

Basic Checklist for Coastal Erosion

Done	Kind of Action	Comments
<input type="checkbox"/>	Are you on the coast or next to a waterway with a current?	
<input type="checkbox"/>	What is the shoreline made up of (sand, rock, etc.)?	
<input type="checkbox"/>	Do a quick estimate to see where you stand.	<ol style="list-style-type: none"> 1. Take a picture from beach level that shows the side view of the slope. 2. Put a dot at the beach level and vertically above at the land level. 3. Draw a line connecting the two dots. 4. Put a dot at where the erosion is likely to take place at the shoreline 5. Using the safe angle of repose (from engineers or use 45 degrees to “guestimate”) connect the dot at the top to the same level as the beach where erosion is happening. 6. Keeping the shape of the triangle, move the base of the triangle inwards so that the dot in 5 sits on where erosion is happening. 7. The distance between the top of the bank and where the uppermost dot lands is an area you may want help with. <p style="color: red; margin-top: 10px;"><i>This is not enough for good engineering. If you have questions, see an engineer.</i></p>
<input type="checkbox"/>	Is there a history of erosion along the banks?	If unknown, set two spikes. The first is 1 m from the edge of the bank and the second is a couple of meters back along the same line from the point on the bank to the first stake. Check periodically to see if the distance from the bank to the first stake has decreased.
<input type="checkbox"/>	Plant vegetation on the slope (see guidance material) and water absorbing plants on top of the slope.	Check companies like the Living Coastline (see the mitigation page) on these kinds of approaches.
<input type="checkbox"/>	Consider the use of reinforcements along the coast such as armouring.	Consider the environmentally friendly solutions first.
<input type="checkbox"/>	Consider the use of pilings, footings or other emplacements between the structure and the edge to protect the land under and around the structure.	This is definitely going to involve engineers and may be expensive.
<input type="checkbox"/>	Consider advocating for ways to reduce current or wave action (groins, piers, sea walls, etc.) at a community level.	This is something that may be difficult and time consuming.

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<input type="checkbox"/>	If able,. Consider planting into the side of the bank (remember no overhangs).	This will require some expert assistance in terms of both how to plant but also what to plant. See the end of the list for some guidance from other areas.
<input type="checkbox"/>	Consider the use of supports back from the edge of the bank that will help stabilize the ground under and around structures.	The common theme of having an engineer involved here applies as well.
<input type="checkbox"/>	Route drainage away from the impacted area.	The intent here is to slow the amount of erosion being caused by water draining over the edge. This can be used in conjunction with the vegetation on the slope to prevent loss of soil / loose materials.
<input type="checkbox"/>	Reduce traffic in areas where there is concern (see the quick estimate earlier) to prevent compaction or reduce pressure.	What is trying to be accomplished is a reduction in compaction since compaction can adversely affect drainage as well as reducing the stresses on the slope.
<input type="checkbox"/>	Consider the use of textiles or the creation of terraces.	This will be a major project that will need permits, engineers and others.
<input type="checkbox"/>	Armouring	While the use of rocks may be recommended by engineers. I put this at the end because of the potential environmental impacts. That being said, it may be the right option. Don't necessarily discount it but at the same time, remain aware that this method can have impacts on the ecosystem.
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Coastal erosion is one of those areas where expert guidance becomes increasingly important as the challenges persist. You can certainly begin with organizations like the Living Shorelines (see the Mitigation page for a link) but the challenge can become more complex very quickly.

Coastal erosion is also one of those challenges that can become very expensive and complex. You may need to look at the Beaches Act. We're not going to get into the issue of who should have access to the beach or those kinds of things. We focus on Emergency Management.

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That being said, this may be a situation where there are many parties that need to come together to fix something. For example, the government may be involved from a regulatory context, private property owners from another, and so on. For that reason, get your expert support early.

Some sources of information:

1. Massachusetts Wildlife at <https://climateactiontool.org/content/restore-natural-coastal-buffers-native-vegetation-buffers-and-plantings>
2. Washington State Aquatic Habitat Guidelines Program. *Marine Shoreline Design Guidelines* has information on coastal erosion at <https://wdfw.wa.gov/sites/default/files/publications/01583/wdfw01583.pdf>. (for ideas only, remember some of the laws and regulations are different here).
3. Ecology Action Centre's *Living Shorelines* at <https://ecologyaction.ca/sites/default/files/2022-06/LivingShorelinesBrochure.pdf>
4. Wrathall, Carly. (2016). Propagation and transplanting techniques for native plant species: Living shorelines applications in Atlantic Canada. *A thesis submitted to Saint Mary's University*. [https://library2.smu.ca/bitstream/handle/01/26621/Wrathall Carly MASTERS 2016.pdf?sequence=1](https://library2.smu.ca/bitstream/handle/01/26621/Wrathall_Carly_MASTERS_2016.pdf?sequence=1)
5. University of Minnesota Extension. Stabilizing shoreland property to prevent erosion. <https://extension.umn.edu/shoreland-properties/stabilizing-shoreline-prevent-erosion>