



























## Aquatic Plants:

On Lake Vernon, shorelines were surveyed for their presence of aquatic plants. The presence of aquatic plants was further summarized into aquatic vegetation types; emergent, submergent, floating and algal blooms. Figure 10 shows the number of properties on Lake Vernon that had aquatic plants along their shoreline properties. The majority of aquatic vegetation that was present on Lake Vernon was categorized as floating vegetation. Emergent vegetation and submergent vegetation were found less frequently on Lake Vernon, but are still an important part of the aquatic ecosystem; giving habitat to birds, frogs, dragonflies and other wildlife.

### Frequency of aquatic vegetation types

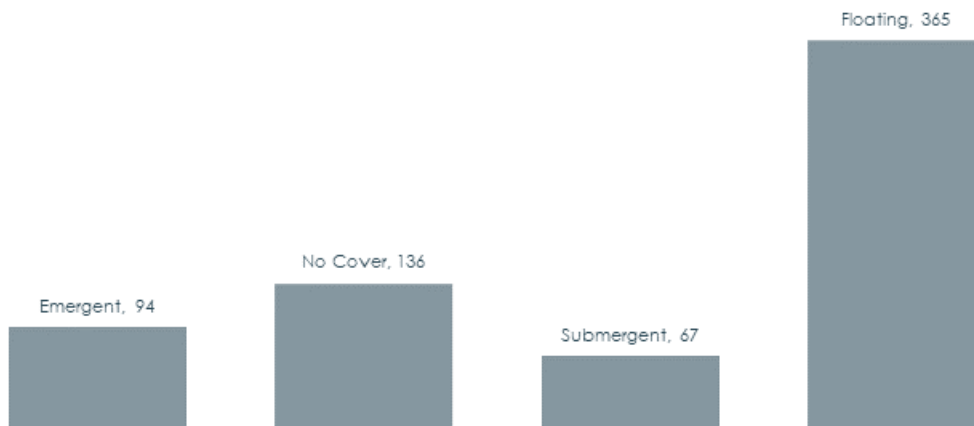


Figure 10 Aquatic Vegetation

## Stewardship Message

When aquatic vegetation is removed, the integrity of the shoreline is lost. This negatively impacts the health of the waterbody by decreasing the quality of the water and reducing biodiversity. Eventually, a waterbody can become unusable, affecting the hundreds of species that rely on it. Fortunately, there are some easy steps that can be taken to help protect and restore your shoreline. By planting native species and allowing natural aquatic vegetation to grow, you can help provide habitat for wildlife to flourish.

## Sediment:

On Lake Vernon, the type of sediment present on the lake bottom was observed. The benthic zone which is located on the lake bottom is classified as the ecological region at the lowest level of a body of water. It starts at the shoreline and continues down until it reaches the floor, encompassing the sediment surface and subsurface layers. Although this zone may appear barren, it plays a vital role in the health of aquatic ecosystems. Tiny, microscopic organisms which cycle nutrients live in this zone and act as a source of food for bottom feeding animals.

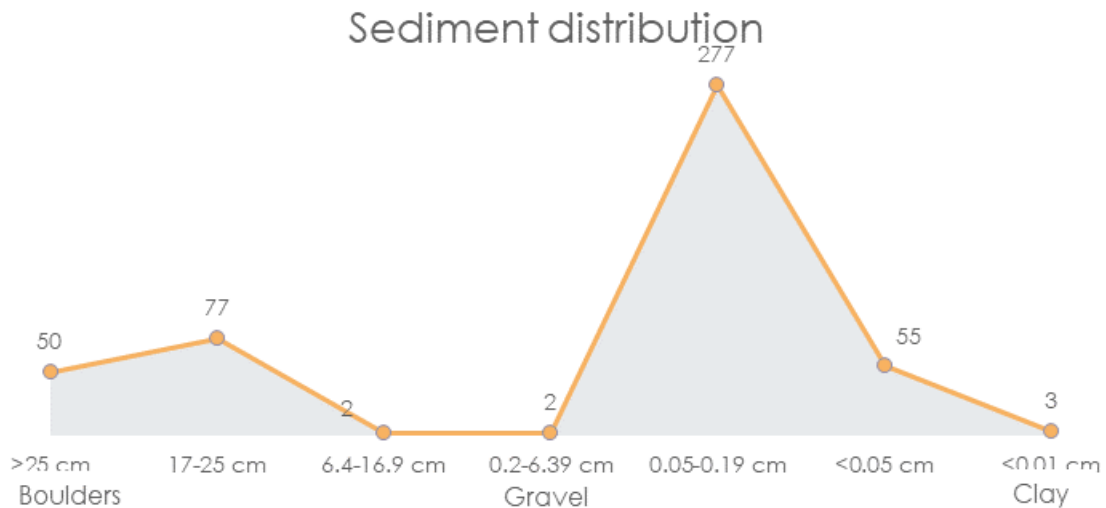


Figure 11 Sediment Distribution

### Invasive Species:

No invasive species were identified on your lake. Invasive species can have large negative impacts on an ecosystem by significantly altering food chain dynamics, reducing native species populations, and degrading water quality.

### Stewardship Message

You can help prevent the spread of invasive species to and from Lake Vernon. These species disrupt the ecosystem and can lead to declines in favorite native species, like Lake Trout. Species such as Zebra Mussels, Spiny Waterflea, Round Goby and Common Reed are rapidly spreading throughout Ontario. These species can be spread by dumping bait buckets, trailering your boat from one lake to another before proper cleaning, and planting non-native species or seed mixtures along your shoreline. If you use live bait, be sure to dispose of unused bait and packaging material including soil in the garbage. Water from minnow buckets, bilges and livewells can contain a variety of tiny invaders, and should be dumped on shore. When removing your boat from the water, be sure to dispose of any weeds or mud. If you are going to use the boat in another waterbody, clean it thoroughly and allow it to dry for 2-7 days.

Visit <http://www.invadingspecies.com/stop-the-spread/boaters-anglers/> for detailed cleaning instructions. Shoreline property owners are invited to join the Invading Species Watch Program operated by Ontario Federation of Anglers and Hunters and the Ontario Ministry of Natural Resources and Forestry.

### Wildlife Habitat:

The most common type of nearshore habitat on Lake Vernon was identified as overhanging vegetation, followed by terrestrial logs. Wildlife provides us with many enjoyable and beneficial activities from bird watching and wildlife photography to pest control, seed dispersal, nutrient cycling and pollination, just to name a few. It is important for there to be a rich and diverse range of habitats along the lakeshore in order to ensure a healthy lake environment. Figure 12 summarizes the nearshore habitat.

## Habitat frequency

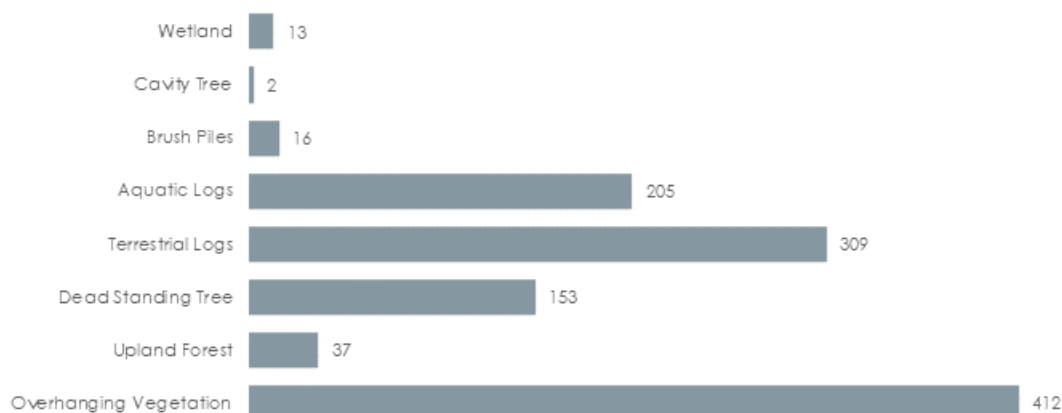


Figure 12 Habitat Present

### ***Stewardship Message***

It is important to leave large trees that are dead and dying in place, if it is safe to do so. They provide important habitat for a number of different wildlife species. In Ontario, more than 50 species of birds and mammals depend on cavity trees for nesting, rearing young, roosting, feeding, storing food, escaping predators and hibernating. Fallen logs on land provide habitat for small mammals such as moles, woodpeckers, toads and insects. As the log decomposes, reptiles and amphibians lay their eggs in the moist wood. A decaying log is also great habitat for beetles and ants that burrow under the bark and lay eggs. In the water, logs provide important fish habitat by providing refuge for small fish and spaces for ambush predators such as pike to conceal themselves. By leaving dead and decaying brush and logs in place, you are helping contribute to a healthy and vibrant species community.

### **Property Slopes**

On Lake Vernon, 91% of properties assessed had moderate slopes, 8% were flat and 1% were assessed as a cliff.

### ***Stewardship Message***

The slope of shorelines can influence the energy of runoff and its ability to transport sediment. Steeper shorelines often suffer greater erosion problems. While shoreline buffers of healthy trees and shrubs are important on all properties, steeper properties would yield even greater benefit from well-vegetated slopes to reduce the impacts of erosion from runoff.

### **Lawns**

On Lake Vernon, the number of properties with lawns, either mowed or regenerative, was observed. 11% of properties had lawns that were mowed to the water's edge. When lawn is maintained to the water's edge, natural ground cover and native vegetation are no longer present to slow runoff and allow nutrient filtration. Nutrients, contaminants, pollutants and other harmful substances can be easily carried into the lake by runoff and can harm water quality and local ecological integrity. Lawn grasses also have short root systems and do not bind the soil well, which can lead to problems with erosion and increased sediment deposition.

## Types of lawns around lake

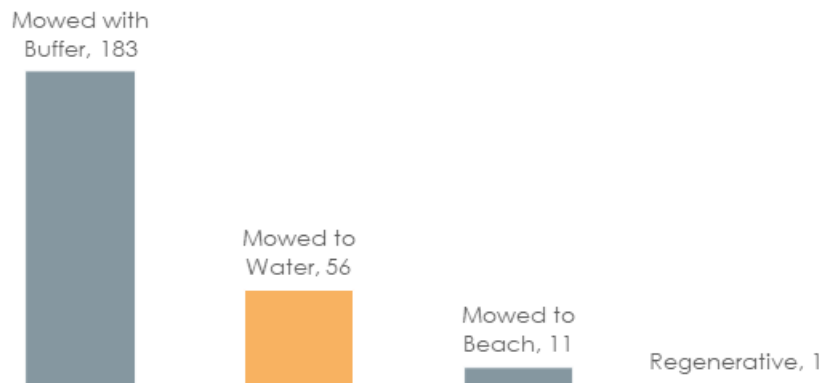


Figure 13 Lawn types

### ***Stewardship Message***

In areas close to shore, a lawn is generally not a good choice of ground cover. Up to 35% of precipitation can run off a mowed lawn directly into the lake, instead of returning to a natural groundwater source. If shoreline property owners wish to mitigate this, they could consider allowing vegetation to regenerate on its own or by actively planting native trees, shrubs, grasses, or alternative ground cover. The roots of the vegetation will grip the soil which can help prevent erosion. Allowing mowed lawns to regenerate to a more natural state promotes water conservation and protects surface and groundwater resources. Properties with regenerative lawns are encouraged to allow this natural process to continue and to enhance regeneration by planting native trees and shrubs.

### **Next steps**

The shoreline is the convergence zone between the land and water, commonly referred to as the ribbon of life. This area provides tremendous importance not only to humans for recreational purposes, but also to wildlife and the overall health of a lake. These shoreline areas present a unique opportunity for people to help protect the environment and reduce their footprint.

The benefits of natural shorelines are immense. The presence of native plant species help to stabilize soil, reduce erosion and improve water quality. A good underground root network helps to keep soil in place, while a healthy buffer of vegetation prevents topsoil from being exposed and washed away. Shoreline vegetation, such as aquatic plants have the ability to absorb wave energy. This reduces the impact of erosion created by waves. Natural vegetation along your shoreline can also provide privacy from neighboring properties and can lessen the amount of noise generated by boats and other recreational activities. Trees and other native vegetation improve air quality, lower temperatures and minimize extra energy costs associated with cooling.

Natural buffers also provide critical habitat for wildlife, both aquatic and terrestrial. They improve habitat for fish by shading and cooling water and also provide protective cover for birds, mammals and other wildlife that feed, breed and rear young near water. Allowing a natural buffer to grow can cut down on the time required for yard maintenance and alleviate the financial expense associated with landscaping.



It is important when naturalizing areas to choose only native species. Exotic species which are not native to the area can be extremely invasive, reproduce rapidly and remove wildlife habitat by choking out large natural areas. It is critical to understand how invasive species can affect the overall health of a lake by threatening the livelihood of native fish, plants and animals. The lake community must work together to raise public awareness and help promote responsible stewardship. By practicing prevention and continual education efforts, the community can reduce the spread of additional invasive species.

This report has been created for the lake association and community to utilize as an environmental stewardship guide. Lake Vernon property owners are encouraged to continue to use their shoreline property report as an additional individualized resource to learn more about how to protect their shoreline properties and reduce their environmental footprint. Following the stewardship actions outlined in this report and working to maintain natural shorelines, residents can unite and make a positive change for the greater good of their lake.