hydrology changes (water quality and/or quality) that might occur when hydrological connections are improved (between the wetland and the bay), in the context of implications (if any) on turtle habitat.**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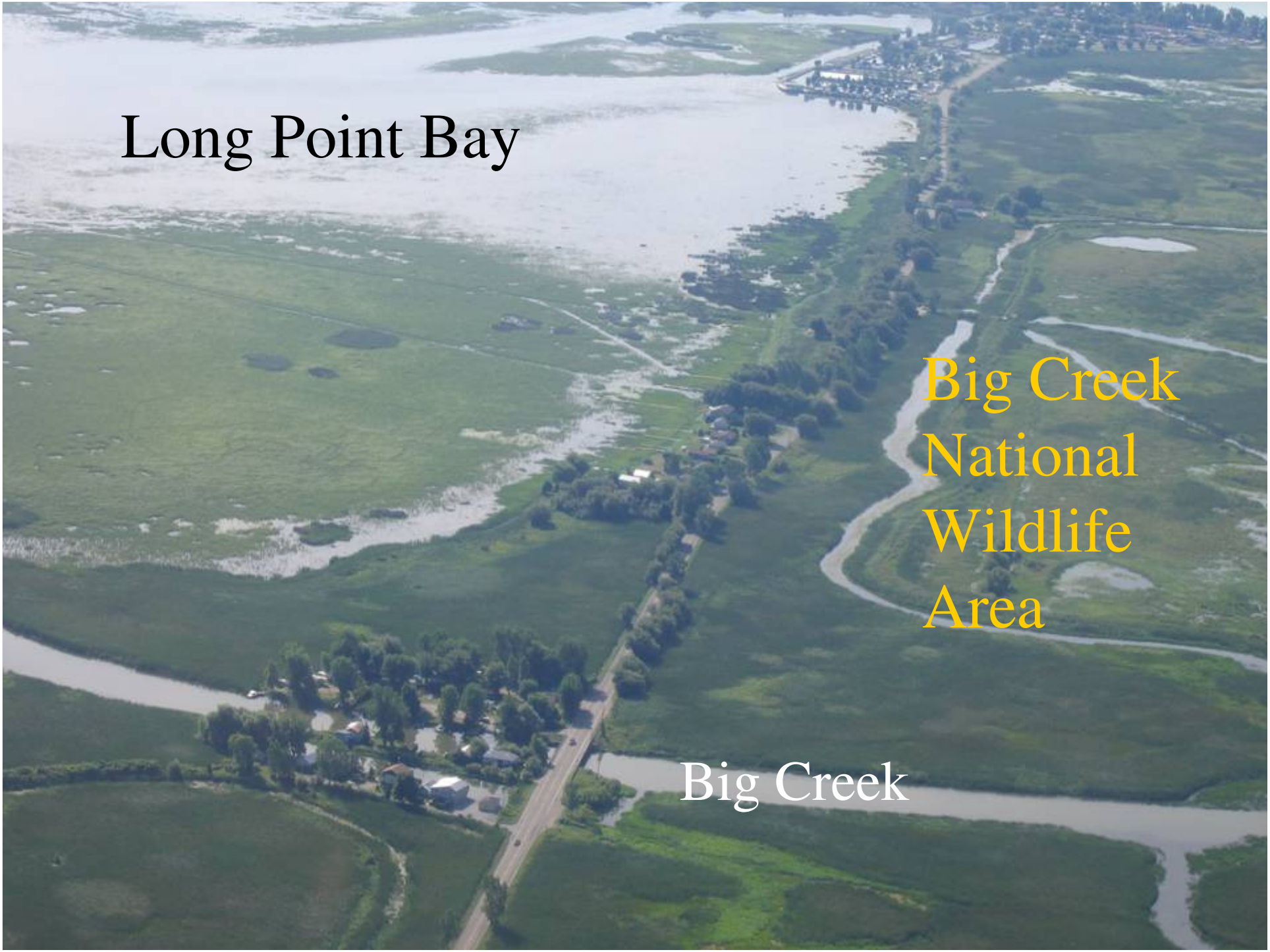
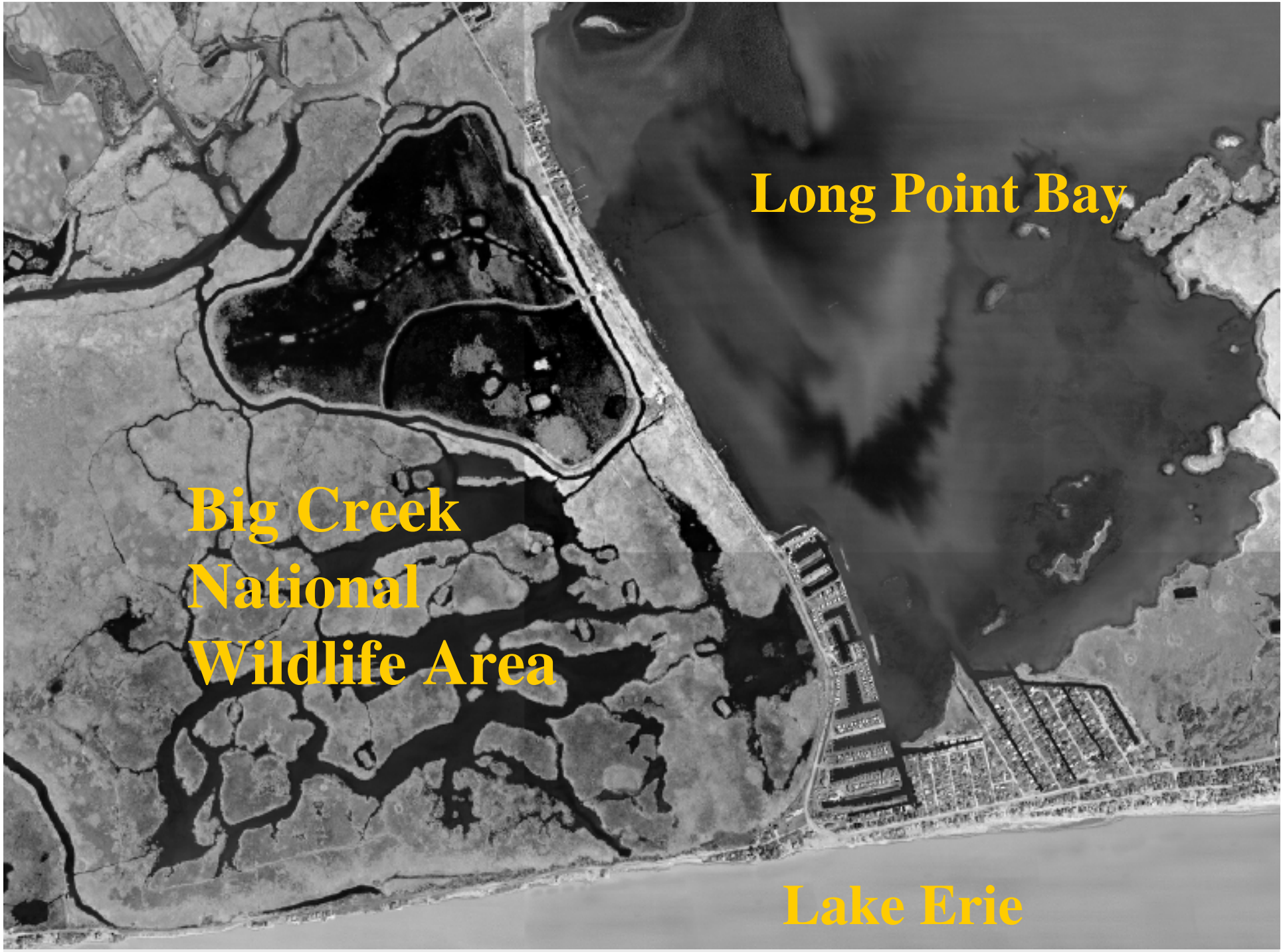

Long Point Bay
Big Creek National Wildlife Area
Big Creek


Long Point Bay
Big Creek
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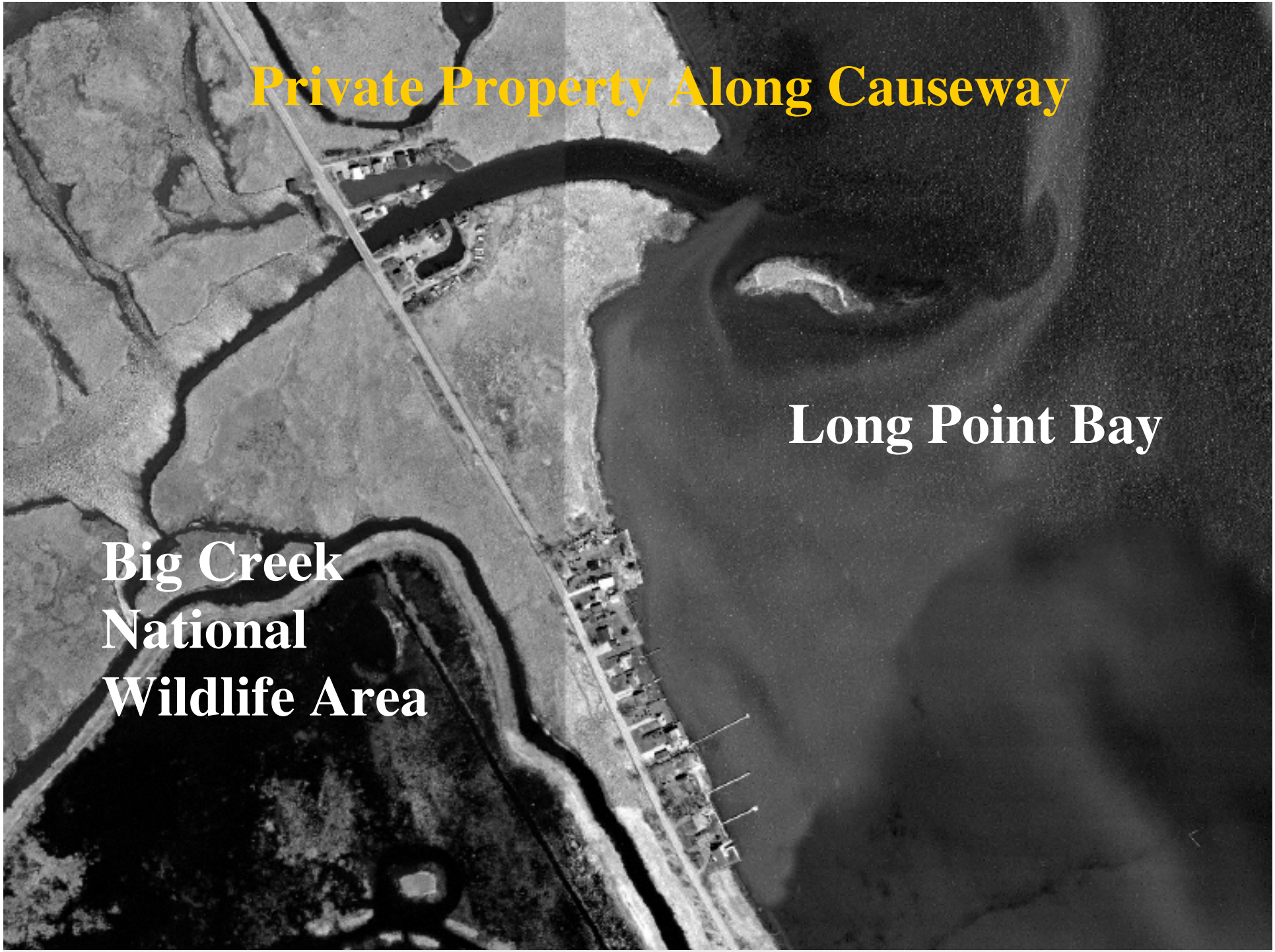
Lake Erie


Private Property Along Causeway
Long Point Bay
Big Creek
National
Wildlife Area