



# Development of a Coastal Resilience Framework, North Shore of Lake Erie

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# Presentation Outline

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- I. Study Area
- II. Approach to Work Plan
- III. Key Work Plan Activities
- IV. Questions and Discussion



# Background on the Coastal Zone Canada Association

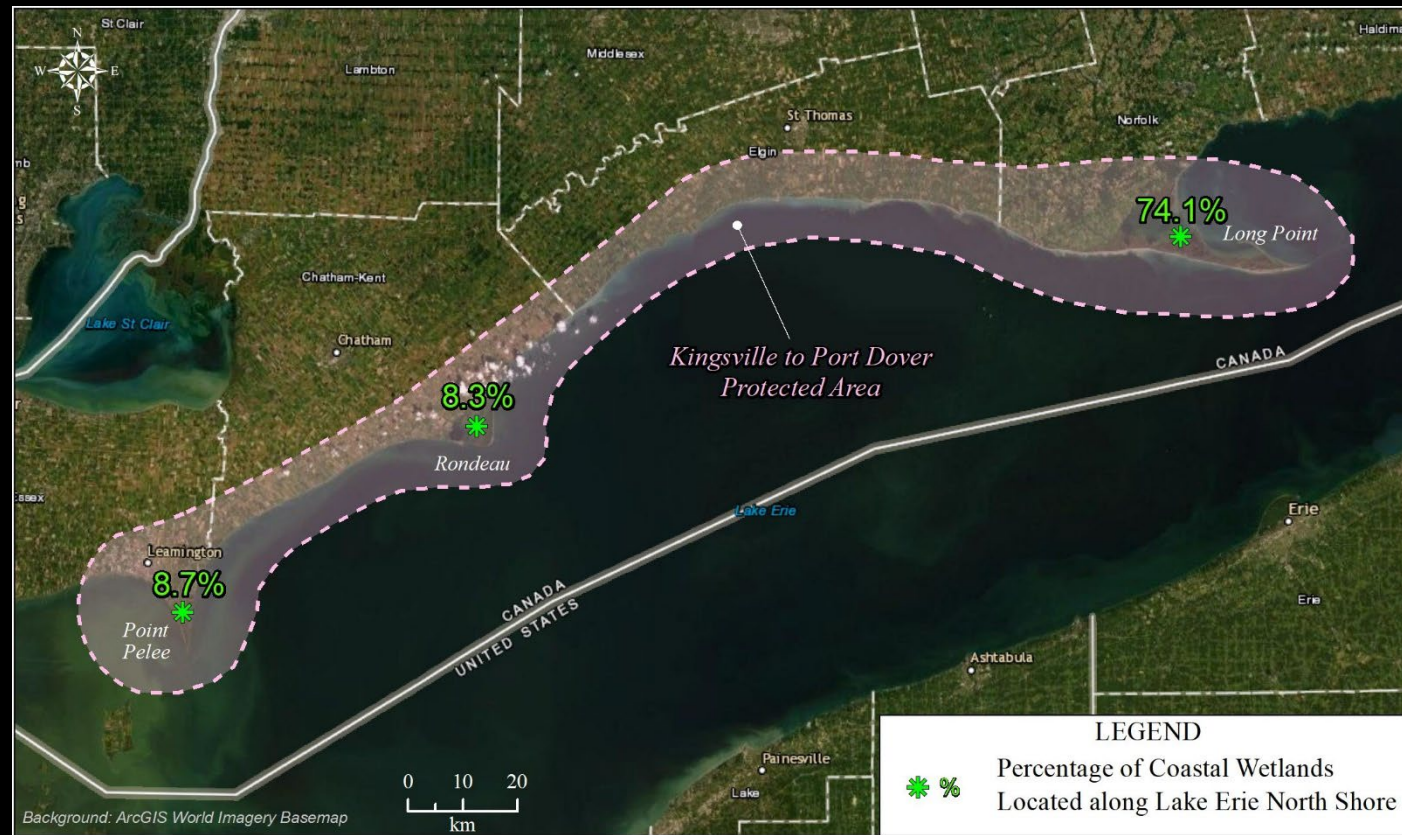


- Incorporated in 1993
- Objectives:
  - Promoting the understanding, appreciation, and awareness of the uniqueness and value of the coastal areas of Canada
  - Provide a forum for the exchange of ideas and information for the sustainable use and development of coastal areas in Canada
  - Host meetings, organize conferences, and generate reports
- Executed 14 conferences across Canada since 1994
- June 11 to 14, 2023 Conference in Victoria, BC
- <https://www.coastalzonecanada.org/>





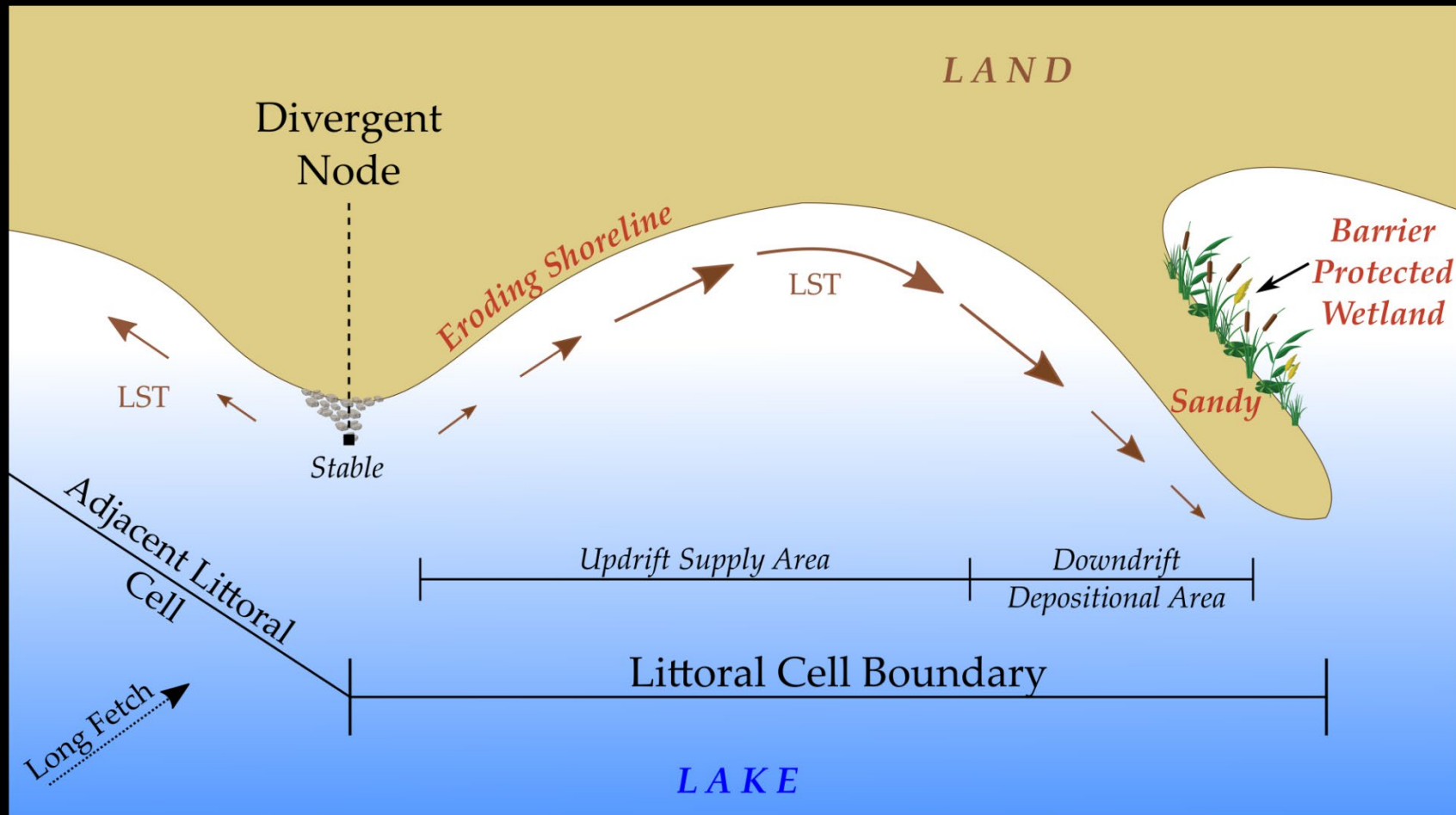
# I – STUDY AREA, LITTORAL CELLS, AND GEODIVERSITY





# Scale is a Critical Component in the Design of the Framework

- Littoral Cells define sediment sources, pathways, and sinks

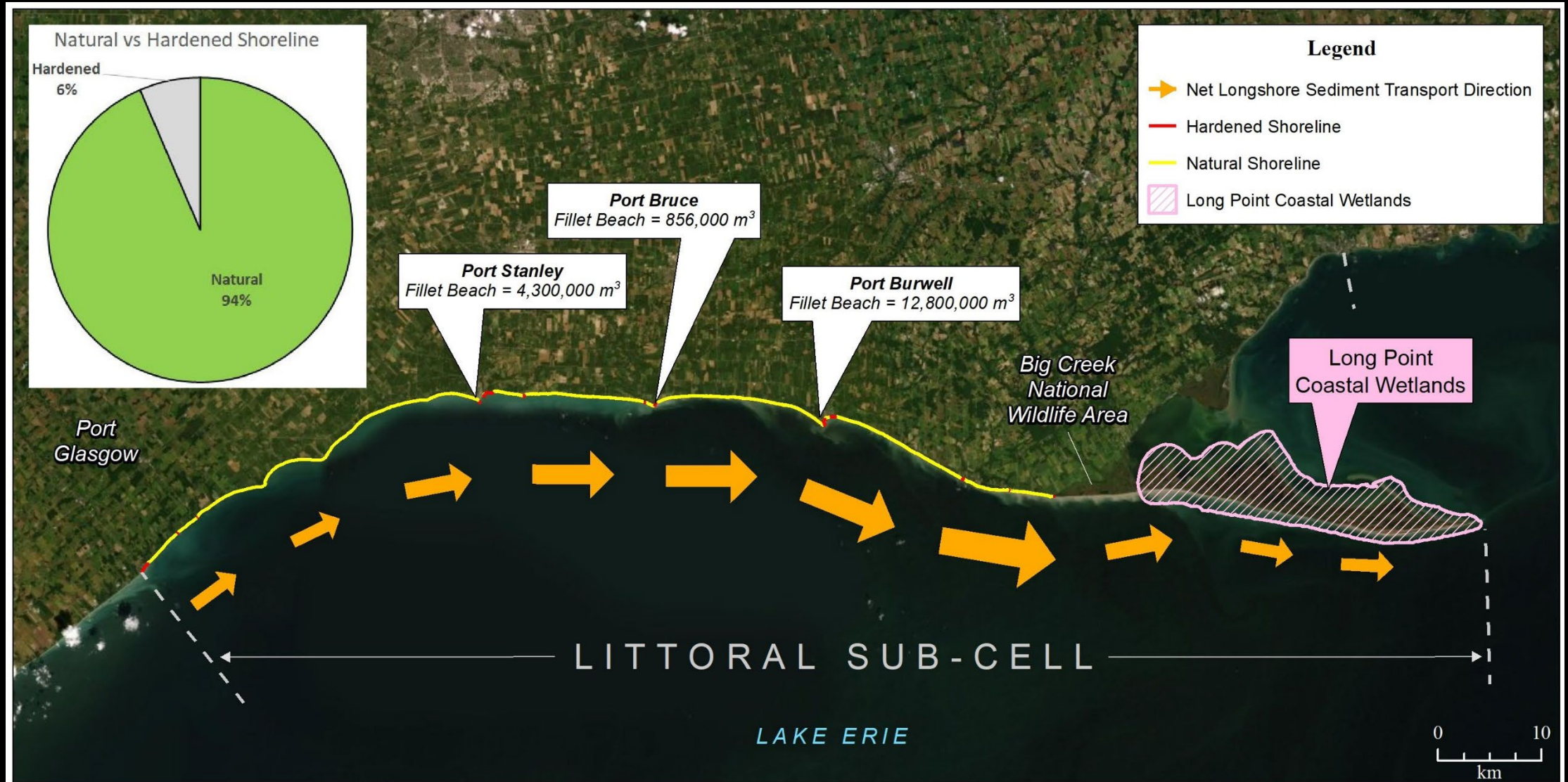


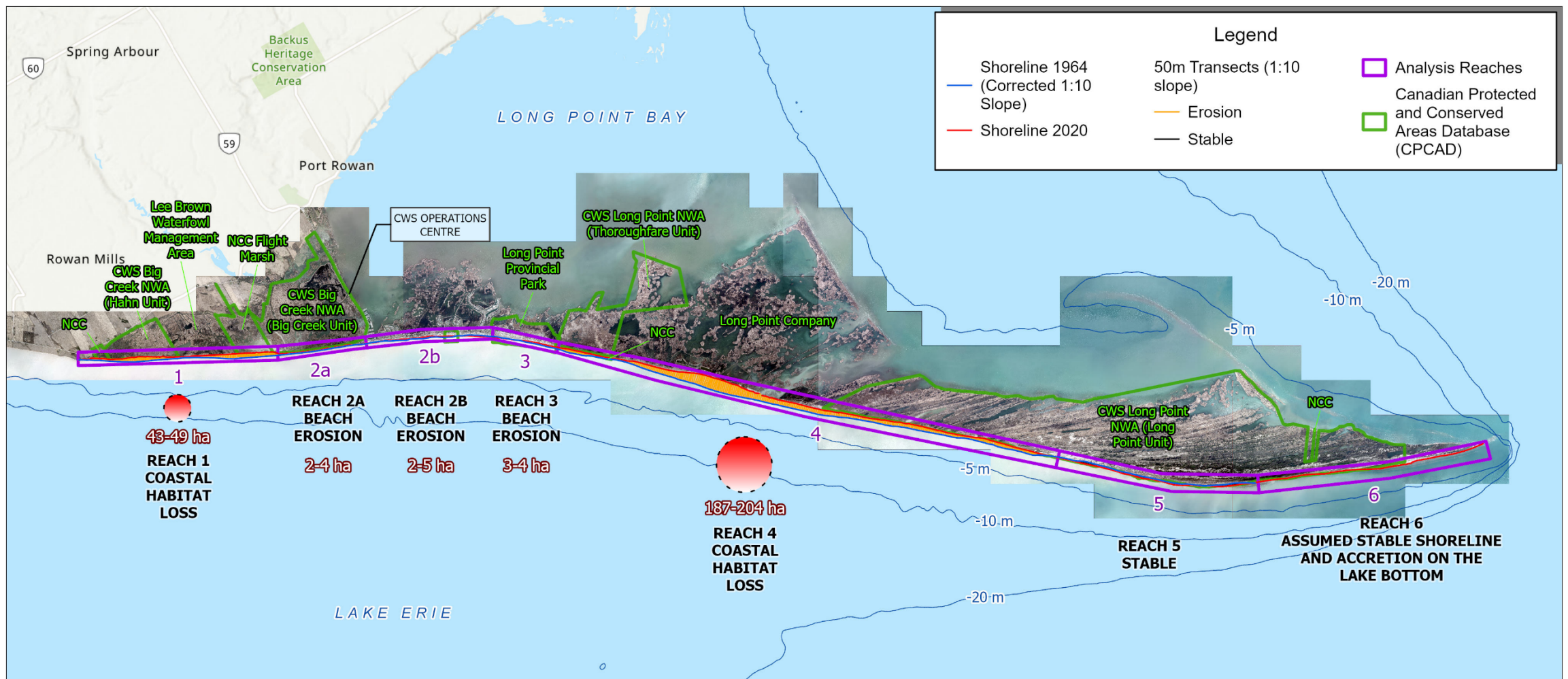




# Long Point Littoral Cell

## 18M m<sup>3</sup> Trapped at Three Harbours





**Legend**

- Shoreline 1964 (Corrected 1:10 Slope)
- Shoreline 2020
- 50m Transects (1:10 slope)
- Erosion
- Stable
- Analysis Reaches
- Canadian Protected and Conserved Areas Database (CPCAD)

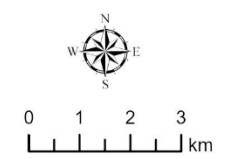
1964 to 2020 Erosion Transects (50m Spacing)

	1 - Cove Road to Terminus of Hastings Drive		2a - Hastings Drive		2b - Erie Boulevard		3 - Long Point P.P.		4 - Thoroughfare Unit, Long Point Co., & Long Point Unit		5 - Long Point Unit		6 - Tip	
	No. Transects	AARR (m/yr)	No. Transects	AARR (m/yr)	No. Transects	AARR (m/yr)	No. Transects	AARR (m/yr)	No. Transects	AARR (m/yr)	No. Transects	AARR (m/yr)	No. Transects	AARR (m/yr)
<i>Assumed Beach Slope for Waterline Correction:</i> <b>1:10 Slope</b>	114	1.55	46	0.32	45	0.4	22	0.63	294	2.5	n/a	Stable	Assumed Stable (no historical aerial coverage)	
<b>1:20 Slope</b>	113	1.35	31	0.18	38	0.23	20	0.46	291	2.3	n/a			



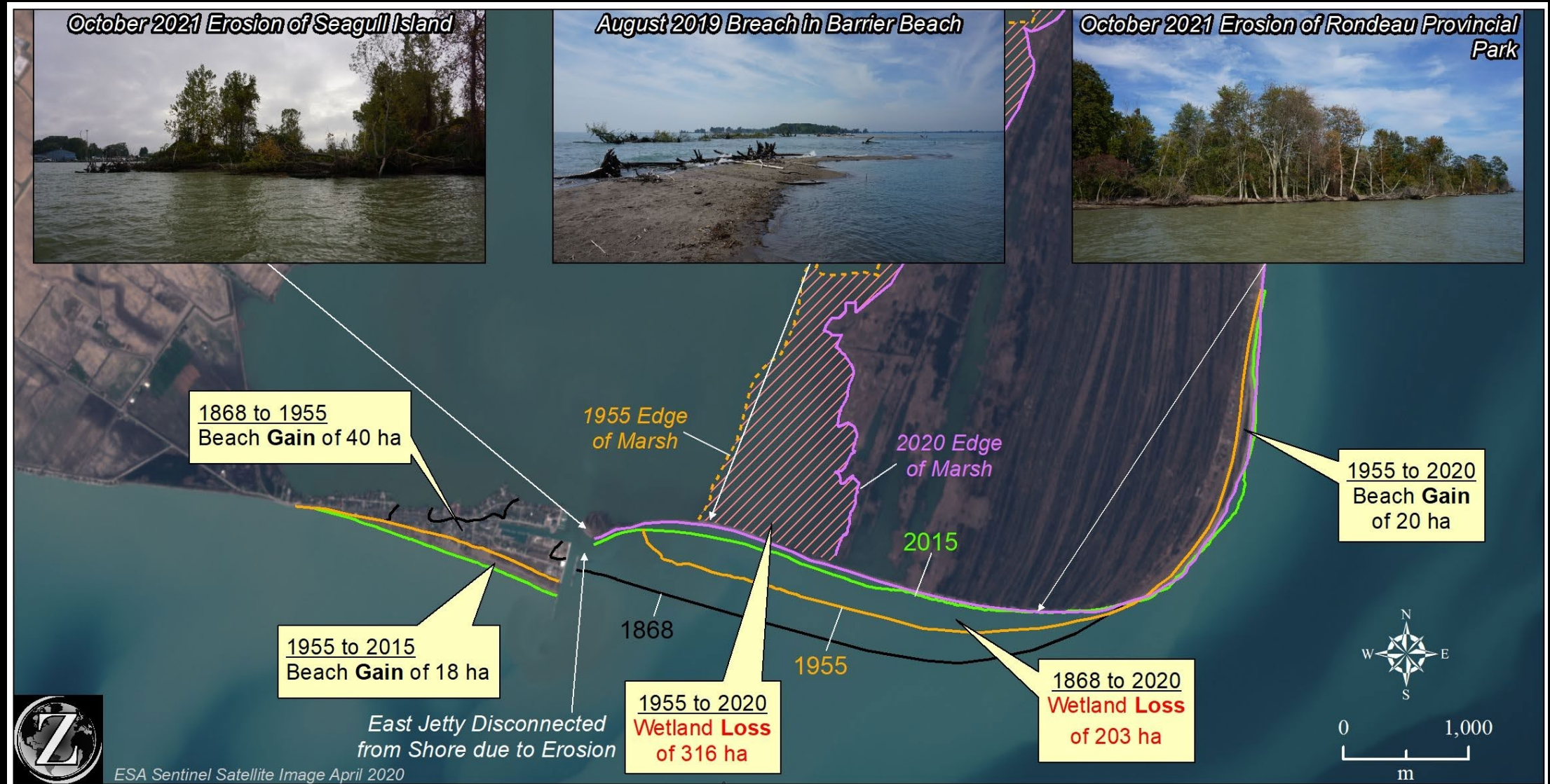
## 1964 to 2020 Long Point Sand Spit Evolution and Habitat Loss

**Notes:**  
 1) 1964 waterline position corrected with a 1:10 and 1:20 slope to correspond to the 2020 water level.  
 2) AARR = Averaged Annualized Recession Rate in metres per year.  
 3) 2020 orthos provided by the Canadian Wildlife Service. 1964 air photos provided by Long Point Region C.A.





# 500+ Hectares of Wetland Habitat Loss in Rondeau Bay and Rondeau Provincial Park





# Point Pelee National Park and the Hillman Marsh Wetland Habitat Loss

- PPNP: Lost ~80 hectares of coastal wetlands since 1930s
- Hillman Marsh: Lost 150 hectares of wetlands since 1954





# Impaired Coastal Processes Result in Geodiversity and Biodiversity Declines

- Shoreline armoring has reduced natural sediment supply
- Harbours have disrupted alongshore sediment transport
- Serious threats to geodiversity, which is biodiversity's silent partner
- Collectively, 1,000 hectares of coastal wetlands have been permanently lost at Long Point, Rondeau, Hillman Marsh, and Point Pelee National Park
- Annex 7, Habitat and Species, of the Great Lakes Water Quality Agreement calls for Net Habitat Gain

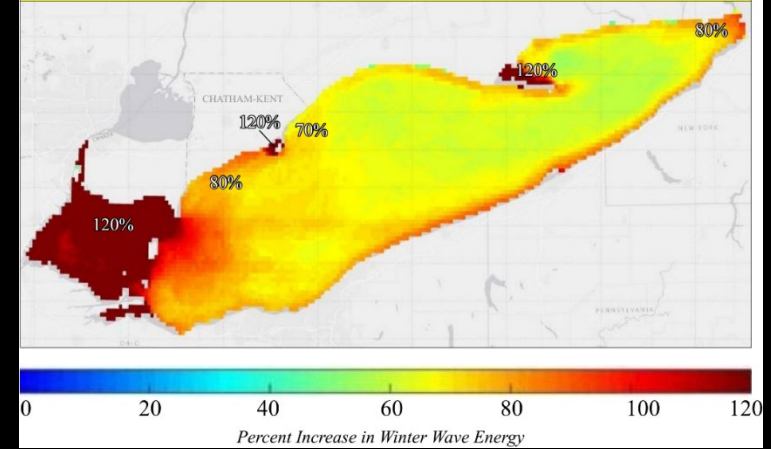






# Climate Change Is Increasing Threats to Communities and Infrastructure

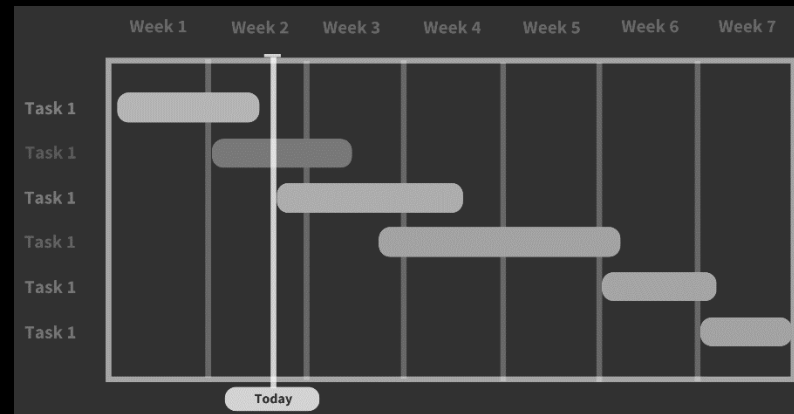
- Higher highs during wet periods are projected
- Ice cover has decreased dramatically and will continue to decline
- Winter wave energy will increase 50 to 100% across the lakes
- Winter flooding events will be more frequent, shorelines will erode faster, and beach resilience will decrease without interventions







## II – APPROACH FOR WORK PLAN





## By Everyone For Everyone

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- The Coastal Resilience Framework requires an ‘all of society approach’
- Think Tank members will play an important role in guiding the Framework’s development
- Government agency participation is critical to achieving collective Framework goals and will also support individual agency mandates
- Landowner and Stakeholder participation begins in the next Fiscal Year (April 2023)



# Website for Information and File Sharing

- If the Think Tank see benefits in a common space to share information and files (e.g., minutes, presentations, reports, etc.), a website can be setup
- Would be similar to the Rondeau Advisory Committee:
  - <http://www.zuzekinc.ca/rondeau/>



## Rondeau Barrier Beach and Navigation Channel Advisory Committee

BACKGROUND

MEMBERS

DOWNLOADS

CONTACT





## III – KEY WORK PLAN ACTIVITIES





## Finalize Narrative, Goals, and Objectives

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- Establish draft goals and objectives with the Think Tank (November meeting)
- Review and revise the draft narrative (November & December meetings)
- Share draft narrative, goals, and objectives with communities, landowners, stakeholders (next fiscal year)
- Each meeting will address specific topics to advance development of Framework



# Legislation and Policy Scan

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- Recommendation from Think Tank discussions
  - Sets baseline context for understanding coastal governance in Great Lakes region (combined with documentation of priorities and programs)
- Final version developed in collaboration with Think Tank members
  - Organized by scale and agency (e.g., Municipal, CA, Provincial, Federal)
  - LURA Stakeholder mapping will address NGOs
- Use excel file as template for input
  - Key questions (e.g., agency mandate, relevant legislation (with link), partners identified)
  - Draft prepared and circulated for review by Think Tank members (after Oct. meeting)
  - Working template provided by email and populating by Think Tank members with results compiled into Master document (timing?)





# Document Relevant Existing Government Priorities and Programs

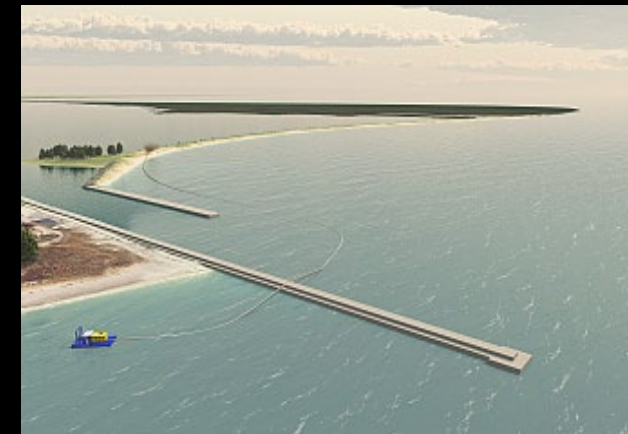
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- Purpose is to identify current agency/government priorities and programs that can contribute to advancing coastal resilience
- Combined in Excel file with the legislation and policy scan to organize effort



# Draft-in-Progress Framework by March 2023

- Review similar domestic and International frameworks
- Collaborate with LURA on the outputs from the stakeholder mapping exercise
- Some potential components of the framework were recently highlighted in an integrated climate change adaptation report prepared for NRCan
- Strategies already developed to restore geodiversity in littoral cells and protect barrier landforms (Measures 2A to 2D, ECCC Coastal Wetlands Resilience Study)





## IV - QUESTIONS AND DISCUSSION

