



“Nature does nothing uselessly.”

-Aristotle

## A Healthy Waterfront

The quiet spot by the lake enjoyed by many cottagers and waterfront residents is also the richest natural environment that most of us will ever come into contact with, and almost certainly the most complex piece of the earth that we will ever have the opportunity to live near and share. Equally important, this waterfront area is crucial to your lake's health, providing oxygen, food, cover and a barrier to contaminants, as well as a living retaining wall for the shoreline.

When a natural shoreline is altered, often by well-intentioned projects meant to improve waterfront living, the intricate balance between vegetation, aquatic organisms, and the shoreline is toppled. All too often, new waterfront property owners create an unobstructed view of the water by clearing out the thicket of plants, shrubs, and trees lining the shoreline.

However, once the trees and shrubs are gone, the soil that their roots held in place begins to erode, resulting in costly and ineffective fixes to slow down the erosion of their property such as installing a breakwall. By retaining the natural shoreline vegetation, their shoreline would enjoy the benefits of natural erosion control.

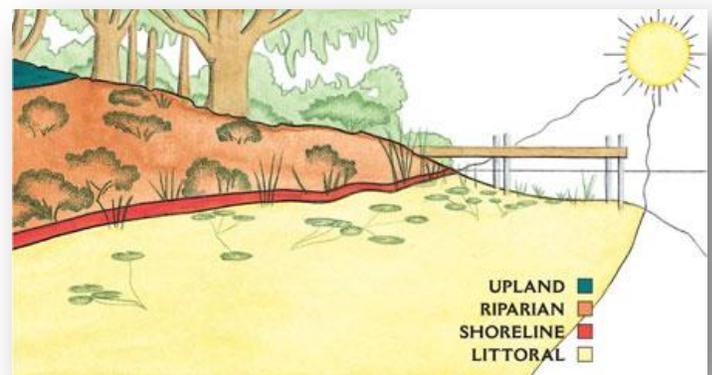
### Components of a Natural Shoreline

The natural shoreline has four components, beginning underwater and extending upland. These four components are the littoral zone, the shoreline, the riparian zone, and the upland zone, and each plays a critical role in keeping your lake healthy.

As important as these separate zones are however, it is vital to remember that the shoreline is a natural progression - each area transforms into the next in a gradual, almost seamless transition. Altering any portion of this region affects the whole, diminishing its ability to support life on the lake.

The **littoral zone** is the area from the water's edge to roughly where sunlight no longer penetrates to the lake bottom. As much as 90 percent of the species in the lake either pass through or live in this zone. Aquatic plants and downed trees are a crucial part of this area, with the plants acting as the lungs of the lake, converting sunlight into food and releasing oxygen in the process, and providing food and shelter for other creatures.

The barricade against erosion is the **shoreline**, the place where land and water meet. In its natural state, the shoreline is a profusion of stones, plants, shrubs, fallen limbs, and tree trunks. But it is also a busy intersection, with animals, insects, and birds traveling



back and forth. Natural shoreline vegetation provides one of the world's most effective, least expensive erosion controls. The mix of plants, shrubs, and trees forms a complex web of roots and foliage that knits the waterfront together, holding the bank in place and fending off the impacts of wind, rain, waves, ice, and boat wake.



The riparian and upland zones act as a barrier to contaminants that are waiting to catch a ride down to the lake with rain runoff, including seepage from septic tanks, fertilizers and pesticides, deposits from family pets, and oil or gas spilled on the driveway. The jumble of trees, shrubs, and grasses along a natural shoreline forms a "buffer" that helps filter out undesirables.

In the **riparian zone** - the section of land closest to the shoreline - the thick layer of low foliage controls erosion and sifts impurities out of surface runoff. Leaves and branches break the force of falling rain, which is further slowed by the rough surface of leaf litter, pine needles, and broken twigs. The water is then absorbed by plant roots or the soil. As well as being a filter for the lake, the riparian zone is a refuge for wildlife.

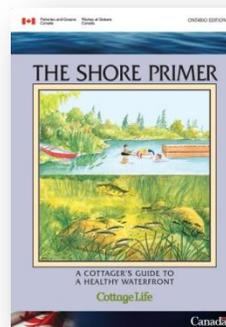
The higher, drier ground called the **upland zone** is typically forested with the kinds of trees that take advantage of better drainage, including poplar, spruce and white birch. The deep roots of the trees stabilize the slopes, while their foliage buffers the shoreline from winds. The forest canopy also cools the area by maintaining shade and boosting humidity in the summer. In winter, it provides shelter for a number of wildlife species.

Together, these two zones form a buffer so effective that many experts estimate only 10 percent of the runoff actually makes it into the lake, with much of the sediment and other pollutants being filtered out before reaching the water. If the lake bottom does not drop off too quickly, then the remaining runoff will tangle with another barrier of aquatic plants in the littoral zone, where the jumble of bulrushes, arrowhead, and cattails slows the influx of runoff and consumes many of its nutrients.

Instead of working against nature, why not declare a truce and weave your cottage needs into the natural shoreline? By maintaining all four components of your shoreline in as natural a state as possible, you will be protecting your quiet spot by the lake for enjoyment into the future.

## More Information

There are a number of resources available for waterfront owners wishing to protect their natural shoreline area.



**The Shore Primer**, produced by Fisheries and Oceans Canada in association with Cottage Life, offers cottagers and other landowners constructive solutions for restoring an altered shoreline to its former health and beauty.

**On the Living Edge:** Your Handbook for Waterfront Living, published by the Living By Water Project, is available from the Muskoka Heritage Foundation at (705) 645-7393.

**Muskoka Watershed Council**  
[www.muskokaheritage.org/watershed](http://www.muskokaheritage.org/watershed)

**Muskoka Water Web**  
[www.muskokawaterweb.ca](http://www.muskokawaterweb.ca)