

# Mapping Current and Past Shoreline Conditions on Southern Georgian Bay

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Nottawasaga Valley Conservation Authority**







# Nottawasaga River Watershed



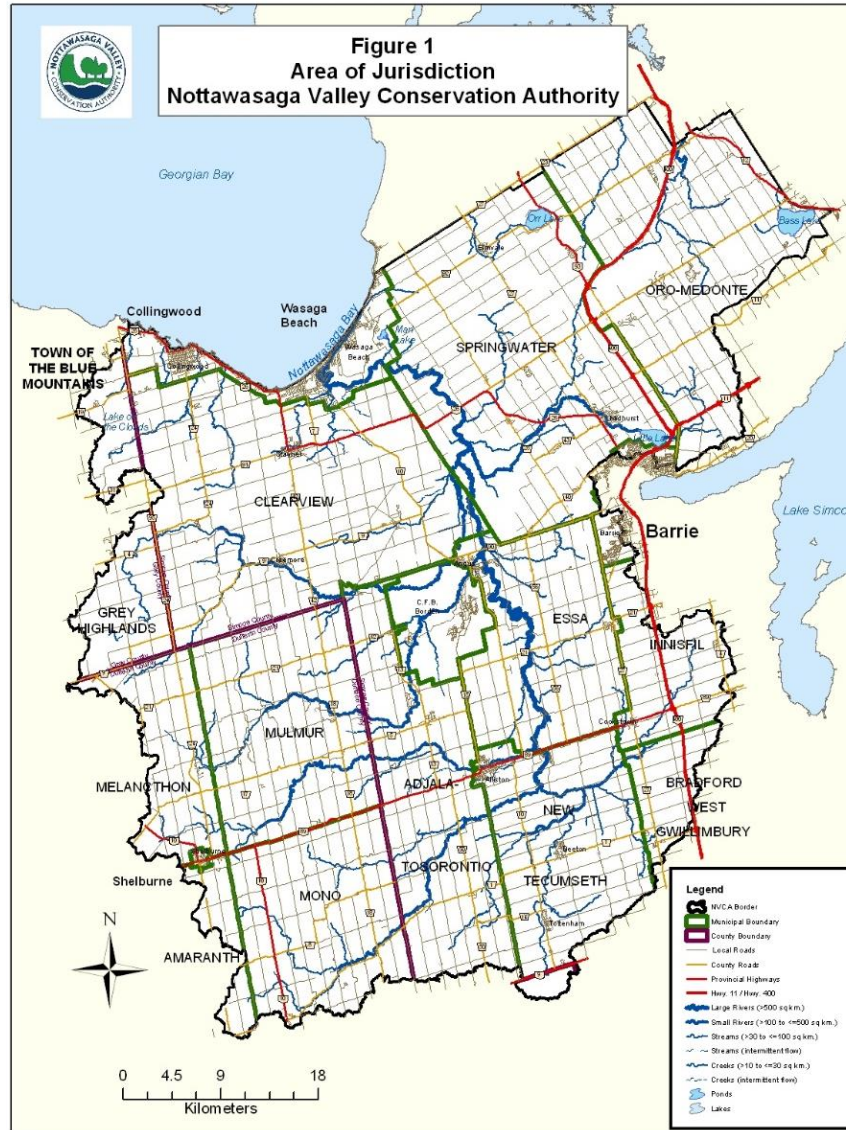
Location of Nottawasaga River Watershed north of Toronto



- ▶ Wasaga Beach, located at the outlet of the Nottawasaga River into Georgian Bay, is the world's largest freshwater beach.
- ▶ Water quality is important ecologically, socially and economically



# Southern Georgian Bay Shoreline (35km long) in Nottawasaga Valley Conservation Authority Area







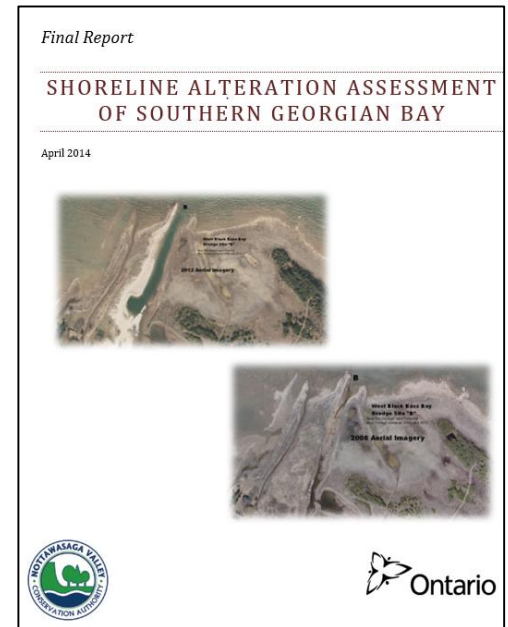
# NVCA Coordinated a Shoreline Alteration Assessment for southern Georgian Bay, in 2014 in Partnership with the Grey Sauble Conservation Authority

Funding for this work was provided by Environment Canada and the Province of Ontario

Shoreline alterations were documented for the period 2002 – 2012 within 6 municipalities:

- Township of Georgian Bluffs
- Municipality of Meaford
- Town of Blue Mountains
- Town of Collingwood
- Town of Wasaga Beach
- Township of Tiny

- ▶ A total of 254 km of coastline was surveyed including 24 km of river bank on the lower Nottawasaga River.

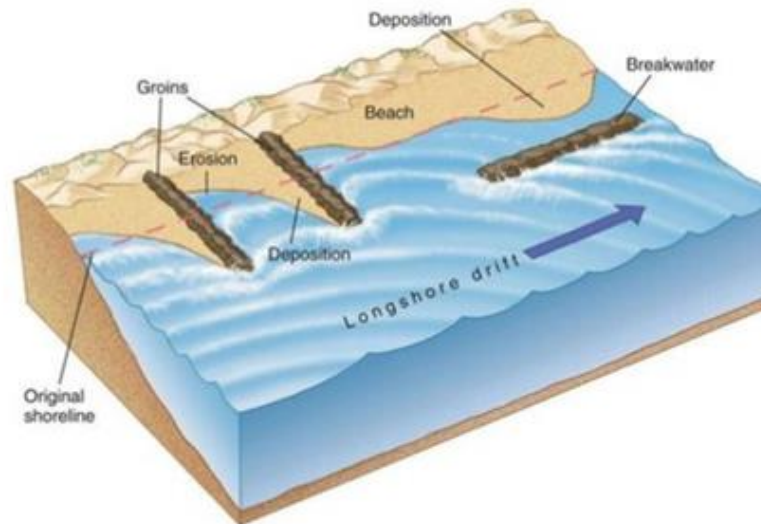




# Shoreline Alteration Assessment of Southern Georgian Bay

- ▶ The assessment documented alterations completed between 2002 and 2012 including:
  - Groynes & Breakwaters
  - Hardened Shorelines
  - Dredging
  - Docks
  - Marinas
  - Bridges

## ***Groins and Breakwaters***







# Shoreline Alteration Assessment of Southern Georgian Bay

## Shoreline Hardening (retaining wall construction)







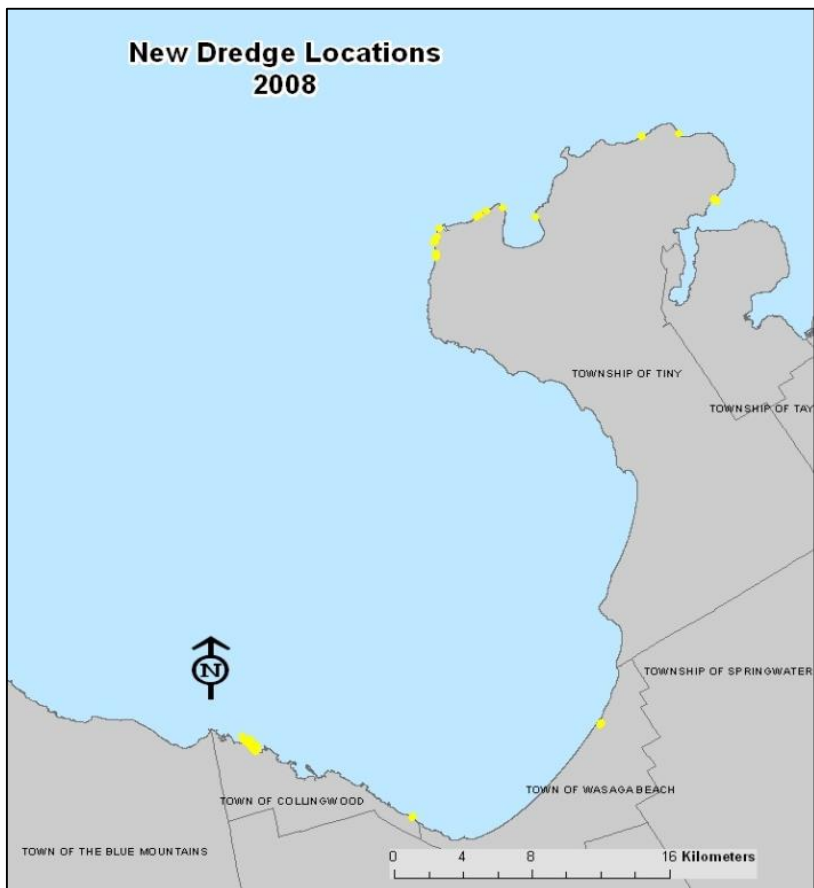
# Shoreline Alteration Assessment of Southern Georgian Bay

## Dredging





# Dredging



**New dredge locations from 2002-2008**



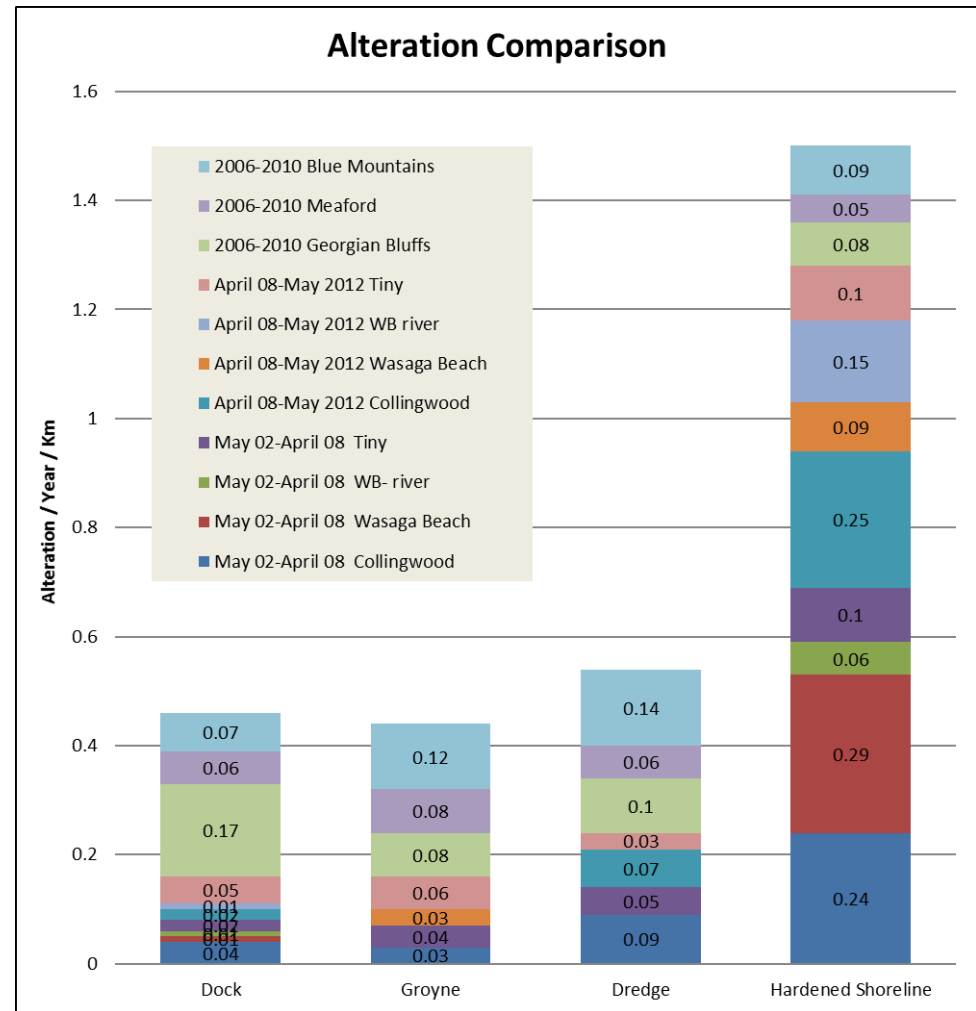
**New dredge locations from 2008-2012**





# Shoreline Alteration and Habitat Zones

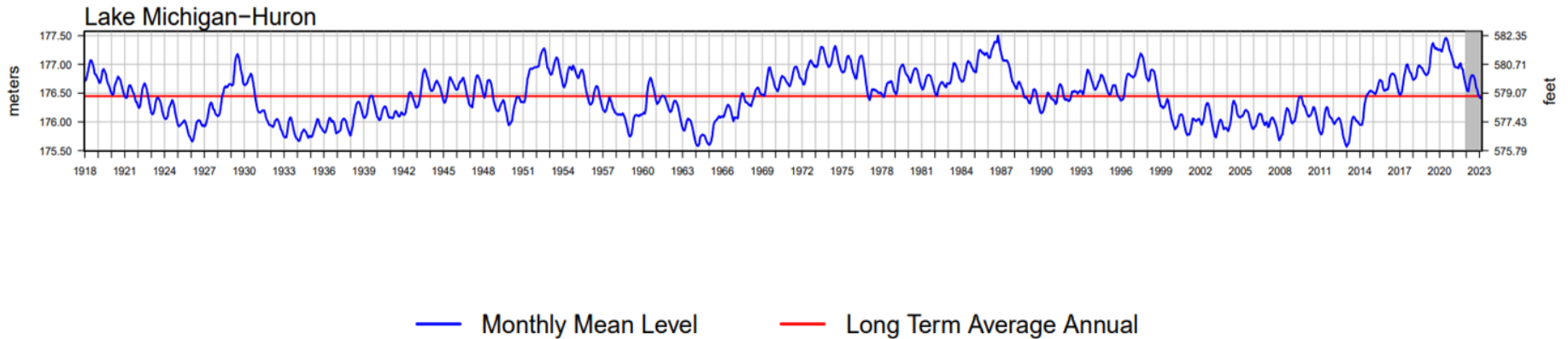
- ▶ Docks, groynes, dredging more common in western study area (mostly cobble beaches)
- ▶ Shoreline hardening more common in eastern study area (more diverse habitats)



Alterations per year per kilometer



# Lake Huron Water Levels 1918 - 2023



Source: US Army Corps of Engineers





# Dredging in Collingwood 2002-2012



Lower  
Water  
Levels







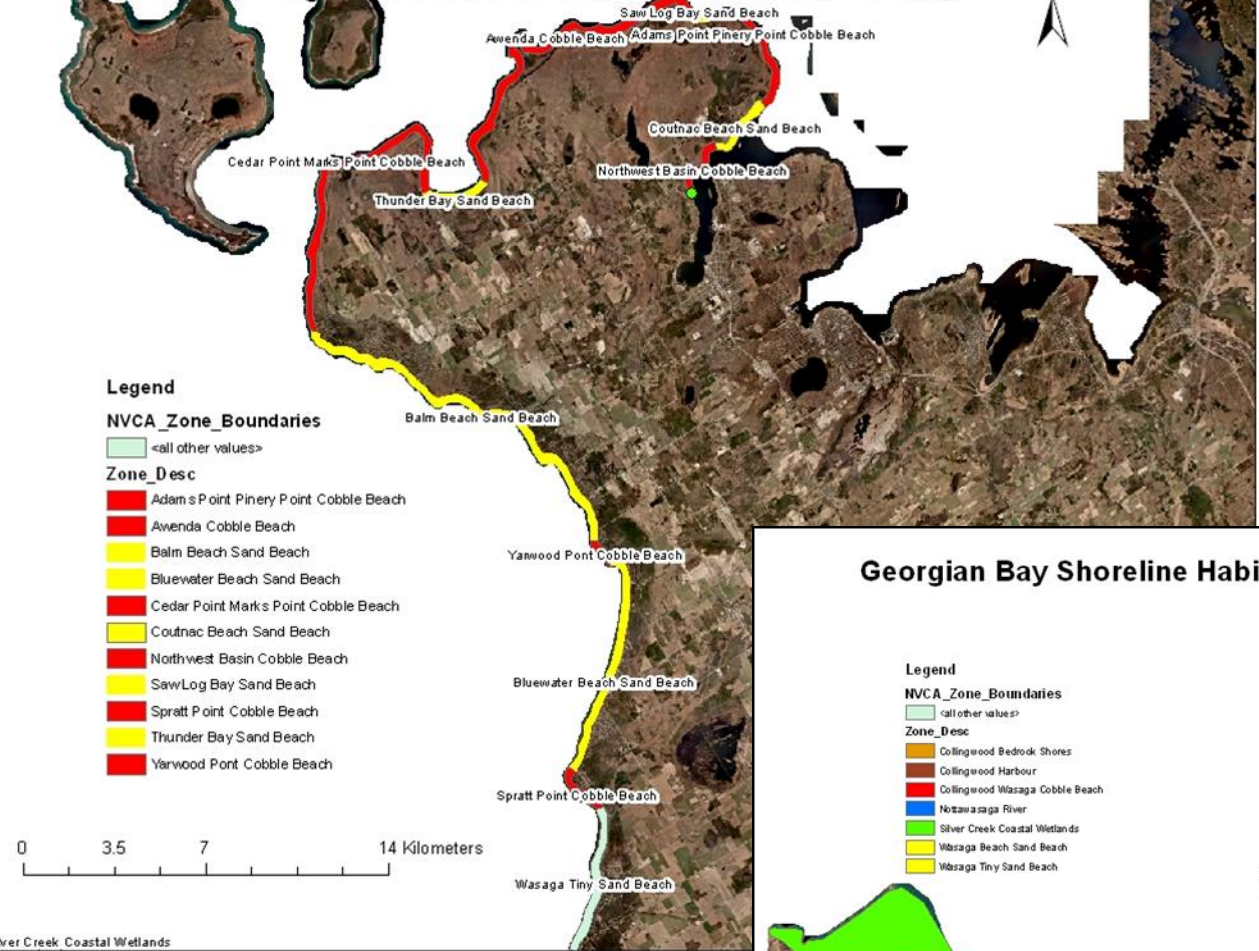
# Southern Georgian Bay Shoreline Habitat Categories

- ▶ Coastal Wetlands
- ▶ Sand Beaches
- ▶ Cobble Beaches
- ▶ Bedrock Shores
- ▶ River Mouths
- ▶ Harbours



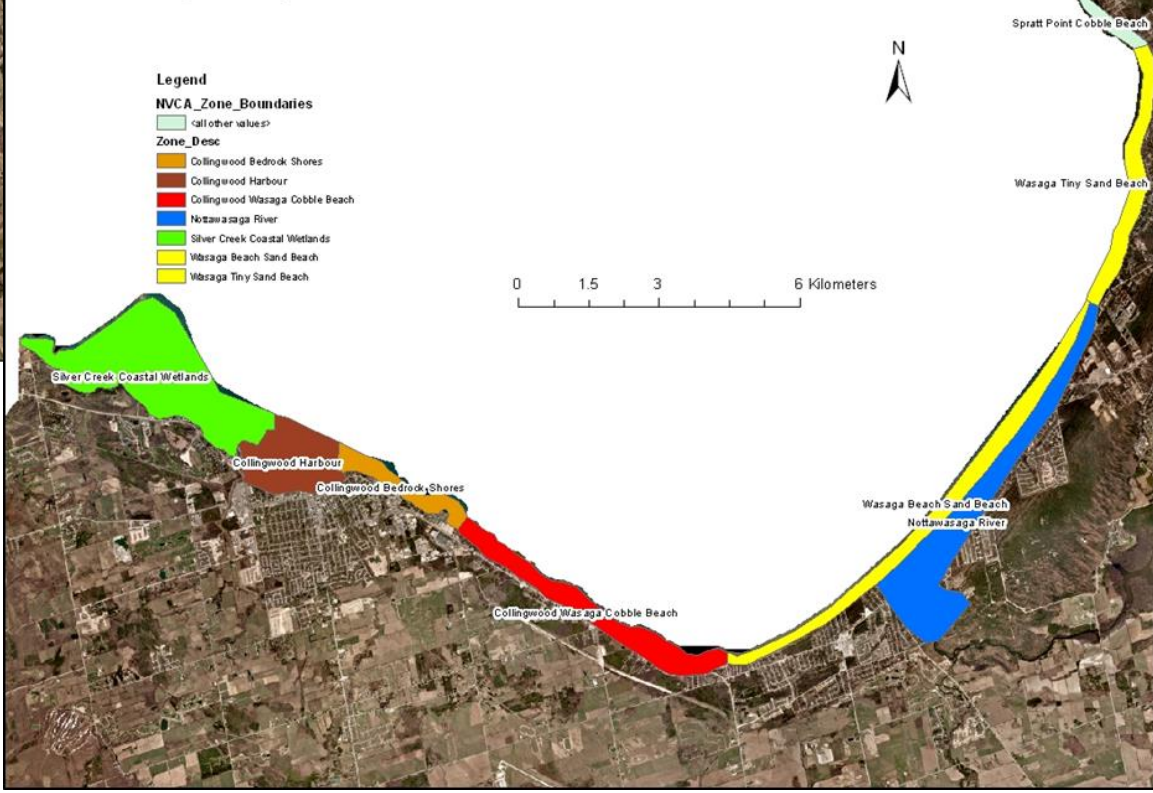


# Georgian Bay Shoreline Habitat Zones - Township of Tiny



# Habitat Zones in Eastern Study Area

## Georgian Bay Shoreline Habitat Zones - NVCA

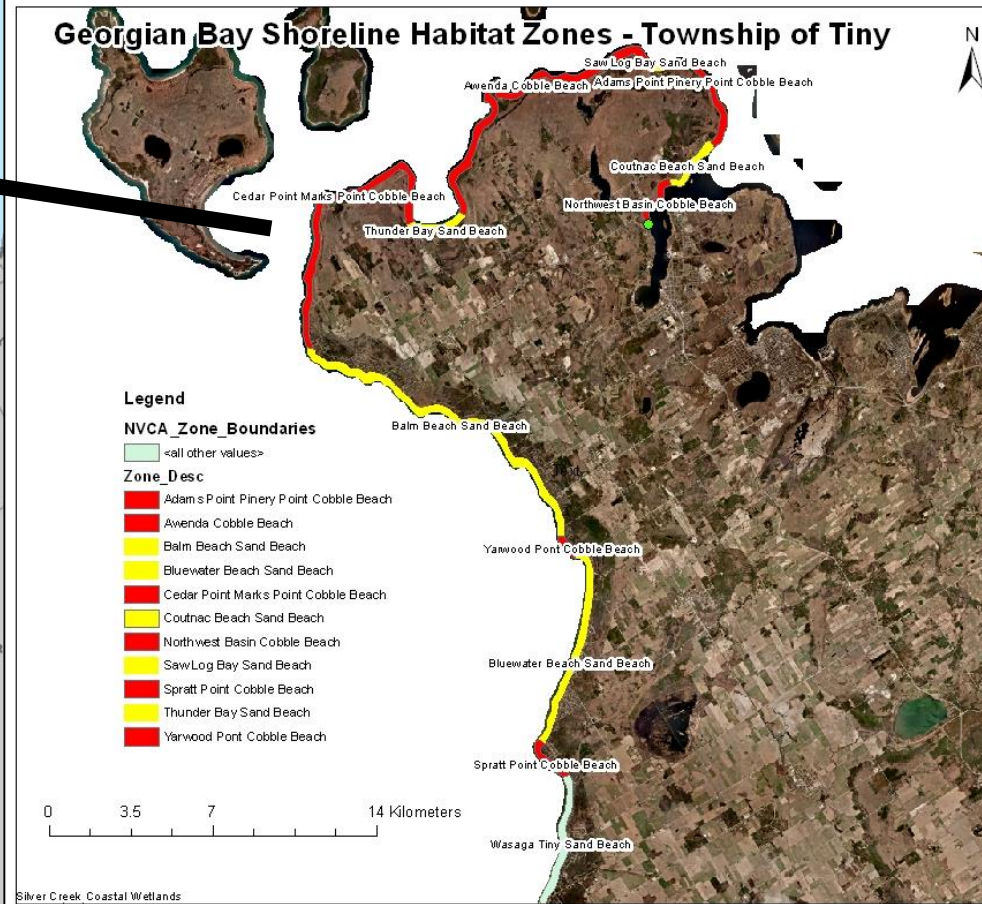
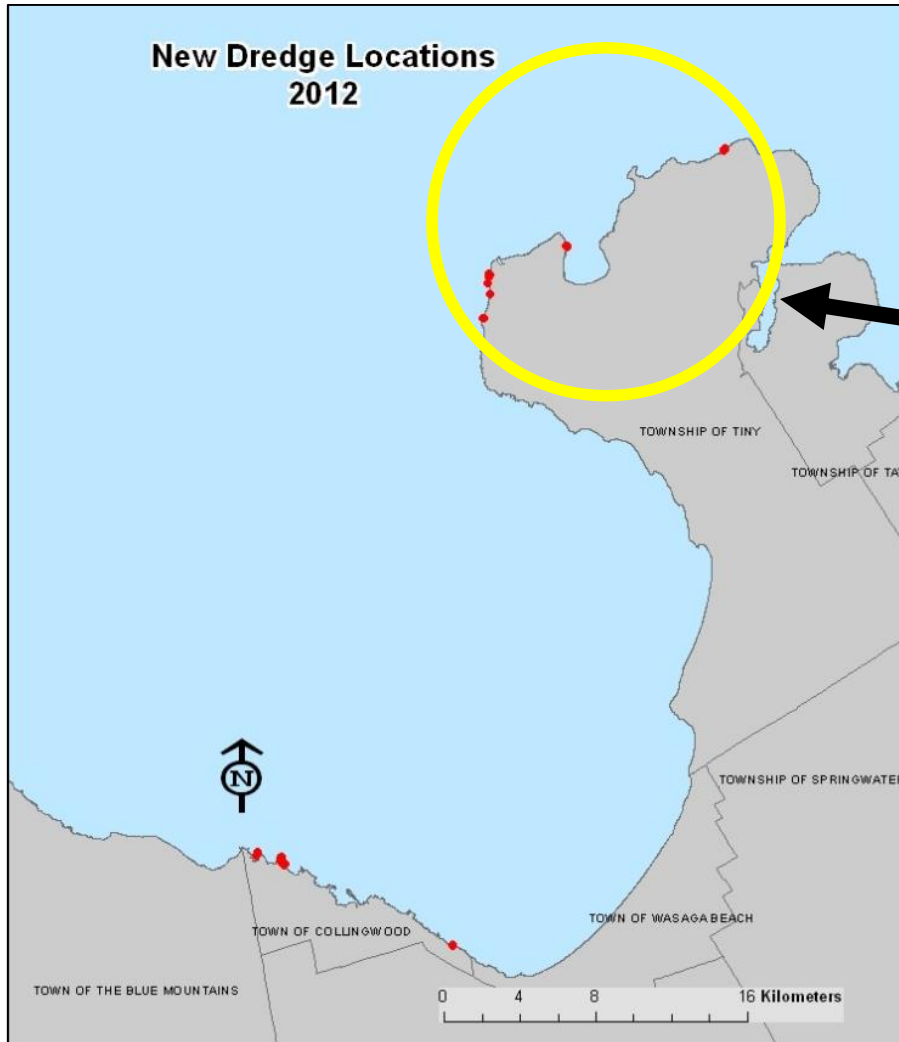


Developed based on various ecological values:

- ▶ Aquatic Habitat
- ▶ Natural Heritage
- ▶ Biodiversity Features



# Dredging Common at Cobble Beaches but not at Sand Beaches



#### Legend

##### NVCA\_Zone\_Boundaries

<all other values>

##### Zone\_Desc

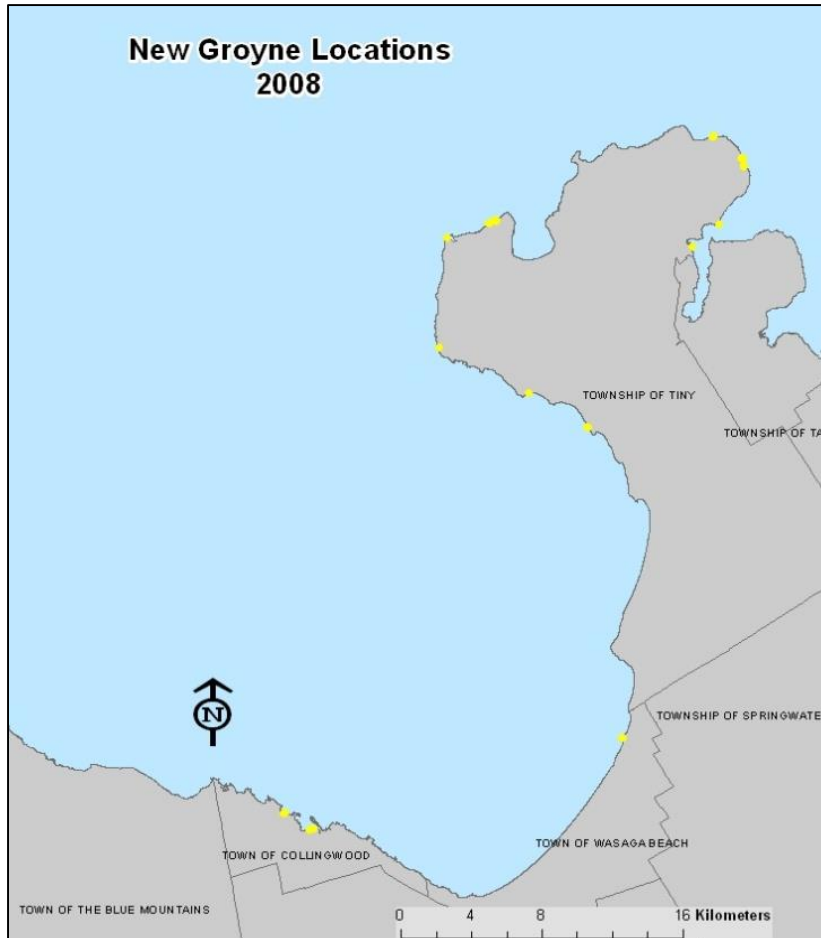
- Adams Point Pinery Point Cobble Beach
- Awenda Cobble Beach
- Balm Beach Sand Beach
- Bluewater Beach Sand Beach
- Cedar Point Marks Point Cobble Beach
- Coutnac Beach Sand Beach
- Northwest Basin Cobble Beach
- SawLog Bay Sand Beach
- Spratt Point Cobble Beach
- Thunder Bay Sand Beach
- Yarwood Point Cobble Beach

Silver Creek Coastal Wetlands

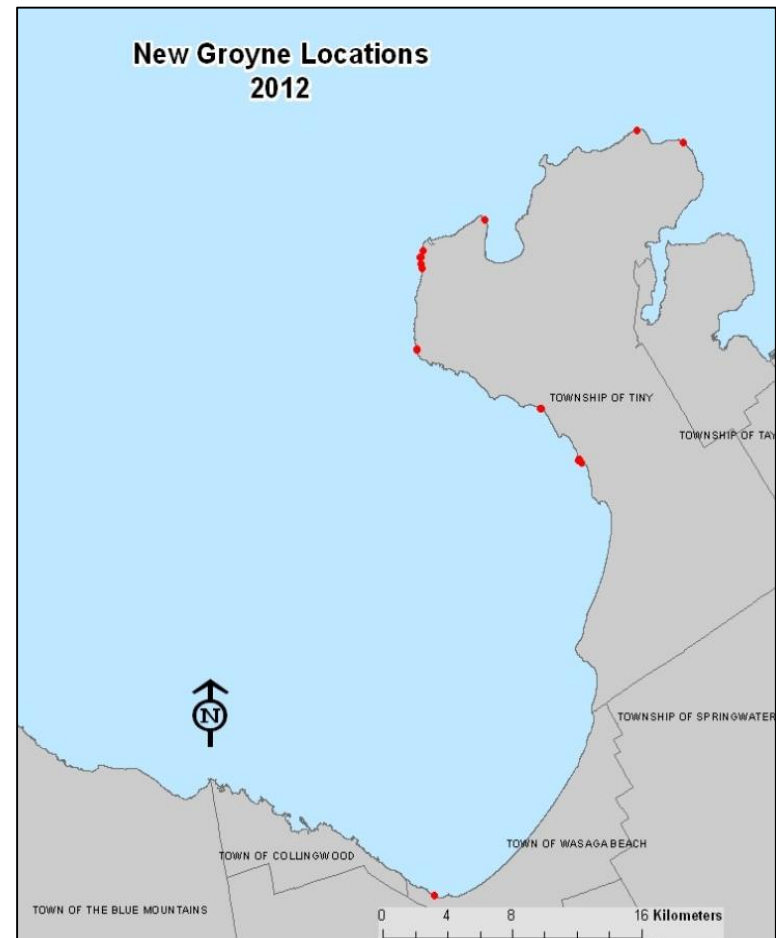




# Groyne Construction Common at Cobble Beaches but not at Sand Beaches

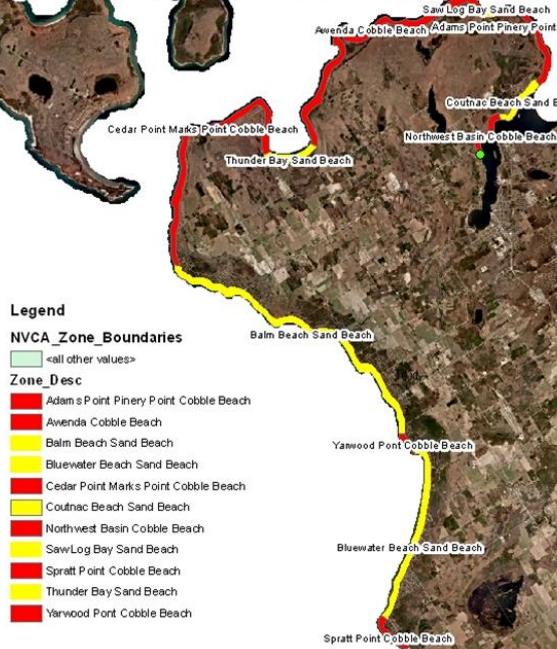


**New groyne locations from 2002-2008**



**New groyne locations from 2008-2012**

# Georgian Bay Shoreline Habitat Zones - Township of Tiny

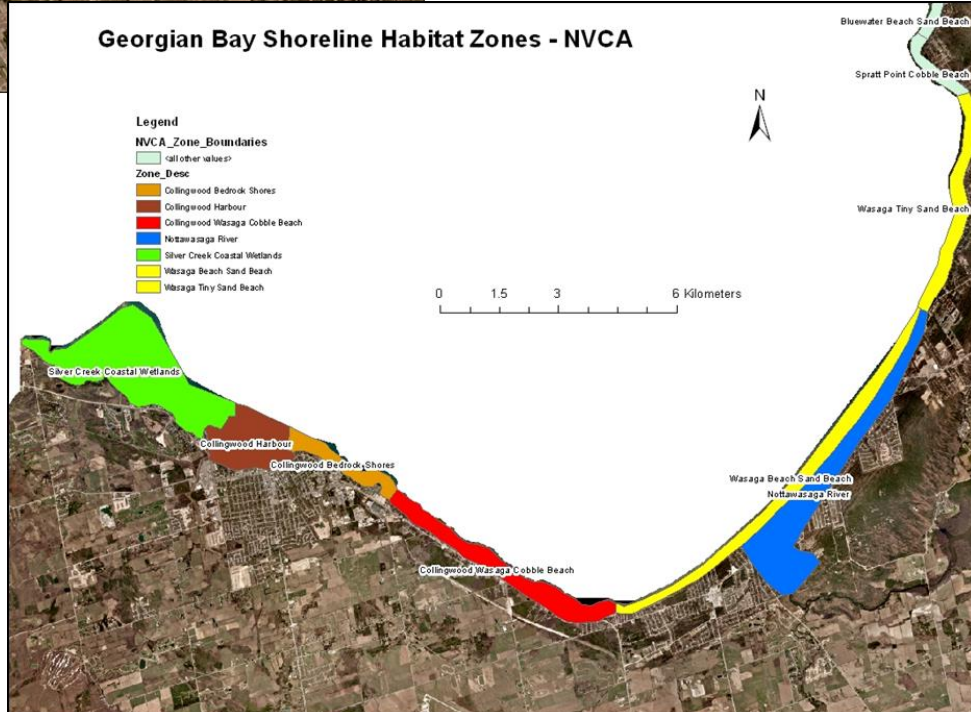


**Hardened shorelines occurring across various habitat zones including rivers.**

## New Hardened Shoreline 2008



## Georgian Bay Shoreline Habitat Zones - NVCA







# Collingwood Phragmites Mapping & Removal

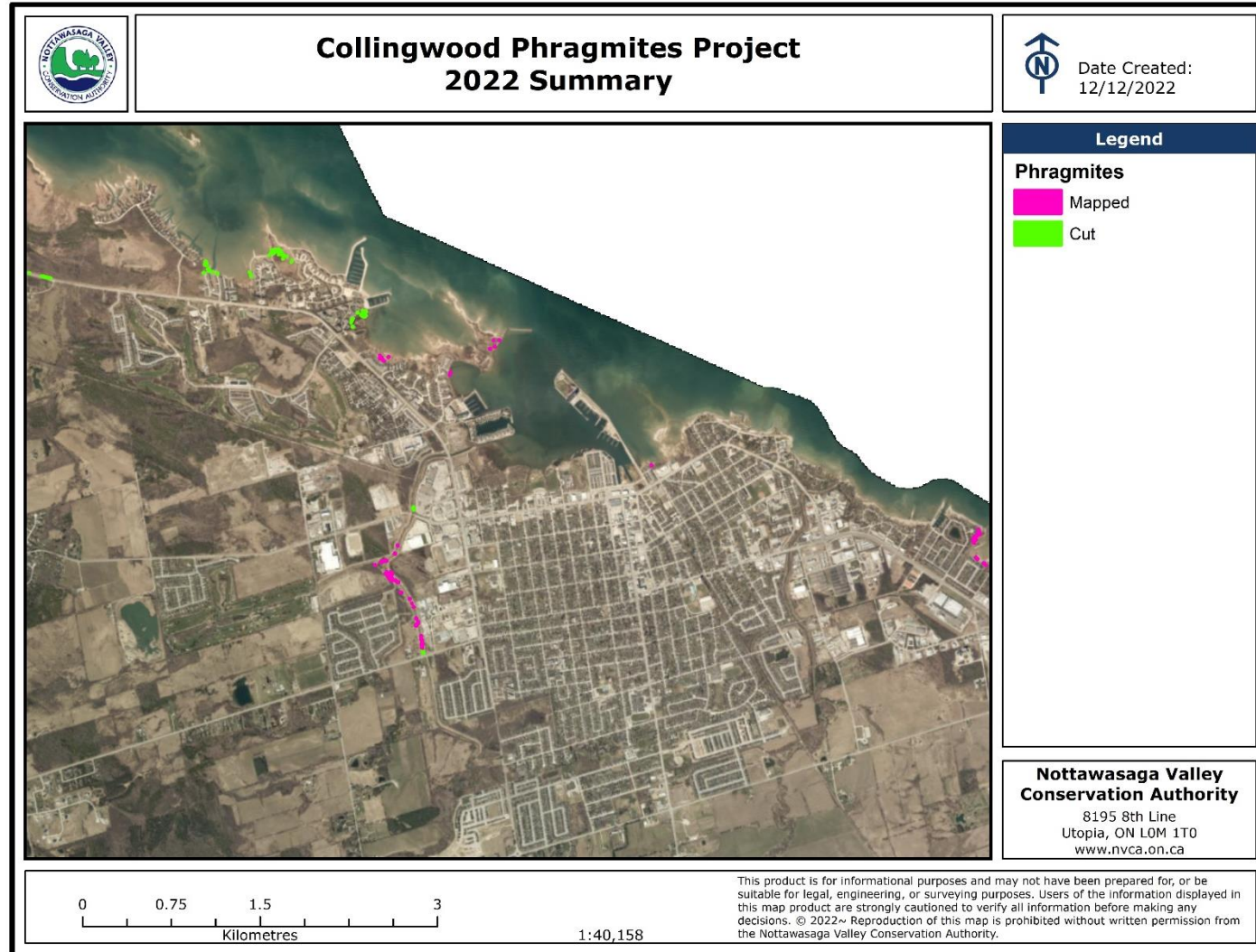
- ▶ Mapping and removing invasive phragmites within Collingwood since 2015
- ▶ Focus along the shoreline & Silver Creek Wetland Complex





# Phragmites Mapping and Cutting, 2022

- ▶ Total Mapped: 4767 m<sup>2</sup>
- ▶ Total Cut: 2710 m<sup>2</sup>
- ▶ 57% Cut







# Before and After Phragmites Removal



Before

After





**Thank you**  
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