Report on the
Phosphorus Loads
to Lake Simcoe
2004-2007
The Lake Simcoe watershed

Lake Simcoe is located in central southern Ontario within an hour’s drive of more than half the population of the province. With a surface area of 722 km², it is the largest lake in southern Ontario aside from the Great Lakes. The lake supports a thriving tourism industry, provides drinking water for eight municipalities, and offers many opportunities for recreation activities. Lake Simcoe is an important natural, social and economic resource.

Surrounding the lake, the Lake Simcoe watershed slopes down from the Oak Ridges Moraine in the south, through parts of York and Durham Regions, from the cities of Kawartha Lakes, Orillia and Barrie in the north, and from Simcoe County in the west. The watershed encompasses parts of 23 municipalities and has a total land area of approximately 2,899 km².

Settled by immigrants in the early 1800s, the watershed is now home to over 350,000 residents and during the summer months the population grows even larger as an estimated 50,000 cottagers come to the watershed to enjoy the quality of life that the lake provides. However, human activities within the watershed are affecting the health and quality of the lake and its tributaries. One of the impacts of human presence is an increase in the amount of phosphorus in the lake. This document reports on the current status of phosphorus inputs to the lake from the watershed.

What is a watershed?

A watershed is the area of land that drains into a body of water such as a stream, river, or lake. The Lake Simcoe watershed is the large area of land that drains into Lake Simcoe. It drains either directly into the lake, or into a connecting stream or river (known as a tributary) that then drains into the lake. Each tributary has its own smaller area of land that drains into it called a subwatershed. The map on page 3 shows the subwatersheds and islands in the Lake Simcoe watershed.

The purpose of this report

Phosphorus was identified as a problem for the health of the lake in the 1970s. We have been monitoring it to help us understand its sources and impacts. The purpose of this report is to share with our watershed partners the most current data about the amount of phosphorus entering the lake. This report presents our findings for the period 2004-2007.
Phosphorus occurs naturally in the environment. It never goes away, it simply changes form as it cycles through the environment. It is a nutrient that plants and animals need to grow. When taken up by plants or consumed by animals, it becomes part of their tissue. When the plants and animals excrete waste or die, phosphorus returns to the environment where bacteria break it down so it is once again available for other plants and animals, and the cycle begins again. In our rivers and streams, phosphorus can be found dissolved, or attached to particles in the water. In this document, the term phosphorus refers to total phosphorus in all its forms.

Prior to 1800, phosphorus entered the lake naturally each year from sources such as animal waste, soil erosion and decomposing plant material. By the 1980s, phosphorus levels in Lake Simcoe had become unnaturally high largely due to human activities. With a great deal of effort, we have been able to reduce these levels somewhat in recent years, but they are still high and the lake continues to face growing pressure from an increasing human population.

Because phosphorus is a nutrient, high levels in the lake encourage excessive growth of plants and algae. When these plants and algae die, they sink to the bottom and decompose in a process that consumes oxygen. When plants are abundant, as they are now, their decomposition creates an oxygen shortage at the bottom of the lake.

Lake Simcoe’s coldwater fish live in deeper, colder waters, especially when they are young. Oxygen concentrations are poor at the bottom of the lake during late summer, and the water temperature is too warm at the top. This forces the young fry into shallower depths where, as it happens, their predators live. Many young lake trout are being eaten before they can mature. So, while lake trout can reproduce in Lake Simcoe, many young are not able to survive to adulthood and the coldwater fish community is unable to sustain itself.

**Lake Simcoe Protection Act**

The Lake Simcoe Protection Act became law on December, 2008. The new legislation requires the province to establish a protection plan for the lake and its watershed. The draft Lake Simcoe Protection Plan was released in January for public comment until March, 2009. The draft plan requires the Province to develop a comprehensive strategy to reduce phosphorus from all sources including sewage treatment plants, stormwater runoff and septic systems. The long-term phosphorus goal is a loading limit of approximately 44 metric tonnes per year. For more information on the legislation and the protection plan go to [www.ontario.ca/lakesimcoe](http://www.ontario.ca/lakesimcoe).
Is phosphorus the only problem in the lake?

No, phosphorus is not the only problem. But it is an important and challenging problem. It provides a good focus for the work that needs to be done to restore the lake.

In 1990, the Lake Simcoe Region Conservation Authority (LSRCA) joined forces with other agencies to form the Lake Simcoe Environmental Management Strategy, with the purpose to restore the health of the lake and its local ecosystem. The LSEMS partnership soon came to focus on improving the health of the coldwater fish community as a useful target that would ultimately benefit the lake. Helping the fish helps the lake; raising the levels of oxygen in the water requires reducing the levels of phosphorus.

When the lake is healthy, coldwater fish such as lake trout, lake herring and lake whitefish are abundant and active. However, due to high phosphorus levels, the level of oxygen in the lake has been too low to sustain a healthy coldwater fish population. During the 1980s and 1990s, the lack of oxygen was so severe that young coldwater fish were unable to survive. While oxygen levels have improved sufficiently to allow more young fish to survive, not enough are growing to reproductive ages. Populations of lake trout and lake herring have only been maintained by stocking.

**Relationship between phosphorus and oxygen.**

When phosphorus levels are high (as illustrated at P1) oxygen levels are too low (as illustrated at O₂₁) for fish to remain healthy. In order for oxygen levels to be high enough to support a healthy coldwater fish population (O₂₂), phosphorus loading must be reduced (P₂).
Sources of Phosphorus

1. Tributaries
   • Urban areas – Urban development changes the land from natural, porous surfaces like soil and grasses to hard surfaces like pavement and asphalt. Rainwater and snow melt cannot seep into the ground naturally, so the stormwater runs over the hard surfaces. This stormwater runoff picks up dirt, oil, salt, fertilizers, pet waste and detergents. These contaminants, which contain phosphorus, are washed into creeks, rivers and the lake. Stormwater runoff can also increase erosion in streams causing dirt and debris to be carried downstream.

   • Non-urban areas – These include agricultural areas and natural areas. Major sources of phosphorus in non-urban areas include agricultural runoff:
     (a) Fertilizers containing phosphorus are applied to the land where the soil does not have enough nutrients. When more is applied than crops need, the excess can runoff from fields into streams.
     (b) Manure is rich in phosphorus. If it is left exposed to the weather, rain can wash the manure into a stream.
     (c) When water that is used to wash out dairy milk houses is allowed to run into streams, it can carry milk waste, animal waste, and cleaners into the water. These all contain phosphorus.

2. Polders – Wetlands that have been drained for agricultural use are called polders. Because they are low-lying, excess water accumulates and must be pumped off. This water contains phosphorus from fertilizers, and is just like the agricultural runoff described above.

3. STPs – Municipalities operate sewage treatment plants (STPs) that process our sewage before disposing of it into the lake or into rivers that flow into the lake. Although the sewage is treated to very high standards, it still contains phosphorus.

4. Septics – Septic systems, in particular those that are faulty, improperly sized or poorly maintained, can leak phosphorus that ends up in rivers and lakes.

5. Atmosphere – Atmospheric phosphorus comes from natural sources like pollen, human sources like the burning of fossil fuels, and through wind transport of disturbed soils. When land is stripped of vegetative cover for uses such as construction, aggregate operations, unpaved roads, or bare fields between crops, wind blows the soil away. Pollutants (including phosphorus in various forms) become airborne and eventually fall to the surface.
What is phosphorus loading?

The total amount of phosphorus that gets carried into Lake Simcoe is called the phosphorus load, measured in metric weight per year. In this report it is expressed in metric tonnes or in kilograms (1 tonne = 1,000 kg). It is important to measure how much phosphorus is going into the lake in order to understand and relieve the problems associated with it.

This report presents our findings on phosphorus loading for the period 2004-2007. Each year is represented by the hydrological year, June 1st to May 31st.

The chart below illustrates data from 1998 for the purpose of comparison. Findings on pages 6-14 are only for the period 2004-2007.

The estimated total loads to Lake Simcoe for this reporting period (2004 to 2007) range from 71.5 to 77.3 tonnes per year. The largest sources were tributaries (37.2-47.3 tonnes) and the atmosphere (15.1-22.5 tonnes). These loads are higher than the long-term phosphorus goal of 44 tons per year proposed in the draft Lake Simcoe Protection Plan.
The amount of phosphorus loading to the lake changes from year to year, although there is no clear upward or downward trend. Changes in land use and the climate, for example, will influence the amount of phosphorus loading. Of these, climatic conditions (rainy versus dry) have the greatest impact.

The phosphorus loads are represented in two ways: by numeric values in the table to the right and by colors in the map. The numeric value for each area indicates the average total phosphorus load in kilograms for each subwatershed or island. The color indicates the phosphorus load divided by the land area (this is called the phosphorus export rate). This shows us how concentrated the phosphorus is in each area. These two ways of representing the data help us understand how land use and subwatershed size affect phosphorus loading.

The highest phosphorus loads occur in the East and West Holland subwatersheds; on average the loadings are 8,937 and 7,659 kg respectively. Barrie Creeks had the highest export rate at 120 kg per square km.

### Total phosphorus loading
(average per year by subwatershed/island)

<table>
<thead>
<tr>
<th>Subwatershed/Island</th>
<th>Phosphorus Load (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Barrie Creeks</td>
<td>4,514</td>
</tr>
<tr>
<td>2. Beaver River</td>
<td>3,179</td>
</tr>
<tr>
<td>3. Black River</td>
<td>3,705</td>
</tr>
<tr>
<td>4. East Holland River</td>
<td>8,937</td>
</tr>
<tr>
<td>5. Fox Island</td>
<td>1</td>
</tr>
<tr>
<td>6. Georgina Creeks</td>
<td>1,963</td>
</tr>
<tr>
<td>7. Georgina Island</td>
<td>86</td>
</tr>
<tr>
<td>8. Hawkestone Creek</td>
<td>318</td>
</tr>
<tr>
<td>9. Hewitts Creek</td>
<td>398</td>
</tr>
<tr>
<td>10. Innisfil Creeks</td>
<td>2,675</td>
</tr>
<tr>
<td>11. Lovers Creek</td>
<td>804</td>
</tr>
<tr>
<td>12. Maskinonge River</td>
<td>1,118</td>
</tr>
<tr>
<td>13. Oro Creeks North</td>
<td>2,483</td>
</tr>
<tr>
<td>14. Oro Creeks South</td>
<td>396</td>
</tr>
<tr>
<td>15. Pefferlaw River / Uxbridge Brook</td>
<td>3,203</td>
</tr>
<tr>
<td>16. Ramara Creeks</td>
<td>954</td>
</tr>
<tr>
<td>17. Snake Island</td>
<td>9</td>
</tr>
<tr>
<td>18. Talbot River</td>
<td>2,008</td>
</tr>
<tr>
<td>19. Thorah Island</td>
<td>29</td>
</tr>
<tr>
<td>20. West Holland River</td>
<td>7,659</td>
</tr>
<tr>
<td>21. White’s Creek</td>
<td>1,053</td>
</tr>
</tbody>
</table>

### Phosphorus export rate
(kg/km²/year)

- 1 - 14.9
- 15 - 29.9
- 30 - 44.9
- 45 - 120

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Monitoring program

Long term monitoring is a critical part of our overall effort to preserve the health of the environment we all depend on. Many organizations work year-round to provide the best information on the health of the watershed and this information is used to guide new programs for its protection and restoration.

The Ontario Ministry of the Environment, Environment Canada, Parks Canada and the Lake Simcoe Region Conservation Authority operate monitoring sites throughout the watershed. Information collected at these sites includes:

- weather
- the amount and quality of rain and snowfall
- the amount and quality of water in the rivers and streams
- the amount and quality of water discharged from sewage treatment plants
- the characteristics of the land: agricultural, forested, urban and natural areas
- storm water controls and stream side activities

The map at right shows the monitoring stations used for the 2004-2007 reporting period. Note that not all stations were used for the entire period; for example, the Talbot River water quality station was monitored only in the 2006-2007 hydrological year. Since the end of this reporting period, more monitoring sites have been added to the program.
1. Tributaries

For the purposes of understanding phosphorus loads, each tributary subwatershed is divided into urban and non-urban areas. In urban areas, the main source of phosphorus is stormwater runoff. Sewage treatment plants, which are located in urban areas, are accounted for in the STPs section 3.

In non-urban areas, phosphorus comes from agricultural and natural/other areas.

A. What is measured?

Monitored subwatersheds

Samples are collected from monitoring stations at various tributaries throughout the watershed. Please refer to the map on page 7. This is done year round, although it is reduced during winter months, and extra sampling is carried out during periods of heavy rain and in the spring when the snow melts. These data are used to determine loadings for all areas upstream of the monitoring stations, including urban and non-urban areas.

For areas downstream from the monitoring stations, since no further samples are taken, phosphorus loads must be estimated based on other sources of information. For urban areas, stormwater loading rates are estimated based on the Ministry of the Environment Storm Water Analysis and Monitoring Program. For non-urban areas, estimates are based on upstream measurements.

<table>
<thead>
<tr>
<th>Total tributary loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrological year</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>2004-2005</td>
</tr>
<tr>
<td>2005-2006</td>
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<tr>
<td>2006-2007</td>
</tr>
</tbody>
</table>

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Unmonitored subwatersheds and islands

Not all subwatersheds and islands are monitored. However, loads for these areas need to be included in the total load to the lake. Phosphorus loads for unmonitored areas are therefore estimated based on loads in monitored areas most similar in land use.

Please refer to the map below to view the monitored and unmonitored subwatersheds for the 2004-2007 reporting period.

B. Why is tributary load an important factor?

Urban areas
The lake, which for some time has been showing signs of damage from human activities, is under increasing stress due to urban growth. Currently, 16,509 hectares (6 per cent) of the watershed is urban. The main phosphorus-related issue in urban areas is stormwater runoff due to the predominance of hard surfaces that prevent water from seeping into the ground.

Agricultural areas
Currently, 120,325 hectares (47 per cent) of the Lake Simcoe watershed is made up of agricultural areas, including a variety of crops, livestock and vegetable farming. Rainfall and melting snow cause water to run over the ground in agricultural areas, picking up fertilizers and contaminants from feedlots, manure storage, milk houses and bare fields. Factors that can increase the phosphorus loads from agricultural sources include poorly located or managed animal feeding operations; overgrazing; plowing too often or at the wrong time; and improper, excessive, or poorly timed application of irrigation water and fertilizers.
C. What is being done?

Urban areas
In the past, it was common practice to channel stormwater directly into streams, rivers or the lake without treating it. Recent efforts have been made to intercept and treat stormwater, although in some older urban areas stormwater still reaches waterways untreated. The LSRCA has identified where municipal stormwater facilities could be upgraded. Under the draft Lake Simcoe Protection Plan, municipalities will have five years to prepare and implement stormwater management master plans to reduce the discharge of phosphorus and other pollutants, and are encouraged to move forward with retrofit opportunities while master plans are under development.

Agricultural areas
Farmers and other land owners have worked with the LSRCA and the provincial government to conduct improvement projects on their properties to reduce phosphorus loading to Lake Simcoe. Information about current programs to help with the costs of implementing measures to further reduce phosphorus inputs to the lake is available online at www.lsrca.on.ca and www.ontario.ca/lakesimcoe.
2. Polders

The watershed’s five polders (the Keswick, Colbar, Bradford, Deerhurst and Holland marshes) are former wetlands that were drained so that the rich soils could be used for agriculture.

A. What is measured?

Samples are collected at the outlet of the Holland Marsh as part of our regular monitoring program. These data are used to determine phosphorus loadings from the Holland Marsh, which are then used in calculations to estimate loadings from the other polders. The estimated loads from the polders are shown in the table at right.

<table>
<thead>
<tr>
<th>Hydrological year</th>
<th>Phosphorus load (tonnes/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2005</td>
<td>2.2</td>
</tr>
<tr>
<td>2005-2006</td>
<td>3.1</td>
</tr>
<tr>
<td>2006-2007</td>
<td>2.6</td>
</tr>
</tbody>
</table>

B. Why are polders an important factor?

Water levels in the polders are controlled by a series of pumping systems and canals. Because polders are low-lying, excess water accumulates and must be pumped off. Pump-off water is generally very high in phosphorus from fertilizers, and the load from this source is greater in years with high rain and snowfall because more water has to be pumped off the fields.

C. What is being done?

Options are currently being investigated to find cost-effective ways to reduce fertilizer applications.

One potential way to reduce phosphorus concentrations in the canals in the Holland Marsh is to use new technologies. For example, Phoslock® is a modified clay product that can be applied to remove phosphorus from water. The product is being tested by the LSRCA and the Ministry of the Environment to ensure it meets Ontario standards of environmental safety. Phoslock has been used in several countries – including Australia, the U.S.A., and the Netherlands – to remove phosphorus from lakes, rivers and drinking water reservoirs.
3. Sewage treatment plants (STPs)

A. What is measured?

There are 14 municipal sewage treatment plants in the Lake Simcoe watershed, all of which are operating at a level that meets or is better than regulatory standards. Please refer to the map on page 7 to see the locations of the STPs. Seven of the plants discharge directly into Lake Simcoe while the other seven discharge into watercourses that eventually drain into the lake. The effluent of these stations is monitored to ensure the quality meets criteria defined by the Province. The estimated loads from the STPs are shown in the table at right.

B. Why are STPs an important factor?

One consequence of a growing population is the need to provide sanitary services and potable water to the people living within the community. When water from toilets, sinks, washing machines, etc. runs down the drain, it goes to an STP where it is treated and then discharged into the lake or a river. With a watershed population in excess of 350,000, municipal STPs are handling a very large amount of water. Although the discharge is treated to a high standard, it still contains phosphorus.

C. What is being done?

The STPs in the Lake Simcoe watershed are among the most effective in Ontario at removing phosphorus. In March 2008, interim limits were placed on STPs around Lake Simcoe to help protect water quality and these were extended until March 2010 while a long-term phosphorus reduction strategy is being developed under the draft Lake Simcoe Protection Plan. The strategy will establish long-term phosphorus loading caps for all sewage treatment plants in the watershed.

<table>
<thead>
<tr>
<th>Total STP loading</th>
<th>Hydrological year</th>
<th>Phosphorus load (tonnes/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2004-2005</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>2005-2006</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>2006-2007</td>
<td>5.3</td>
</tr>
</tbody>
</table>
4. Septics

A. What is measured?

A significant amount of phosphorus from toilets, sinks and washing machines flows through private septic systems. This section includes those adjacent to the lake. Others are included in the tributary loads, section 1. The estimated loads from septic systems adjacent to the lake are shown in the table at right.

<table>
<thead>
<tr>
<th>Total septic loading</th>
</tr>
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<tbody>
<tr>
<td>Hydrological year</td>
</tr>
<tr>
<td>2004-2005</td>
</tr>
<tr>
<td>2005-2006</td>
</tr>
<tr>
<td>2006-2007</td>
</tr>
</tbody>
</table>

B. Why are septic systems an important factor?

Discharge from a residential septic tank is rich in phosphorus. It is normally dispersed by the drainage tiles and absorbed into the ground where contaminants decompose. However, if soil conditions are poor, phosphorus can be picked up by surface water and carried into the lake. Also, many cottages are now being used year-round and the original septic systems in place may not have been designed to properly handle this greater use.

C. What is being done?

The draft Lake Simcoe Protection Plan proposes a requirement for regular re-inspection of septic systems within 100 m of the shorelines of the lake and permanent streams to make sure they are functioning properly. An evaluation of standards for new treatment technologies to reduce phosphorus in septic systems is also planned. The LSRCA provides financial assistance and technical advice through its Landowner Environmental Assistance Program (LEAP) to help property owners upgrade their septic systems.
5. Atmosphere

A. What is measured?

In order to measure how much phosphorus is entering Lake Simcoe from the atmosphere, rain and snow are monitored at precipitation collectors throughout the watershed. Samples are analyzed for phosphorus and then loads are calculated by multiplying the phosphorus concentration in the sample by the amount of precipitation. The estimated loads from the atmosphere are shown in the table at right.

B. Why are atmospheric sources an important factor?

Atmospheric phosphorus comes from natural sources like pollen, human sources like the burning of fossil fuels, and through wind transport of disturbed soils. When land is stripped of vegetative cover for uses such as construction, aggregate operations, unpaved roads, or bare fields between crops, wind blows the soil away. Pollutants (including phosphorus in various forms) become airborne and eventually fall to the surface.

C. What is being done?

An assessment of the sources of the phosphorus being deposited on the lake and the actions required to address them will be part of the phosphorus reduction strategy under the draft Lake Simcoe Protection Plan. Because these particles are carried in the air, they can come from many kilometres outside the Lake Simcoe watershed and options to reduce atmospheric phosphorus locally are limited to sources within or close to the watershed. Best practices to control wind erosion and excess dust include adopting and enforcing soil conservation by-laws, preserving existing vegetation, planting cover crops, and controlling the speed of traffic over unpaved roads. In the agricultural sector, best practices include leaving soil intact instead of turning it over (no-till techniques), planting windbreaks, leaving un-harvested plant material on the field, and using cover crops to hold the soil in place.

### Total atmosphere loading

<table>
<thead>
<tr>
<th>Hydrological year</th>
<th>Phosphorus load (tonnes/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2005</td>
<td>17.5</td>
</tr>
<tr>
<td>2005-2006</td>
<td>22.5</td>
</tr>
<tr>
<td>2006-2007</td>
<td>15.1</td>
</tr>
</tbody>
</table>

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**Atmospheric Sampling**

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The environmental damage that has been caused by human activities doesn’t need to continue. Sustainable development is possible. We can have our cities and a healthy environment too. It’s all a matter of balance. Each of us – in our homes, neighborhoods and workplaces – can make changes in our lifestyle choices. Without much sacrifice, we can make a difference together.

Preventing surface water contamination

In nature, most rain water is absorbed into the ground. Water runs off hard surfaces, washing contaminants directly into our streams and ponds. This can pollute local waterways, promote the excessive growth of plants and algae, and harm fish. These contaminants include the chemicals we spread on our lawns and gardens, the salt we put on our roads, the detergents we use when we wash our cars, animal excrement, etc.

• It only takes 2 buckets of water to wash a car. Washing the car on a gravel or grass covered area instead of on an asphalt driveway helps water sink into the ground.
• Use phosphate-free cleaning products.
• Healthy lawns do not need fertilizers and are stronger when never cut shorter than 3”.
• Pick up after our pets and dispose of waste.
• Farmers can install proper manure storage facilities, spread only during the growing season, and keep manure away from watercourses.
• Keep livestock out of streams and creeks. Fencing can prevent waste from contaminating the water.
• Property owners can maintain a vegetated buffer along watercourses.

For more information about protecting our sources of drinking water from surface water contamination, please visit www.ourwatershed.ca.

Gardens and landscaping

Natural vegetation with good variety requires less water and fewer chemicals. You can nurture healthy, productive plants by preserving the soil’s fertility and enhancing its ability to absorb rain water.

• Mulching our gardens adds nutrients, reduces the need for water, and enriches the soil.
• Yard leaves and vegetable food waste can be composted and added to the garden instead of synthetic fertilizers.
• Groundcovers other than grass can thrive with less maintenance.
• Natural vegetation should be left to grow undisturbed alongside streams, creeks and the lake so it can catch stormwater runoff and reduce erosion.
• Use surfaces like gravel and interlocking brick that allow water to sink in for new driveways and walkways.
Preventing Soil Erosion

Erosion occurs where bare ground is exposed to wind or moving water, and loose soil particles are carried and deposited further down the watershed. The eroded soil also carries nutrients such as phosphorus into Lake Simcoe. Erosion can be a particular problem in developed areas, construction sites and along roadways – wherever pavement, rooftops, compacted soil or lack of vegetation allows water or air to carry away soil or debris.

- Keep cars, heavy loads and grazing animals away from streambanks, riverbanks and lakeshores.
- Don't build on steep slopes. Leave them as close to "natural" as possible.
- Avoid clearcutting trees and vegetation on your property. Removing vegetation along shoreline areas is restricted by law. Retain or replant areas along watercourses with native trees and vegetation to prevent erosion.
- Divert rain from paved surfaces onto level areas of grass, groundcover or forested areas to allow gradual absorption.
- Install fabric fences on slopes below construction, preferably where runoff will be caught before it concentrates into a channel and flows away. These fences help remove soil particles from the runoff. Inspect and maintain them regularly.

Conserving water

Part of what flows into sewage treatment plants comes from the bathrooms, kitchens, and laundry rooms of our homes. When we conserve water, less treatment is required and there is less stress on treatment plants and septic systems.

- Use a broom to clean walks and driveways instead of hosing them.
- Turn off the tap while brushing teeth, shaving, and washing dishes or vegetables.
- Keep a container of water in the fridge to avoid the need to run the tap every time for a cold drink.
- Install low-flow shower heads and low-flush toilets.
- Operate dishwashers and washing machines only when they are completely full.
- Repair leaky or dripping taps.
- Give lawns and gardens only 2.5 cm (1") of water once a week, including rainfall.
- Collect rain water in special barrels for watering grass and plants.

Many of our municipal partners operate water conservation programs. Please consult your local municipality for further details.
Maintaining septic systems

Septic systems should be properly designed and maintained to minimize impacts of phosphorus to waterways.

- When you are considering purchasing a home, have a trained professional look for indications of a failing septic system.
- Submit an application to your local municipal health unit before installing a septic system. A certificate of approval is required to construct the system and it must pass an inspection after it is built.
- Increase the tile bed size and/or upgrade your septic system when adding additional toilets, hot tubs and dishwashers to your dwelling.
- Know the location of all the components of your septic system and keep heavy vehicles, large shrubs and trees away from these areas. Heavy equipment can crush the pipes and compact the soil and tree roots can clog the tile bed.
- Have your septic system pumped out every 3-5 years to remove built-up sludge.
- Do not use septic system additives to avoid periodically pumping the sludge.
- Dispose of household garbage and chemicals properly, not down the drain or toilet.
- Do not use food waste disposal systems as they contribute unnecessary solids.
- Call a local health unit if you think there is a problem with your septic system.

More information about how you can make a difference is available online at [www.ontario.ca/lakesimcoe](http://www.ontario.ca/lakesimcoe) and [www.lsrc.on.ca](http://www.lsrc.on.ca).
The Lake Simcoe Region Conservation Authority (LSRCA)

The mission of the LSRCA is to provide leadership in the protection and restoration of the environmental health and quality of Lake Simcoe and its watershed with community, municipal and other government partners. The services provided by the LSRCA are science and research, protection and restoration, education and outreach.

The Ontario Ministry of the Environment (MOE)

The MOE is responsible for protecting clean and safe air, land and water to ensure healthy communities, ecological protection and sustainable development for present and future generations of Ontarians. Using stringent regulations, targeted enforcement and a variety of innovative programs and initiatives, the ministry continues to address environmental issues that have local, regional and/or global effects.

Partners & collaborators

The LSRCA and the MOE are pleased to acknowledge the cooperation and support of LSRCA partners and data source collaborators, including:

- Town of Aurora
- City of Barrie
- Town of Bradford West Gwillimbury
- Township of Brock
- Durham Region
- Town of East Gwillimbury
- Town of Georgina
- Town of Innisfil
- City of Kawartha Lakes
- Township of King
- Town of Newmarket
- Town of New Tecumseth
- City of Orillia
- Township of Oro-Medonte
- Township of Ramara
- Township of Scugog
- County of Simcoe
- Township of Uxbridge
- Town of Whitchurch-Stouffville
- York Region
- Bradford West Gwillimbury Pumping Authority
- Holland Marsh Drainage System Joint Municipal Services Board
- Environment Canada