

# Maryland Environmental Trust 2023 Roundtable

June 28, 2023

Crownsville, Maryland

Overview of the Chesapeake and Coastal Service Center for Habitat  
Restoration Conservation

A background on resources and technical assistance available  
to Maryland property owners for shoreline and  
stream bank erosion problems



# Chesapeake and Coastal Service Center for Habitat Restoration and Conservation (HRC)

***Core mission:***

***HRS staff provides technical, financial and public outreach assistance to local governments, communities and NGOs to further Chesapeake and Atlantic Coastal Bay water quality and habitat restoration and community engagement goals***



# HRC has three primary focus areas

- 1. Community Restoration**
- 2. Restoration Science**
- 3. Shoreline Conservation Service**





# HRC Community Restoration

- Working with citizens groups throughout Maryland to engage the public in Bay restoration planning efforts and implementation – Corsica River Watershed Project / The Choptank River Initiative
- Implementing innovation restoration projects in neighborhoods - like Cattail Creek Stream Restoration in Berrywood Severna Park, The Pines on the Severn Living Shoreline, and St Luke's Restoration of Nature Project in Annapolis.
- Conducting technical trainings via the Maryland Stream Exchanges and educational webinars on innovative restoration approaches.
- Coordinates with Maryland DNR Land Acquisition and Planning Program to ensure land acquisition proposals under review are paired with ecological restoration projects opportunities when feasible

# HRC Restoration Science



- Informs the design & construction of on-the-ground restoration projects
- Exploration and improvement of restoration science, informs adaptive management through robust scientific restoration monitoring
- Provides technical advice to our partners throughout Maryland and the Chesapeake Bay watershed, such as providing the leadership for the Chesapeake Bay Program Stream Health Working Group.

# The Shoreline Conservation Service



**Providing shoreline preservation and restoration technical and financial assistance and implementation of innovative ecological restoration practices to stand up to climate change**



# Shoreline Conservation Service Program

**Shore Erosion Control Program established in 1968**

**Program provides technical & financial assistance to waterfront property owners experiencing erosion**

**Technical assistance provided through site evaluations, assessments, and recommended solutions.**



Shore Erosion Control Law 1968



# What is a Living Shoreline?

Living shorelines are a **suite of techniques** used to reduce erosion and enhance habitat by restoring and/or enhancing natural features while maintaining coastal processes.

## Habitat & Natural Features

- Wetland
- Dune
- Beach
- Oyster



## Techniques

- Traditional Sill
- Groins
- Headland Breakwater
- Shingle Beach
- Biolog / Coir Fiber Log
- Oyster Castles



# Financial Assistance



## Shoreline Erosion Control Revolving Loan Fund (Zero-Interest)

- Funds design & construction
- Individuals, Community Organizations, Local Governments and NGO's are eligible to apply
- Term: 5-20 years
- Admin Fee (10-3%)
- Upfront cash contribution may be required
- Shore Erosion Control Lien or Special Taxing District

**LIVING SHORELINE PROJECTS ONLY**



**What's New  
This Year?**

Site Visit Request Form:  
<https://dnr.maryland.gov/ccs/pages/livingshorelines.aspx>

Request a Site Visit





# Technical Assistance



## Engaging with the public

- Do I need a permit to fix this? From where?  
How long is that process?
- My budget is tight, what should I do?
- Are there any grants available for private landowners like myself? I pay my fair share of taxes..
- My neighbor just installed a revetment and now my erosion problem has worsened.
- You'd think the state would want to fix this since they want to 'save the bay' and all.
- Is this something I can do myself?
- What do you mean I can't just add stone?
- What's a living shoreline?
- IT TAKES HOW LONG??
- IT COSTS HOW MUCH?!?

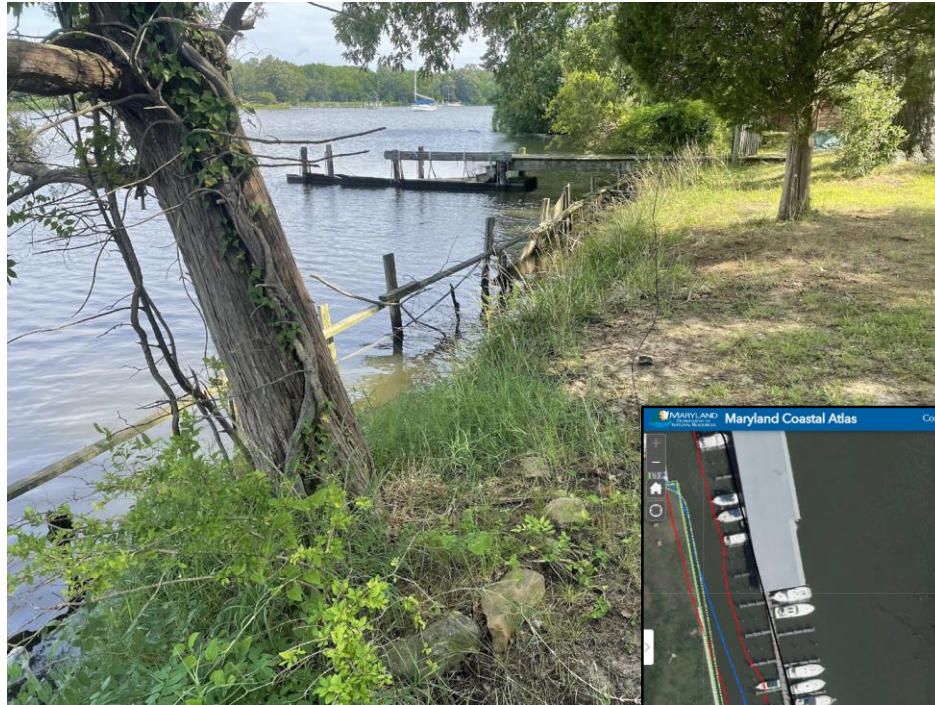




# Desktop Analysis & Site Evaluation

## Design Considerations:

- Fetch
- Orientation
- Wave Energies
- Salinity
- Existing Substrate
- Sediment Transport
- Water Depth
- Erosion Rates
- Slope
- Shading
- Sediment Transport
- Existing Land Use
- Upland Drainage
- Other Resource Impacts
- Project Goals
- Cost
- Property Ownership
- Etc.



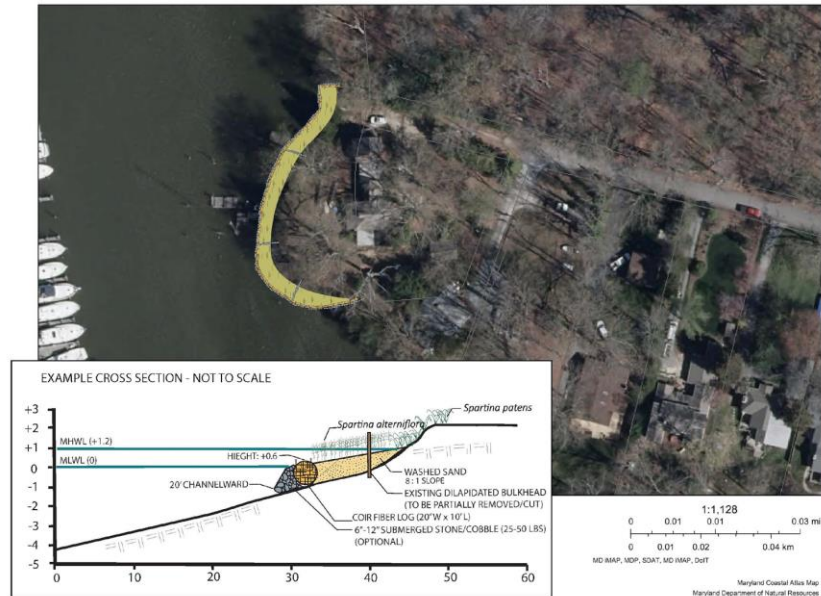
# Recommended Solutions

*Developing a path forward – from concept to reality*



1. Understand project goals
2. Develop partnerships
3. Identify funding opportunities
4. Share educational resources
5. Provide a path forward

Brocato Property Conceptual Sketch



## Department Climate Goals: Building Resilience to Climate Change Policy (2010)

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- The Department shall proactively pursue, design, and construct habitat restoration projects to enhance the resilience of the bay, aquatic and terrestrial ecosystems to the impacts of climate change and/or increase on-site carbon sequestration.
- DNR units that engage in habitat restoration projects shall address and incorporate factors associated with climate change during habitat restoration project planning and design processes, including maintenance and monitoring needs.
- DNR's Chesapeake & Coastal Service shall compile a compendium of best management practices for habitat restoration project design and conduct an audit of DNR-owned lands to identify habitat restoration potential for enhancing ecosystem resilience and/or increasing on-site carbon sequestration.

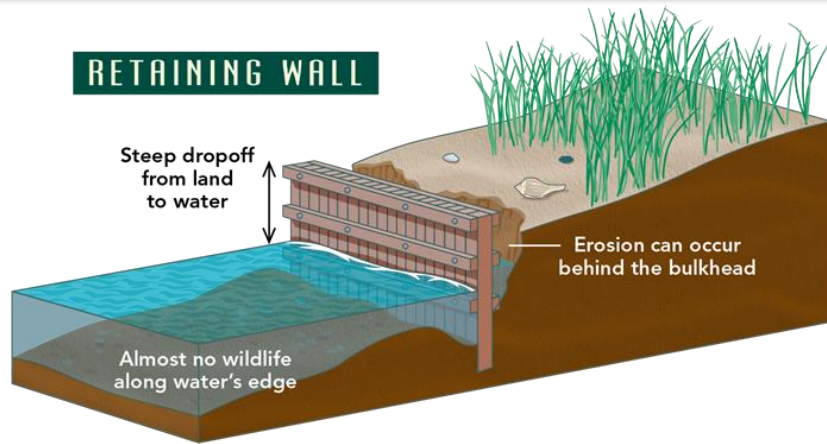


## Resilient Design Techniques

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- Maximize wetland vegetation to trap sand and attenuate waves (plantings on shoreline/headlands)
- Plan for marsh migration
- Select native vegetation that adapts to changes in salinity and elevation
- Balance structural and natural components (hybrid approaches can address higher fetch/erosion rates)
- Design open systems with gentle 10:1 slopes and strategic structures to absorb wave energy and facilitate accretion
- Incorporate sea level rise projections into the design; consider adding to structures over time as needed
- Evaluate sites holistically to address coastal and precipitation impacts
- Consider invasive species management / adaptive management

# Grey vs Green Infrastructure



'Hard' infrastructure like retaining walls abruptly severs the ecological connection between the coast and water.



Not only do Living Shorelines defend land against destructive waves, but they also provide crucial habitat for fish and wildlife.

## Structural Solutions

- Strongest day is the first day after construction – becomes **weaker over time**

## Nature-based Solutions

- If designed and built correctly, the weakest day is the first day in the ground - becomes **stronger over time**



- ✓ **Community Resilience**
- ✓ **Habitat**
- ✓ **Water Quantity**
- ✓ **Water Quality**
- ✓ **Public Access**

**Project Spotlight:**  
**West River**  
**Methodist Center**

- 885 linear-foot (vegetated breakwater + shingle beach) living shoreline
- 430 linear-foot Regenerative Stormwater Conveyance (RSC) Wetland
- Bulkhead replacement





Shingle Beach



Vegetated Headland Structures



Regenerative Stormwater Conveyance



## Coastal Storm Event:

October 29 - 30, 2021  
+4.9 feet of flooding  
55 mph wind gusts

4<sup>th</sup> highest flood level on record





**Maryland Shoreline  
Technical Assistance & Financing Opportunities:**

Chesapeake and Coastal Service Programs	Contact
Center for Habitat Restoration and Conservation Program	Claudia Donegan 410-260-8768
Shoreline Conservation Service (Loan) Shoreline Erosion Control Revolving Loan Fund	Wesley Gould 410-260-8812
Restoration Finance Chesapeake and Atlantic Coastal Bays Trust Fund	Kristen Fleming 410-260-8813
Chesapeake and Coastal Planning Resiliency Through Restoration (Grant)	Nicole Carlozo 410-260-8726

