

Why shoreline restoration and vegetated buffer strips are important on your Lake Scugog lake edge.



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SCUGOG LAKE STEWARDS INC., Updated: May, 2009

- **SURVEY RESULTS SPECIFIC TO SCUGOG:** In 1998 Sandy Beaton former President of the Lake Stewards organized a comprehensive property-by-property shoreline survey of the 132 K. of Lake Scugog and Scugog River. At that time they determined there were 2,217 properties around the lake of which, 1,807 had shorelines characterized as grass or hard surfaces. That leaves only 410 properties with natural shorelines - many of them are large old farms. Various provincial plans, the Region of Durham Official Plan and the Scugog Township Official Plan has put excellent restrictions on urban sprawl, however, there is still land designated for new housing and many infill lots. It is essential that shorelines are protected during construction or changes concerning new developments, infill housing and re-builds.
- **SOCIETAL VALUES ARE CHANGING AROUND SCUGOG:** Residents are no longer cottagers, most are permanent residents who often have brought urban landscape values rather than rustic values to their new homes around Lake Scugog. This involves controlling nature and often applying indoor standards of orderliness to the outside. There is often little understanding of the role of natural shorelines and the role they play in lake health. In-water plants and functioning habitat are crucial to lake health and their consequent real estate values. Ninety percent of lake life occurs within 20 feet of the shoreline edge. It is essential that conditions are met for that lake life and that land based problems do not travel into the lake.
- **WATER LEVEL FLUCTUATION:** Lake Scugog is very shallow, has high water temperatures and an enormous surface. All of these factors contribute to rapid water evaporation from the Lake especially during the summer months.

Most of us believe that the faster we can move water into the Lake from the shore the better for lake levels. Actually, the converse is true. The Trent Severn Waterway Authority reports that as more development occurs around the lake; changing forested conditions to cut grass and houses, (therefore speeding up water flow into the lake) the greater the fluctuations in water levels. 55% of water runs off cut grass as sheet drainage.

A mix of trees, shrubs and some undergrowth allow for 95% percolation of water into the soil. Then this water moves slowly into the lake recharging it continuously rather than with possibly polluted surface water just after storms. Water in the lake is susceptible to evaporation, water held in the water table is not. **(Re-forestation and buffer strips of vegetation along lake and river edges will ameliorate some water level fluctuation and improve water quality)**

- **SEDIMENTATION:** Core samples taken by scientists from the University of Toronto have determined that after the last glaciers left Scugog, the Lake had depths around 130 feet in places. Over the years, the soft hills left by the retreating glaciers have eroded slowly into the lake. So that now,

Lake Scugog is guesstimated to be approximately 4 ft. plus deep ... on average ... with many areas much deeper and many areas of very shallow water ... with a very muddy bottom. Algae levels are high as the lake is in late stage eutrophication. The algae as it dies causes a lot of that accumulation of muddy bottom.

Recently the fill-in rate has accelerated yet again because of an overabundance of Eurasian Water Milfoil which when it breaks down, it creates vast amounts of accumulating sediment. (Problem peaked about 10 years ago.) Controlling this invasive weed is now possible because of a predator beetle, called the Milfoil weevil. The research of the KFA indicates that by leaving buffers of tall grasses, shrubs and trees on the shoreline we provide a home for the Milfoil weevil. It winters in tall grasses or natural shoreline areas to later moves off shore to destroy the annoying Milfoil. **(Buffer strips of natural vegetation prevent surface pollutants from getting into the lake, reduce nutrients and provide a home for milfoil weevil.)**

- **SILTATION:** Accelerated filling in of the lake is also because of increased run-off into the lake of dirt and grit from open farm lands, waste areas and construction sites. It runs off roads and properties through a number of storm culverts diverting water quickly from residential areas. It comes from constantly eroding, unprotected shorelines. And also, unfortunately, it comes as dirt and grit run-off from acres and acres of cut grass around our homes which allows for 55% of all rainwater, etc. to run-off.

With the destruction of natural shorelines that have interlocking tree and shrub roots, the soft shorelines of Lake Scugog are very vulnerable to erosion. When the Lake was flooded in 1834 by a Dam at Lindsay the water spread out into newly cleared farmland and forests ... the strong natural water edge formed over thousands of years was then 6 ft. under water. Homeowners can lose a metre a year of soil because of erosion and ice action on that new, soft shoreline ... and where does that go ... into the Lake. **(Proper erosion control measures, buffers, silt-barriers on construction sites, prevention of new beaches and reduced cut-grass areas will prevent much siltation.)**

- **BOAT TRAFFIC AND CHEMICALS:** Lake Scugog is a recreational paradise only an hour's drive from Toronto and is, therefore, an attractive destination for many with power boats, personal water craft and ski-doo's. Many of these engines, many not very new, have a very poor fuel burn ratio and allow as much as 1/4 of the gas and oil to escape either into the air or into the water. This means the Lake must cope with these unspent hydrocarbons and other chemicals. Through something called phytoremediation, shoreline water plants such as cattails, bulrushes and arrowhead take up those chemicals and cleanse the Lake. Therefore, it is essential to encourage natural areas with lots of aquatic plants versus walls, sand or aquatic-plant free areas that provide no cleansing action. (However there are no appreciable levels of other toxins or chemicals present in the lake such as PCB's, dioxins, mercury or any other heavy metals.) **(Lake edge aquatic plants, cattails, bulrushes, arrowhead, etc to act as bio-filters.)**
- **NITRATES AND PHOSPHATES:** If the edge of a septic bed is closer than 100 ft. from the Lake on a mainly grassed lot, ...even though it is operating perfectly there will be nutrient transfer via groundwater into the Lake. These nutrients ... specifically nitrates and phosphates ... are the result of the natural breakdown of septic wastes. **Nitrates** or nitrogen makes plants green and stimulates growth. When these nutrients migrate into the lake from your septic system, nitrates cause lush aquatic plant growth in the Lake ... right off your shore. **Phosphates** are what turn the lake green with algae and stimulates aquatic plants. In horticulture, phosphorous is used to produce good root growth and lots of flowers ... great for our gardens but very bad for Lake Scugog which produces high levels of phosphorous naturally because of decaying plant growth. **(Plant a maxi buffer with lots of grasses, shrubs, willows, silver maples with big root systems)**
- **GRASS AND GARDEN FERTILIZERS:** With just less than 2,000 properties around Lake Scugog

surveyed as having large lawn areas, it is natural that people consider fertilizing, and weed killing in those lakeside lawns. Unfortunately 1 lb. of phosphorous migrating into the lake has the ability to create 500 lbs. of algae and aquatic plants. Also, 55% of rainfall will not be absorbed by the lawn, it quickly runs off as sheet drainage, and with it a high volume of any fertilizer applied ... even the nitrogen of cut grass clippings left on the lawn. An additional insult is that herbicide 2-4D acts as a mild growth stimulant to aquatic plants when it runs off into the Lake and is diluted. **(Install a thick vegetated buffer of a minimum of 15 ft. (?))**

- **SEPTIC SYSTEMS:** Of the 2,217 around the Lake and river, 90% are probably on some form of septic system, with properties immediately behind shoreline lots also adding to the nutrient burden into the Lake. Our density around Scugog is now so great we are basically a big suburb but we still rely on the environment to provide clean water and dispose of our increasing wastes. Ground water contamination cannot help but be a huge focus in coming years.

Because Lake Scugog has always been a recreational paradise, cottages were popular here 70 to 80 years ago. Many of those early cottages had tiny lots, and rudimentary septic system. These are now permanent homes, often much larger ... and including many flush toilets, showers and clothes and dishwashers with some of the same inadequate systems. There is no septic re-inspection in the Region after septic beds have been in place for a time. Many of the old systems either are insufficient, clogged, become flooded during times of high water in the Lake with little money, energy or incentive to improve them.

Even new homes are allowed to locate their septic beds between the house and the Lake if space is a problem. Fortunately, bacteria and e-coli does not travel far through our earth. Because the soil is so organic, microbes eat or destroy these harmful bacteria within about 6 ft of a septic bed edge. However, if the lake level and consequent water table is unusually high, groundwater may carry e-coli through the soil pores and into the Lake and wells from incorrectly built beds.

Studies have shown that a primarily grassed property with the edge of its septic bed less than 100 ft. from the shoreline will create nutrients that will find their way into the Lake. Whether your system functions well or not, the more deep rooted vegetation between your septic bed and the Lake the more nutrients that do not get into the lake as they are used up by the plants as food. Large trees are invaluable both to hold the shoreline with their roots but one large tree has the ability to take up nutrients more than 40 saplings. **(Leave out the chemical contaminants like bleach, and plant lots of big trees, shrubs and deep rooted plants ... but no willows and silver maples next to septic beds or foundations, better red maple and birch. Plant as much as possible between your septic bed and the lake)**

- **THE PRESENCE OF CATTAILS CAN REDUCE E-COLI LEVELS:** These plants harbour microbes around their bases that eat great amounts of dangerous bacteria and have a strong place in bio-remediation of fecal coliform contaminated water.
- **EVERYONE LIKES TO SEE HERONS AND DUCKS, BUTTERFLIES AND BIRDS, FROGS AND LITTLE FISH:** Sterile shorelines don't bring them. Big fish start as little fish and they need a nursery, herons, kingfishers, falcons and merganzers need little fish to eat, ducks need weeds and seeds to eat, birds need flies and insects, and butterflies need host plants. Lake Scugog at the moment is a fish factory, they love the weeds hiding as big and just hatched little fish.

The lake, the Nonquon wetlands, the Scugog river marshes and the huge Osler Marsh are one, ... an amazing wildlife, fish, bird and plant refuge within an hour of Toronto. It is our responsibility to not degrade it any further. **(Provide overhanging boughs, and provide in-water protected places like tree trunks and logs. Don't clear up your waterfront of aquatic plants.)**

Other information about the Lake

- **HIGH WATER TEMPERATURE:** Because Scugog is so shallow, it heats up quickly and also suffers from rapid evaporation. Creatures need cooling shade ... water lilies are great for that but all weeds are useful. When the lake drops summer from lack of rain as it has this year, natural plants in the water and now on land make the shoreline interesting. Changes every year ... last year wild rice was everywhere, this year fragrant water lilies ... because of the high water levels in June.
- **SPRINGS:** All around the shores of Scugog are thousands of springs as well as streams and a few rivers that feed the Lake. Homeowners have added problems often coping with these wet areas and often use big “O” piping to carry it off quickly to the shore. Where these underground rivers meet the lake there is considerable back pressure on lake edges from spring water or the water cuts soft, deep areas in the shoreline which defy any attempt at engineered edges.
- **VALUE OF BIO-ENGINEERING and SOFTENED SHORELINE EDGES:** Because Scugog is so shallow, in the winter ice, and frozen mud from the bottom of the lake may push up against the shore if it is not sloped properly ... creating a berm of unstable soil. By properly bio-engineering so that the ice is deflected or can slide up your shore, it will slide back down again in spring. Because our water source is not continuous, especially in times of drought, in the spring we have very high levels and by fall the lake level has been 3ft. below the spring high. This makes creating shoreline edges that last very
- **CANADA GEESE:** Through our testing we have proved that there is a strong co-relation between high e-coli counts we have taken and the presence of geese. Even narrow buffer strips truly prevent these messy creatures.
- **E-COLI READINGS:** Excellent in the Lake itself with major fluctuations caused by storm sewer run-off, Canada Geese excrement, a few farms, and individual problems. However, it is huge and generally tests well.
- **EUTROPHICATION:** Lake Scugog is in late stage eutrophication and has a very high algae content, most of which is caused by natural vegetation, but aggravated by human actions. The mud bottom of the lake is a natural phosphorous sink, having absorbed this for thousands of years. Disturbing the bottom, or dredging causes temporary phosphorous spikes.
- **OUR WATERSHED AS WILDLIFE HABITAT:** Water comes from the Oak Ridges moraine and various springs and rivers around the southern end through 8,000 acres of class 1 wetland and then empties North through the Scugog River. Deer, beaver, muskrat, osprey, herons and even moose are found in this marsh. This is an extremely important staging and feeding area for migratory birds and waterfowl which, considering our proximity to the Greater Toronto area, is amazing. The lake has been called a ‘bass factory’ and also provides sport class fishing for walleye, and muskelunge. It must be protected.

All these property owners, plus those in Port Perry and the Township count heavily on the Lake as the centrepiece of their tourism campaigns, their festivals, their year around recreation and their real estate values. There is hoped to be a new tour boat on the Lake next year working out of Port Perry and giving environmental, historical and cultural tours.

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