



Coastal Erosion Resources

Resources are organized by common questions. Some resources address multiple questions and so are listed under each relevant question.

What is Coastal Erosion?

Coastal Erosion and Climate Change (Prince Edward Island Department of Environment, Labour and Justice) Written by Dr. Robin Davidson-Arnott, Department of Geography, University of Guelph and Dr. Jeff Ollerhead, Department of Geography and Environment, Mount Allison University

<http://atlanticadaptation.ca/sites/discoveryspace.upei.ca.acasa/files/Coastal%20Erosion%20and%20Climate%20Change.pdf>

This comprehensive document does a great job of explaining factors that contribute to coastal erosion rates, such as exposure, sediment type, tides etc. It provides conceptual diagrams and explanations of the behavior of different coastal systems, such as cliffs, dunes, beaches, salt marshes and how they are likely to be affected in Atlantic Canada due to climate change and sea level rise.

Coastal Erosion: People Living on the Edge (Lake Huron Centre for Coastal Conservation) Understanding coastal erosion processes along bluffs and banks.

<http://lakehuron.ca/uploads/pdf/Bluff.conservaion-erosion.process.pdf>

This document, while intended for the coast of Lake Huron, provides a clear diagram and description of bluff erosion, the most common situation along Nova Scotia's Northumberland Strait.

Coastal Erosion: Impacts of People and Habitat (Southern Gulf of St. Lawrence Coalition on Sustainability)

http://coalitionsgsl.ca/webcura/files/242078_cemepbrochure.pdf

This brief brochure provides a quick and thorough overview of coastal erosion as pertains to the Gulf of St. Lawrence. Includes a French translation.

What is happening on Nova Scotia's coasts?

Healthy Beaches and Dunes for Tomorrow (Birds Canada)

<http://www.birdscanada.org/volunteer/nsplover/NSHealthyBeaches.pdf>

This brochure focuses on ways for coastal landowners to make ecologically responsible decisions to support healthy beaches and dunes in Nova Scotia. Recommendations are very similar to many Living Shorelines approaches and techniques.

'Recommendations for a Communication Strategy for Northumberland Strait Property Owners on Coastal Erosion'.

http://www.ecologyaction.ca/files/images/file/Coastal_Erosion.pdf

2011 report by Jennifer Graham of the Ecology Action Centre. Describes perceptions around coastal erosion and how Northumberland Strait landowners are managing erosion.

Sea level rise and storm events factsheet (Nova Scotia Fisheries and Aquaculture)

http://www.gov.ns.ca/coast/documents/state-of-the-coast/WEB_SLRSE.pdf

Provides an overview of projected sea level rise in Nova Scotia and the financial costs associated with responding to it, as well as adaptation strategies. From larger *State of the Coast* report available here: <http://www.gov.ns.ca/coast/state-of-the-coast.asp>

Climate change data for Atlantic Canada (Atlantic Climate Adaptation Solutions)-

<http://atlanticadaptation.ca/climate-data>

A range of information and data on climate change in the Atlantic region. This includes outputs from meteorological models as well as products derived from analysis of climatological data. There is currently no data available on Nova Scotia, but neighboring provinces are covered.

What are options for managing coastal erosion? How do the options compare?

Decision tree for undefended shorelines and failed shoreline protection manual (Center for Coastal Resources Management Virginia Institute of Marine Science)

http://ccrm.vims.edu/education/workshops_events/april2010/Decision%20Trees%20Descriptions%20and%20Explanations-3May2010.pdf

This is a comprehensive decision making tool for coastal erosion management.

Erosion Control: Non-structural alternatives (North Carolina Coastal Federation) A shorefront property owner's guide

<http://www.seagrant.umaine.edu/files/chg/NCCFErosion.pdf>

This guide from North Carolina does a wonderful job of laying out a range of "soft" approaches and gives detailed criteria for deciding between the options in a question and answer format. Even though it is based on the North Carolina context, much is of it still highly relevant in Nova Scotia.

Maine Property Owner's Guide to Managing Flooding, Erosion & Other Coastal Hazards <http://www.seagrant.umaine.edu/coastal-hazards-guide>

This extensive web-based interactive guide from Maine is probably the most detailed and most Nova Scotia-relevant guide available. Check out the bluffs and rocky shores section, especially the soft bluff section, for the most relevant information to the Northumberland Strait. The planting section is great too.

<http://www.seagrant.umaine.edu/coastal-hazards-guide/bluffs-and-rocky-shores/bluff-planting>

What are Living Shorelines?

Living Shorelines website (Center for Coastal Resources Management Virginia Institute of Marine Science).

<http://ccrm.vims.edu/livingshorelines/>

This website provides an extensive look at alternative methods to control erosion, including a decision tree to determine what approach may work on your property and many examples of what has been done elsewhere.

Living Shoreline Planning and Implementation (NOAA)

<http://www.habitat.noaa.gov/restoration/techniques/limplementation.html>

Includes planning considerations, steps for assessing sites and specific examples of Living Shorelines techniques for subtidal, intertidal zones and upland zones.

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Marine Guide to Preventing Shoreline Erosion (Department of Fisheries and Oceans)

<http://www.dfo-mpo.gc.ca/Library/281618.pdf>

This brochure, which contains considerations for stabilizing your shoreline using vegetation, is geared for British Columbia. The overall descriptions of the effects of hard structures apply in Nova Scotia, but the plant list is meant for the west coast. See our Living Shorelines plant list for Nova Scotian plants.

StormSmart Coasts Massachusetts (Massachusetts Department of Energy and Environmental Affairs)

<http://www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/>

This is a comprehensive resource for property owners and communities, covering topics from coastal erosion to planning for sea level rise. Very good information in the StormSmart Properties and Coastal Landscaping sections.

Puget Sound Nearshore Ecosystem Restoration Project

<http://www.pugetsoundnearshore.org/>

The PSNERP is a collaboration between government departments, universities, tribes and environmental organizations to restore the ecological functions and values of the nearshore of Puget Sound, with a particular focus on eliminating hard shorelines. This project is interesting for its focus on ecosystem health, rather than infrastructure protection. It sees coastal erosion as an important coast-forming process rather than as a problem needing a response.

How are Living Shorelines approaches implemented?

Living Shoreline Planning and Implementation (NOAA)

<http://www.habitat.noaa.gov/restoration/techniques/limplementation.html>

Includes planning considerations, steps for assessing sites and specific examples of Living Shorelines techniques for subtidal, intertidal zones and upland zones. The techniques covered here are for all parts of the coastal zone, and many of those described require an outside contractor, in contrast to the Living Shorelines approaches the Ecology Action Centre is implementing on the Northumberland Strait.

Coastal Landscaping Plant List, Highlights and Images (Massachusetts Department of Energy and Environmental Affairs)

<http://www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/coastal-landscaping/plant-highlights.html#Elderberry>

<http://www.mass.gov/eea/agencies/czm/program-areas/stormsmart-coasts/coastal-landscaping/plants.html>

Includes an extensive list of native, salt tolerant plants including fact sheets and growing tips for each species.

Maine Erosion Best Management Practices Guide

<http://www.maine.gov/dep/land/erosion/escbmeps/index.html>

Check out the Temporary and Permanent Soil Stabilization BMPs sections. This guide is geared toward construction activities, but basic guidelines like mulching soil with hay, and other woody debris, especially before storms, and helping permanent vegetation establish, are applicable to coastal landowners.

Slope Stabilization and Erosion Control Planting Techniques

Washington State Department of Ecology

<http://www.ecy.wa.gov/programs/sea/pubs/93-30/pltech01.html>

This website goes into helpful, not overwhelming detail on a variety of plant based approaches to steep slope stabilization techniques and has an insightful ranking system for each technique to help determine which techniques will be most suitable for a given situation.

Design and Construction of Living Shorelines: A Course for Living Shorelines Professionals by Virginia Institute of Ocean Sciences

<http://www.deq.virginia.gov/Portals/o/DEQ/CoastalZoneManagement/task94-01-09.pdf>

This Mid-Atlantic specific course was developed by the Virginia Institute of Ocean Sciences for Living Shorelines professionals to learn about site assessment, technique decision trees and detailed design. Site assessment worksheet included and explained.