

Blog

Creating a Resilient Shoreline: Keeping a natural shoreline that benefits your family and local wildlife

NOVEMBER 26, 2021 BY MONICA SEIDEL

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by Monica Seidel, Communications and Fundraising Coordinator, Watersheds Canada

This past summer, you might have enjoyed the company of a northern map turtle, green frog, calico pennant dragonfly, or Great Blue Heron along the shores of Georgian Bay. Like you probably did, these charismatic and iconic species spent a large part of their summer near the shoreline. In fact, these species depend on the shoreline and riparian zone for their very survival. This zone includes the first 30-metres of land around a lake, river, or bay and is often seen as a ribbon of life because it supports 70% of land-based wildlife and 90% of aquatic species at some point in their lifetime (Kipp & Callaway, 2003). Wildlife will use this area for food, water, shelter, breeding, and nesting.



Wild Bergamot (*Monarda fistulosa*) is a perennial wildflower that blooms a beautiful pink/lavender flower between July and September. Photo: Monica Seidel.

In addition to supporting wildlife populations, shorelines are important to Canadians – 53% of surveyed Canadians said natural shorelines was an element that affected their personal enjoyment of being by the lake (Love Your Lake, 2020). Shorelines provide people with important cultural, recreational, and economic opportunities and can be fundamental in shaping our connection and relationship with freshwater and nature from an early age. Ontario is home to more than 250,000 lakes which means many of us have (or know someone who has!) a waterfront property that we can visit and enjoy.

Increasingly though, these important areas and the wildlife that live there are under threat. Over 55% of Canada's

species or unique populations of freshwater fish are at risk (Cooke, et al., 2021), with the Eastern Georgian Bay sub-watershed being scored as “very high” for various threat indicators including pollution, habitat fragmentation, invasive species, and overuse of water (WWF-Canada, 2020). Facing increasing pressures from development and the changing climate, it is important to look at nature-based solutions to protect our freshwater areas.

Planting on-land native vegetation

The best way to create wildlife habitat and protect your shoreline from erosion is to start or enhance a native plant buffer. By planting a variety of native trees, shrubs, and wildflowers, your shoreline will benefit from different root structures that work to hold your shoreline together.

When choosing suitable plants for your shoreline, it is important to consider your site conditions (sunlight, soil, moisture), personal preferences (plant type and height), and goals of planting. If protecting waterfront views is important to you, you will want to plant low growing species. Or, if your main priority is attracting wildlife and pollinator species to your property, you may want to plant a variety of flowering and fruiting shrubs and wildflowers. By choosing many plants that bloom and fruit throughout the year, you will increasingly help local wildlife. Some examples include:

- Wildflowers: Blue Lupine (blooms in spring), Wild Columbine (spring), Wild Bergamot (summer), Common Milkweed (summer), New England Aster (late summer/fall)
- Shrubs: Allegheny Serviceberry (spring/summer), Shrubby Cinquefoil (summer), Black Elderberry (late August), Smooth Arrowwood (fall), Winterberry Holly (winter), Red Osier Dogwood (winter)

A great free tool you can use to pick native plants best suited for your property is the [Native Plant Database](#). This database selects plants based on Canada’s hardiness zones; much of Georgian Bay is located in zone 5b. Once you decide what you want to plant on your property, it is important to consider the size of your buffer. One study found that a 30-metre buffer removed more than 85% of all studied pollutants including suspended sediment, nutrients, and pesticides (Zhang, et al., 2010)!

Compared to turf grass, deep rooted plants like silver maple, black chokeberry, and nannyberry have extensive root systems, making them valuable for filtering runoff and stabilizing loose soils that may be vulnerable to erosion, ice push, and boat wakes. Any sized buffer is better than no buffer at all! Remember that your buffer can be completely customized based on your preferences and budget.

Protecting and enhancing in- and near-water habitat

Another critical component of a resilient shoreline is the presence of different types of habitat features which provide shade and protection for fish, turtles, and macroinvertebrates. Start enhancing in- and near-water habitat this fall by doing...nothing! Fallen branches, leaves, and downed trees in the water and along the shoreline act as a valuable land-water interface for species like northern map turtle and Great Blue Heron and provide protection for fish and frogs. You likely already have some of these features on your property and they simply need to be left alone if it is safe for you to do so.



This property was re-naturalized in 2018 using a variety of native plants. The photo on the right shows the transformation as of 2020.



Fragrant White Water Lily (*Nymphaea odorata*) is an example of a floating aquatic plant as it has most or all of its leaves floating freely on the water's surface. Photo: Monica Seidel.

As for aquatic vegetation, you may have seen these plants and not thought about their many amazing benefits – aside from being beautiful! Aquatic vegetation absorbs wave energy, protects water quality, produces oxygen, takes up nutrients, stabilizes shorelines and bottom sediments, and protects against invasive species and algae competition. They keep busy! In order to experience these full benefits on your property, you are best to manually clear a small path through any existing aquatic vegetation so you can get to deeper waters. You then leave the rest untouched.

Additional resources

If you are looking for more information about taking local action, please visit watersheds.ca/resources to access free fish habitat enhancement guides, plant care guides, and self-assessment tools

to help you protect Georgian Bay for years to come.

About Watersheds Canada

Watersheds Canada is a federally incorporated non-profit organization and registered Canadian charity (863555223RR0001) that is committed to building and sharing education and stewardship programs in communities across the country. Since 2002, these programs have engaged and helped youth, property owners, community groups, and organizations enhance and protect the health of their lakes, rivers, and shorelines.

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Blog

Know, and love, your lake!

NOVEMBER 2, 2021 BY MONICA SEIDEL

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by Mario Garavito

In its simple definition, a lake is a body of water that is surrounded by land. A lake can be found in every continent around the world, varying greatly in size and in depth. It could be small enough to fit in your backyard – like a pond – or so big that it is known as sea – the Caspian Sea is the world's largest inland lake, measuring over 371,000 km² in size!

Canada is exceptionally fortunate when it comes to lakes. According to different studies, our country is home to the largest number of lakes in the world, with about 7.6% of Canada's nearly 10 million km² being covered by freshwater. Therefore, despite an apparent abundance, the freshwater resource must be managed carefully. We have a responsibility of protecting these important bodies of water!



Lake-side adventures (photo: Mario Garavito).

Why are lakes important?

Lakes are ecosystems: areas where biological energy flows through a food chain that is used by many different types of organisms like birds, mammals, plants, and insects. In other words, a lake is a community where living organisms live and interact. Its health is vital for maintaining the equilibrium, or balance, of the whole system.

Did you know: Some scientists believe the first living organisms on Earth developed in lakes?

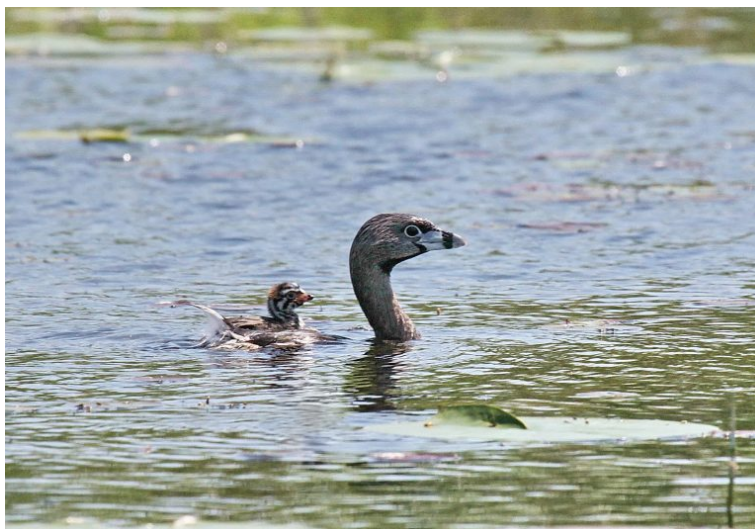
Likewise, lakes are important in preserving and maintaining wildlife populations. These freshwater areas serve as migration stops and breeding grounds for many birds and as refuges for a wide variety of other animals. For people, lakes are valuable resources in a variety of ways. For example:

- Farmers use lake water to irrigate crops;
- Lakes supply many communities with water; and,
- Because they are often very beautiful, lakes are popular recreation and vacation spots, and, for some fortunate ones, their permanent homes.

Is my lake healthy?

We are completely sure that if you are reading this article, you care about Canada's lakes. Because of that, you probably wonder if the lake where you live or which you constantly visit is in good health. The answer is not as simple, as not all lakes are alike, but there are some common aspects that can help to make a first evaluation:

- **Healthy characteristics:**
 - **Life!** If you see fish and plants, it is a good sign;
 - **Turbidity:** the less, the better;
 - **Wildlife:** have you seen deer or other animals drinking water from the lake?
 - **Water circulation:** allows oxygen to be spread throughout the lake and is an essential part of keeping the lake alive.



Pied-billed Grebe with baby (photo: Simon Lunn).

- **UNhealthy aspects:**
 - **Eutrophication:** when a lake gets too many nutrients, it causes blue-green algae growth;

- **Blue-green algae** (cyanobacteria): It stays on the surface of the water and forms a sort of mat. When the conditions are just right, the algae multiply quickly. This is called an algal bloom and is harmful to lakes, animals, plants, and people; and
- **Invasive species**: can change the natural habitat of the lake and are known as biological pollutants when this happens.



Algae bloom (photo: Barbara King).

What can I do for my lake?

There are many actions that you can take to protect and take care of your lake. At Watersheds Canada, we have been working all over the country alongside local community groups and individuals with the mission to protect and restore freshwater. One of them is **Love Your Lake**, a shoreline evaluation and stewardship program that provides individuals with a property specific report outlining voluntary actions that can improve the health of your lake and shoreline property.

The Love Your Lake Program has successfully assessed more than 150 lakes across Canada which includes almost 40,000 shoreline properties. You can learn more about the Program at loveyourlake.ca

Also, we would love to know which is your favourite lake in Canada and what you are doing to protect it. We invite you to write it in the comments and share this article with some friends or family that **love the lakes as much as you**. You can also fill in this short survey to let us know what you love about your lake: loveyourlake.ca/survey

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Blog

Using Benthic Macro-invertebrates as a Way to Assess Aquatic Pollution Levels

AUGUST 24, 2021 BY MONICA SEIDEL

[LEAVE A COMMENT](#)

by Ian Grist

If you are a property owner with a river, creek, or stream nearby, you may be concerned or curious about the health and pollution levels in the water. There are ways you can find out the contaminate levels present in your water by what aquatic organisms you observe. In particular, benthic macro-invertebrates are excellent bio-indicators of freshwater health. Macro-invertebrates do not have a backbone and are visible to the naked eye. They live on the bottom of a water body, often in the substrate. Since they spend large parts of their lifecycle in the water, they are very sensitive to different levels of pollution they encounter over their lifetime.

Researchers use macro-invertebrates as bio-indicators, or “living indicators”, because of their short life-cycle, the fact that they are all genetically similar, and because of their sensitivity to a broad range of contaminants and pollution. In each aquatic ecosystem, there are tons of different macro-invertebrate species present and every species has different tolerance levels to pollution. For example, *Daphnia sp.* (pictured below), also known as water flea, is very sensitive to contaminants. Finding these species in your stream is a good sign of a healthy ecosystem. The presence or absence of zooplankton is also a good indicator of a polluted stream or river.



Some of the low tolerance macro-invertebrates include caddisflies, dragonflies, water pennies, stoneflies, and mayflies. Finding these means the ecosystem is healthy. If, however, you only find any black flies, aquatic worms, or midges, this may indicate your stream or river is contaminated as these species are all tolerant to higher levels of pollution.

I encourage you next time you are out on the water to bring a net and some small containers to see what species of benthic macro-invertebrates are in your local stream or river. Not only will you discover a bit more about the health of your local aquatic ecosystem, but you can also submit your findings to an online citizen science platform like [iNaturalist](#). Happy adventuring!

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Blog

Walleye or Pickerel – The Great Debate

JUNE 13, 2019 BY MELISSA DAKERS

19 COMMENTS



My father and I have had a friendly debate going for a number of years regarding the name of a particular sport fish. And as my career in fish habitat restoration has established, I am finding this is common debate amongst many Ontario outdoors people.

As a long time fisherman, my father has always referred to the common fish species *Sander vitreus* as a pickerel, and when I was younger, who was I to argue with him. Growing up my father instilled in me, my love for the outdoors, from many hikes in our local conservation areas, to family vacations at various cottages near Georgian Bay and North Bay. One of my earliest memories is of lying beside the Northern Pike that my dad caught when I was 3 years old. I was the same size as the fish which is still proudly displayed above his fireplace (the fish...not me!) Fishing has always been something that I have had in common with my dad, from river fishing, to ice fishing; it is something we will always share.

So when I decided to study environmental sciences in school, it was pretty clear that I wanted to focus on protecting those ecosystems that we both loved. What I didn't realize was that it would question the knowledge of the man who had been my first teacher. When I took my first biology/fisheries courses, I learned a lot about the largest member of the perch family, the walleye and I was very excited to share this information with my dad. But that was when it began...the big debate! He placed his hand on my shoulder and said, "Oh, you mean Pickerel!" Confused, I said to him "no walleye" and showed him my notes and then proceeded to explain the difference between walleye and pickerels. He laughed it off and said that everyone called them pickerels and that they might not be teaching the correct terminology. Truth be told, that I did realize that depending where you are from, many fish, and animals for that matter, can be referred to by different common names, and neither are right or wrong. I just like to push my dad's buttons.

Over the last 20 years, my dad and I have jokingly gone back and forth over this issue until recently. He showed me an article from a provincial fishing magazine which explained the differences between Walleye, Sauger, Pike and Pickerel. I was so excited it was the

same info I had been explaining to him all these years. Finally I was going to prove to him that I was right. After reading the article he looked at me said, "See, I told you it was called a "walleye" not a pickerel!" Smiling to myself, I laughed and thought who was I, to argue with him.

Want to know the difference between a Walleye and Pickerel?

It should be noted that common names of fish could be culturally different depending on the region that you live. Walleye are often called pickerel, especially in English speaking parts of Canada, while in the United States of America, they call the same species (*Sander vitreus*) a walleye. The same thing happens with another fish, with some people calling a Rainbow Trout (*Oncorhynchus mykiss*) a Steelhead. Neither are right or wrong; they are a cultural preference. For the sake of this article, and the friendly debate between my father and me, here are the differences between a Walleye (*Sander vitreus*) and a Grass Pickerel (*Esox americanus vermiculatus*):

Walleye (*Sander vitreus*) are the largest members of the perch family. They are a cool freshwater fish, native to most of Canada. The walleye is named for its pearlescent eye that helps them see and feed at night or in murky water. They are often found in deeper water, especially when the climate is warm.

Walleye (*Sander vitreus*)



Grass Pickerel (*Esox americanus vermiculatus*)



Pickerel – the term pickerel is reserved for small fishes in the Pike Family. Grass Pickerel (*Esox americanus vermiculatus*) are a species of special concern in Canada. They are found in shallower waters, and are long and slender, resembling and often mistaken for its more northern cousin...the Northern Pike. (But that I will tell you about that another time!)

Whatever you call this fish, you can rest assured that Watersheds Canada's fish habitat restoration projects work to restore their spawning areas. For over seven years, Watersheds Canada has worked alongside community groups and local volunteers to restore historic walleye spawning beds and ensure local populations stay healthy for years to come. How do we do it? You can learn about past walleye spawning bed projects on our Fish Habitat Projects [webpage](#), or by reading our free and accessible [Fish Habitat Enhancement Toolkit](#) (created in partnership with the Lanark Stewardship Council).

Article resources:

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Blog

Enhancing Fish Habitat with Woody Debris

APRIL 13, 2017 BY JORDEN KEELEY

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Written by: **Melissa Dakers, 2017**

Here Fishy, Fishy, Fishy!

The Benefits of Adding Woody Debris to Enhance Fish Habitat



With the warmer weather upon us, many Canadians start dreaming about heading to the lake. Visions form of standing on the dock or heading out in the boat and casting a line, hoping to catch the big one! Every fisherperson has their “spot” where they know the fish will bite. But have you ever thought about what makes that “spot” the perfect habitat?

Many fish species like crappie, bass, and panfish spend most of their time near cover, not in open water. Underwater woody debris is a healthy component of lake environments. Sunken logs, trees, and branches provide excellent habitat for wildlife, including fish, turtles, birds, invertebrates, and more.

Beaver activity, wind, erosion, or water inflows from rivers or creeks naturally deposit such woody debris into a lake. However, increased human activity and development has significantly reduced the amount of natural woody debris from lakes (WC & LCSC 2015). Shoreline property owners often remove woody debris from their waterfronts for aesthetic reasons, easier swimming, and safer boating, reducing habitat for fish species and other wildlife. As waterfront development increases, the amount of woody debris decreases (Wolter 2012, Jennings et al. 2003). Thus, humans disrupt this link between the riparian forest and lake ecosystems, and as a consequence they remove critical fish habitat.

The presence of woody debris affects the abundance, growth and diversity of the fish species in lakes (Helmus & Sass, 2008). It provides food sources, feeding areas, shelter, and spawning habitat for wildlife.



Communities can promote the health of wildlife populations and improve water quality such as in-water brush piles. Brush piles can provide fish with a food source, as well as shaded areas to rest, spawn, and escape predators. They prevent suspension of sediments and improves water clarity by reducing the current and wave action that can move sediments (Engel & Pederson, 1998), similar to how trees reduce erosion. Consequently improving water quality as well.

Brush bundles are piles of branches, sticks, twigs, and roots of trees that are tied together using nylon rope or wire. Cement blocks are attached as anchors to sink the bundles to the bottom of the waterbody, waterlogging the woody debris so that it doesn't float back up to the surface. These can also be called underwater brush bundles or in-water brush piles. They are placed in waters that are more than 12 feet deep, to ensure they don't interfere with boating or other cottage activities like swimming, tubing or water skiing (WC & LCSC, 2015).



Fish habitat enhancement projects are a way for stewardship organizations, lake associations, fish and game clubs, and other groups to improve their local lake ecosystems. By working collaboratively with others, the community can rally together and enhance lake quality and fish habitat.

If you or your lake association is interested in enhancing your fish habitat, more information is available in Watersheds Canada's Fish Habitat Toolkit: In-Water Brush Piles in Ontario, prepared in partnership with the Lanark County Stewardship Council. <https://watersheds.ca/our-work/resources/publications/> or contact Melissa Dakers at dakers@watersheds.ca or 613-264-1244, we currently have funding for a Brush Bundle project in Eastern Ontario for the fall of 2017 for an interested lake association.

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