

Keeping the "Living" in Living Shoreline Restoration Evolution of Shoreline Designs



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Examples of over engineered projects in low energy areas that impact wildlife habitat and expensive.

Right: Revetment fills in and reflects energy, results in scour and no shallow water habitat .



Left: Huge Stone Sill and wetland creation, no wildlife access.

Right: Bulkhead fills in and reflects energy, results in scour and no shallow water habitat .



The Physical dictates the Biological

Structures dictate:

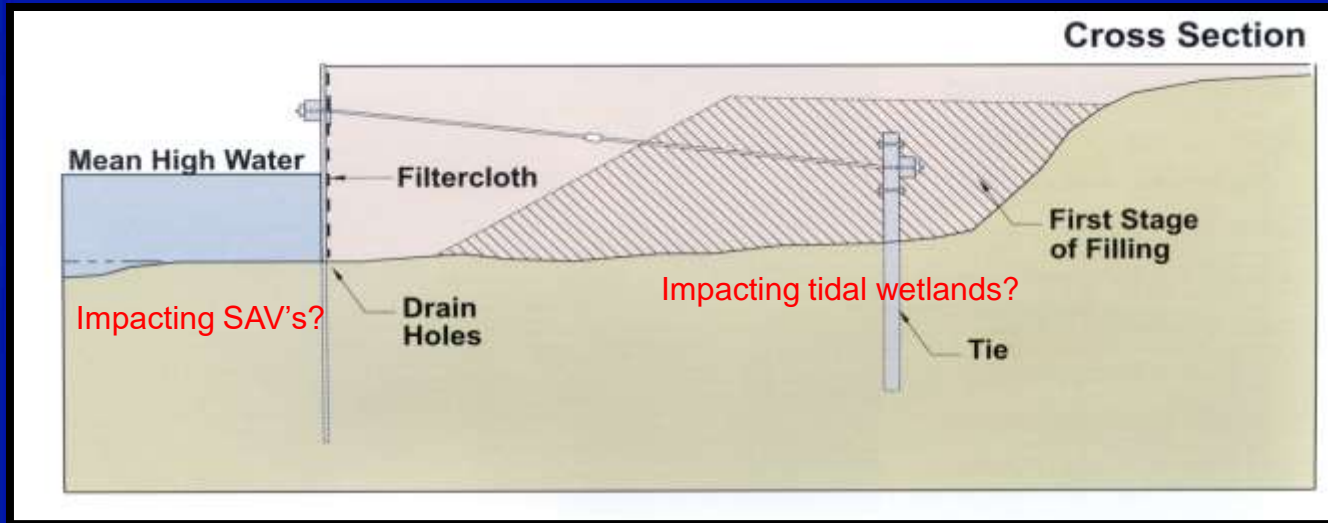
- Wave reflection and wildlife access
- Water depth where land meets water
- Water depth will dictate the vegetation, whether Tidal Wetlands or SAV's





Shoreline Protection vs. Shoreline Habitat

Timber bulkhead



Fill material often placed up to 4 feet high - impacting Tidal Wetland habitat

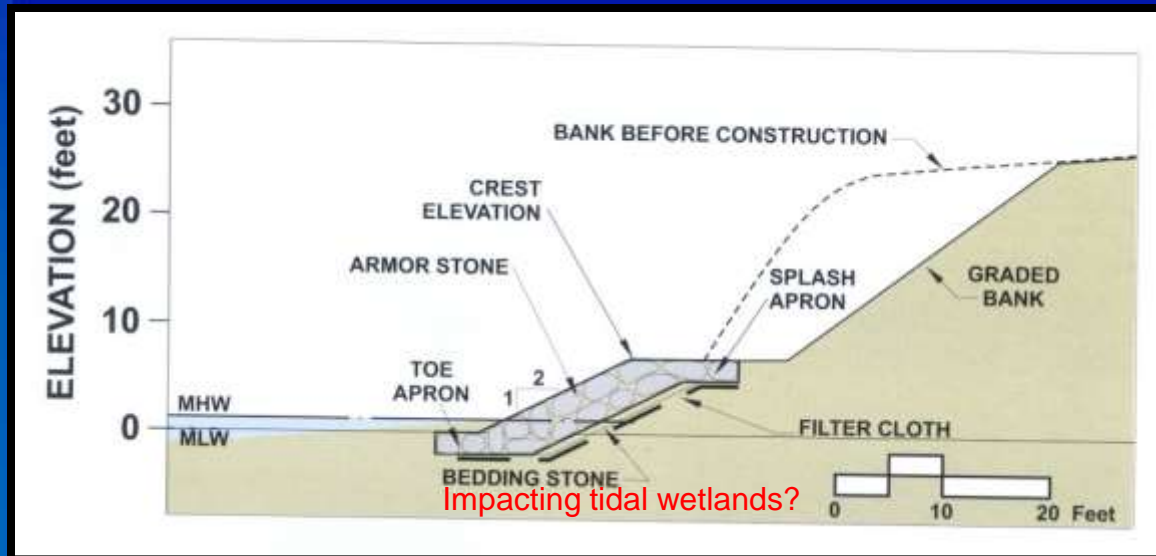
Waves reflect off bulkhead - impacting potential SAV habitat, also potentially undermine bulkhead.

Vertical wall - No water to land access for wildlife, Ex. turtles and horseshoe crabs





Shoreline Protection vs. Shoreline Habitat Stone Revetment

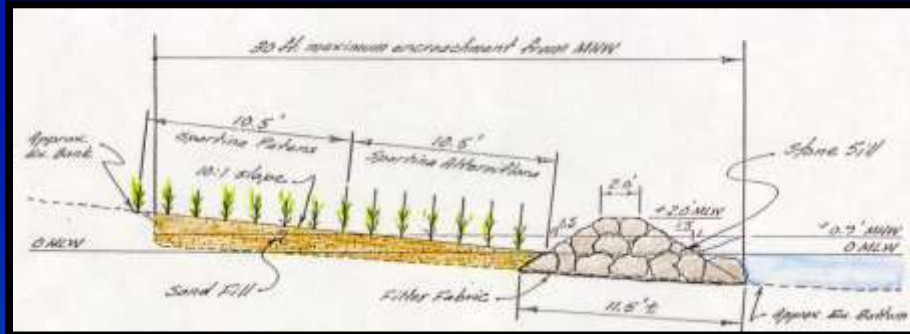


Fill and stone material - impacting potential Tidal Wetland habitat

Less wave reflection - less of an impact to potential SAV habitat

Stone armoring - No water to land access for wildlife, Ex. turtles and horseshoe crabs





Shoreline Protection vs. Shoreline Habitat

Stone Sill - Living Shoreline?



Small notch for wildlife functional?

Stone with fill material - Create and/or restore tidal wetlands, maintains plant elevation

Less wave reflection - less of an impact to potential SAV habitat

Little water to land access for wildlife, Ex. turtles and horseshoe crabs

Potential wildlife killing zone, wildlife may get in but not out

Attempt to provide wildlife access with minor notch in stone

Shoreline Protection vs. Shoreline Habitat

Segmented Sill -

Tidal wetlands, large openings for wildlife and minimal SAV impacts.



Right:
Living Shoreline
Medium Energy



Living Shoreline Demonstration project

Bulkhead removal

Low temporary sand containment w/biologs

Tidal wetlands, SAV's, and wildlife access throughout.

June



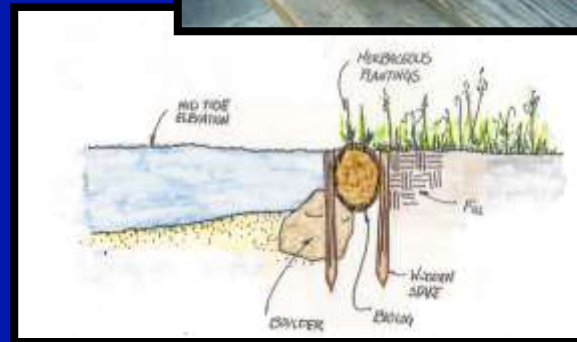
July



July



August



Think Holistically

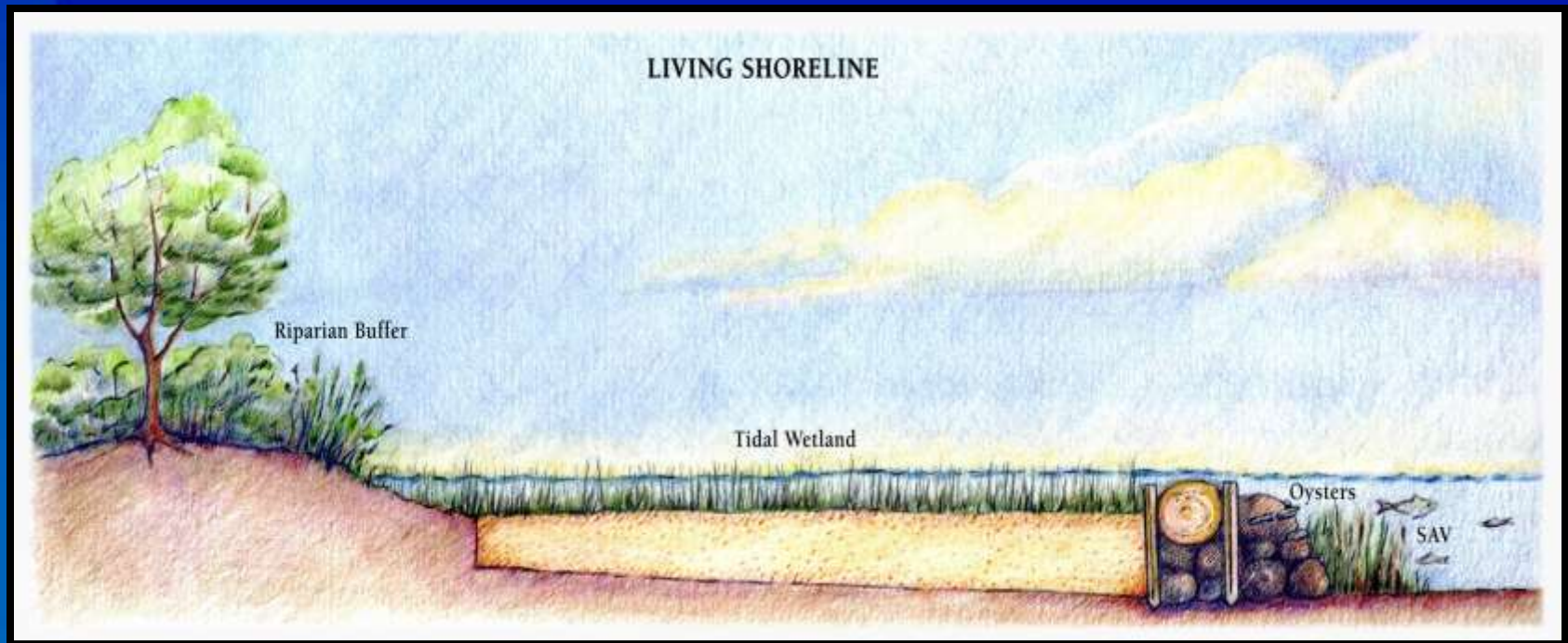
Potential Components of a Living Shoreline Restoration Project

Riparian Buffer

Tidal Wetlands

Oysters

SAV's



Provide Erosion Control, Water Quality Filter, Fish & Wildlife Habitat





Biological Monitoring
St. John's College
This summer - 10 years later



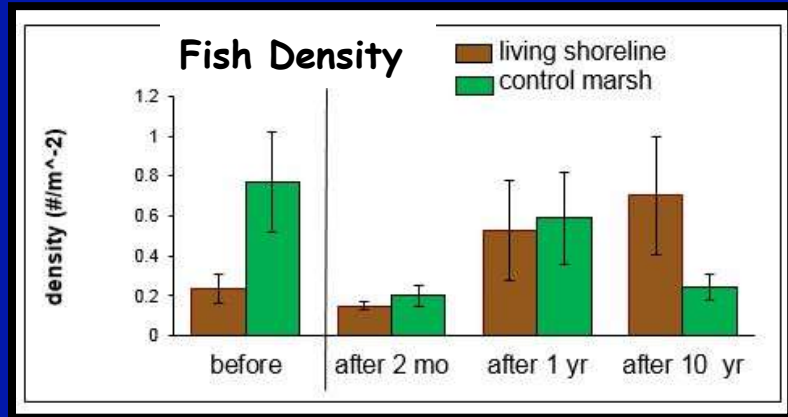
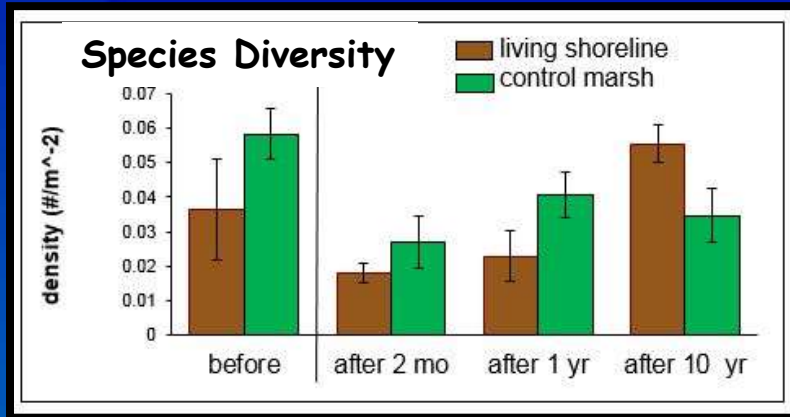
Each sample was 20 meters long.

Every fish was counted
and measured.



Living Shoreline Biological Monitoring - Fish Density & Species Diversity

St. John's College Project



Project site was compared to a "control" marsh and itself over time.

Species Diversity & the Number of Fish increased at the project site.

Data crunching done by project partner;
Jana Davis from Chesapeake Bay Trust





Demonstration Project

- Highly visible from major road
- Close to Dept. of Natural Resources & State House

CBF - Advocacy at the MD State Legislature

Living Shoreline Protection Act of 2008



Maryland Department of the Environment (MDE)

Prioritizes marsh creation and other nonstructural shoreline stabilization measures that preserve the natural environment.

The intent is good as it encourages Living Shorelines.

However, ~70 % of permit applications have received waivers

Much work to be done to improve process, perhaps too narrowly defined?

This legislative session a tax break bill proposed for doing Living Shorelines
Provide benefits to landowners that have stream / wetland resources.

Ex. Farmers receive conservation funds for work along streams, etc.

