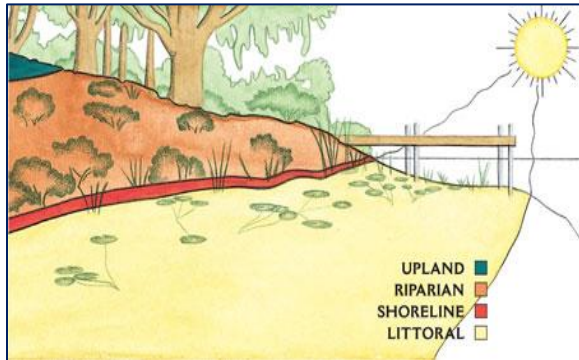


## SHORELINES – THE RIBBON OF LIFE

There are a number of measures that cottagers can take to ensure that we continue to enjoy the natural beauty of this very special place. To better understand how we can minimize our impact on the lake and its environment, it is important to visualize our shorelines in four distinct zones as shown in the schematic below (courtesy of Environment Canada).



### Upland Zone

This is the zone farthest back from the lake. It is typically forested, with the roots of trees and shrubs stabilizing the slopes, and their foliage buffering the *shoreline* from winds and cooling the atmosphere by maintaining shade and boosting humidity in the summer. Together with the *riparian* zone, this zone forms an effective buffer that can reduce up to 90% of rainfall runoff. If the lake bottom does not drop off too quickly, then the remaining runoff will be captured by aquatic plants in the *littoral* zone.

### Riparian Zone

This is the zone that extends from the *upland* zone to the shoreline. The vegetation in this zone acts as nature's filter, reducing soil erosion and runoff into the lake as well as filtering any nutrients and other contaminants before they can discharge to the lake. This zone also provides shade to the near shore water and is home to many shoreline birds and animals that require feeding and nesting places with rapid access to the water to escape predators.

### Shoreline Zone

The shoreline is the place where land and water meet. In its natural state, the shoreline consists of stones, plants, shrubs, fallen limbs, and tree trunks. It is also a busy intersection, with animals, insects and birds traveling

back and forth. Overhanging vegetation shades and cools the water, and acts as a food source for fish by producing a rain of aphids, ants, and other insects that slip from their perches above.

### Littoral Zone

This is the zone of shallow water from the shore out to 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. The water in the littoral zone provides spawning areas, cover, nursery habitat and food for a range of species, offering foraging areas and hiding spots and a shallow, relatively protected area for young fish and amphibians to grow. Aquatic plants and downed trees are a crucial part of the system, 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. Once submerged, wood becomes a hiding place for small fish and their predators as well as a major source of food for aquatic insects, crayfish, and small fish.

## WHAT CAN YOU DO TO PRESERVE THESE ZONES?

### Upland and Riparian Zones

- Leave them in their natural state and ensure that any development is limited to the *upland* zone.
- Eliminate potential pollutants by being careful with and avoiding spillage of gas and oil around the cottage; avoid the establishment of lawns and the use of fertilizers and pesticides; and maintain your septic system with regular pump-outs every 3-5 years.
- Be careful not to overload the septic system with too much water over short periods of time, as this shortens its life and can result in seepage toward the lake.
- Opt for softer or more permeable surfaces (gravel or wood chips) rather than concrete and asphalt, to improve infiltration and minimize soil erosion.
- Replant disturbed areas as quickly as possible with native species of grasses or other vegetation to improve infiltration of rainwater flowing off the roof or from paved/hard surfaces.
- Keep lawns, flowers and vegetable gardens well away from the lake.

### Shoreline and Littoral Zones

- To the extent possible, use your dock as a bridge over the weedier shallows, rather than removing natural habitat by ripping out aquatic plants to make a swimming area.
- Leave trees where they fall, unless they are a hazard to boats or swimmers.
- Avoid bringing in sand to improve a shallow water swimming area, as when the sand erodes, it smothers fish spawning areas, buries mayflies in their burrows and covers the vegetation where frogs and toads lay their eggs. The impact ripples through the food chain with the end result being an increase in oxygen-depleting algae.
- Don't operate wake boats or other large boats that generate massive waves close to shore; even at slow speeds, these 'wave makers' represent a serious threat to our shorelines and the birds, animals, amphibians and aquatic species that inhabit these zones.
- Don't replace the shoreline with a hardened surface like rip rap or a breakwall and don't dump fill along your waterfront. Not only does this destroy part of the littoral zone where fish live, but it may alter water currents and increase erosion on adjacent properties.

now purchase and use biopesticides and certain lower risk pesticides for cosmetic purposes to manage weeds, insects and plant diseases. Consumers can also purchase and use pesticides for public health or safety reasons such as fighting West Nile virus, killing stinging insects like wasps, or to control poison ivy and other plant poisonous to human touch.

For the most up-to-date information, contact the Ontario Ministry of the Environment's web page and download the most recent factsheets at:

[http://www.ene.gov.on.ca/environment/en/category/pesticides/STDPROD\\_085338.html](http://www.ene.gov.on.ca/environment/en/category/pesticides/STDPROD_085338.html)

Ron Pearson

Kahshe Lake Steward

### **OTHER ACTIONS THAT CAN HELP**

There are some additional ways to ensure that we preserve the quality of our lake and retain as much shoreline as possible in an undeveloped condition. This can be done by setting up land trusts, conservation easements, forest management arrangements or land stewardship programs. Owners of large blocks of undeveloped shoreline can pursue these types of arrangements, which may qualify them for significant property, income and/or capital gains tax incentives, by contacting the Environment Canada's Ecological Gifts Program at [www.on.ec.gc.ca/ecogifts](http://www.on.ec.gc.ca/ecogifts). Although there are a number of non-government organizations that can be selected to receive these gifted lands, information on one group that operates in Muskoka can be found by contacting the Muskoka Conservancy at [www.muskokaconservancy.org](http://www.muskokaconservancy.org)

Another action we can take is to reduce our reliance on pesticides to make living at the cottage more like the city we left. Under Ontario's cosmetic pesticides ban, which came into effect in April 2009, consumers can