



ECOLOGY ACTION CENTRE:
LIVING SHORELINES

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MANAGING EROSION WHILE RESTORING COASTAL HABITAT



Ecology Action Centre

UNDERSTANDING COASTAL EROSION

Coastlines are dynamic, interconnected systems that maintain themselves through natural processes like deposition, sediment transport and erosion. Erosion is sediment movement caused by water and wind. It is a necessary process for maintaining ecosystems, like beaches, salt marshes, and mud flats. It would be impossible to completely stop erosion.

Many coastal property owners in Nova Scotia are concerned about property loss or damage due to erosion. Landowners often try to stabilize and protect property by using boulders or rock walls, which can reduce property loss. However, boulders and rock walls are often expensive, and need regular maintenance. They can also interfere with sediment movement and beach formation, which increases erosion elsewhere along the coast. These structures also harm shorebird habitat, reduce water quality and make beach access difficult.



ESTABLISH PLANT COVER

- Deep roots hold soil on bank
- Leaves and stems intercept wind, rain, and wave energy
- Creates habitat



REDUCE SLOPE GRADE

- Stabilizes soil (angle of repose)
- Plants grow more easily



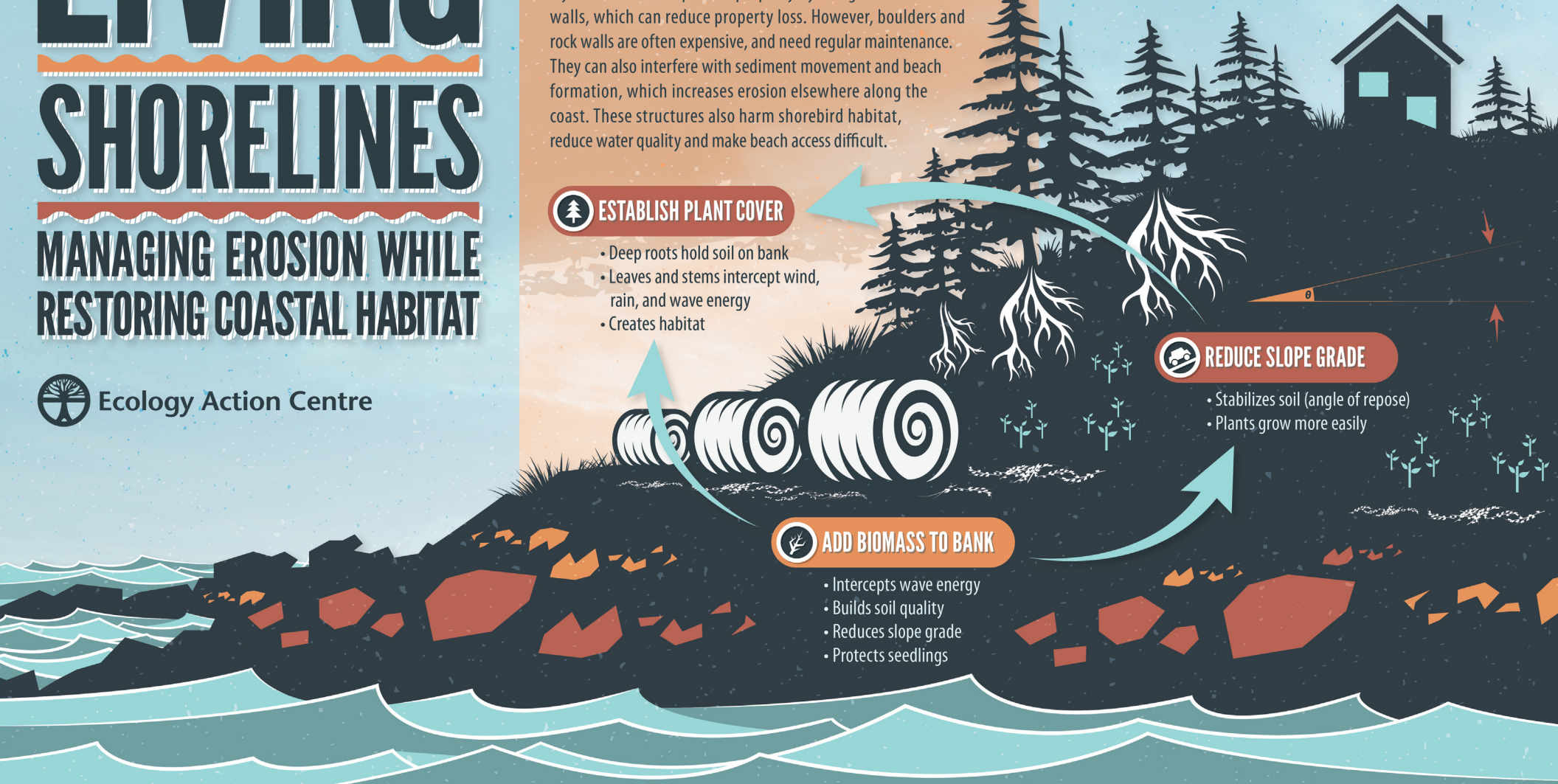
ADD BIOMASS TO BANK

- Intercepts wave energy
- Builds soil quality
- Reduces slope grade
- Protects seedlings

WHAT ARE LIVING SHORELINES?

Living Shorelines are alternative, "softer" approaches to stabilizing shorelines. Used extensively in the Southern United States, these approaches slow down erosion and create resilient shorelines that can withstand waves and storms. By mimicking the slope and vegetation of natural shorelines, *Living Shorelines* can actually improve the overall health of coastal ecosystems while protecting property.

A variety of *Living Shorelines* techniques can be used in the coastal zone, including along bank slopes. These work to achieve one or more of the following goals:



WORK ON THE NORTHUMBERLAND STRAIT

The Ecology Action Centre's *Living Shorelines* project helps coastal landowners in Nova Scotia understand and manage coastal erosion. This project works with a team of local experts to adapt techniques that have proven successful elsewhere to a Nova Scotian context. There are three ongoing *Living Shorelines* demonstration sites on private properties along the Northumberland Strait.



FURTHER INFORMATION

The Ecology Action Centre is working towards healthy coasts and watersheds in Nova Scotia. Visit our website www.ecologyaction.ca/coastal-issues to learn how you can get involved. The *Living Shorelines* website has videos, a detailed how-to guide, and other resources for those living and working on the coast.



WWW.ECOLOGYACTION.CA/LIVINGSHORELINES



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Environment
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Environnement
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PLEASE NOTE: BEFORE BEGINNING WORK ON YOUR PROPERTY, WE RECOMMEND CONSULTING AN EXPERIENCED PROFESSIONAL.

LIVING SHORELINES QUICK TIPS

SAFETY SETBACKS!

Because erosion is an ongoing process, the coast is always moving. Sea level rise will accelerate this change. Avoid problems by constructing new structures as far away from the shore as possible.

DON'T TRIM TOO THIN!



Leave an area along the edge of the bank un-mowed. A deep, complex web of roots is the primary defense against erosion. In un-mowed areas, deeply rooted plants replace grass through a natural process called succession.



NO BARE SOIL!



► **Use hay bales** to encourage plant growth. Hay provides immediate cover and protection to bare soil, and also contains seeds that will germinate and sprout. Over time, hay breaks down into rich soil, which creates a gentler slope.



► **Hold soil in place** with branches and other organic debris (biomass).

Brushwalling is a technique where materials such as tree branches are anchored and woven over a bank.

Alder mats are woven out of living materials and can be staked to the bank to hold hay in place. The *Living Shorelines* website www.ecologyaction.ca/livingshorelines has "how-to" videos on brushwalling and weaving alder mats.



JUST PLANT IT!



Plant vegetation directly into the bank slope, even if it seems a hostile environment for plants. Some plants, like willow and dogwood cuttings, will sprout right away if cut in the spring.



NO HANGOVERS!



Undercut sod and trees hanging over the bank can actually accelerate erosion. Undercut or dead trees can fall and rip out large chunks of soil with their roots when they do. Cut sod blankets and tree trunks and place them at the base of the bank.



DON'T SQUISH THE SOIL!



Soil compaction, caused by walking or driving near the edge of the bank, reduces the soil's capacity to absorb water, leading to water runoff over the bank. It also hinders plant growth.



PERSISTENCE!



While plants are beginning to establish, vegetation mats, brushwalls and hay may wash away during storms. Don't be discouraged! It's working. The biomass was swept away instead of the soil.

KEEP TRACK!

Observe and document shoreline change and record anything you do to manage erosion. Over time, this will help identify erosion and deposition patterns as well as what is, and is not, working on your property.

TALK TO YOUR NEIGHBOURS!

The coast is an interconnected system. Efforts to manage erosion on one property will have impacts elsewhere on the shore. All *Living Shorelines* approaches work best when applied on a larger scale.