

This Virtual Public  
Meeting will be  
recorded.



# Pelee Coastal Resilience Committee

## Virtual Meeting

Pete Zuzek, Linda Mortsch, Janice Forsyth, Larry Hildebrand  
February 12, 2025

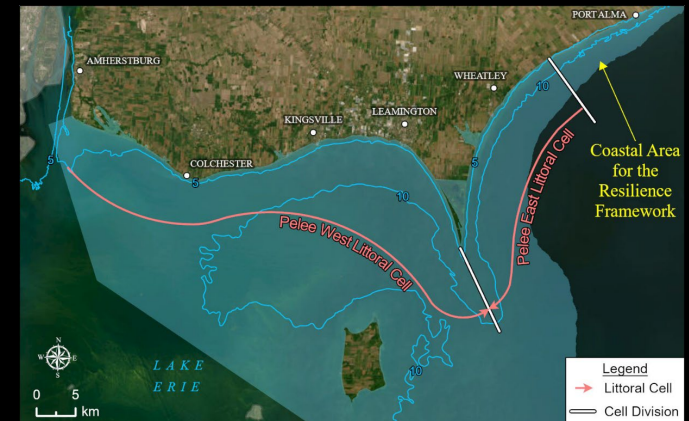


# Land Acknowledgement

We acknowledge the land on which the County of Essex is located is the traditional territory of the Three Fires Confederacy of First Nations, comprised of the Ojibway, Odawa and Potawatomie Peoples.

We specifically recognize Caldwell First Nation and other First Nations which have provided significant historical and contemporary contributions to this region.

We also value the contributions of all Original Peoples of Turtle Island, who have been living and working on this land from time immemorial.





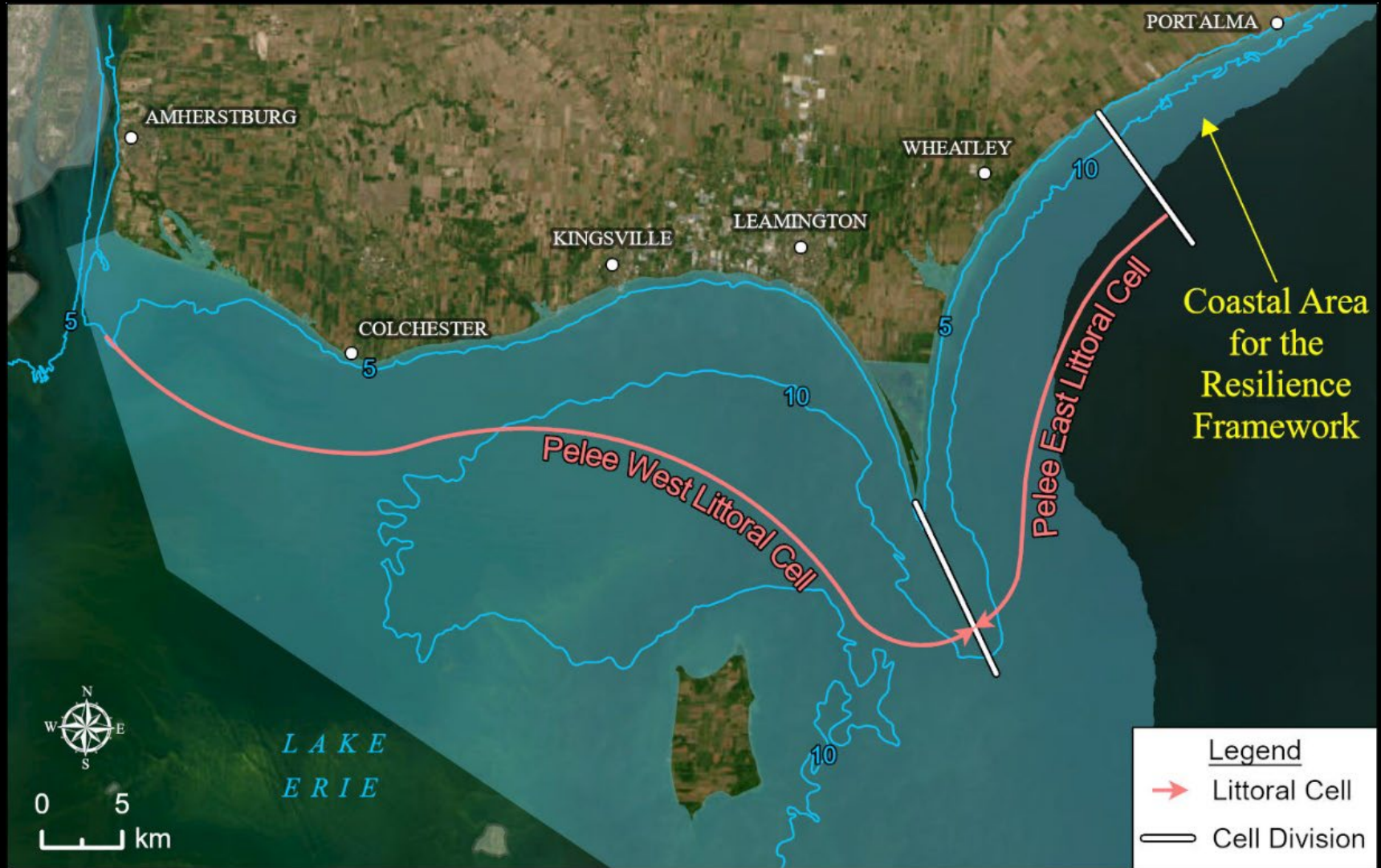
# Meeting Etiquette

---

- You are welcome to leave your video on during the meeting
- Use the “raise your hand” icon to ask a question
- The facilitator will maintain a speaking order and call on each speaker
- You will be asked to turn on your mic to ask your question
- Your microphone will be disabled after you are finished with your question
- The facilitator will disconnect individuals if they act in a disrespectful manner



# Pelee East and Pelee West Littoral Cells

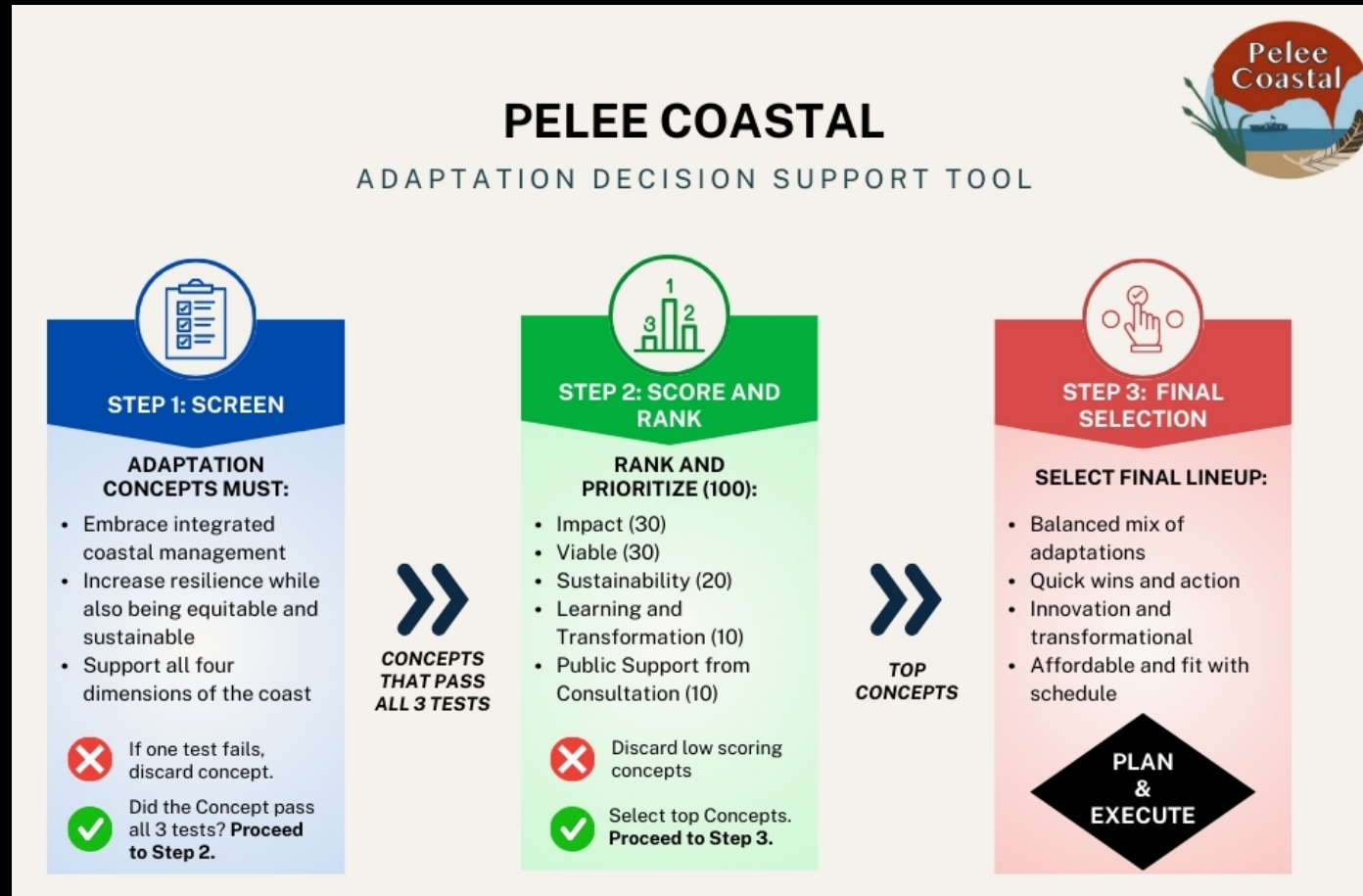




# Proposed 2025 Committee and Public Workshop Dates

Event	Focus	Timeline
Virtual Public Meeting (new to work plan)	<ul style="list-style-type: none"> <li>-Decision Support Tool, share draft adaptations, and receive new ideas.</li> <li>-Online Exit Survey (open until Feb. 28)</li> </ul>	TODAY
Virtual Committee Meeting	Debrief on public meeting, potential new adaptations, primer on scoring adaptations	March 5, 2025
Committee Meeting #4	Committee applies decision support tool to characterize adaptations	March 27, 2025
Public Workshop #2 (in-person)	<ul style="list-style-type: none"> <li>-Present updated list of adaptations</li> <li>-Refine adaptation concepts in a roundtable format with attendees</li> <li>-ask attendees for level of support</li> </ul>	April 14 & 15, 2025
Committee Meeting #5	-Committee selects final adaptations	June 5, 2025

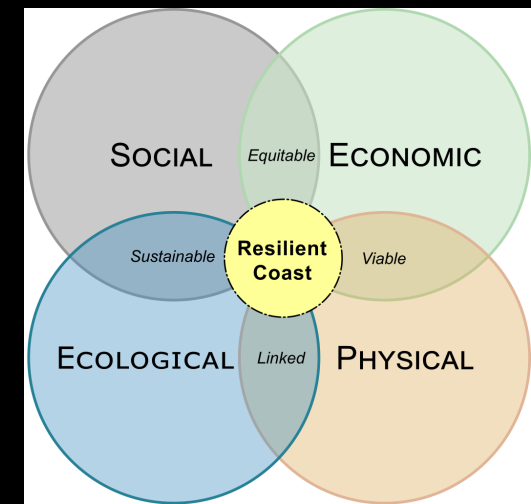
# I – Adaptation Decision Making by the Coastal Resilience Committee





# STEP 1 – SCREENING OF INITIAL IDEAS

- Adaptation must be consistent with Vision and Goals for the project (if not consistent with all screening criteria, discarded):
  - Embrace integrated coastal management (systems approach, maintain physical processes in littoral cell, no downdrift impacts)
  - Works towards desired resilience outcomes (equitable, sustainable, transformative)
  - Adaptation respects the interconnected nature of the coastal system in the littoral cells (all 4 dimensions improved, or at a minimum, not negatively impacted)





## STEP 2 – SCORING TO RANK AND PRIORITIZE ADAPTATIONS THAT PASS SCREENING

---

- Impact (30 pts)
  - Viability (30 pts)
  - Sustainability (20 pts)
  - Learning and Transformation (10 pts)
  - Public Support (10 pts)
- 
- Each adaptation scored out of 100





# Detailed Score Card

Criteria	Maximum Score	Scoring Approach	Adaptation #1	Adaptation #2
<b>IMPACT</b>				
Adaptation increases resilience of Social dimension	5	1=no impact, 5=very high impact		
Adaptation increases resilience of Economic dimension	5	1=no impact, 5=very high impact		
Adaptation increases resilience of Ecological dimension	5	1=no impact, 5=very high impact		
Adaptation increases resilience of Physical dimension	5	1=no impact, 5=very high impact		
Consequence of no action (10=high negative impact)	10	1=no impact, 5=moderate, 10=very high		
<i>Sub-total for Positive Impact</i>				
<b>VIABILITY</b>				
Partners and landowners are supportive	5	1=no support, 5=high support		
Opportunities to build partnerships and secure matching funding	5	1=none, 5=very high potential		
Institutional and local capacity to implement adaptation	5	1=no capacity, 5=very high capacity		
Ability to secure permits from our legislative and regulatory framework within the project schedule	5	1=very difficult, 5=high confidence		
The adaptation can be designed and implemented within the project schedule and budget, or significantly advanced to warrant inclusion	5	1=very difficult, 5=high confidence		
Adaptation is resilient to future climate scenarios	5	1=no resilience, 5=very high resilience		
<i>Sub-total for Viability</i>				



# Detailed Score Card

Criteria	Maximum Score	Scoring Approach	Adaptation #1	Adaptation #2
<b>SUSTAINABILITY</b>				
Longevity of adaptation, design life	5	1=uncertain/short, 5=long		
Near- and far-field negative impacts avoided	5	1=potential impacts, 5=no impacts		
Requirement for maintenance and future planning/funding/actions	5	1=high, 5=low		
Value for money, delivers benefits for cost	5	1=very low value, 5=very high value		
<i>Sub-total for Sustainability</i>				
<b>LEARNING AND TRANSFORMATION</b>				
Learning and transferability	5	1=none, 5=very high benefits		
Transformative adaptation concept/approach	5	1=not transformative, 5=very transformative		
<i>Sub-total for Learning and Transformation</i>				
<b>PUBLIC SUPPORT BASED ON CONSULTATION</b>				
Adaptation is supported by public and stakeholders	10	1=no support, 10=very high support		
<i>Sub-total for Public Support</i>				
<b>TOTAL SCORE</b>				



# Draft Summary Score Card to Rank and Prioritize

<b>Adaptation Concept</b>	<b>Impact (1 to 30)</b>	<b>Viability (1 to 30)</b>	<b>Sustainable (1 to 20)</b>	<b>Learning and Transformation (1 to 10)</b>	<b>Public Support (1 to 10)</b>	<b>Overall Score (max=100)</b>
1.						
2.						
3.						
4.						
5.						



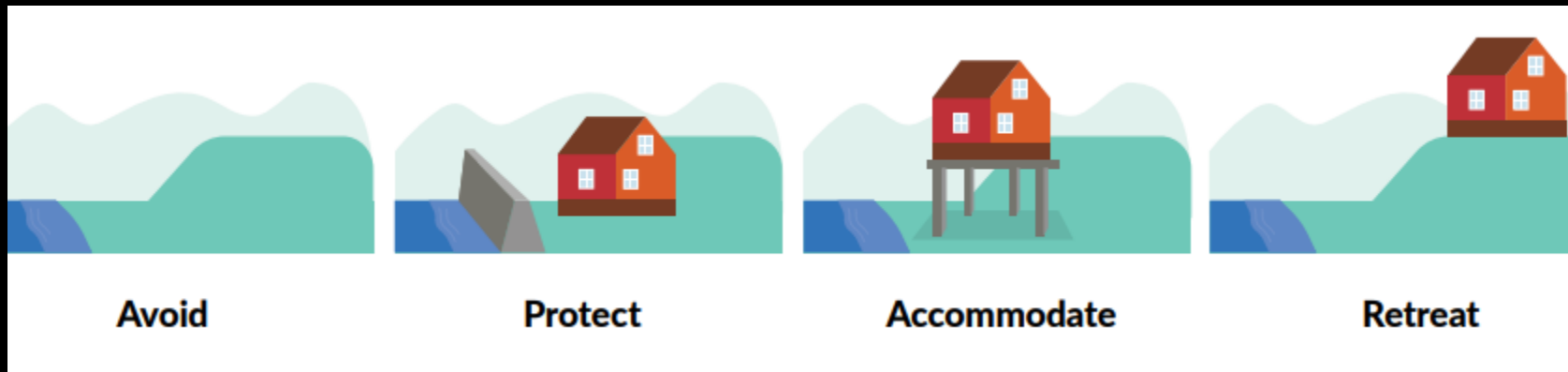
## STEP 3 – FINAL SELECTION

---

### FINAL SELECTION WILL BE BASED ON:

- Desire for a balanced mix of adaptations (planning versus future construction, short- versus long-term action, low-cost versus complex/expensive)
- Mix of quick wins and on-the-ground action, plus transformative adaptation to solve complex problems (if possible)
- Affordability and fit with project schedule

## II – DRAFT ADAPTATION CONCEPTS





# Application of PARRARH HIERARCHY to Increase Coastal Resilience

- Hierarchy starts with Preserve Natural Coastal Areas to increase resilience
- Final action is hardening shorelines with engineering structures

## PARRARH FRAMEWORK

1<sup>st</sup> Preserve Natural Coastal Areas

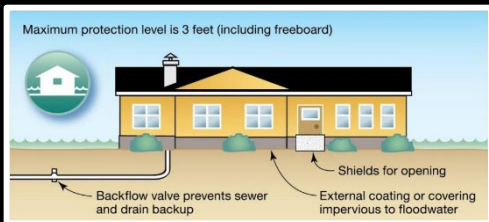
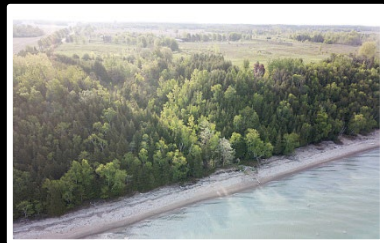
2<sup>nd</sup> Avoid Further Development on Hazardous Lands

3<sup>rd</sup> Retreat from Hazards and Re-align Land Use

4<sup>th</sup> Accommodate Coastal Hazards

5<sup>th</sup> Restore with Nature-based Coastal Solutions

6<sup>th</sup> Harden with Engineering Structures



## ◆ Description:

- The Municipality of Leamington is leading this adaptation to investigate flood vulnerability in the watershed, which is 3,810 hectares in size. Recommendations will be generated to reduce future flood risk to rainfall and coastal flooding.

## ◆ Rationale:

- The watershed has high flood risk and further development is planned.
- Other threats from the watershed include nutrient runoff which negatively impacts water quality and ecosystems.
- This adaptation project will serve as a blueprint for similar studies in other area watersheds.

## ◆ Who Would be Involved?

- The Municipality of Leamington, technical professionals, and all interested landowners and stakeholders.

## ◆ Timeline:



## ◆ Maps and Photos:

Sturgeon Creek jetties



Sturgeon Creek watershed area



## ◆ Yr2 Activities & Outcomes:



PLANNING INVESTIGATION



TECHNICAL ANALYSIS



SUPPORTS COASTAL STEWARDSHIP



CONCEPT DEVELOPMENT



ACTION / IMPLEMENTATION

## ◆ Area of Influence:

- The Sturgeon Creek Watershed.

## ◆ Year 2 Costs:



Draft Concept Version: v20250210



### ◆ Description:

- Leverage the recently updated erosion and flood hazard mapping to identify infrastructure at risk, including water plants, sewage treatment plants, police/fire/ambulance stations, hospitals, etc. At risk natural assets, such as beaches, coastal wetlands, and woodlots, would also be identified. Emergency access on roads during the 100-year flood would also be assessed.

### ◆ Rationale:

- The value of buildings and contents vulnerable to the 100-year flood is \$838 million (when climate change is not considered).
- The land, buildings, and contents vulnerable to erosion in the next 100-years is \$1 billion (when climate change is considered).
- The most vulnerable communities, infrastructure, and natural capital would be documented. Year 3 could focus on concept development to reduce risks.

### ◆ Who Would be Involved?

- Towns, Municipalities, County, emergency responders, landowners, stakeholders, and other interested parties.

### ◆ Timeline:

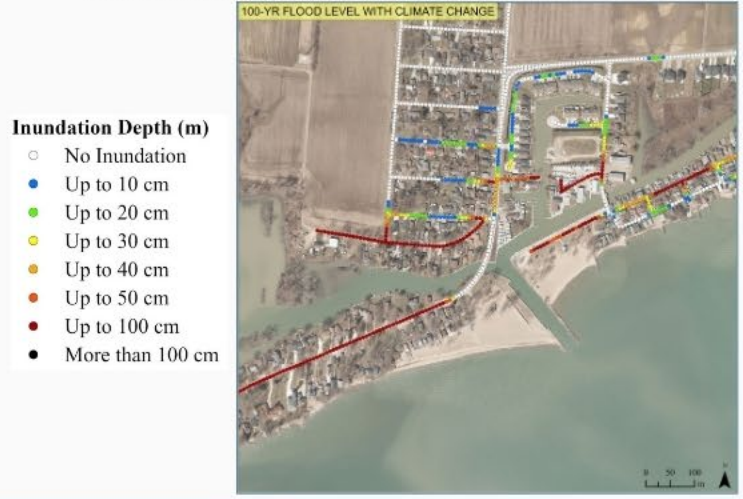


### ◆ Maps and Photos:

High lake levels flood roads and buildings



Depth of road flooding for 100-year Climate Change flood



### ◆ Yr2 Activities & Outcomes:



PLANNING INVESTIGATION



TECHNICAL ANALYSIS



SUPPORTS COASTAL STEWARDSHIP



CONCEPT DEVELOPMENT



ACTION / IMPLEMENTATION

### ◆ Area of Influence:

- Pelee East and Pelee West littoral cells.

### ◆ Year 2 Costs:



Draft Concept Version: v20250210





## ◆ Description:

- Develop guidance and fact sheets in consultation with stakeholders and landowners on best practice for protecting natural coastlines, locating new development away from coastal hazards, nature-based restoration, slope stabilization, floodproofing, reducing erosion rates, and design considerations for shoreline hardening.

## ◆ Rationale:

- There were requests for guidance at the Fall Workshops on successful examples of mitigating coastal hazards, implementing nature-based solutions, and other innovations.
- Manuals and guidance document exist, but would benefit from customization with local data and examples.
- The material could be developed and delivered in Year 2, representing early progress on building coastal resilience.

## ◆ Who Would be Involved?

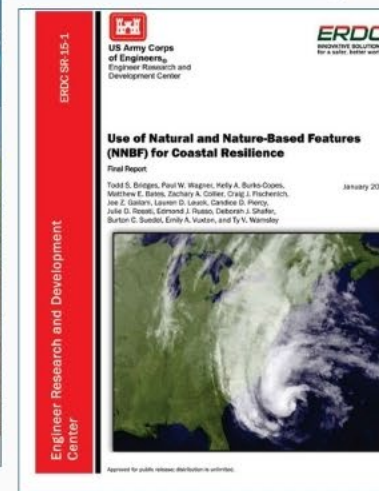
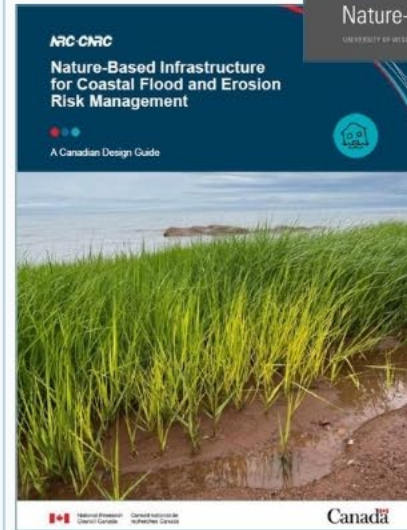
- The Consulting Team would lead the development of the materials with support from the Committee and feedback from all interested parties.

## ◆ Timeline:



## ◆ Maps and Photos:

Example of existing guidance documents that may have relevant examples for the two littoral cells



## ◆ Yr2 Activities & Outcomes:



PLANNING INVESTIGATION



TECHNICAL ANALYSIS



SUPPORTS COASTAL STEWARDSHIP



CONCEPT DEVELOPMENT



ACTION / IMPLEMENTATION

## ◆ Area of Influence:

- Pelee East and Pelee West littoral cells.

## ◆ Year 2 Costs:



Draft Concept Version: v20250210



## ◆ Description:

- Select suitable coastal locations for in-situ nurseries to propagate native grasses and shrubs for beach and barrier beach restoration. Native seeds would also be grown in greenhouses in a controlled environment.

## ◆ Rationale:

- There are no commercial sources for native beachgrass, which is the superior dune builder for restoration projects in the Great Lakes.
- Existing commercial sources are distributing non-native beachgrass, which is invasive to the Great Lakes.
- Native grasses, shrubs, and trees are needed for nature-based restoration projects.

## ◆ Who Would be Involved?

- Interested land managers with suitable beach properties, greenhouses, and interested stakeholders.

## ◆ Timeline:



## ◆ Maps and Photos:

Example in-situ nursery after planting and three growing seasons later

After planting (Fall 2021)



Dune Restoration as of Fall 2024



## ◆ Yr2 Activities & Outcomes:



PLANNING INVESTIGATION



TECHNICAL ANALYSIS



SUPPORTS COASTAL STEWARDSHIP



CONCEPT DEVELOPMENT



ACTION / IMPLEMENTATION

## ◆ Area of Influence:

- Pelee East and Pelee West littoral cells.

## ◆ Year 2 Costs:



Draft Concept Version: v20250210



# Evaluate Opportunities for Nature-based Restoration and Connectivity Projects

## ◆ Description:

- Identify locations where nature-based restoration in the coastal area could increase resilience to natural hazards, de-risk coastal communities, and improve habitat connectivity.

## ◆ Rationale:

- Nature is resilient to natural hazards, so restoring habitat will increase coastal resilience in the two littoral cells.
- Existing coastal habitat is fragmented and connectivity is poor.
- Explore components of a community-approved approach to change land use over time and adjust taxation policies. These topics and others could be explored with landowners and land managers.

## ◆ Who Would be Involved?

- Local planning authorities, conservation authorities, landowners, First Nations, and any other interested parties.

## ◆ Timeline:



## ◆ Maps and Photos:

Barrier Beach Ecosystem at Point Pelee National Park



Barrier beaches protect sensitive wetlands from lake wave energy and potential erosion.

## ◆ Yr2 Activities & Outcomes:



PLANNING INVESTIGATION



TECHNICAL ANALYSIS



SUPPORTS COASTAL STEWARDSHIP



CONCEPT DEVELOPMENT



ACTION / IMPLEMENTATION

## ◆ Area of Influence:

- Pelee East and Pelee West littoral cells.

## ◆ Year 2 Costs:



Draft  
Concept Version:  
v20250210



## ◆ Description:

- Technical studies to investigate the benefits of constructing large shore-perpendicular habitat shoals at the tip of Point Pelee National Park. The shoals would be designed to enhance nearshore fish habitat and trap sand on the east and west side of the tip at the park.

## ◆ Rationale:

- The shoals would trap sand that otherwise would be lost to deep water in the Southeast Shoal with a nature-based solution.
- The height of the shoals would permit some sand to pass and maintain a sandy tip feature for park visitors.
- The trapped sand north of the shoals would increase beach width and reduce the rate of habitat loss.

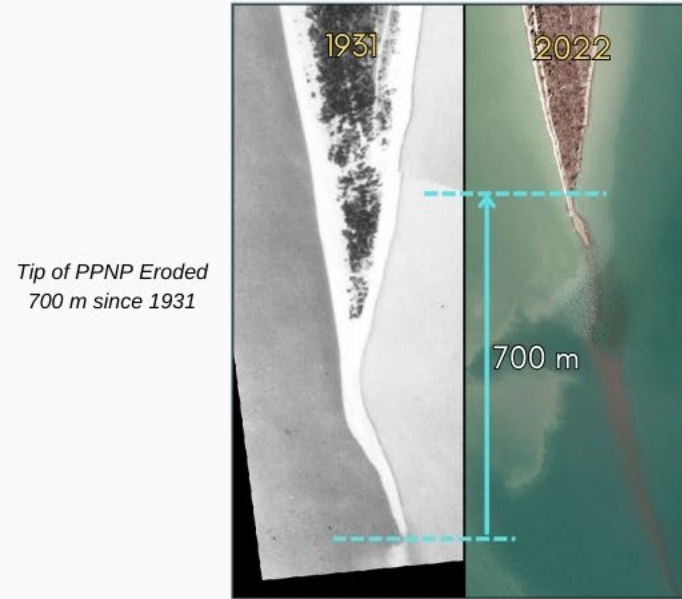
## ◆ Who Would be Involved?

- Parks Canada and Point Pelee National Park staff, public and stakeholders, First Nations, and regulatory agencies that have authority for modifications to the lake bottom (e.g., Ministry of Natural Resources, Department of Fisheries and Oceans, and Transport Canada).

## ◆ Timeline:



## ◆ Maps and Photos:



Tip of PPNP Eroded 700 m since 1931

Example of rock shoals at the tip of a sand spit



## ◆ Yr2 Activities & Outcomes:

- PLANNING INVESTIGATION
- TECHNICAL ANALYSIS
- SUPPORTS COASTAL STEWARDSHIP
- CONCEPT DEVELOPMENT
- ACTION / IMPLEMENTATION

## ◆ Area of Influence:

- The coastal area of Point Pelee National Park.

## ◆ Year 2 Costs:



## ◆ Description:

- Evaluate in-lake sand deposits for future beach nourishment projects.

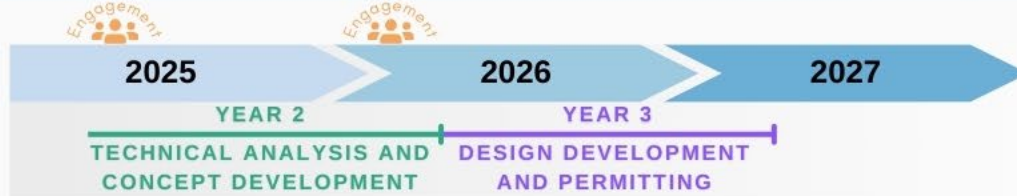
## ◆ Rationale:

- There is enough sand in the Southeast Shoal to fill the Rogers Centre baseball stadium more than 30 times (more than 50 million m<sup>3</sup>). If technical studies show sand could be relocated without negative impacts, it could be used for beach building in the littoral cells.
- The shoal west of Kingsville Harbour contains 1.7 million m<sup>3</sup> of sand (enough to fill the Rogers Centre once). Dredging and relocating this sand for beach building would improve local circulation and nearshore water quality.

## ◆ Who Would be Involved?

- Local landowners, the Province of Ontario (owner of the lake bottom), Conservation Authorities, regulatory agencies (provincial and federal), stakeholders and interested parties.

## ◆ Timeline:



## ◆ Maps and Photos:

Location of sand shoal west of Kingsville Harbour



Southeast Shoal extent south of Point Pelee National Park



## ◆ Yr2 Activities & Outcomes:

- PLANNING INVESTIGATION
- TECHNICAL ANALYSIS
- SUPPORTS COASTAL STEWARDSHIP
- CONCEPT DEVELOPMENT
- ACTION / IMPLEMENTATION

## ◆ Area of Influence:

- Pelee East and Pelee West littoral cells.

## ◆ Year 2 Costs:



Draft Concept Version: v20250210



## ◆ Description:

- Investigate current placement protocols for sediment dredged at harbours and evaluate whether alternative locations would keep more of the sand resources along the coast for beach building. Collaboration can lead to innovative action.

## ◆ Rationale:

- Shoreline hardening has reduced the natural supply of new sand and pebbles to build beaches in the two littoral cells.
- Harbours trap sand and reduce the natural flow of sediment along the coast.
- The current practice of dumping some of the dredged sand in deep water further reduces sediment supply needed for healthy and resilient beaches.
- Relocating the sand to shallow water will address the existing sediment deficit and increase the resilience of existing beaches.

## ◆ Who Would be Involved?

- Harbour and marina owners and managers, plus regulatory agencies that review dredged sediment placement permits.

## ◆ Timeline:



## ◆ Maps and Photos:

Land-based mechanical dredging at Wheatley



Wheatley dredged sediment placed on the beach at the Hillman Marsh

## ◆ Yr2 Activities & Outcomes:

	PLANNING INVESTIGATION
	TECHNICAL ANALYSIS
	SUPPORTS COASTAL STEWARDSHIP
	CONCEPT DEVELOPMENT
	ACTION / IMPLEMENTATION

## ◆ Area of Influence:

- Pelee East and Pelee West littoral cells.

## ◆ Year 2 Costs:



## ◆ Description:

- Document harbour construction history, changes in the size of adjacent beaches, and review existing management approaches to sedimentation and dredging.
- Investigate alternatives to bypass additional sediment at the harbours, reduce sedimentation where possible, and document regulatory agency requirements to implement potential projects.
- Detailed computer modelling at harbours and ports.

## ◆ Rationale:

- The harbours have trapped large volumes of sand in their adjacent beaches. Prior to the harbours, the sand moved along the coast naturally.
- The resilience of beaches and in particular barrier beach ecosystems is very low due to limited natural sediment delivery along the coast.

## ◆ Who Would be Involved?

- Harbour and marina owners and managers, plus regulatory agencies that review dredging and sediment placement permits.

## ◆ Timeline:



## ◆ Maps and Photos:



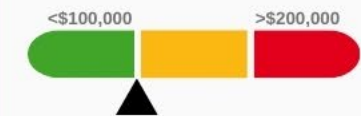
## ◆ Yr2 Activities & Outcomes:



## ◆ Area of Influence:

- Pelee East and Pelee West littoral cells.

## ◆ Year 2 Costs:



# III – QUESTIONS AND YOUR ADAPTATION IDEAS





# IV – EXIT SURVEY AND NEXT IN-PERSON PUBLIC MEETINGS

Please Complete the Exit Survey

Your ideas and  
opinions are  
important!



Scan the QR Code above  
using your phone camera to  
complete the survey online.

Wheatley – April 14, 2025

Kingsville – April 15, 2025