GAMIING Nature Centre

Shoreline Erosion

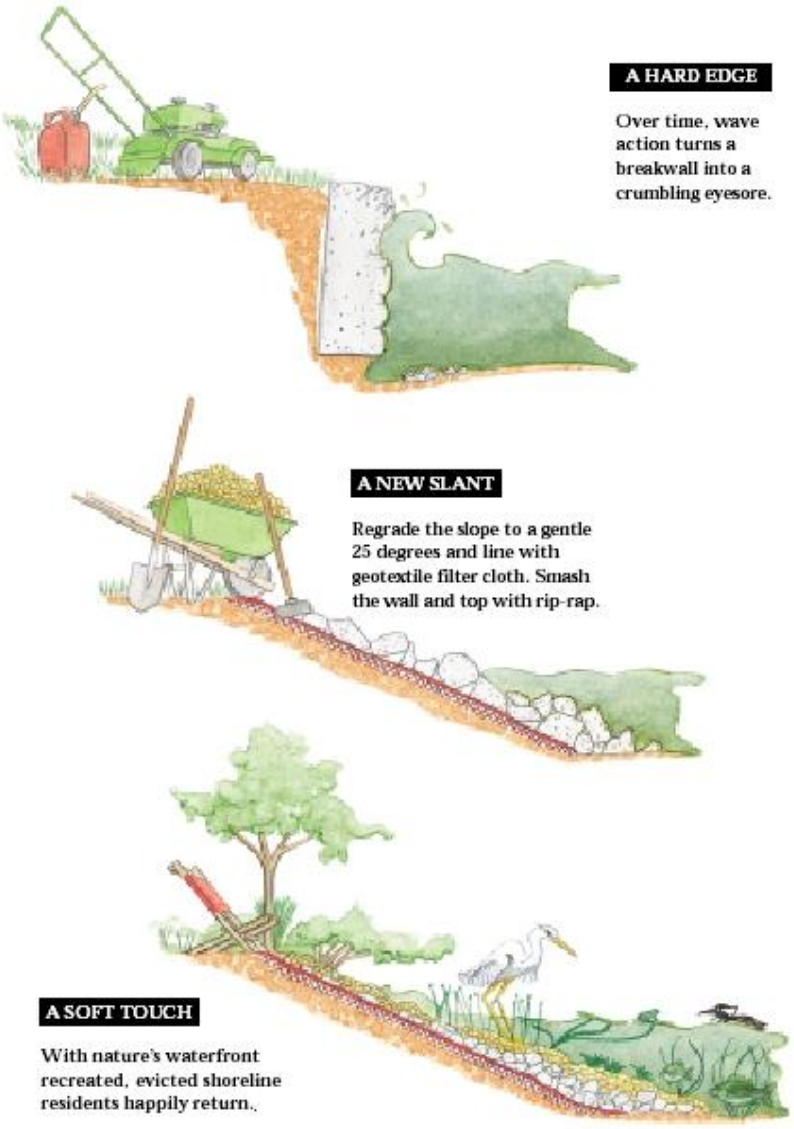
The shoreline, where water meets land, is where your waterfront property is most susceptible to erosive forces. Erosion is a natural process that causes a gradual wearing away of land surfaces by water, ice and wind. Erosion can cause slumping, surface runoff, silt deposits, and if left unchecked, major property and building damage. Protect your shoreline by understanding the value of the "buffer zone". Alterations to your natural shoreline i.e. removal of rocks, trees, and other live and fallen vegetation, puts your buffer area at risk of becoming an "erosion zone". Being aware of erosion risks and taking appropriate action will better arm you to safeguard your property, and protect your pocketbook.

Consequences of Erosion:

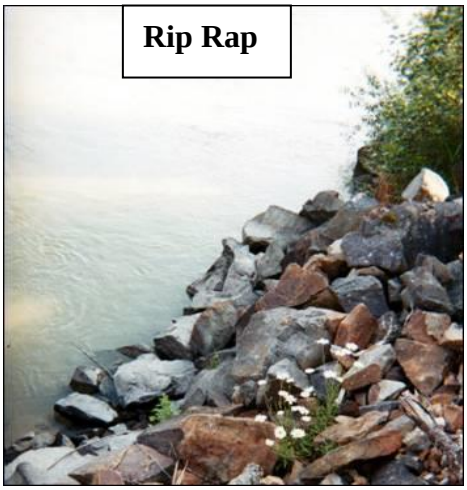
Shoreline erosion has many consequences on the aquatic environment, including habitat destruction, an increase in sedimentation and in turbidity of the water, and the release of nutrients (phosphorous and nitrogen) that promote algal blooms. As well, shoreline erosion can result in the loss of land and affect shoreline property values.

"Softening" your rock or retaining wall:

- Restore or plant deep-rooted vegetation along the strip leading to the retaining wall; this will help buffer surface water from runoff and reduce the risk of erosion by holding the soil together.
- Plant overhanging native shrubs to help keep water cool. You can also drill planting holes from the side and plant cuttings or container plants.
- In rip rap, plant shrubs in open spaces among the rocks.
- Anchor a log or two at the base of a retaining wall to improve wildlife habitat and help break the force of water. This will help reduce the scouring action of waves breaking against the wall.
- With approvals, you can add rock rip rap to the base of a retaining wall at a 45 degree angle, to help break the force of waves and improve habitat for fish and wildlife. Gradually sediment may start to deposit amongst the rocks, and aquatic plants may grow.
- Shore "ladders" of rip rap from the base of the wall to the top may be feasible for some walls, again with appropriate approvals from DFO or MNR. These will help provide wildlife (such as amphibians) access from the water to the land.



If your retaining wall is beginning to crumble, consider replacing it with a more shore-friendly structure. However, this must be done without causing further disturbance to your shoreline. Be sure to obtain the necessary approvals. Here are the basic steps to "retiring" a retaining wall:



- Dig it out: Get in behind the wall to remove the supporting backfill and then grade to a new slope of 25%; or less.
- Clothe it: Lay geotextile filter cloth on the slope to hold the soil in place.
- Remove the wall: Ideally, the wall would be physically removed; however, if this is infeasible, break the wall into pieces to lie on the slope. Finally, smash it into smaller pieces of concrete rubble.
- Add more rip rap. This will help aesthetically, and fill in spaces left by the concrete.
- Revegetate: Plant woody vines or shrubs over the top. Gradually, these will grow and look more like a natural shoreline than the vertical structure that was there.

The new structure dissipates the energy of waves and currents. Natural shorelines generally have a gentle slope. This allows ice and waves to ride up over top gradually dissipating its destructive force. Watch what happens to a wave on a gradual slope versus the pounding taken by a vertical shoreline such as a retaining wall. This is why, over time, natural vegetated shorelines persist, while concrete and other vertical retaining walls bow, lean and fall apart. If you are considering building or repairing a vertical retaining wall, why not consider a sloped, vegetated approach as cost effective natural alternative?

Boat Wake Erosion:

To reduce erosion from boat wakes, reduce the speed of your boat when approaching the shoreline. The magnitude of the waves generated by a boat depends on different factors, particularly the boat's speed, its size, passenger/cargo loading, the shape of its hull, distance from shore and water depth. Wave height is one of the most important factors in shoreline erosion.

Be sure to leave driftwood, rocks and fallen trees in place along the shoreline to absorb the wave energy. You can consider adding these sorts of materials along the waterfront and using them to mulch amongst your shrubs with rocks, driftwood, or branches. Securing a log to the shoreline or anchoring it slightly offshore will also help to break the force of the waves.

If you have an actively eroding shoreline, you will need to consider soft-shore protection measures that use control blankets, mulches, and landscape fabrics to help retain your soil while your plantings are taking root.

What you can do:

It is difficult to apply a universal rule for all boats because of their variable configuration and behaviour in the water. As such, the surest approach is to observe the wake produced by your boat. You can post a sign, which indicates the shoreline is being restored and asks people to reduce their speed and wake. In addition, you may want to use several buoys to keep passing boats at a distance.

Gamiing Nature Centre Can Help:

We offer free consultations for shoreline and habitat restoration projects. Gamiing also has a Native Plant Nursery on site which houses trees, shrubs and wildflowers that can help improve your buffer zone and the health of your Shoreline.

For More Information:
Gamiing Nature Centre
1884 Pigeon Lake Rd.
Lindsay, Ontario, Canada K9V 4R5
Phone:705-799-7083 or info@gamiing.org or visit www.gamiing.org

Created By Sabrina Cook, Ecosystem Rehabilitation Intern – June 2007 & Edited By Erin Edwards Macey - May 2010

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