Peconic Estuary Partnership

Label a Living Shoreline!

What role does each animal, plant, or material play in a living shoreline?
Building living shorelines to adapt to climate change makes our coastal communities resilient to erosion, sea level rise, and strong storms. Each element plays a role - whether that is strengthening the shoreline, making the environment healthier, or simply being a part of the ecosystem. Write the role for each below and label them in the diagram. Think about why each element is necessary and how it would behave towards things like wind, waves, flooding, and sea level rise, or consider if the element relies on a natural shoreline and why. Also think about how each element may interconnect with the others. Put your science & engineer hats on!

Ribbed Mussel
These bivalves attach to sediments, plants, and other structures using little fibers called bistle threads that help to stabilize a shoreline and prevent erosion. They build upon each other to help increase the height and size of the marsh, allowing it to grown inland as sea level rises with climate change. Addtiionally, they also help improve water quality by filter feeding on particles and excess nutrients.

Spartina alterniflora
This beach grass, otherwise known as smooth cordgrass, is a salt-tolerant plant that can survive being below the high-tide line. It provides important habitat for shellfish and other marine animals, and it is also important for stabilizing shorelines by holding sediment in place with its roots.

American Beach Grass
This native beach plant grows above the high tide line and can be found on dunes. It helps to hold dunes and sediment in place with its roots, preventing erosion.

Sediment/ Sand
Sediment/ sand makes up Long Island's shorelines. Sand is made of different minerals that over time were broken down from rocks. It provides beach for people to enjoy and for animals to find habitat.

Rocks
This natural material is used to help keep sediment in place. The rocks have a hard surface that can withstand waves and flooding without easily being changed.

Horseshoe Crab
These animals play an important role in the Peconic Estuary's ecosystem. Their eggs provide essential nutrition to migrating shorebirds like piping plovers and red knots. Because they come onshore to mate and lay eggs above the high tide line in the summer months, they need to have access to the shoreline without bulkheads and other hard structures.

Diamondback Terrapin
These animals live in the Peconic Estuary and only come on shore to lay eggs above the high tide line each summer. They require healthy, brackish water and access to marsh habitat without bulkheads and other hard structures.

1.What are some benefits of a living shoreline? What are negatives of a hardened shoreline?

- Allows wildlife to use shoreline for habitat, nesting, mating
- Improves water quality by filtering runoff - removing pollutants and excess nutrients
- Helps stabilize shoreline and prevent erosion
- Allows for natural shoreline growth and inland migration
- Hardened shorelines further erosion for nearby shorelines, change shoreline shape, block wildlife from habitat, reduce flood absorption & prevent natural marsh migration.

2. What animals would be negatively impacted by a hardened shoreline ? Why?
Horseshoe crabs and diamondback terrapins are examples of animals that rely on shoreline access for reproduction. Birds that rely on horseshoe crab eggs as food. There are many more examples!