



LIVING SHORELINE

Community Engagement Session 1

Date: July 22nd, 2025

Presenters: Town of Annapolis Royal,
Clean Foundation, CARP, EC Atlantic Ltd., and CBWES



PROJECT OVERVIEW

01

Project Goal:

Enhance coastal resilience by creating a living shoreline

02

Location:

Annapolis Royal Waterfront between Amphitheatre and Town Wharf

03

Project Timeline:

2025-2027

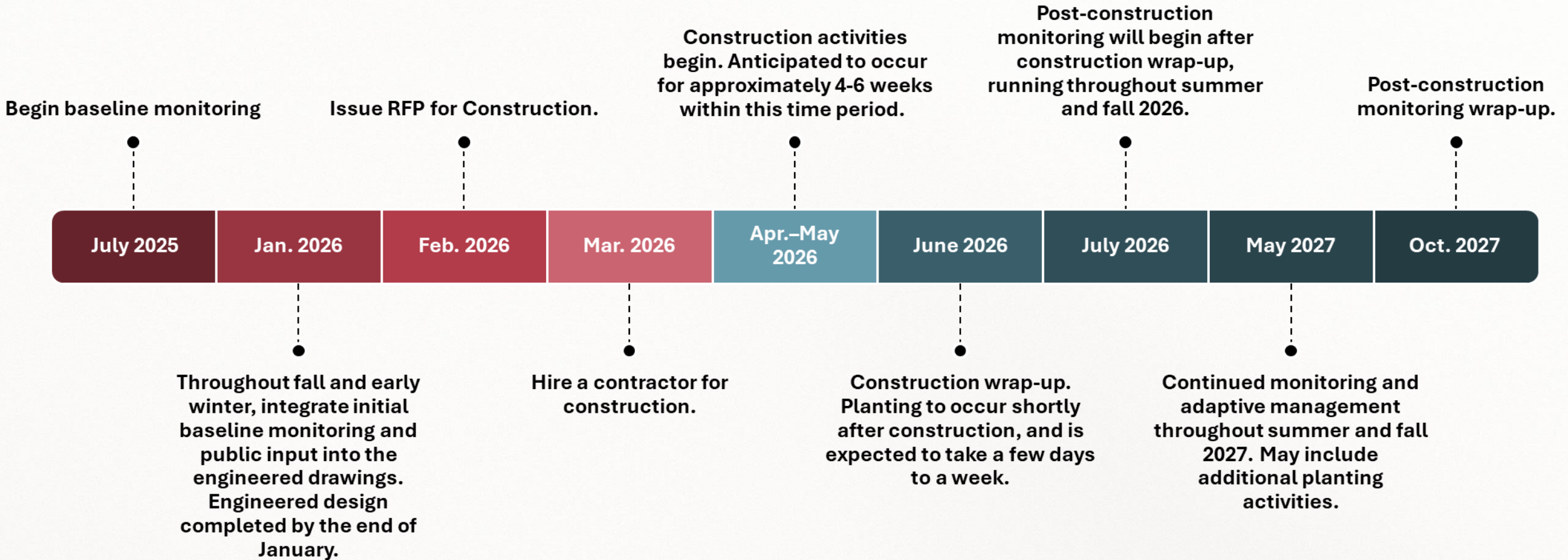
04

Why:

Protect the Waterfront from coastal erosion, wave action, and expand salt marsh habitat



ESTIMATED TIMELINE



WHAT IS A LIVING SHORELINE

A living shoreline is a protected, stabilized coastal edge made of natural materials such as plants, sand, or rock. (NOAA)

A hybrid living shoreline combines natural elements like salt marsh, and coir logs with built structures such as rock sills to reduce wave energy and stabilize the coast.

Why?

Unlike a concrete seawall or other hard structure, which impede the growth of plants and animals, living shorelines grow over time. They are an innovative and cost-effective technique for coastal management.

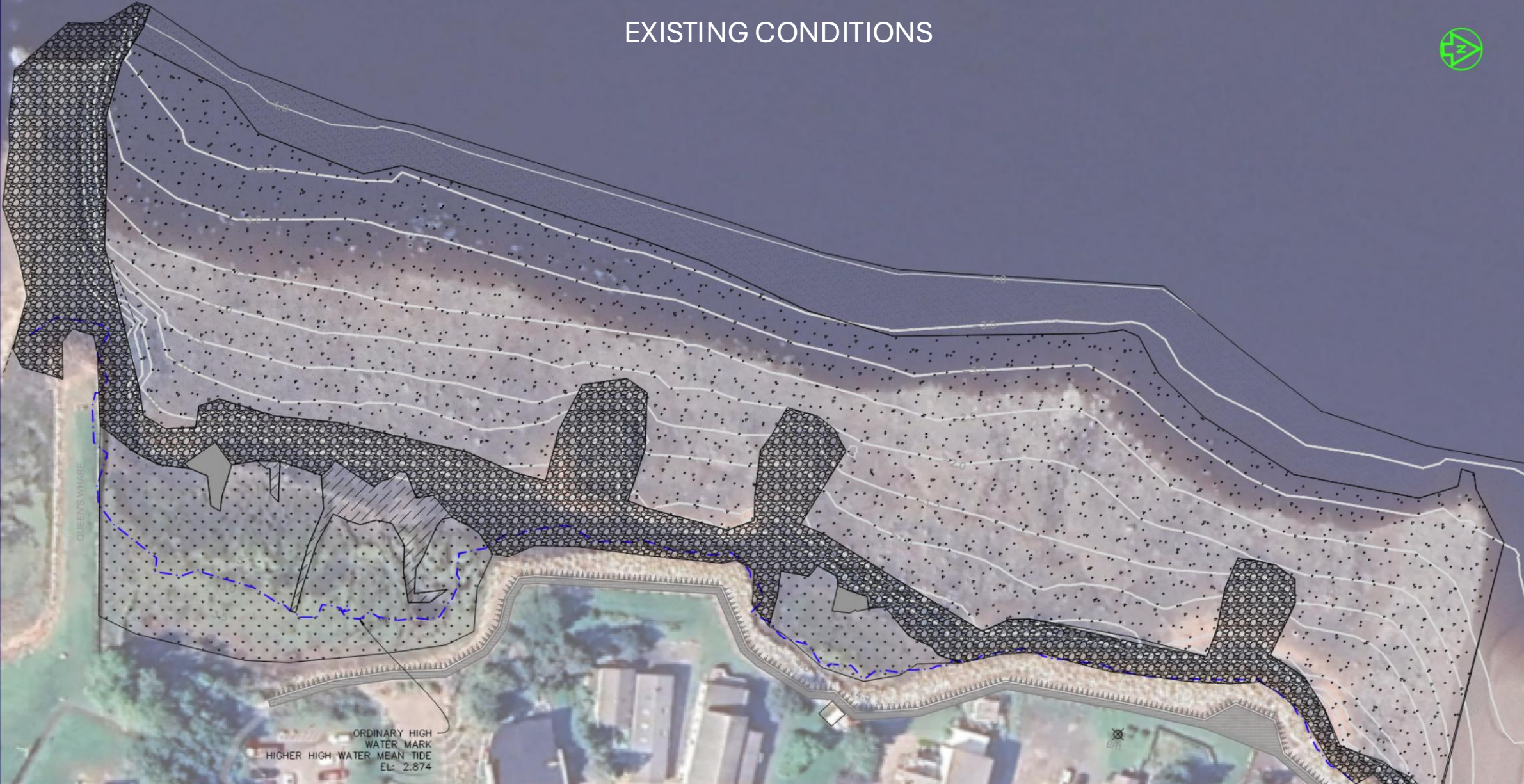


DESIGN GOALS

- ▶ Reverse erosive processes
- ▶ Increase sand (beach) and silt (marsh) deposits
- ▶ Increase marshland habitat area
- ▶ Reduce wave energy / height
- ▶ Maintain beach access



EXISTING CONDITIONS



PROPOSED CONDITIONS

Tide Calculations

Digby Tide Gauge

<https://www.tides.gc.ca/en/stations/325>

Elevation Conversion

https://atbepc.com/srs/refer/moon.gc.ca/pdf/data_downloads/moonreport.pdf?td=0803

Benchmark at Annapolis Town Hall

Conversion Factor Chart to CGVD28

-4.429

Conversion Factor CGVD28 to CGVD2013

-0.637

TIDE CASE	Abbrev.	Chart Datum	CGVD28	CGVD2013
Highest Astronomical Tide	HAT	9.380	4.951	4.314
Higher High Water Large Tide	HHWLT	9.170	4.741	4.104
Higher High Water Mean Tide	HHWMT	7.940	3.511	2.874
High Water Level	HWL	7.800	3.371	2.734
Mean Water Level	MWL	4.540	0.111	-0.526
Low Water Level	LWL	1.250	-3.179	-3.816
Lower Low Water Mean Tide	LLWMT	1.130	-3.299	-3.936
Lower Low Water Large Tide	LLWLT	-0.160	-4.589	-5.226
Lowest Astronomical Tide	LAT	-0.350	-4.779	-5.416

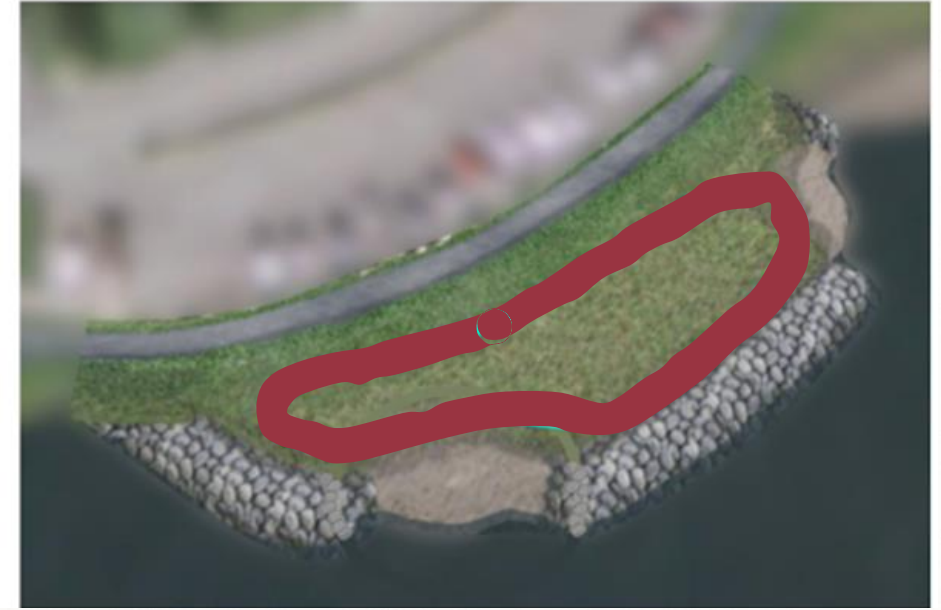


LIVING SHORELINE COMPONENTS



Rock Sills

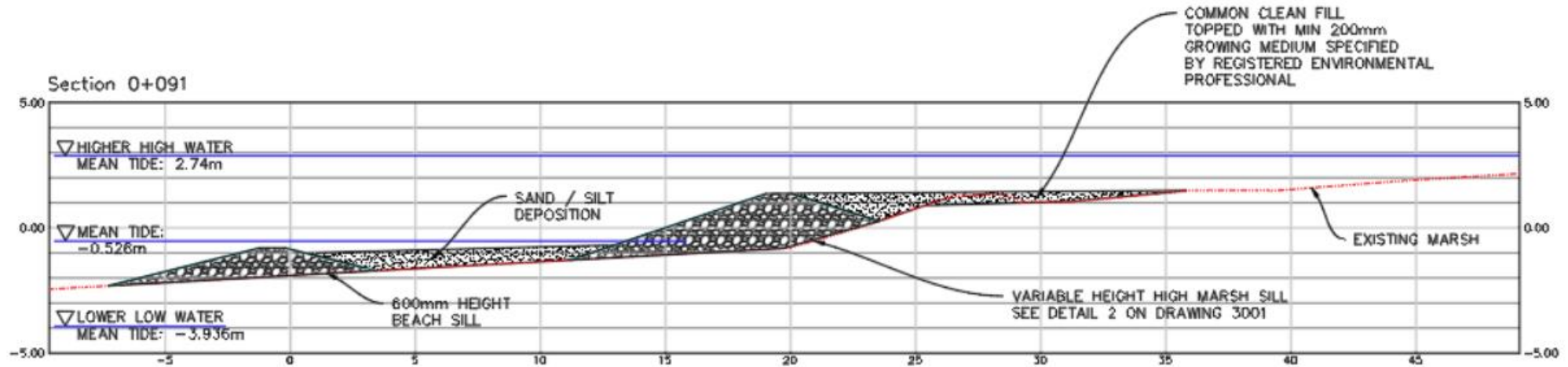
A hard engineering structure that runs parallel to the shoreline. Rock sills help reduce wave energy and storm surge impact



Tidal Wetlands

Fills the area between the rock sill and the shoreline with planted native species. Tidal wetlands naturally filter stormwater runoff, reduce storm surge and wave energy. They also create habitat for fish and bird species.

SECTIONS THROUGH SILLS



WHAT A LIVING SHORELINE WILL NOT DO

- ▶ Decrease high water flooding during storm surge
- ▶ Increase high water flooding during storm surge
- ▶ Retain surface water or impede runoff drainage
- ▶ Protect against sea-level rise
- ▶ Block access to the beach



MONITORING PLANS

► Monitoring

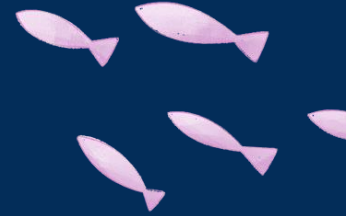
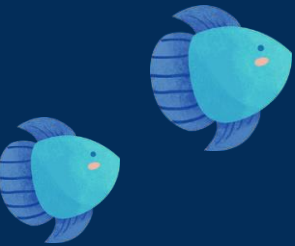
- Drone flights
- Ground surveys (vegetation, sediments, elevations, site layout)
- Fish surveys (CARP)
- Bathymetry (mapping ocean floor)
- Water level and wave logger deployment
- Post-construction monitoring



FISH MONITORING

▶ Clean Annapolis River Project (CARP)





BENEFITS OF A SALT MARSH

01

Salt marshes are coastal wetlands that are flooded and drained by tidal water, or influenced by salt spray or seepage. They are some of the most productive and biodiverse ecosystems, both locally and globally.

02

Salt marshes are unsung heroes in the fight for climate change mitigation and adaptation. These ecosystems absorb and store vast amounts of carbon dioxide, sequestering the harmful greenhouse gas from the atmosphere.

03

Salt marshes are rich in biodiversity, serving as shelter for young wildlife and fish. They provide waterfowl and shore birds with critical habitat and are essential for healthy fisheries, coastlines, and communities - making them an integral part of our economy and culture.

04

Salt marshes invaluable protect coastal communities against storm surges and flooding, maintain water quality and quantity, shield from erosion, and support recreational activities.



FISH SAMPLING TECHNIQUES

01

Fyke Nets



02

Beach Seine



03

Eel Pots

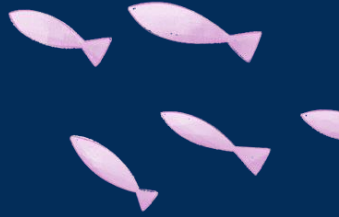
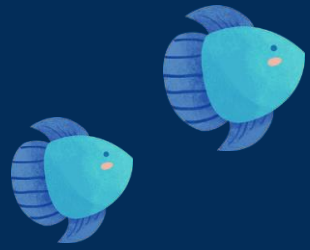


TIMELINE

2025: JULY - NOVEMBER (MONTHLY)

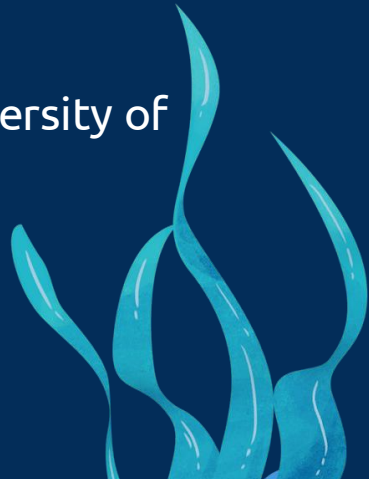
2026: MAY - SEPTEMBER (MONTHLY)





WHAT DOES SAMPLING TELL US?

- **Species identification and abundance.**
 - Beach seining and fish trapping allows for the collection and identification of fish species
 - Researchers can count the number of individuals of each species to determine their relative abundance.
- **Monitoring changes over time**
 - Beach seining can be conducted repeatedly over time in the same area to track changes in fish populations.
 - This is useful for monitoring the effects of environmental changes, fishing pressure, or the success of conservation efforts.
- **Assessment of ecosystem health:**
 - The information gathered from beach seining can be used to assess the health and biodiversity of coastal ecosystems.





BENEFITS



Reduction in Wave Heights



Restore Habitat



Improve Water Quality



Enhance Views and Shoreline Aesthetics



Can Support Future Works



Maintain Public Access



Ability to Recover from Storms



Majority of Funding Through Grants

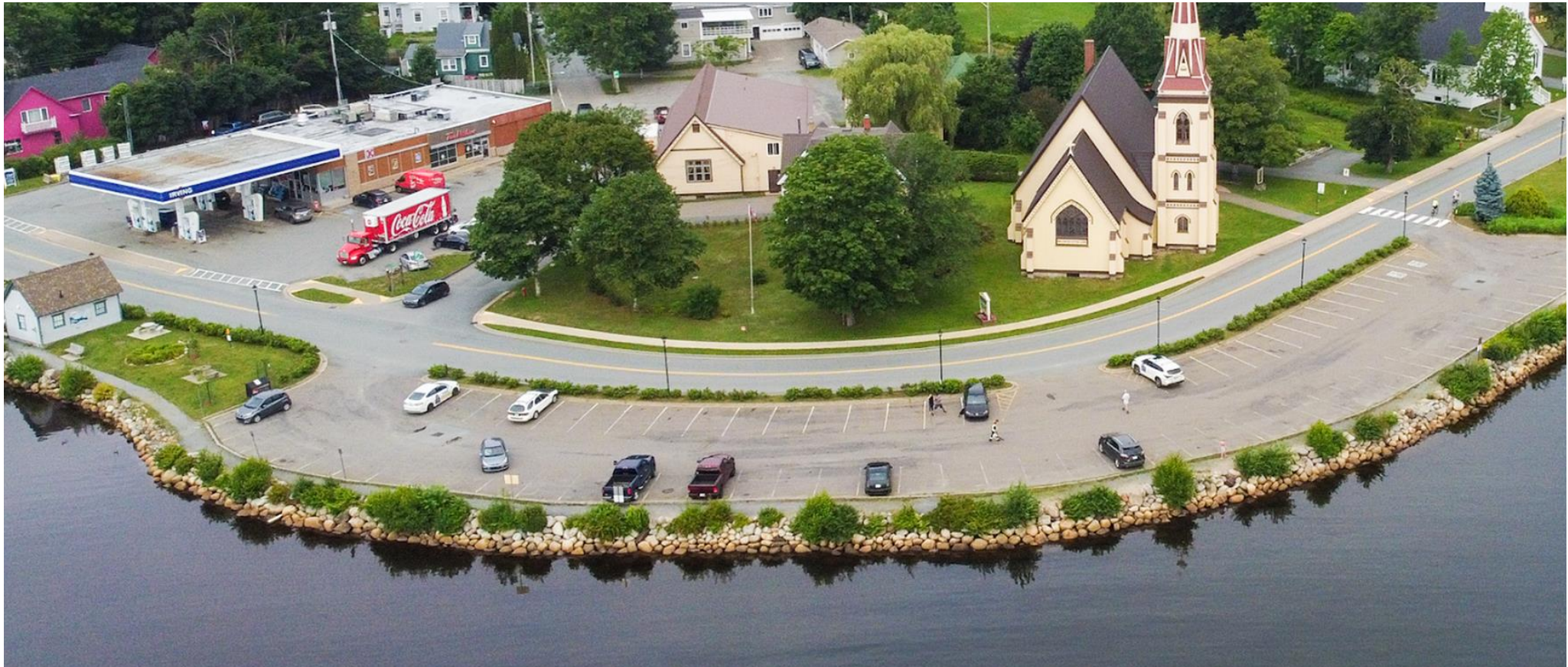


Climate Adaptation Learning Opportunity



Enhance Wildlife Viewing Opportunities

PROJECT SPOTLIGHT



MAHONE BAY LIVING SHORELINE





2023

2023 PHOTOS

Photo Credit: Coastal Action



PROJECT SPOTLIGHT



CHAISSON SPIT OFFSETTING PROJECT

TRIED AND TESTED

A long history of Living Shorelines



Extensive Knowledge

Experience implementing other Living Shorelines in the region, and from over two decades of work on the Bay of Fundy



Researched

Lots of examples to draw from, and extensive research showing effectiveness



Legislative Backing

They have been so effective, they are now the preferred method of shoreline protection in Maryland (and chosen over other traditional "grey" infrastructure methods)



QUESTIONS FOR US?



QUESTIONS FOR YOU:

What is important to you?

What do you value about the area?

Do you have any insights you'd like to share on the local conditions?

What else would you like to see as part of this project?

Looking for input on access, a potential sculpture idea, etc.

