



Guidelines for Responsible Waterfront Development



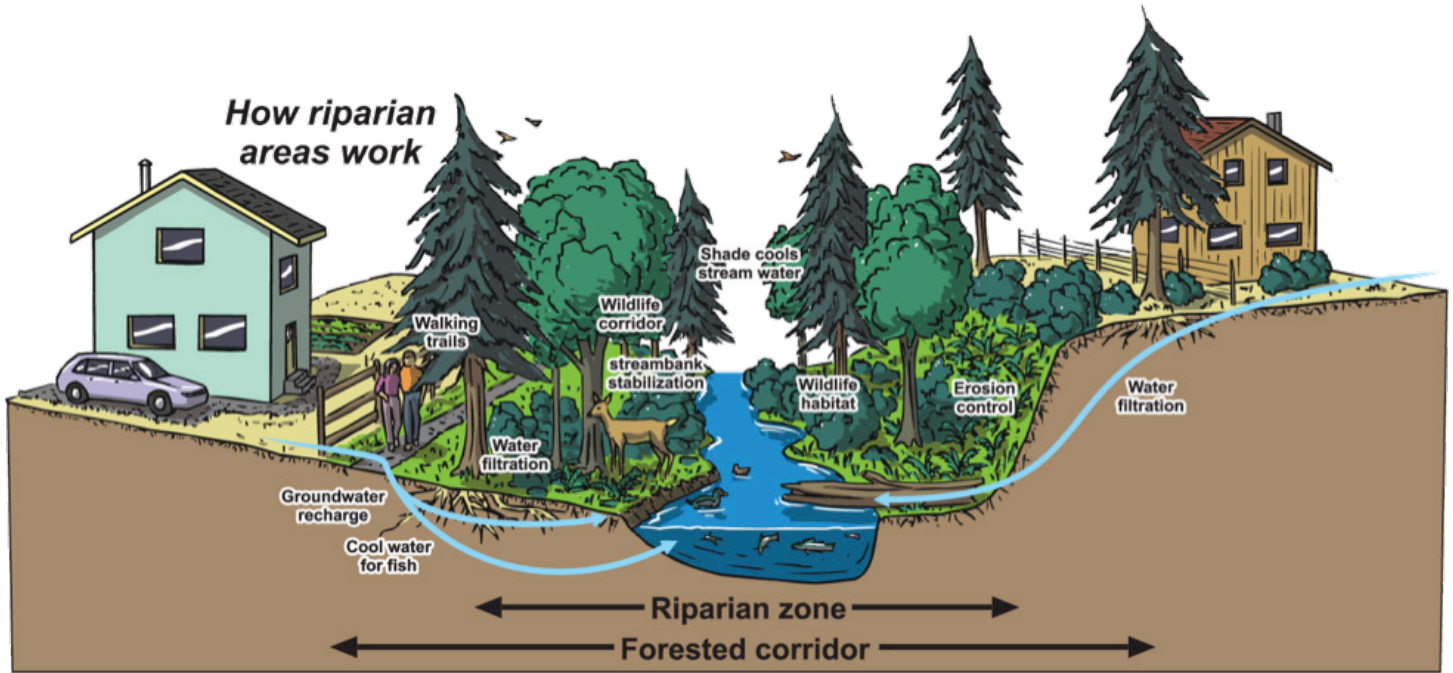
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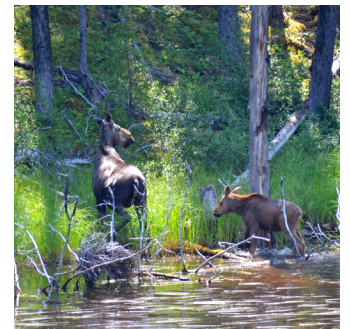
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Riparian Areas

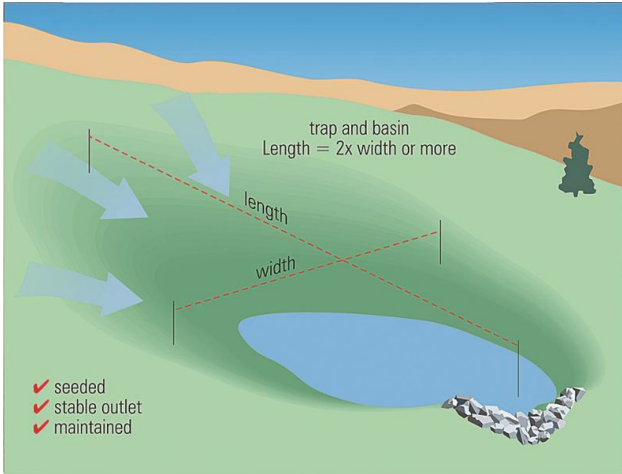
This brochure is designed to provide information for responsible waterfront development and waterfront living. Owners of waterfront property have a unique opportunity to serve as environmental stewards. By following simple guidelines, these properties can become more enjoyable, see an increase in value, and be preserved for future generations. It is important to note that both the BC Ministry of Environment and the Federal Department of Fisheries and Oceans (DFO) have legislation that restricts the modification of the natural environment in and near lakes and watercourses. These agencies should be contacted prior to the commencement of any works near a lake or watercourse.



“Leave Strips” are areas of undisturbed vegetation next to watercourses that are intended to protect the riparian zone, which is critical to the maintenance of a healthy aquatic environment. The required extent of a leave strip can vary depending on the nature of the lake or watercourse and surrounding land use. The Ministry of Environment and DFO recommend leave strips of a minimum of 15 metres from the high water mark of the watercourse. Leave strips also protect property from flooding, erosion, and bank instability.



Increased sediment loads in lakes and watercourses is a significant contributor to the degradation of water quality and aquatic habitat. Many land development activities can contribute to the erosion of sediments into lakes and watercourses. Simple methods can be employed to control erosion and sediment transport when developing land.

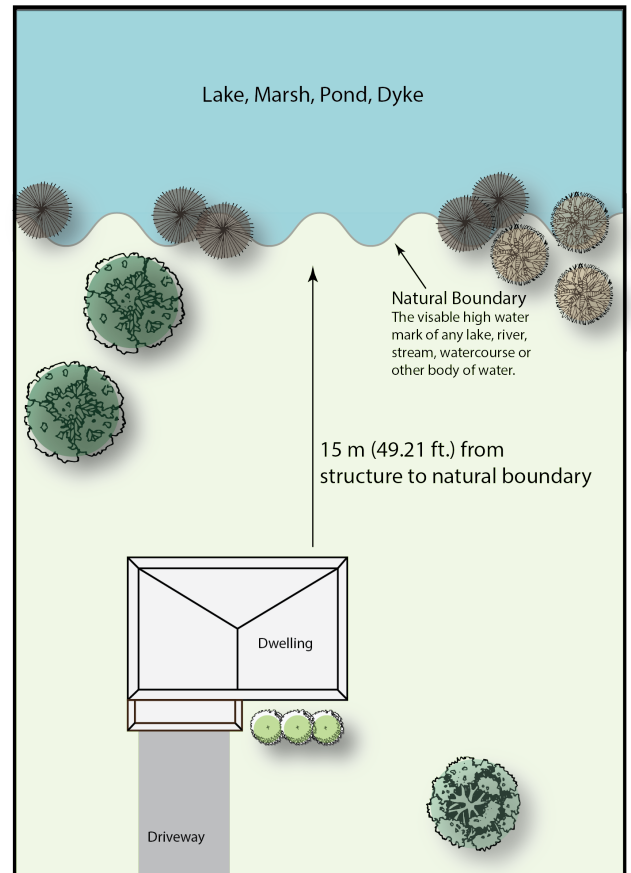


- Maximize the distance between water features and construction sites, and retain as much vegetation as possible
- Minimize soil excavation and soil disturbance, and seed or re-vegetate bare soils as soon as possible
- When soils are exposed, use sediment control structures such as sediment traps and silt fences
- Schedule development during dry months of the year when possible
- Consider the topography of the site and its effect on the drainage of the property

Building Setbacks

Section 3.08 of RDBN Zoning Bylaw No. 1800 prescribes setbacks for all buildings and structures from the natural boundary of a lake or watercourse. Flood prone rivers and creeks are identified and prescribed a specific setback, and unspecified watercourses are prescribed a 15 metre setback. Lakes, marshes and ponds are prescribed a minimum 15 metre setback, except where a property is less than 2,025 m² in area, the setback is 7.5 metres. The 15 metre setback may also be required to meet Ministry of Environment and DFO regulations. Locating a building or structure closer than 15 metres from the natural boundary of a lake may require a variance from the Zoning Bylaw.

The RDBN Floodplain Management Bylaw No. 1878 also affects the placement of buildings and structures on waterfront properties. This Bylaw specifies both elevation and setback requirements for certain buildings, structures and equipment to protect them from flood damage.



On-Site Sewage Disposal Systems

In the rural areas of the RDBN, sewage disposal is commonly treated on-site. Many existing residential lakeshore properties were created without consideration for future on-site sewage disposal requirements. As these systems age and approach the end of their life-span, property owners may find replacing these systems to be challenging and expensive.

Existing on-site sewage disposal systems should be continually monitored to ensure that they are functioning properly. Poorly maintained septic systems are more likely to fail than systems which are inspected regularly and pumped out as required.

Septic tanks should have the accumulated solids pumped out by an approved sewage hauler every three to five years. The malfunctioning or failure of an on-site sewage system is usually not obvious until it is expelling untreated sewage, which can be catastrophic to the delicate waterfront ecosystem. This can also cause a significant health hazard, contaminate drinking water and reduce water quality.

The following Best Management Practices from the Environmental Protection Division of the Ministry of Environment are designed for homeowners and will help ensure that their systems function properly and maximize the lifetime of the system:

- Make sure that your system meets legal requirements before installing, repairing or upgrading an onsite sewage system. In BC, the Ministry of Health Planning is responsible for septic systems and installation is permitted under the Sewage Disposal Regulation of the Health Act. Contact your local public health authority for permits for repairs, improvements, installations and further information.
- Sketch a map of your septic system showing the location of all components and keep it with your maintenance and repair records. This will make maintenance easier and be useful to future owners.
- Keep your septic tank cover accessible for inspections and pumping. Install risers if necessary.
- Have your system inspected annually to ensure that it is working properly and to determine when it should be pumped out. By inspecting and pumping your system regularly you can prevent high repair or replacement costs. A professional can do a thorough inspection of the entire system including the disposal field and individual components of the system.
- Use low-phosphate or phosphate free detergents.
- Pump out the tank regularly to prevent accumulating solids and clogging the disposal field. The frequency of pump outs will depend on the size of your system, the number of people in the house and the habits of those individuals. A general rule is once every three to five years.
- Upgrade your system when you upgrade your home (i.e. when you add a bedroom or suite).
- Divert roof drains, surface water and sump pumps away from the disposal field. Don't saturate your disposal field with automatic sprinklers.
- Avoid using garburators - this will reduce the amount of solids and grease you put into the system.
- Don't put toxic chemicals (paints, varnishes, thinners, waste oils, photographic solutions, or pesticides) down the drain because they can kill the bacteria at work in your system and can contaminate water bodies.



- Use biodegradable household cleaners instead of bleach or other hazardous products (which will kill the good bacteria in your system), and do not use toilet cleaners that are placed in the tank.
- Don't drive, pave or put heavy objects or machinery over the septic system and disposal field. Don't cover the disposal field with a hard surface such as concrete or asphalt since evaporation will be prevented. This area should only have a grass cover which will prevent erosion and help remove excess water.
- Don't plant trees or shrubs near the drain field because their roots can damage or plug the pipes. Plant grass instead.
- Don't use septic tank 'starters', additives or similar products. These products usually do not help and can sometimes harm your system. Allow bacteria to act on their own.

An appropriate and effective on-site sewage disposal system is very important for waterfront properties. Domestic sewage is an important contributor of phosphorous to lakes and watercourses because primary and secondary treatment removes only a portion of the element from sewage. Excess phosphorous causes accelerated aquatic plant and algae growth, which degrades water quality and aquatic habitat.

It is vital that owners of waterfront property install sewage systems that comply with Provincial legislation. Property owners must ensure that new on-site sewage disposal systems are designed and installed by a Registered On-site Wastewater Practitioner or engineer following the Sewerage System Regulation and Sanitary Regulations under the Health Act. The Northern Health Authority is responsible for the enforcement of these regulations, and is available to advise and provide information to individuals about on-site sewage treatment. The Sewerage System Regulations require on-site sewage disposal systems be set back a minimum of 100 feet (30 metres) from lakes and watercourses.

Northern Health is the regulating body for on-site sewage disposal systems. For more information go to northernhealth.ca/services/environmental-health

Don't Use Toilets as Trash Cans!

Excess solids can clog your drain field which will cost you money for more frequent pumping. Items that shouldn't be flushed include:

- Coffee grounds
- Disposable diapers
- Sanitary napkins
- Cigarette butts
- Fat, grease, or oil
- Dental floss
- Kitty litter
- Tampons
- Condoms
- Paper towel and facial tissue

Signs of a Failing Septic System

- Unusually green or spongy grass over the system.
- Toilets, showers and sinks back up or take a long time to drain.
- Sewage surfacing on your lawn or in a nearby ditch.
- Sewage odours around your yard, especially after rain.

None of these warning signs can be considered a sure indication that a system has failed, but the appearance of one or more should prompt homeowners to have their system inspected. Septic system failures can occur without any of these warning signs, thus a yearly inspection of systems is recommended.

Docks & Boating

Docks are a standard feature on many waterfront properties and are an important part of the recreational use of lakes. Docks and swimming platforms can be alternatives to creating a beach. The location and construction of docks must be done in compliance with all provincial and federal legislation, including legislation dealing with fish habitat, water quality and navigation.

In most instances in BC the area of land between the normal high and low water marks is owned by the Crown. Any permanent construction on this land requires approval from the Provincial Government, contact your local Front Counter BC Office for more information. Construction may be required to adhere to best management practices related to size, environmental impacts, conflicts with neighbours, and impediments to public access.

The Department of Fisheries and Oceans and the Ministry of Environment Water Stewardship Division require notification prior to the commencement of any foreshore construction activities.



The use of motorized boats is an integral part of common recreational activities such as fishing and swimming. In some areas of the RDBN they are also important for transportation. Motorized boats can have a number of negative impacts on a lake. These include oil and fuel leaks, spread of aquatic plants, dumping of litter, churning up of bottom sediments and shoreline erosion due to wave action. It is up to each boat operator to be aware of these impacts and act accordingly. Simple measures can prevent these impacts both on shore and on the water.

Dock Construction Tips

- Use existing trails, roads, or cut lines when possible to avoid disturbance to vegetation. If removal of vegetation is necessary, keep it to a minimum.
- Avoid construction or placement of your dock or boathouse in areas of known fish spawning habitat.
- Locate your dock to avoid vegetation. Minimize disturbance to the lakebed and surrounding vegetation by positioning the dock in water deep enough to avoid grounding of the dock and/or impacts by prop wash.
- Use untreated materials (e.g. cedar, tamarack, hemlock, rocks, plastic, etc.) as supports for dock structures that will be submerged in water. Treated lumber may contain compounds that are released into the water and are toxic to the environment.
- Cut, seal and stain all lumber away from the water using environmentally-friendly stains.
- Ensure plastic barrel floats are free of chemicals inside and outside of the barrel before they are placed in water.
- Avoid the use of rubber tires or metal barrels as they are known to release compounds that are toxic to fish.
- Do not take materials (e.g., rock, logs) to build the dock from the shoreline, from below the high water mark or from any water body.
- Install effective sediment and erosion control measures before starting work to prevent the entry of sediment into the watercourse. Inspect them regularly during the course of construction and make repairs if any damage occurs. In addition, avoid working during rainy periods.
- Prevent harmful substances such as uncured concrete, grout, paint, sediment and preservatives from entering the water body.

Invasive Plants in our Water

Invasive species are threatening BC's aquatic and riparian ecosystems, such as streams, lakes, and wetlands, and the species that rely on them. Water-based recreation activities such as angling, boating, diving, and hunting, can spread aquatic invasive species to new locations. Plants, animals, and microscopic creatures can cling to clothing, equipment, and boats. If not cleaned, these species can be introduced into new bodies of water.



- Drain water from boat (including motor, live well, bilge, and transom wells), trailers, tackle, and gear (including waders) before leaving an area.
- Inspect your boat, motor, trailer, and equipment and remove all aquatic plants and visible debris before leaving the area. Dispose of plant material responsibly.
- Empty your bait bucket on land before leaving any waterbody.
- Inspect your equipment and remove all aquatic plants and visible debris before leaving the area. Dispose of plant material responsibly.

Landscaping and Lawn Care

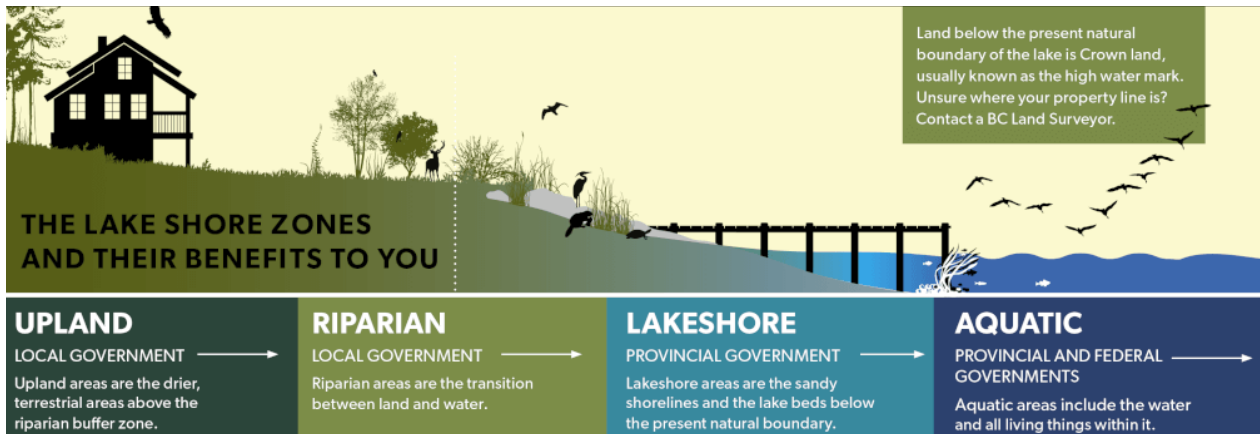
It is important to recognize that traditional landscaping with large manicured lawns that extend to the shore or an erosion protection structure can cause serious problems for the adjacent lake. Many of the pleasurable aspects of lakeshore living are dependent on a healthy, well-vegetated shore.

Shorelines should be protected by a “Leave Strip” of natural vegetation at least 15 metres wide. Shoreline buffers have the added benefit of deterring Canada Geese from lawns. If a view to the lake is desired, consider selectively removing a small width of the tops of vegetation only. Minimize the area required to be cleared for beach access, and keep disturbances near the water to a minimum. Also, consult the BC Ministry of Environment and the federal Department

of Fisheries and Oceans (DFO) before undertaking any work near or in a lake.

Maintaining a natural landscape can be aesthetically pleasing and require less maintenance. Consider smaller lawns with shrub borders or native plantings. Lawn height should be maintained to about 2.5 to 3 inches and mowing should only be done when necessary. Long grass requires less watering and can be self-fertilized by leaving grass clippings on the lawn. The use of fertilizers and pesticides should be limited or eliminated altogether. Fertilizers flow into the lake from runoff where they fertilize aquatic plants and algae. Pesticides can be toxic to people, wildlife and fish.

- Minimize disturbance by leaving as much natural vegetation as possible.
- Avoid trimming vegetation along shoreline properties. If you want to reduce fuels near your home, consider alternate practices like cutting lower limbs.
- Avoid using chemicals for landscaping (fertilizers, pesticides, and herbicides).
- Allow native vegetation to grow and establish a natural buffer around the lake.
- Avoid development and turf lawns in riparian zones.
- Design a single, unpaved access to the shoreline. Riparian areas offer connectivity to upland habitats for wildlife.
- Limit disturbance to the shoreline and lakebed by foot and boat traffic. Never grade or move soils around the lakeshore.
- Leave logs and leaves untouched, as these provide food and habitat for fish and wildlife.
- Do not add fill, sand, or gravel to the natural shoreline.



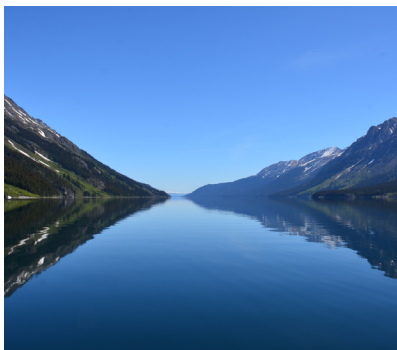
The shorelines of many lakeshore properties have already been significantly altered from their natural state. The important habitats that were lost can be rehabilitated through careful planning and planting. The primary goal of shoreline rehabilitation is to reestablish a natural vegetated buffer between the terrestrial and aquatic ecosystems. The easiest and least expensive method of rehabilitation is to simply stop mowing along the shoreline. If you wish to replant native vegetation, consult with DFO or the Ministry of Environment to determine which plants are suitable.



1. Cleared, manicured lot
2. Runoff
3. Chemical fertilizers and pesticides
4. Lawn to the water's edge
5. Hardened shoreline
6. Artificial beach
7. Old 2-stroke engine
8. Solid crib dock
9. Malfunctioning septic system
10. Harmful household chemicals and cleaners

1. Native trees and shrubs
2. Replace solid surfaces with porous materials
3. Mow it high and let it lie
4. Buffer of uncut grass and replanted native plants
5. Softened shoreline with native plants
6. Dry land beach above the high water mark
7. Well maintained 4 or 2-stroke engine
8. Cantilevered or floating dock
9. Properly installed and maintained septic system
10. Environmentally friendly products

Resources



There are a vast number of resources available to property owners that are interested in protecting water quality and aquatic habitat . The organizations listed below provide detailed information that is available online free of charge.



Department of Fisheries and Oceans

The Fisheries and Oceans Canada (DFO) Library provides information, tools and services that support the management of Canada’s fisheries and the safety of our waterways. You can download, request or borrow items from the library’s collection of publications in marine, freshwater and nautical sciences.

science-libraries.canada.ca/eng/fisheries-oceans/

BC Ministry of Environment

Information on water licencing, living water smart initiative, ground water well and water conservation.

www2.gov.bc.ca/gov/content/environment/air-land-water/water



Environment Canada

Information on water quantity, freshwater quality, cleaning up our lakes and rivers, water science, sustainability indicators, marine water quality, protecting water.

www.canada.ca/en/environment-climate-change/services/water-overview.html



The Partnership for Water Sustainability in BC

The Partnership for Water Sustainability in British Columbia is the hub for a “convening for action” network in the local government setting, is responsible for delivering the *Water Sustainability Action Plan* through partnerships and collaboration, and embraces a vision for shared responsibility where all the players align their efforts for the greater common good.

waterbucket.ca/



The Living By Water Project

Working towards healthier human and wildlife habitat along the shorelines of Canada.

www.livingbywater.ca

BC Lake Stewardship Society

Promotes stewardship and understanding of Lakes, Reservoirs, and Watersheds.

www.bclss.org

Watersheds BC

We work to strengthen BC's watershed security by equipping & supporting local people and decision-makers like you with the knowledge, training, and networks you need to restore and secure your home watersheds. Explore our curated collection of resources published by the BC freshwater community to expand the breadth and depth of your knowledge of watershed governance and security.

watershedsbc.ca/

The Stewardship Centre for British Columbia

The Stewardship Centre for BC Promotes and delivers stewardship education. Develops and champions science-based stewardship practices for land and water in BC.

www.stewardshipcentrebc.ca/resources

Invasive Species Council of BC

Information on invasive plants and animals in British Columbia. The online publication page contains best management practices, factsheets, reports, field guides, and other reference books which can be downloaded at no cost as PDFs.

bcinvasives.ca/resources/





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