

Restoring Healthy Shorelines

Owning waterfront property is a wonderful privilege. Looking out over the water is a calming and rejuvenating experience – especially important in our hectic, modern lives. Access to water opens the door to a host of recreational opportunities including swimming, boating and fishing. Wildlife enthusiasts delight in the abundance and diversity of living things that inhabit the shoreline.



Linked with the joys of waterfront ownership is the important job of protecting this delicate “ribbon of life” and understanding how it affects the health of the waterway. This is especially critical when waterfront development is so popular, and increasing numbers of people are moving to, and building on, local shorelines.

The Importance of Shorelines

I. HABITAT

Shorelines are a critical and sensitive link between land and water. The land and shallow water that meet at the water’s edge provide a nursery for the wildlife in the waterway. Here, fish spawn, aquatic insects find mates, waterfowl nest, and turtles scramble ashore to lay their eggs. When development destroys the vegetation that feeds and protects this shoreline nursery, all living things in the waterway are affected.

II. WATER QUALITY

Shoreline vegetation also helps to protect water quality. A dense strip of natural vegetation is an important buffer which filters rainwater that runs over the surface of the land. Shrubs, trees, grasses and wildflowers all play a role in removing sediments from this surface runoff, and promoting its percolation into the soil – further cleaning the water, and recharging groundwater supplies.

A thick network of roots from a variety of waterfront plants help to keep shoreline soil on land where it belongs – not in waterways. Soil eroding into waterways contaminates spawning beds which reduces fish populations.

Shoreline Checklist

To help you assess the quality of your shoreline, and to set priorities for positive action, consider the following checklist. It summarizes some of the characteristics of a healthy shoreline. How many of them describe your waterfront?

- There is an unmown strip of natural vegetation 10 metres wide along the length of the shoreline.
- There is a variety of vegetation near the waterfront including trees, shrubs, grasses and wildflowers.
- There is a variety of materials in the shallow waters offshore (these can include rocks, gravel, woody debris, aquatic plants).
- No toxic materials are used near the shoreline where they could spill or leach into the lake (gasoline spills, cleaning products etc.)
- No pesticides, and a minimum of fertilizers are used on the property.
- The shoreline is made of natural materials which slope gently into the water (not constructed retaining walls).
- Buildings and septic beds are set back at least 30 metres from the shoreline.
- Septic tanks are pumped regularly.
- There is no sign of serious erosion along the shoreline.
- On sloping shorelines, paths to the water are angled across the slope to prevent erosion, (not running straight down to the water).
- The shoreline is dominated by plants native to the region (see accompanying list of common native shoreline plants).
- There are no invasive exotic plants to disrupt native vegetation (common problem plants in the Kawarthas include purple loosestrife, black locust and European buckthorn).
- If the shoreline contains a dock, it is floating, cantilever or post construction (to allow free passage of water and wildlife).

This fact sheet provides some basic information to help you build a healthy, diverse buffer of shoreline vegetation to protect your waterway.

Caring for your Waterfront

The motto of waterfront management is “Natural is Best!” Keeping an unmown strip of natural vegetation up to 10 metres deep along the shoreline allows natural shoreline functions to continue. Mowing a small access to your dock or other viewing point is a reasonable compromise, keeping the area of pedestrian access to the water at a minimum.

If your shoreline is currently a mown lawn right down to the water, consider a gradual shift towards a more natural look. A combination of planting native shrubs and gradually moving the mown edge farther away from the water allows a steady transition towards a healthier waterfront.

METHOD 1: NATURAL REGENERATION

If you live or vacation in an area that is already surrounded by high-quality, native vegetation (usually where little development has taken place to date), leaving the shoreline alone to renew itself is a good option. This is also a good idea in areas with exposed bedrock and very shallow topsoil. Seeds lying dormant in the soil will begin to grow, while birds and other wildlife will deposit seeds to aid the process. A surprising diversity of plants will begin to move in within a very short time.

However, in a highly disturbed/developed area, the “hands-off” approach will probably result in undesirable invasive species moving in, such as purple loosestrife and European buckthorn. Here, planting desired species and weeding out the undesirables will provide better results (see Method 2).

METHOD 2: NO-MOW AND PLANT

You can also give nature a hand by removing small bits of sod and planting native shrubs or trees within the area you plan to naturalize. You can plant the area all at once, or in phases over several years.

By naturalizing a part of your shoreline every year, you can gradually create a thriving and diverse buffer strip to help protect your waterway. Planting young native shrubs such as dogwoods, shrub willows and meadowsweet along your waterfront will help give the process a head start. A few native trees interspersed with the shrubs will add extra stability to your shoreline.

Start by selecting an area to naturalize, and plan to plant one shrub for every square metre of shoreline. Early spring or late fall are good times to plant, since the weather is cool and there is usually good rainfall to help plants get established. If the area you wish to plant is 3 x 20 metres, you would have 60 square metres of planting area. At a density of 1 shrub for every square metre, plan to plant fifty or sixty small shrubs.

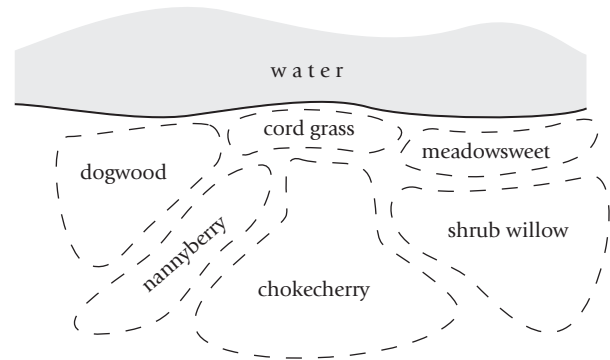
Check the accompanying list of suppliers and recommended plants to help you in your planning. Shoreline shrubs can be purchased bare-root (with no soil around the roots) or in pots. Bare-rooted trees and shrubs must be planted before the leaves unfold in the spring (or in late fall), and potted plants can be planted at any time. Bare-rooted shrubs can often be purchased very inexpensively (roughly \$1 a piece), but are only available for a short period each spring and fall. Potted stock will be more expensive, but success with potted stock is usually higher. Make your plans according to your budget and schedule.

When installing your shoreline shrubs, remove a piece of sod at

least 30 cm in diameter around each planting hole, and discard or compost the sod. Dig a hole deep enough to comfortably accommodate the roots of your shrub, and plant it so that all the roots are well covered with soil. Firm the soil well around the planting hole, and cover the bare soil with a mulch (leaves, woodchips, etc.). Water well.

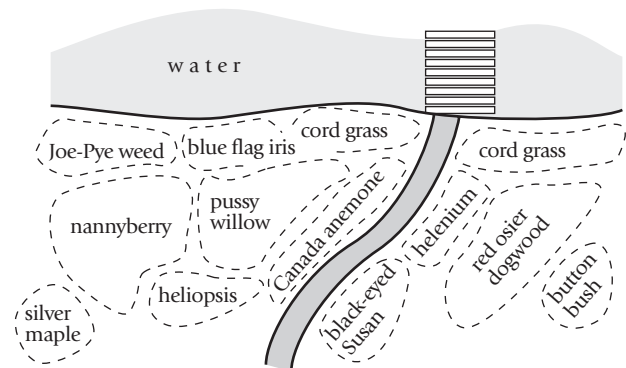
During the first season after planting, try to be sure that the new shrubs get a good watering every week or two.

In a short space of time, your plants will fill in nicely, and provide beauty and protection for your shoreline for many years to come. And, you’ll spend less time mowing and more time enjoying your waterfront property!



METHOD 3: DEVELOPING A LANDSCAPING PLAN

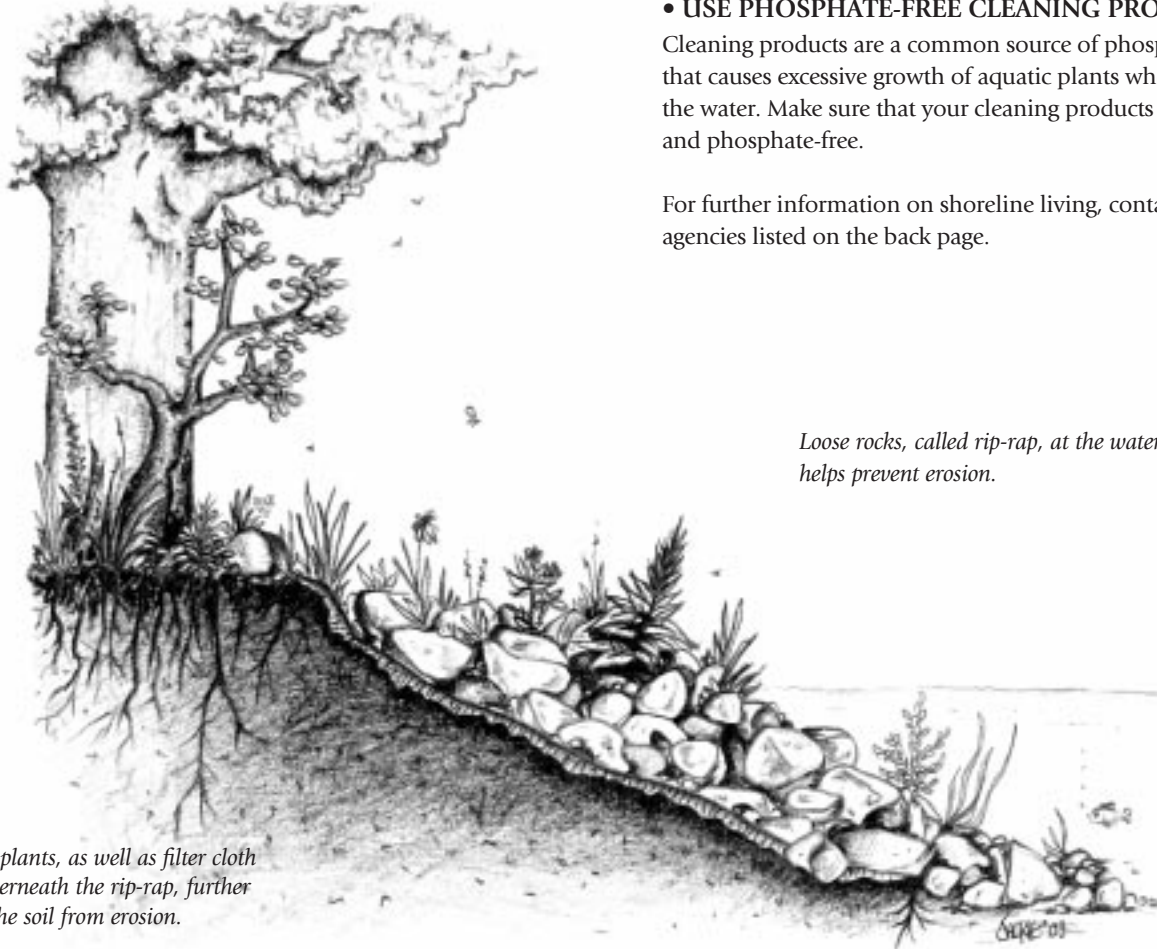
If you enjoy gardening and have the time and resources, a waterfront landscaping plan can combine the important functions of a natural shoreline with the visual appeal of flowers, viewing points, benches etc. If the edges of natural areas are well-defined with pleasing curves which flow naturally around spaces where people congregate, the results can be very attractive. Accents such as a barrel or bed of flowers, a bench, walking trail or carefully-placed fire pit can combine human and natural features in a way that appeals to even the most conservative eye. This approach is a good starting point for those who are skeptical about a totally natural look for their shoreline. Be sure that your plan contains a high percentage of native plants, and seek advice from professionals who understand the important functions of shoreline plants.



General Tips

Regardless of the approach you choose for managing your waterfront, keep in mind these important principles:

- Wherever possible, use nursery-grown plant material from local sources for any planting projects.
- Avoid digging plants from the wild, since this can damage natural areas and wild plants may not survive being transplanted.
- If your shoreline needs extra protection from erosion, loose rocks (called rip-rap) laid along a gradual slope into the water and interplanted with shrubs and vines provide good natural protection which absorbs and dissipates wave energy. Solid walls (hardened shorelines) are not a recommended solution. Remember that any in-water work requires a permit (call your Conservation Authority for permit advice).
- Be especially careful when planting within high-water areas, on steep slopes or immediately adjacent to the water's edge. Avoid removing soil, roots or sods in these areas since this may lead to erosion. Areas which may be seasonally subjected to waves or water currents should be planted with bare-root stock, willow cuttings, or left alone to regenerate naturally.
- In areas where beavers are active, wrap trunks of newly-planted deciduous trees loosely with chicken wire or hardware cloth.
- Keep all bare soil covered with a mulch such as woodchips or straw to prevent soil erosion and hold moisture in the soil.
- Watch your planting project carefully as it becomes established. Water during dry periods for the first year or two. Look for signs of erosion and repair damaged areas as necessary.



Roots of plants, as well as filter cloth laid underneath the rip-rap, further protect the soil from erosion.

Living at the Shoreline

In addition to keeping a buffer of natural vegetation at the water's edge, you can protect your waterway by making other wise lifestyle choices:

• REDUCE EXPOSURE TO TOXIC PRODUCTS

Any products that you use on your shoreline property have the potential to wash into the lake or river and disrupt or destroy the natural processes in the waterway. For this reason, no hazardous products such as pesticides or toxic cleaning products should be used on waterfront properties. Extreme caution must be used when handling chemicals such as gasoline to prevent spills into the waterway.

• REDUCE THE USE OF FERTILIZERS

Nitrogen and phosphorus-rich fertilizers can leach into the water from your property, causing excessive growth of aquatic plants which clog waterways and disrupt habitat. Keep the use of any fertilizers on shoreline properties to a bare minimum. Better still, landscape with native plants which don't require extra fertilizer, and improve your soil with compost.

• MAINTAIN YOUR SEPTIC TANK

Septic tanks can be a source of bacterial contamination and nutrient overloading of lakes and rivers. Reduce the load on your tank by conserving water in your home, and make sure the tank is pumped out at least every 2 – 3 years. Septic tanks only delay the introduction of nutrients to the lake – use water wisely.

• USE PHOSPHATE-FREE CLEANING PRODUCTS

Cleaning products are a common source of phosphorus, a nutrient that causes excessive growth of aquatic plants when it leaches into the water. Make sure that your cleaning products are bio-degradable and phosphate-free.

For further information on shoreline living, contact the local agencies listed on the back page.

Loose rocks, called rip-rap, at the water's edge helps prevent erosion.

Common Shoreline Plants of Southern Ontario

These plants are all native to southern Ontario and suited to shoreline rehabilitation.

DRY, UPLAND AREAS (rocky, exposed sites)

Trees

| | |
|--------------|---------------------------|
| Balsam Fir | <i>Abies balsamea</i> |
| Sugar Maple | <i>Acer saccharum</i> |
| White Birch | <i>Betula papyrifera</i> |
| White Ash | <i>Fraxinus americana</i> |
| White Spruce | <i>Picea glauca</i> |
| Red Pine | <i>Pinus resinosa</i> |
| White Pine | <i>Pinus strobus</i> |
| Black Cherry | <i>Prunus serotina</i> |
| White Oak | <i>Quercus alba</i> |
| Red Oak | <i>Quercus rubra</i> |
| Burr Oak | <i>Quercus macrocarpa</i> |
| White cedar | <i>Thuja occidentalis</i> |
| Basswood | <i>Tilia americana</i> |

Shrubs

| | |
|------------------|--------------------------------|
| Serviceberry | <i>Amelanchier sp.</i> |
| Chokeberry | <i>Aronia melanocarpa</i> |
| Grey Dogwood | <i>Cornus racemosa</i> |
| Common juniper | <i>Juniperus communis</i> |
| Creeping juniper | <i>Juniperus horizontalis</i> |
| Ninebark | <i>Physocarpus opulifolius</i> |
| Chokecherry | <i>Prunus virginiana</i> |
| Fragrant Sumac | <i>Rhus aromatica</i> |
| Staghorn Sumac | <i>Rhus typhina</i> |
| Red Elder | <i>Sambucus pubens</i> |

Grasses and Wildflowers

| | |
|-------------------|--------------------------------|
| Canada Anemone | <i>Anemone canadensis</i> |
| Heath Aster | <i>Aster ericoides</i> |
| New England Aster | <i>Aster nova-angliae</i> |
| Helen's Flower | <i>Helenium autumnale</i> |
| False Sunflower | <i>Heliopsis helianthoides</i> |
| Switchgrass | <i>Panicum virgatum</i> |
| Black-eyed Susan | <i>Rudbeckia hirta</i> |

WET, LOWLAND AREAS (wet or flooded part of the season)

Trees

| | |
|-----------------|-------------------------------|
| Red Maple | <i>Acer rubrum</i> |
| Silver Maple | <i>Acer saccharinum</i> |
| Black Ash | <i>Fraxinus nigra</i> |
| Green Ash | <i>Fraxinus pennsylvanica</i> |
| Tamarack | <i>Larix laricina</i> |
| White cedar | <i>Thuja occidentalis</i> |
| Eastern hemlock | <i>Tsuga canadensis</i> |

Shrubs

| | |
|--------------------|----------------------------|
| Speckled Alder | <i>Alnus incana</i> |
| Silky Dogwood | <i>Cornus amomum</i> |
| Red Osier Dogwood | <i>Cornus stolonifera</i> |
| Sweet gale | <i>Myrica gale</i> |
| Bebb Willow | <i>Salix bebbiana</i> |
| Pussy Willow | <i>Salix discolor</i> |
| Shrub Willow | <i>Salix eriocephala</i> |
| Sandbar Willow | <i>Salix exigua</i> |
| Slender Willow | <i>Salix petiolaris</i> |
| Common Elderberry | <i>Sambucus canadensis</i> |
| Meadowsweet | <i>Spirea alba</i> |
| Highbush Cranberry | <i>Viburnum trilobum</i> |
| Nannyberry | <i>Viburnum lentago</i> |

Grasses and Wildflowers

| | |
|-------------------------|---------------------------------|
| Canada Anemone | <i>Anemone canadensis</i> |
| Swamp Milkweed | <i>Asclepias incarnata</i> |
| Canada Blue-joint Grass | <i>Calamagrostis canadensis</i> |
| White Turtlehead | <i>Chelone glabra</i> |
| Water Willow | <i>Decodon verticillatus</i> |
| Canada Wild Rye | <i>Elymus canadensis</i> |
| Boneset | <i>Eupatorium perfoliatum</i> |
| Joe-Pye Weed | <i>Eupatorium rugosum</i> |
| Closed Gentian | <i>Gentiana andrewsii</i> |
| Helen's Flower | <i>Helenium autumnale</i> |
| Cardinal Flower | <i>Lobelia cardinalis</i> |
| Giant Bur-reed | <i>Sparganium eurycarpum</i> |
| Prairie Cordgrass | <i>Spartina pectinata</i> |
| Common Vervain | <i>Verbena hastata</i> |

Local Resources

SOURCES OF PLANTS

- **Peterborough Ecology Park**
(potted native shoreline plants, mulch and shoreline advice – open May through October)
Ashburnham Drive (beside Peterborough Utilities), Peterborough, Ont.
Phone: (705) 745-3238
Email: greenup@greenup.on.ca
- **Peterborough County Stewardship Council**
(bare-root plants in spring; shoreline advice)
300 Water St., Box 7000
Peterborough, Ont. K9J 8M5
Phone: (705) 755-1951
Email: duncan.armstrong@mnr.gov.on.ca
- **Rehill Building Supplies**
(geotextile filter cloth for erosion control)
921 High St., Peterborough, Ont. K9J 5R1
(705) 742-5428
- **Richardson Pineneedle Farms**
(bare-root trees and shrubs)
Box 220, Pontypool, Ont. L0A 1K0
Phone: (705) 277-9993
Email: pineneedle@bellnet.ca
- **Society for Ecological Restoration**
(catalogue of growers of native plants in Ontario) www.serontario.org

OTHER RESOURCES

- **Peterborough Green-Up - Water Protectors' Program**
360 George St. N., Unit 42
Peterborough, Ont. K9H 7E7
Phone: (705) 745-3238
Email: greenup@greenup.on.ca
- **Otonabee Conservation**
250 Milroy Dr.
Peterborough, Ont. K9H 7M9
Phone: (705) 745-5791
Email: otonabee@otonabee.com
- **Department of Fisheries and Oceans**
501 Towerhill Rd., Unit 102
Peterborough, Ont K9H 7S3
Phone: (705) 750-4004 (Stephen Haayen)
- **Wetland Habitat Fund**
Box 436, 266 Charlotte St.
Peterborough, Ont. K9J 2V4
Phone: (705) 743-5327
Email: mbarker@wetlandfund.com
Website: www.wetlandfund.com