

MINISTER'S ANNUAL REPORT ON LAKE SIMCOE

2011–2012



Prepared by:

The Government of Ontario

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MINISTER'S MESSAGE

I am pleased to present this progress report on the Lake Simcoe Protection Plan. Building on consultation with citizens and expert advice from scientists, the Lake Simcoe Protection Plan sets a new standard for environmental protection of a watershed. The ministry has continued working with many partners to implement the plan in order to restore and protect the ecological health of the lake and its watershed.

Homeowners and cottagers living on the water know that Lake Simcoe and its tributary streams and rivers are under many environmental pressures — most notably, high phosphorus pollution. Much work by the people of the Lake Simcoe basin and the province is helping to turn this situation around. We are seeing a return of native lake trout, lowering of phosphorus levels, increases in oxygen that fish need to survive, improvements to the shoreline and local stewardship that is a model for watershed protection.

None of this would be possible without the financial support of the Lake Simcoe watershed municipalities, the Province of Ontario, the Government of Canada and the many contributors who have taken the time to restore a wetland, protect a piece of shoreline or simply buy a rain barrel. Numerous agricultural, commercial, industrial and

municipal organizations have shown good will and foresight by reducing their own impact on the watershed and investing in Lake Simcoe's future.

As we learn to adapt to climate change and develop new ways to protect our environment, we are creating sustainable communities that care for and protect the environment. That is the way forward for Ontario, and it is being pioneered in Lake Simcoe.

While there are some encouraging signs of progress on Lake Simcoe, we still have much more to do. Over the coming year we will continue to provide opportunities for residents of the Lake Simcoe watershed to take action to protect their lake. We are monitoring, researching and learning about the lake, and we are committed to using a best science approach so we can stay flexible and apply new ideas, techniques and innovations as they become available. We will continue to be guided by the Lake Simcoe Coordinating Committee and the Lake Simcoe Science Committee. We need to work with our partners to achieve our implementation targets.

Realising the goals of the Lake Simcoe Protection Plan requires hard work, collaboration and commitment from all corners. The plan depends on everyone

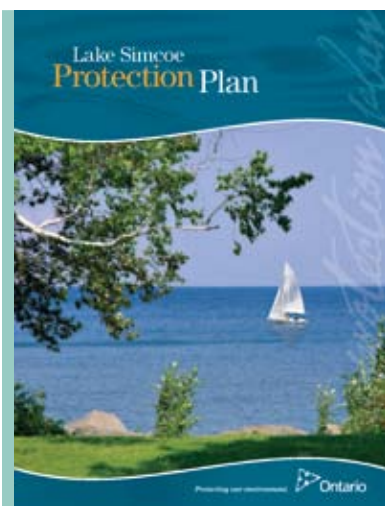


doing their part to protect the lake and its watershed. Whether you are a farmer, resident, visitor, boater or angler, you can help protect the lake. I want to say “thank you” to all of our citizens, stakeholders and partners for their time, dedication and expertise and I look forward to continuing to work with you in the future.

Jim Bradley
Minister of the Environment

BACKGROUND

Lake Simcoe is the largest inland lake in southern Ontario outside of the Great Lakes. The watershed is home to 350,000 people. The lake is fed by 35 major streams and rivers, some of which originate in the Oak Ridges Moraine and flow northward. These tributaries drain a 2,899 km² watershed. The largest, Talbot River, links the lake with the Kawartha lake system and Lake Ontario, via the Trent-Severn Waterway. The only outlet from Lake Simcoe is Lake Couchiching. Lake Simcoe's aquatic communities and habitats are stressed by poor water quality and pressures from human activities. Lake Simcoe's fish and their habitats tell us a lot about the quality of the aquatic ecosystem and overall health of the lake and its surrounding environments.



Many groups and individuals are working hard to protect and restore the Lake Simcoe watershed. To help bring their projects together and build upon their many successful initiatives, our government developed the [Lake Simcoe Protection Act](#) which was passed by the Ontario Legislature in December 2008. The act required the development of the [Lake Simcoe Protection Plan](#), which was launched in June 2009 following consultation on a draft plan. The Lake Simcoe Protection Plan was designed “to protect and restore the ecological health of Lake Simcoe and its watershed.”

These were significant accomplishments — the act was the first legislation in Canada to focus on a watershed and the plan was the first of its kind in Ontario to address identified threats to the Lake Simcoe watershed. Building on consultation with citizens and expert advice from scientists, the plan sets a new standard for environmental protection of a watershed by:

- promoting immediate action to address threats to the ecosystem, such as excessive phosphorus in the lake, and
- targeting new and emerging causes of stress to Lake Simcoe, such as invasive species and climate change.

The Lake Simcoe Protection Plan takes a science-based, ecosystem approach that considers cumulative impacts and constantly adapts to new events and knowledge. It recognizes that a healthy environment is the keystone of healthy communities and a healthy economy, and it provides a roadmap for helping to protect and restore the health of Lake Simcoe.

The Ministry of the Environment is working collaboratively with federal, provincial and local governments, including First Nations and Métis, the Lake Simcoe Region Conservation Authority, universities and other stakeholders to implement the Lake Simcoe Protection Plan.

This Minister's Report on Lake Simcoe is the second report on the implementation of the Lake Simcoe Protection Plan. The report describes the measures taken to implement the Lake Simcoe Protection Plan. The report also summarizes advice from the Lake Simcoe Science Committee and Lake Simcoe Coordinating Committee.

OUR VISION FOR LAKE SIMCOE

We believe ...

- that the lake is life and the health of the lake determines the quality of life

We see a Lake Simcoe watershed ...

- where a healthy environment provides the foundation for healthy communities, healthy people and a healthy economy
- where the well-being of diverse life forms — fish, wildlife, plants and human beings — is enhanced
- where we protect our natural environment for future generations
- where natural shorelines are maintained and where development is well planned and ecologically sound
- where citizens, governments, businesses and industries are stewards of the land, water and natural heritage
- where there is greater cooperation, leadership and responsibility among all parties to protect the Lake Simcoe watershed for present and future generations

- where our children can take their children to the beach and our grandchildren can take their grandchildren fishing and canoeing

The level of community involvement and enthusiasm for the Lake Simcoe Protection

Plan is what makes our progress possible, thanks to all those who have participated. However, there are still significant challenges. The ministry looks forward to working with all partners as we continue this important work to protect Lake Simcoe.



Highlights of our progress to date

Results from our science and monitoring work tell us:

- Spring total phosphorus concentrations in the lake are decreasing, a good signal of progress to help reduce algae.
- The proportion of naturally reproduced lake trout and lake whitefish caught by anglers rose from less than 20 per cent in the mid 2000s to more than 40 per cent in the winter of 2010.
- Trends show an increase in the lake's deep water oxygen levels. This in turn contributes to better habitats for coldwater fish.

Together with our community partners, we have:

- Supported more than 1,500 stewardship projects helping landowners access funds to improve environmental conditions around the lake.
- Taken action to reduce phosphorus from 15 sewage treatment plants. These plants must meet stringent phosphorus loading caps by 2015.
- Developed Lake Simcoe Fish Community Objectives to guide recovery of fisheries.

- Implemented six subwatershed plans to protect and restore the:
 - East Holland River
 - West Holland River
 - Black River
 - Maskinonge River
 - Beaver River
 - Pefferlaw River
- Produced a new guide for municipalities on how to develop and implement stormwater management master plans to help reduce loadings of phosphorus and other nutrients, and reduce discharges of pollutants.
- Started “My Actions, Our Lake Simcoe”, a voluntary action plan to help residents and visitors reduce phosphorus at home, naturalize shorelines and protect against invasive species.
- Hosted the first Lake Simcoe Science forum to share how our collaborative monitoring and research activities are helping to protect and restore the lake.
- Encouraged anglers to properly dispose of bait fish to help minimize invasive species.
- Demonstrated to boaters how to clean boats to reduce pollution and the spread of invasive species.

Get Involved

We all have a role to play in protecting Lake Simcoe. Please explore the [ministry's website](#) for tips on how you can do your part such as:

- [at home or at the cottage](#)
- [on the water](#)
- [managing fertilizer use, and](#)
- [protecting the shoreline.](#)

Lake Action

Whether you are a landowner, farmer, visitor or business owner, you have a role to play in protecting and improving the health of the Lake Simcoe watershed. We encourage you to get involved in the Lake Simcoe Protection Plan.

Just as it has taken decades for Lake Simcoe to decline, it will take a long time to realize the true success of our actions.

By working together, everyone can make a difference in preserving Lake Simcoe for future generations.

WATER QUALITY AND PHOSPHORUS REDUCTION

The Lake Simcoe watershed has experienced a wide range of interrelated pressures affecting the watershed — excessive nutrients, pollutants, invasive species, climate change, and increasing pressures from human activities. The nutrient phosphorus was identified as a problem for the health of the lake in the 1970s. The ministry and our partners have been taking actions to reduce phosphorus loading and carrying out monitoring to help us further understand its sources and impacts.

Why do we need to reduce Phosphorus?

Phosphorus is a naturally occurring nutrient that all living things need to grow; however, too much phosphorus in the lake has led to excessive growth of plants and algae. The decomposition of these plants and algae, in turn, depletes oxygen levels in the deep waters of the lake and deprives fish of the oxygen they need to thrive. Reducing phosphorus in the lake is absolutely critical to improving the health of the lake, water quality and the coldwater fish community. Water quality issues first became apparent in the 1960s when popular coldwater sport fish such

as lake trout and lake whitefish began to decline. During the 1980s and 1990s, the lack of oxygen was so severe in Lake Simcoe that young coldwater fish were unable to survive.

Helping the fish, in turn, helps the lake, and to do that requires increasing oxygen levels. Increasing the levels of oxygen in the water requires reducing the levels of phosphorus. Actions have been taken since the 1980s to reduce phosphorus inputs, as indicated in the Report on Phosphorus Loads to Lake Simcoe and oxygen concentrations in the deep water have improved. There have been recent encouraging signs of the recovery of natural coldwater fish populations. But phosphorus levels are still high and oxygen levels are still below the optimal level for a self-sustaining coldwater fishery.

Phosphorus Reduction Strategy

The province, working with the Lake Simcoe Region Conservation Authority (LSRCA), local stakeholders, municipalities and other partners, developed a comprehensive Phosphorus Reduction Strategy in June 2010 under Policy 4.24 of the Lake Simcoe



Protection Plan. This strategy is a cornerstone of the Lake Simcoe Protection Plan, and is critical to achieving the ambitious and aggressive reductions in phosphorus needed to eventually restore and protect the lake's water quality and ecological health.

The following chart shows the main sources of phosphorus in the Lake Simcoe watershed and the average annual load from each source over a five-year period from 2002 to 2007. The average total load during that period was 72 tonnes per year.

The Phosphorus Reduction Strategy addresses the entire watershed. It guides actions over the next 35 years to reduce phosphorus entering Lake Simcoe and its watershed from the following sources:

- sewage treatment plants
- atmospheric (airborne) sources of phosphorus such as dust and windblown erosion
- agricultural polders such as the Holland Marsh
- private septic systems located close to the lake, and
- runoff from rural and agricultural areas and stormwater runoff from urban areas.

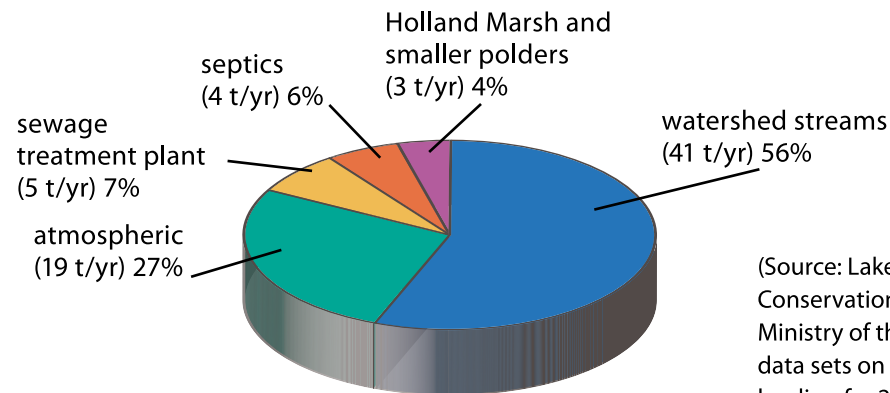
The Lake Simcoe Protection Plan sets a deepwater dissolved oxygen target of seven milligrams per litre. This is the oxygen level required to support a naturally reproducing and self-sustaining coldwater fish community. Based on current science, this oxygen target translates into an annual phosphorus load of approximately 44 tonnes per year or about 40 per cent less than the current average load.

To ensure that the ministry and our partners meet our long-term objectives for the Lake

Simcoe watershed, the Phosphorus Reduction Strategy will incorporate the latest scientific knowledge, best practices and innovative design and technology as they become

available. It will also provide technical guidance to help municipalities reduce their phosphorus loadings.

Lake Simcoe Phosphorus Sources



(Source: Lake Simcoe Region Conservation Authority and Ministry of the Environment data sets on phosphorus loading for 2002 to 2007)

Phosphorus Budget Tool

The Phosphorus Reduction Strategy sets as an objective a “move to no net increase in phosphorus loading from new development.” The phosphorus budget tool will allow developers to do a science-based assessment of impacts before, during and after development as well as planning ways to reduce phosphorus loading from construction activities through the use of best management practices.

With the tool, users can predict phosphorus loading on a subwatershed basis and compare different land uses such as agricultural versus low intensity development. It may also be used to compare phosphorus loading for low impact development stormwater management techniques versus conventional stormwater management techniques.

We welcome your comments on this new [tool](#).

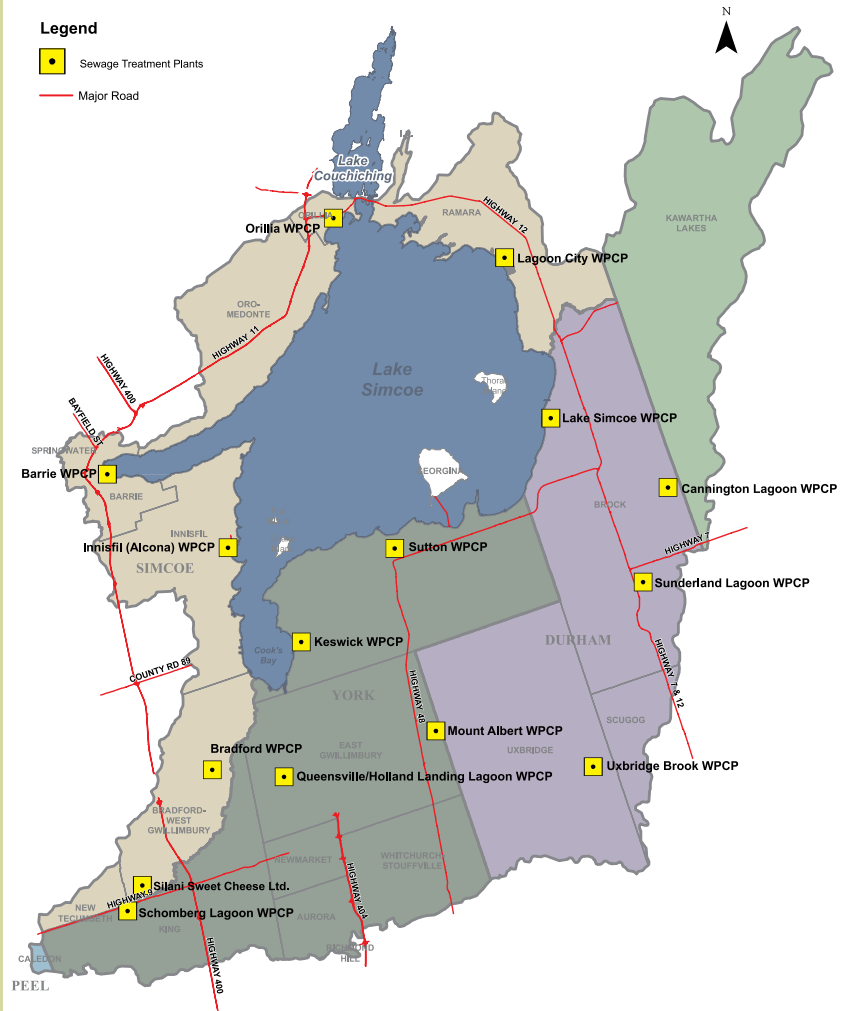
Airborne phosphorus accounts for about 27 per cent of the total amount entering Lake Simcoe. Work is being done with researchers at the University of Guelph to identify likely sources, including:

- The university's researchers suggest that about 40 per cent of the airborne phosphorus comes from local sources in the watershed that can be addressed under our plan. These results will help the ministry and our partners evaluate the effectiveness of our management options for reducing atmospheric phosphorus.

The urban areas of the watershed are experiencing varying degrees of growth pressure. The population for the Simcoe County area is forecasted to reach approximately 667,000 people by 2031.

There are currently 14 municipal and one industrial sewage treatment plants in the Lake Simcoe watershed (see map). Seven of the plants discharge directly into Lake Simcoe while the other eight discharge into rivers that flow into the lake. The average annual phosphorus load from sewage treatment plants between 2002 and 2007 was about five tonnes per year, which represents about seven per cent of the total phosphorus load to the lake. Under the Phosphorus Reduction Strategy, these facilities must achieve new phosphorus loads and

As a major step toward reducing phosphorus, the ministry's Environmental Compliance



Approvals for the 15 sewage treatment plants in the watershed have been reviewed and amended under Policy 4.2 of the Lake Simcoe Protection Plan, to include new phosphorus limits that cap the combined contribution at 7.2 tonnes per year. It has taken and will continue to take the efforts of multiple layers of government and stakeholders, investment and innovation to achieve these targets.

Pollutants other than phosphorus were also identified as a concern by stakeholders during consultations on the Lake Simcoe Protection Plan. As per the Phosphorus Reduction Strategy, sewage treatment plant owners are required to sample and assess the effluent discharged from the plant within the first five years of their amended approvals coming into force. The ministry is also supporting work with municipalities to sample the effluent of several sewage treatment plants to learn more about contaminants of emerging concern (e.g., personal care products and pharmaceuticals) which were identified as a key public health concern in the Lake Simcoe Protection Plan.

Septic System Inspections

Lowering phosphorus input from septic systems will bring us closer to our target of 44 tonnes per year. Small on-site sewage systems are designed to treat domestic sewage. These systems are estimated to

contribute approximately 4.4 tonnes of phosphorus per year.

Under Policy 4.13 of the Lake Simcoe Protection Plan, a new Building Code regulation is now in place to require municipalities, health units and conservation authorities to inspect septic systems every five years. Under the Building Code, a properly functioning and maintained septic system reduces or eliminates the release of pathogens into soil, groundwater, surface water and air and provides adequate treatment of sanitary sewage and effluent. This change will go a long way to reduce phosphorus loading, while protect Ontario's drinking water and the natural environment.

The regulation defines the geographic areas where inspections of on-site sewage systems will be required and the times within which inspections must be carried out. At the start, inspections will focus on systems located within 100 metres of certain sections of the Lake Simcoe shoreline. Inspections of septic systems by municipalities have commenced. The inspection of the balance of the septic systems must commence no later than January 1, 2016. This will include all systems within 100 metres of lakes, ponds, and permanent rivers or streams in the Lake Simcoe watershed.

Environment Canada's Lake Simcoe Clean-Up Fund also supported innovative septic replacement and retrofit initiatives in under-serviced areas in 2010–11.

Lake Action

In early 2011, we reviewed existing programs for reducing fertilizer use and protecting shorelines to find the most successful approaches. We consulted with community influencers such as garden centres and home improvement stores to explore how to work together to raise awareness and change behaviour. The results of this work informed the development of the "My Actions, Our Lake Simcoe" campaign.

If you want to learn more about the actions to reduce phosphorus in watershed streams, look at the local stewardship section on page 19.

Stormwater Management Master Plan Guidelines

Stormwater management affects the quality and quantity of water flowing through the watershed. Increased urbanization, removal of natural vegetation, altering natural streams and degrading wetlands all change the way stormwater moves through the watershed.

The Lake Simcoe Protection Plan Policy 4.5 through 4.12 requires us to better manage stormwater in existing and planned settlement areas defined in the plan. Municipalities in collaboration with

the Lake Simcoe Region Conservation Authority are to prepare and implement comprehensive stormwater management plans for each settlement area within the Lake Simcoe watershed by the end of 2014. The Lake Simcoe Region Conservation Authority and its partners have produced a guide for municipalities on how to write and implement stormwater master plans with the [Comprehensive Stormwater Management Master Plan Guidelines](#).



New major developments within the Lake Simcoe watershed must now demonstrate, under Policy 4.8, how phosphorus loadings and changes in water balance will be minimized. Ontario has implemented requirements for approvals for new stormwater systems and will review and (if necessary) revise existing approvals.

Municipal master plans will help us reduce:

- loadings of phosphorus and other nutrients, and
- the discharge of pollutants to Lake Simcoe and its tributaries.

Lake Action

The City of Barrie is planning for the development of the annexed lands south of the City's former boundary. A stormwater management study, once complete, will guide future development such that it meets the objectives and policies of the Lake Simcoe Protection Plan. Monitoring and documenting phosphorus reduction at existing stormwater management ponds and other point sources are important considerations in the development of Stormwater Master Plans in the Lake Simcoe Watershed.

Agriculture

Agriculture in the Lake Simcoe watershed generates over \$300 million annually. Almost half of the watershed is farmland and rural area. There are more than 2,000 crop, market gardening and livestock operations, including the Holland Marsh, the province's largest cultivated marsh area. Ontario encourages using innovative agricultural practices and technologies to help improve the health of the lake and its watershed. These include buffer strips along streams and rivers, cover crops, improved manure storage facilities, and low-impact cropping and fertilizing methods.

Many farmers are working toward this goal through voluntary stewardship programs such as the Environmental Farm Plan Program, the Landowner Environmental Assistance Program and the Lake Simcoe Farm Stewardship Program, and cost-share programs where available. These activities are supported by policies contained in the Lake Simcoe Protection Plan:

- Many market gardening and crop farming operations use fertilizers and pesticides that are essential for growing food. If not managed properly, nutrients can move from the fields where they are applied into groundwater, streams, rivers and the lake.

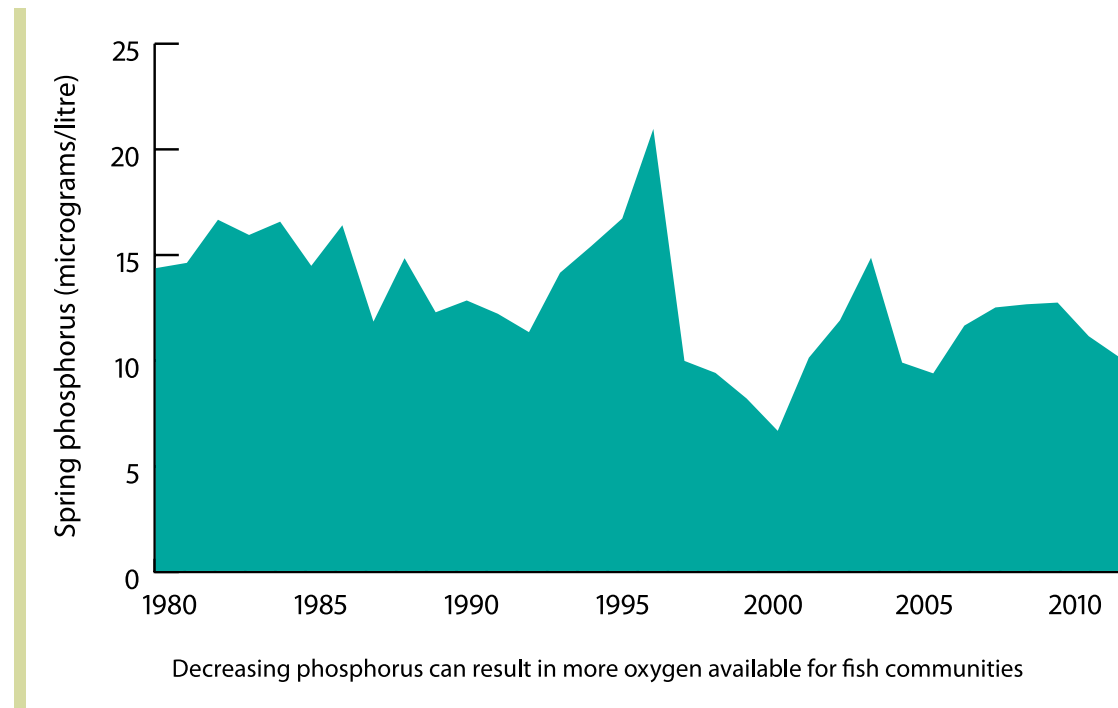
- When farm fields are bare, winds can erode soils and carry phosphate-laden soil particles to rivers and lakes. Water used for irrigation must be managed responsibly to reduce the impacts on the natural flow of water through the watershed and into the lake.
- Livestock farming produces nutrient-rich manure. Using manure management best practices can reduce loading of phosphorus, nitrogen and sulphates into watercourses and groundwater. Allowing livestock to graze on the edge of streams and rivers can cause erosion and add to the nutrient load.

Encouraging Trends

Improvements in Spring Total Phosphorus

The Lake Simcoe Protection Plan targets the reduction of phosphorus over time, thereby increasing the deep water dissolved oxygen. The target set is at least seven milligrams per litre of dissolved oxygen in the deep water. This is the minimum required to sustain the natural reproduction and survival of the coldwater fish.

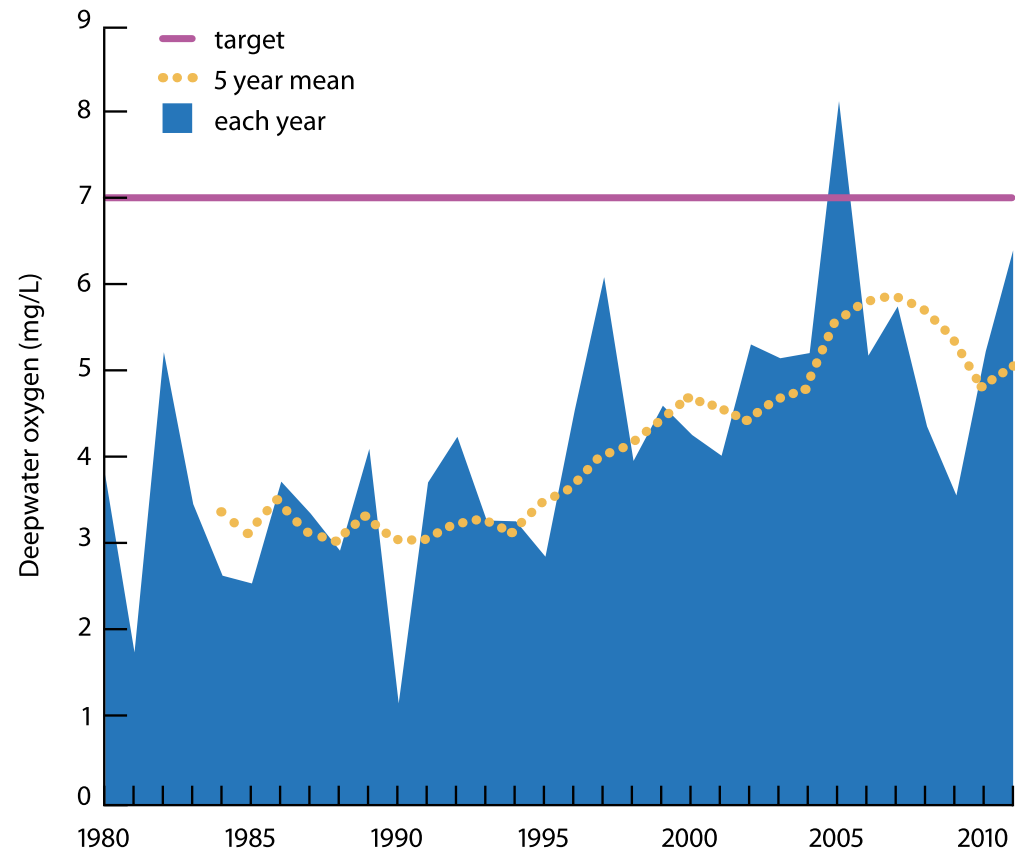
A reliable measure of the overall quantities of phosphorus in the lake is the concentrations that are measured just at the time the last ice melts during the spring. The graph below shows an encouraging trend — there was a significant decrease detected with the spring total phosphorus data. The graph also shows the importance of considering longer-term trends, as there can be considerable variation year over year. This encouraging trend is expected to continue as the ministry and our partners work to reduce the sources of phosphorus to the lake.



Improvements in Deepwater Dissolved Oxygen

We are seeing some improvements in dissolved oxygen levels in Lake Simcoe over time, as shown in the graph. While levels can vary from year to year, dissolved oxygen levels are slowly increasing, which helps fish survive. There is still much work to do — the five-year running average for deepwater oxygen has remained below the target of seven milligrams per litre (see graph). This is because on average, current phosphorus loading (72 tonnes) exceeds the target (44 tonnes) substantially. The abundance of phosphorus over-fertilizes the lake and rivers increasing weed and algal growth. When the algae and aquatic weeds die they are broken down by bacteria. Bacteria consume oxygen during decomposition and make it difficult for fish and other aquatic life to survive.

You can read more about water quality in the [Lake Simcoe Water Quality Update](#), released in May 2010.



A dissolved oxygen level of seven milligrams per litre is an important habitat requirement for coldwater fish.

WATER QUANTITY

Stream Flow Framework

Maintaining adequate water flows through the watershed is essential to preserve the habitat required by plants, fish and other organisms. Some of the Lake Simcoe subwatersheds already have low levels of water at certain times of the year. In order to protect aquatic ecosystems in the Lake Simcoe watershed, an adequate portion of the available water supply must be reserved for the ecosystem. Restoring the subwatersheds requires strong action and work with landowners and the watershed-wide community to promote stewardship.

In 2010, Ontario, the Lake Simcoe Region Conservation Authority and watershed partners began to develop a guidance document for managing water quantity in stressed subwatersheds. This report, published in 2011, supports Policy 8.1 of the Lake Simcoe Protection Plan, and illustrates how to evaluate:

- longitudinal connections (continuous connections from the headwater to the mouth) in streams, making it possible for fish to:
 - migrate for spawning or over-wintering

- take refuge to escape extremes of hot or cold, and
- support the food web of insects and plants
- lateral connections, which allow water to flood into streamside wetlands and side channels, enabling an exchange of sediment and nutrient, and signalling when it is safe to spawn, and
- connections to the groundwater, which help regulate flow, water volume and temperature.

More information is available in the guidance document: [Towards a Framework for Determining Ecological Flows and Water levels in the Lake Simcoe Watershed.](#)

In-Stream Flow Targets

The water quantity guidance document also identifies the factors to be considered when developing targets for reserve flows required to maintain healthy aquatic ecosystems in the watershed. Based on this guidance, the ministry is undertaking research with the Lake Simcoe Region Conservation Authority to provide the necessary information we need on the hydrologic regime of each stream in the watershed.

This will give us an accurate and up-to-date environmental flow assessment that considers factors such as the:

- ecological functions to be protected
- natural variations in flow, and
- other uses of the stream (e.g., sewage assimilation and water takings).

This information will help us establish accurate targets for protecting water quantity in the watershed. A draft in-stream flow target has been developed in consultation with local stakeholders in the Maskinonge River subwatershed.

Water Budgets

Although the Lake Simcoe watershed is one of the more highly monitored watersheds in the province, there are still significant data gaps. This is particularly true of water quantity, and understanding groundwater and surface water interactions.

The Ministry of the Environment and the Ministry of Natural Resources are working with the Lake Simcoe Region Conservation Authority and local municipalities to complete Tier 2 Water Budgets for all Lake Simcoe subwatersheds. These water



budgets indicate where water comes from and where it is going. This helps to guide our understanding of water flows and will contribute significantly to the development of in-stream flow targets.

To date, water budgets have been developed for the following subwatersheds:

- York Region: Black River, Georgina Creeks, East Holland, West Holland, Maskinonge
- Durham Region: Pefferlaw River, Beaver River
- Simcoe County: Lovers Creek, Hewitts Creek, Barrie Creek and Innisfil Creek

The development of Tier 2 Water Budgets for Oro Creeks and Hawkestone River subwatersheds are also underway and will be completed in 2013.

AQUATIC LIFE

Lake Simcoe is renowned for its world class lake trout, lake whitefish, yellow perch and smallmouth bass fisheries. It is one of the most intensively fished lakes in the province. It is estimated the local economy receives more than \$200 million annually from recreational activities associated with the lake. Home to almost 12,000 cottages, the watershed's summer population grows by about 50,000 visitors. Monitoring of the fish community in Lake Simcoe gives the ministry and our partners information and insight into how our policies are working. It also indicates where we need to make changes or improvements as we adapt our management tactics and fine tune our protection and restoration efforts.

Our monitoring efforts have revealed a recent positive trend. The proportion of naturally reproduced lake trout and lake whitefish caught by anglers rose from less than 20 per cent in the mid 2000s to more than 40 per cent in the winter of 2010. As noted above, trends show an increase in the lake's deep water oxygen levels — this in turn contributes to better habitats for coldwater fish.

As our efforts to restore the lake continue, everyone connected to the Lake Simcoe watershed can look forward to the return of a sustainable fish population that does not require stocking.

Lake Simcoe Fish Community Objectives

Maintaining the Lake Simcoe fishery and restoring its coldwater fish community depend not only on improved water quality and the protection of habitat, but also on sound and strategic fisheries management. As per Policy 3.1 of the Lake Simcoe Protection Plan, the Ministry of Natural Resources, in collaboration with the Federal

Department of Fisheries and Oceans and the Lake Simcoe Fisheries Stakeholder Committee developed the [Lake Simcoe Fish Community Objectives](#) for Lake Simcoe's fisheries in June 2011. These provide a common goal and a comprehensive set of objectives to enhance and guide the collective efforts to manage the fish community and fisheries resources of Lake Simcoe and its watershed.

Operation Bait Bucket Partners: Ministry of Natural Resources and Ontario Federation of Anglers and Hunters

During the winter of 2011, the Ministry of Natural Resources and the Ontario Federation of Anglers and Hunters spoke with anglers about baitfish and invasive species. They are helping anglers become better aware of the dangers posed by invasive species and enabling them to identify foreign species like round goby in their bait buckets.

When leftover baitfish is dumped into the lake at the end of a fishing session, it can result in the spread of invasive species and diseases which can have significant ecological and economic impacts on Lake Simcoe. It is illegal to dump the contents of any bait container into the water or within 30 metres of any lake, pond, river or stream. Instead, anglers should put unwanted baitfish in the garbage and empty bait bucket water on dry land.

Never release live bait into water, or release aquatic animals from one water body into another. It is illegal to use gobies, ruffe or rudd for bait. Learn how to identify exotic species, if you believe they have spread to a new location in Ontario, please call the province-wide Invading Species Hotline at 1-800-563-7711.

These efforts to raise awareness about invasive species are important steps taken under Policy 7.1 of the Lake Simcoe Protection Plan.

Goal

A fish community that is reflective of and contributes to a healthy/restored Lake Simcoe ecosystem where socio-economic and cultural benefits of the fishery are realized now and into the future; where management actions are complementary and strive for an ecological balance of self-sustaining native species; where natural fish habitats and species biodiversity are protected and maintained, and; degraded habitats and lost elements of the fish community are restored.

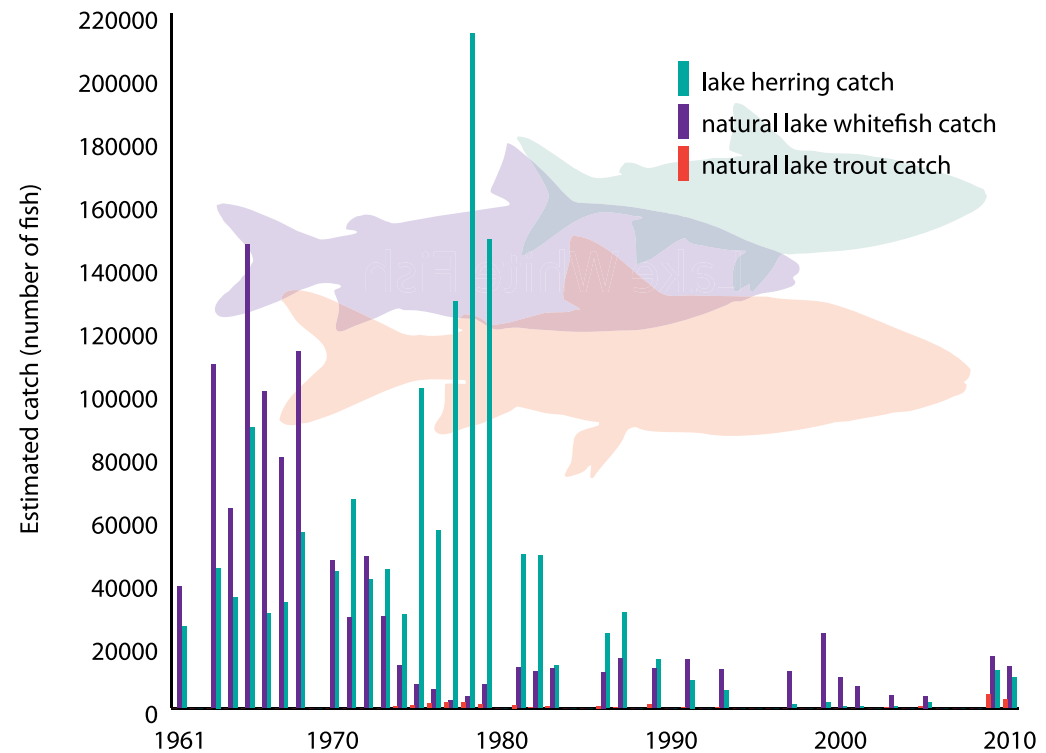
Within the lake's watershed, there are coldwater, warm-water and tributary fish resources. One objective for the Lake Simcoe Fish Community is to maintain the populations of the native fish species and promote their natural reproduction and population growth. Providing sustainable harvest opportunities and identifying opportunities for habitat restoration are essential. Objectives are also set for maintaining fishing opportunities and continued research and monitoring to enable ongoing management of the lake's fish resources.

Coldwater Fish Survival and Reproduction

Lake trout and lake whitefish are of great interest to anglers. We are pleased to report that these native Lake Simcoe coldwater fish have recently shown promising signs of improvement. Our annual fish community monitoring programs of lake trout, lake whitefish and lake herring (cisco) have all demonstrated natural reproduction, survival

and modest increases in abundance over the past few years.

This is encouraging, as these species declined drastically several decades ago because of degraded water quality and fish habitat in the lake. Now lake trout, lake whitefish and cisco are not only reproducing, the young are surviving. Recreational anglers caught these naturally reproduced fish in greater numbers during the 2009 and 2010 winter fisheries.



Fish caught by winter anglers, Lake Simcoe (1961-2010)

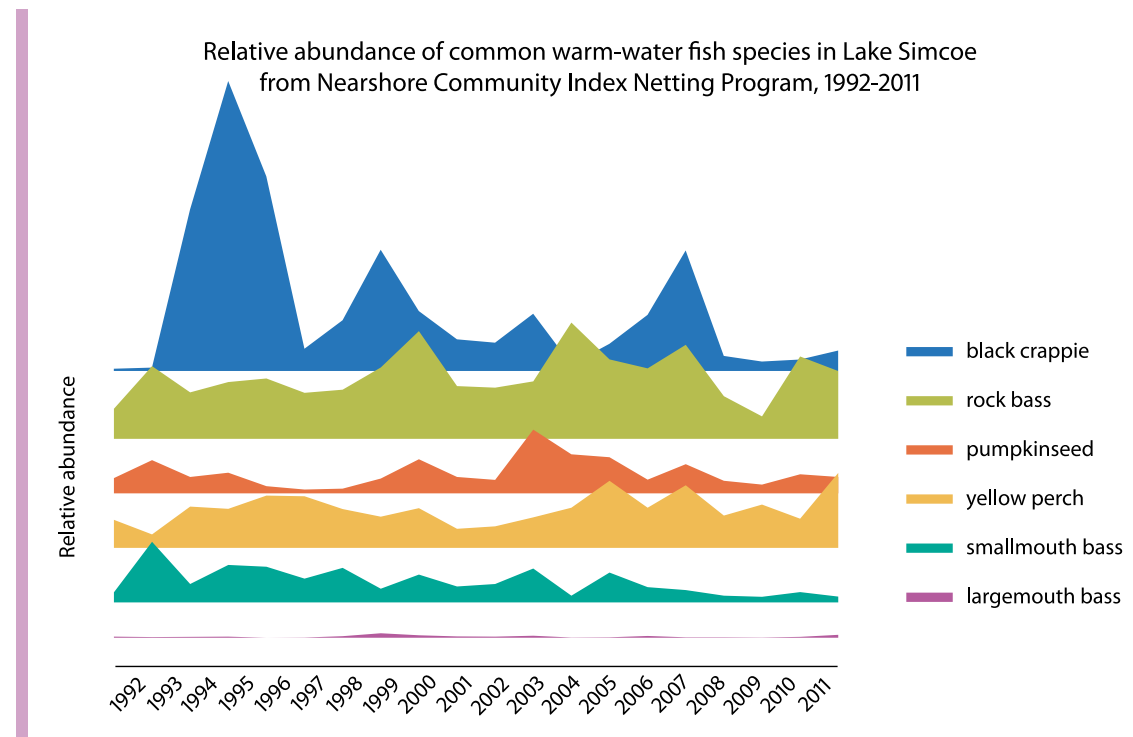
Warm-Water Fish Community Change

The Ministry of Natural Resources regularly monitors warm water fish species in Lake Simcoe. Of particular interest are the quantity, size and age of the fish as these are indicators of the health of the fish community and lake ecosystem.

The ministry and our partners have detected large year-to-year fluctuations in the abundance of warm-water fish species such as rock bass, yellow perch and black crappie, but there have been few long term directional changes over time. What is apparent is the invasion of non-native species in the early 1990s, including black crappie. The spread of invasive species can cause the reduction in abundance of native species which can have significant economic impact to the local economy. Chapter Seven of the Lake Simcoe Protection Plan is focused on monitoring and managing invasive species. Our investment in the monitoring of the warm-water fish community is an example of how we are delivering on the plan.

Biodiversity and Invasive Species

Biodiversity refers to the number and variety of life forms in an ecosystem. Generally, the



greater the biodiversity, the more resilient the ecosystem.

Last year, the government introduced “Biodiversity: it’s in our Nature, The Ontario Government’s Plan to Conserve Biodiversity (2012–2020)”. This implementation plan identifies over 100 actions and activities the province will undertake with its partners to advance biodiversity conservation, including continuing to implement the Lake Simcoe Protection Plan.

Lake Simcoe has a diverse fish community

compared with many other inland lakes. It is home to more than 50 species of fish. The ministry and our partners recently launched a new program to monitor the diversity of the lake’s fish community to keep track of changes over time. The more we learn about the lakes, the better we can prepare and plan prevention and restoration efforts.

Some of the changes in the lake over the past 20 years are the result of invasive and non-native species that have been making their way into the lake for more than a century. Their impact is widespread.

For instance, the round goby, a small bottom-dwelling fish, is now common in many shallow areas of Lake Simcoe. These fish breed fast and feed on the eggs of native species.

In 2012, Ontario's Invasive Species Strategic Plan was released. It highlights work that has been done, identifies gaps in current programs and policies, and outlines future necessary actions. These actions will work toward preventing new invasive species, slowing and (where possible) reversing the spread of existing invasive species, and reducing the harmful impacts of existing invasive species.

In addition to enhanced monitoring, researchers are investigating how broad-scale changes such as climate change and invasive species may alter Lake Simcoe's food webs and water quality. They are also using new technology to:

- estimate the abundance of important offshore species such as lake herring and lake trout, and
- quantify the relationship between nearshore habitat and aquatic biodiversity.

Invasive and non-native species and the approximate year of their introduction or detection:

Fish

- Common carp – 1896
- Rainbow smelt – 1962
- Black crappie – 1987
- Bluegill – 2000
- Round goby – 2006

Other aquatic organisms

- Zebra mussels – 1992
- Spiny water flea – 1993
- Quagga mussels – 2004
- Rusty crayfish – 2004
- European amphipod – 2005

Plants

- Curly-leaf pondweed – 1961 to 1984
- Eurasian watermilfoil – 1984

Lake Action

Invading Species Hotline 1-800-563-7711



LOCAL STEWARDSHIP

Lake Simcoe is a treasured resource and deserves our full efforts to ensure it has a healthy and bright future. With the aid, advice and expert assistance of the local communities and governments and with our other partners who share our vision for Lake Simcoe, the ministry is working to protect and restore Lake Simcoe, its watershed and its beautiful shorelines.

With the Lake Simcoe Protection Act as a foundation and the Lake Simcoe Protection Plan as a guide, a knowledgeable group of researchers, policy makers, scientists, volunteers and officials has created tremendous momentum for change.

The Lake Simcoe Region Conservation Authority also provides stewardship programs, monitoring, research, education, outreach and subwatershed planning.

To support stewardship efforts, a network has been established. The Lake Simcoe Stewardship Network consists of nearly 100 participants from a range of sectors, including municipalities, community groups, environmental non-governmental organizations, industry groups and academia. The network facilitates the sharing of knowledge, ideas, and accomplishments and the creation of collaborative partnerships in

support of stewardship and conservation.

The Stewardship Network continued to promote and support stewardship activities in 2012, by advising on:

- groups that were active in the watershed
- where stewardship activities were taking place
- types of stewardship activities, and
- project success measurement.

These are just a few of the stewardship programs and projects undertaken in the past year.

Lake Simcoe Community Stewardship Program

Interest in the Community Stewardship Program from landowners and organizations throughout the watershed has grown tremendously. The [stewardship tracking system](#) allows the public to learn about stewardship projects in the Lake Simcoe watershed, providing a standardized process for organizations to report. The system also allows anyone to see key data. This project has been made possible by funding from the Lake Simcoe Clean-Up Fund and is hosted by [Our Lake Simcoe](#).

Lake Action

More than 380 landowners and 60 groups and organizations were actively engaged in the Lake Simcoe Community Stewardship Program. Large or small, every activity made a difference.

At a glance:

- 1,435 metres of shoreline repaired or naturalized
- 3,600 metres of stream bank erosion restored
- over 17,500 trees and shrubs planted
- 33 septic systems replaced or repaired, and
- more than six hectares of wetland and other natural heritage features improved.

My Actions, Our Lake Simcoe

Partners: Ministry of the Environment, Ministry of Natural Resources, Ministry of Agriculture, Food and Rural Affairs, Lake Simcoe Region Conservation Authority

In summer 2011, we launched a campaign to raise awareness of the need to take action to protect Lake Simcoe. We highlighted the work already being done in the watershed to reduce non-essential fertilizer use and maintain natural vegetation on shorelines. In the spring of 2012, we expanded the campaign to include awareness of invasive species and sustainable recreation practices.

“[My Actions, Our Lake Simcoe](#)” consists of general education and awareness-raising with future plans for community-based social marketing. The challenge is to communicate the need for action to people who live in the watershed.

Given their connection to the lake and its community, local residents are best suited to the task. It has been our privilege to work with and support local residents by designing or providing the tools they see as best suited for raising awareness and improving education within their own communities.

Please visit the [ministry's website](#) to find out how you can take action in your own home and community.

Clean Marine in the Lake Simcoe Watershed

Twenty-seven marinas in the Lake Simcoe watershed took part in the [Clean Marine Program](#) including those located in Beaverton, Atherly, Jackson's Point, Barrie, Orillia, Gilford, Keswick, Brechin, Pefferlaw, Bell Ewart, Lefroy, Rama and Sutton West. The Clean Marine Program works to ensure that membership marinas are following environmentally sound practices and protecting waterways for all to enjoy.

Orillia's Marina del Rey was the first marina operator on Lake Simcoe to receive the Gold Clean Marine award in 2009. The Clean Marine Program supports Policy 7.16 of the Lake Simcoe Protection Plan.

Stewardship Rangers Take Action

The Ministry of Natural Resources Stewardship Ranger teams are helping our restoration efforts throughout the Lake Simcoe watershed as part of youth opportunities linked to the Lake Simcoe Community Stewardship Program.

Last year, two Stewardship Ranger teams dedicated to the watershed spent almost 3,200 hours working on 32 environmental projects. They were assisted by three additional Stewardship Ranger teams who contributed an additional 560 hours on nine extra projects.

This energetic and dedicated team of young Lake Simcoe residents, together with their team leaders, built boardwalks, monitored local streams and helped with the efforts to control invasive plants and aquatic species. They also restored shorelines and planted native trees and shrubs along lake edges and stream banks and built nesting boxes.





Lake Simcoe Farm Stewardship Program

Partners: Ministry of Agriculture, Food and Rural Affairs, Ontario Federation of Agriculture, Ontario Farm Environmental Coalition, Ontario Soil and Crop Improvement Association

Ontario is helping farmers in the Lake Simcoe region protect and restore the health of the lake. Since the plan's inception, farmers participating in the program have completed more than 400 on-farm projects. Many of these projects are large scale and require large investments.

Farm operations contribute at least 25 per cent of their costs. Typical projects include:

- improving manure storage capacity
- restricting livestock access to watercourses
- modifying tillage practices to reduce soil erosion
- run-off control measures
- improving on-farm storage and handling of petroleum products, pesticides and fertilizers, and
- nutrient recovery from wastewater.



Landowners Environmental Assistance Program

In the last year, the [Landowners Environmental Assistance Program](#) funded over 210 projects, valued at more than \$3.2 million. Together, these projects are expected to reduce phosphorus loading to the lake by approximately 463 kilograms per year.

Projects were completed with agricultural producers, urban and rural landowners, municipalities, community groups and other watershed stakeholders. These projects deliver many side-benefits, including increased community awareness of the watershed, and the positive impact of improved land use practices.

LOCAL PLANNING AND INNOVATION

In addition to our work reducing phosphorus loadings and monitoring oxygen levels, local planning and innovation actions that protect the watershed and shorelines of Lake Simcoe will help restore the lake for all who use and enjoy it. A natural shoreline is resilient to storm events, preventing run-off from entering the lake, and provides habitat for many species important to the lake's ecosystem.



A combination of local partners and governments is in place that will continue to provide updates and innovations as we move toward the goals outlined in the Lake Simcoe Protection Plan.

Boat Wash Campaign

Partners: Ministry of Natural Resources and the Ontario Federation of Anglers and Hunters

In summer 2011, students cleaned boats at various marinas on Lake Simcoe on the weekend free of charge, as part of a community-based social marketing project.

Anglers can transport zebra mussels, spiny waterflea and round gobies from one lake to another with their boats unless they take precautions. Boats must be inspected, cleaned and drained.

There were two pilot social marketing campaigns — one for boaters and one for anglers. The campaigns were designed to increase awareness of invasive species in Lake Simcoe and encourage a change in behaviour. Students demonstrated how to inspect, clean and drain boats and other equipment, and how to dispose of baitfish properly — all to prevent invasive species from spreading.

Preserving Rare Habitat

Partners: Innisfree Limited (a family-based association with 18 cottages) and Ministry of Natural Resources

A group of Innisfil cottagers are restoring a rare pine-oak tall grass savannah ecosystem on their property. Work began by conducting a species inventory. Although much of the property was still natural habitat, invasive dog-strangling vine had spread throughout the savannah and adjacent forest. Assisted by the Ministry of Natural Resources, volunteers went into action with a prescribed burn in 2012 to beat back the invaders and promote the growth of native savannah species. The association also completed a shoreline restoration started in 2009.

More than 20 per cent of their 900-metre shoreline was eroded. The cottagers repaired 200 metres of crumbling banks with rock and in the spring planted 100 dogwood shrubs along the shoreline to prevent erosion.

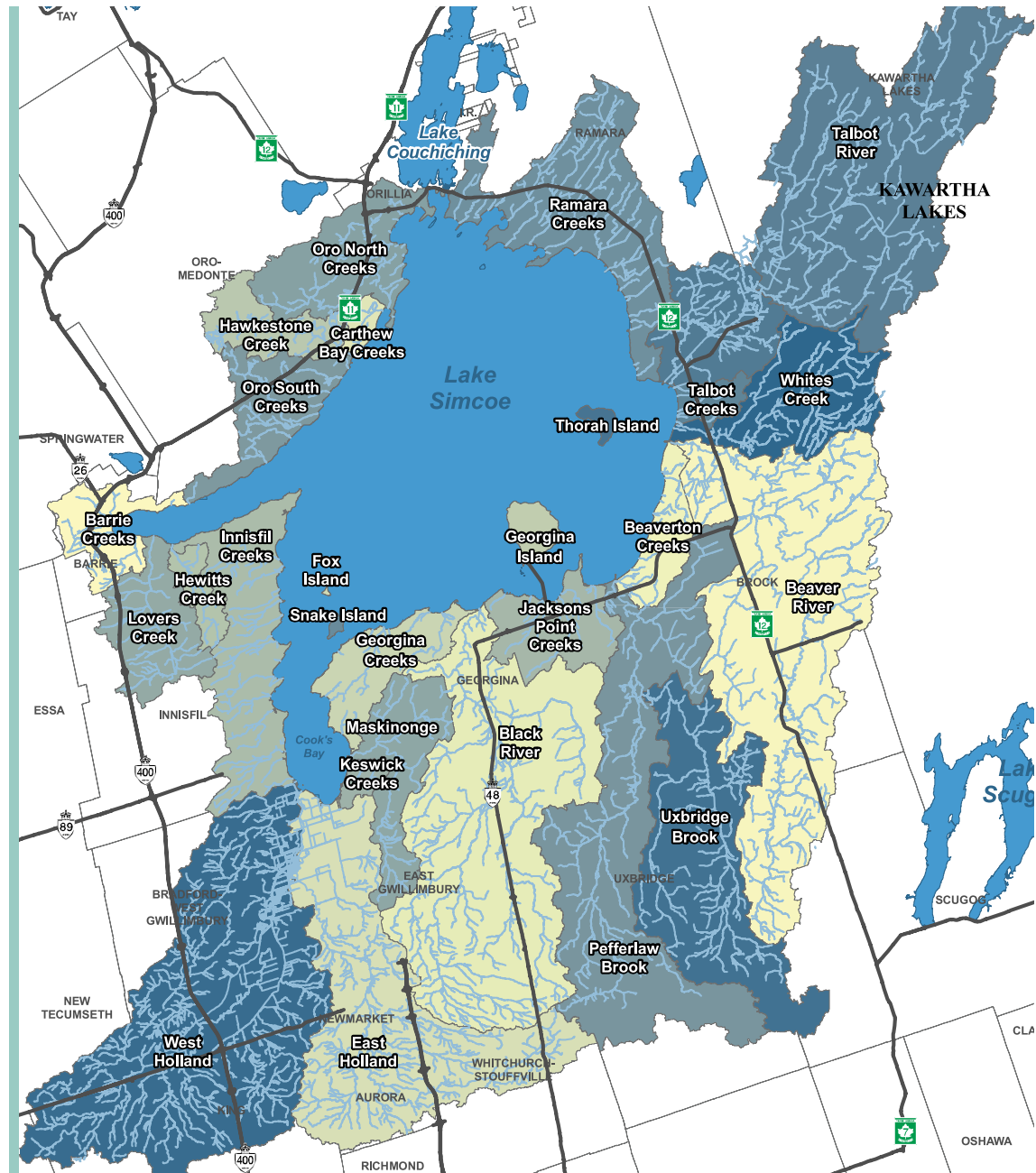
Subwatershed Planning

Each subwatershed in the Lake Simcoe watershed is unique and the Lake Simcoe Protection Plan recognizes this. Under Policies 8.1 and 8.3, the ministry is working with partners to address these needs with a systematic approach that includes analysis, monitoring, planning and action. Within this reporting period, we finalized and began implementing subwatershed plans within York and Durham Regions for the:

- East Holland River
- West Holland River
- Maskinonge River
- Black River
- Beaver River, and
- Pefferlaw River.

The first four of these plans were completed by the Lake Simcoe Region Conservation Authority and funded by York Region. The Lake Simcoe Region Conservation Authority has also completed subwatershed plans for the Beaver River and Pefferlaw River with funding from Durham Region.

In collaboration with the Lake Simcoe Region Conservation Authority, subwatershed plans for Innisfil and Barrie will follow. You can view the complete details of the subwatershed plans and reports by visiting the [Lake Simcoe Region Conservation Authority](#) website.



Maskinonge River Recovery Project

Partners: Lake Simcoe Region Conservation Authority, Save the Maskinonge, York Environmental Stewardship, the Town of Georgina, the Town of East Gwillimbury, Region of York, Lake Simcoe Clean-Up Fund and community volunteers

In 2008, the Maskinonge subwatershed received the lowest grades in the Lake Simcoe basin for forest cover and forest interior. In 2009, it scored lowest for riverside vegetation. As a result, the Lake Simcoe Region Conservation Authority introduced the [Maskinonge River Recovery Project](#).

Since its start, over 40 projects have been completed. A large part of this effort has focused on the shorelines along the Maskinonge River and its tributaries, as stream bank erosion and lack of vegetation are a major concern.

Projects have been wide-ranging. 2011 highlights include:

- planting more than 500 trees and shrubs around a storm water pond, as well as building bat and bird boxes
- the Lower Maskinonge River Naturalization Project, which has restored natural shorelines
- creation of turtle habitat for endangered species
- installation of riffle structures
- removal of garbage, and
- implementation of the Yellow Fish Road program and schoolyard naturalization.

representatives from local municipalities, businesses, farmers, First Nations and source protection authorities (including the Lake Simcoe Region and Nottawasaga Valley Conservation Authorities, and the Severn Sound Environmental Association), submitted the region's first Source Protection Plan under the Clean Water Act to the ministry in October 2012.

The plan identifies risks to the quality and quantity of municipal drinking water sources in the local watersheds and contains proposed policies to address the most significant risks. Once the plan is reviewed by the Minister, a range of local municipalities, conservation authorities and the Ontario government will be responsible for implementing the policies.

Showcasing Water Innovation

[Showcasing Water Innovation](#) is a provincial program that invests in leading edge, cost-effective solutions for managing drinking water, wastewater and stormwater systems in Ontario communities.

Under this program, the province is investing over \$2 million in five projects that are being delivered in the Lake Simcoe watershed. The five multi-year projects that are currently underway are focused on technology innovation in

Source Protection

In the South Georgian Bay Lake Simcoe Source Protection Region, Ontario has provided over \$3.5 million in funding through the Ontario Drinking Water Stewardship Program to help local landowners and businesses take early actions to address risks to their local drinking water. The province invested an additional \$16.8 million to assess and identify sources of drinking water threats and to develop

source protection plans with policies to manage these threats. Much of this funding supported projects in the Lake Simcoe and Couchiching watersheds, such as upgrades for septic systems which also contributed to an overall reduction in nutrients within the Lake Simcoe watershed.

Lake Simcoe lies within the Lake Simcoe and Couchiching Source Protection Area. The South Georgian Bay Lake Simcoe Source Protection Committee, working with

stormwater management, water quality trading to reduce phosphorus loads and removal of micropollutants from municipal wastewater.

This program complements Ontario's Water Opportunities Act by fostering innovation, creating opportunities for economic development and protecting water resources.



Lake Simcoe Region Conservation Authority: Retrofitting of Urban Stormwater Management Facilities in the Lake Simcoe Watershed Using Innovative Technologies: Comparison of Three Innovative Solutions

This project will compare the efficiency and efficacy of three innovative approaches for managing stormwater to decrease phosphorus discharges into Lake Simcoe. Three existing stormwater management facilities located in separate urban catchments in the Lake Simcoe watershed will be retrofitted and upgraded with technologies that have not yet been tested or proven in local settings. Expected outcomes include lower phosphorus amounts discharged from stormwater facilities, improved water quality and identification of cost-effective ways to retrofit stormwater facilities.

Canadian Urban Institute: Integrated Water Mapping: Enhancing Decision Support for Sustainable Water Planning with Municipal Data

The Canadian Urban Institutes will work with partners in the Cities of Barrie, London, Toronto and Guelph to create a Geographic Information System model for integrated water mapping that uses municipal data for water sustainability

planning. Integrated water mapping will help municipalities identify and evaluate their water supply, collection and treatment needs.

Lake Simcoe Region Conservation Authority: Water Quality Trading to Reduce Phosphorus Loadings to the Lake Simcoe Watershed

The Lake Simcoe Region Conservation Authority will work with local partners to design a proposed water quality trading system that, if implemented, could provide a way to lower the overall loading of phosphorus discharged into Lake Simcoe and its tributaries. The project will identify cost-effective methods for lowering phosphorus discharges into Lake Simcoe.

Regional Municipality of York: Removal of Micropollutants from Municipal Wastewater: Lake Simcoe/Regional Municipality of York Pilot Plant

York Region will be working to find a practical solution for reducing the release of micropollutants, such as pharmaceuticals and personal care products, from water pollution control plants, to improve Lake Simcoe's water and the health of aquatic ecosystems. The project, in collaboration with the University of

Toronto, will pilot test an advanced oxidation process at the Keswick Water Pollution Control Plant. Expected outcomes include reduced micropollutants in water bodies, cost-effective and energy-efficient removal of micropollutants, and laboratory-tested technology implemented in a real-world setting.

Regional Municipality of York: York Region Innovative and Sustainable Development Approvals Project

York Region will promote green construction and increased water savings using an approvals process for sustainable developments. The project will also quantify potential water reductions from green buildings that will inform new construction throughout Ontario.

Expected outcomes from this project include:

- lower environmental impact of new property development
- improved water conservation
- reduced storm water volumes
- reduced energy use
- reduced greenhouse gas emissions, and
- Adaptation to climate change.



Planning for the Impacts of Climate Change

The Lake Simcoe Protection Plan requires the development of a climate change adaptation strategy for the Lake Simcoe watershed. For a summary of recent action on climate change in Ontario, see [Climate Ready, Ontario's Adaptation Strategy and Action Plan 2011–2014](#).

The Ministry of the Environment is leading a project to assess and evaluate the risk of climate change impacts on the watershed. Together with the Ministry of Natural Resources, Ministry of Agriculture, Food and Rural Affairs, local First Nations and Métis communities, the Lake Simcoe Region Conservation Authority, municipalities and academic institutions, the ministry is undertaking an extensive collaborative

process that examines planning, policy, science and communication issues. The results of the consultation will feed into the development of a draft Lake Simcoe Climate Change Adaptation Strategy. This draft strategy will be posted for public comment in spring 2013. This process will be shared with other watersheds across Ontario and beyond our borders.

NEXT STEPS

NEXT STEPS

Working with our many dedicated partners, the ministry plans to build on the efforts to protect and restore the Lake Simcoe watershed. Our approach can be described as “adaptive management” that links with our constant monitoring of the lake; when conditions change, we adapt our strategy to accommodate. In the upcoming year, we will:

- complete water budgets and subwatershed plans for the remaining river systems in the watershed
- release a multi-seasonal recreation strategy focused on promoting environmental sustainable recreational activities
- release a comprehensive monitoring strategy to coordinate science and monitoring
- continue to promote stewardship actions across the watershed enabling new ideas and approaches
- host the second biennial Lake Simcoe Science Forum to discuss scientific results and collaborate on monitoring and research
- consult on a Lake Simcoe Climate Change Adaptation Strategy that outlines adaptation measures to address the impacts of climate change in the watershed

- continue to implement the Phosphorus Reduction Strategy
- release the report on Phosphorus Loads to Lake Simcoe (2007–2009) in early 2013
- continue to carry out and support monitoring and research work
- work with partners in developing new ways to protect and restore the shoreline
- encourage the use of Best Management Practices across all sectors in the watershed, and
- work collaboratively on response plans for priority invasive species.

Our science-based ecosystem approach recognises that a healthy environment is the cornerstone of a healthy community and a healthy economy. We look forward to continuing to work with our partners to protect and restore Lake Simcoe.

To learn more about our many partners and resources, visit [Lake Simcoe Community Partners](#).



APPENDIX

The government recognizes and thanks all committee members for demonstrating their commitment to Lake Simcoe and working hard to provide us with their best advice.

The Lake Simcoe Coordinating Committee

In July 2012, the committee submitted a report with recommendations for

implementing the Lake Simcoe Protection Plan.

A summary of the recommendations in the report includes:

- stewardship enhancements are needed to promote collective action and behaviour change
- growth plans must be reviewed alongside information now gathered on lake impact, and

- innovation is essential to get us to our target.

The ministry and our partners are reviewing these recommendations that will help inform the actions to be taken during the coming year. We will report on the progress and results of these actions in our next report. The table below summarizes the advice the committee gave during 2011 and the resulting actions taken.

Lake Simcoe Coordinating Committee Recommendations 2011

Topic	Recommendations	Response to Date
Phosphorus Reduction Strategy	Draft an implementation timetable for Lake Simcoe Protection Plan (LSPP) policies addressing phosphorus loading.	Recommendation adopted.
Stewardship	Develop a table to show which LSPP policies are being implemented by municipalities.	Recommendation under consideration to determine feasibility.
	Create one document that reports on and maps all stewardship programs/projects around the lake and within the watershed.	A publicly available database is available through this hyperlink www.ourlakesimcoe.com/projects.php . It is a community driven database for the Lake Simcoe watershed.
Recreational Strategy	Work with the Ministry of Natural Resources to continue assessing the impact of recreational activities, such as boat speed and noise levels, on fish spawning.	The Recreation Strategy Working Group engaged the public in conversations about sustainable recreation activities, through social media and at community events in 2011 and 2012.
	Work with Trent-Severn Waterway Advisory Council to look at how fluctuations in lake levels can influence recreation.	Water budget and subwatershed plans have been completed or are in the planning stages (e.g., Talbot River system). These plans consider the management of water quantity and recreational activities.
	Work with federal bodies responsible for the regulation and enforcement of recreational water activities in developing the strategy.	The Recreation Strategy Working Group engaged recreation stakeholder groups including federal bodies in discussions about the development of a multi-seasonal recreation strategy.
Climate Change Adaptation Strategy	Develop a table to be appended to the strategy highlighting the connections between the LSPP and the strategy.	Draft Strategy is being prepared for public consultation.

Lake Simcoe Science Committee

In June 2012, the Lake Simcoe Science Committee submitted a report to the Minister that included 41 recommendations for the continued protection of Lake Simcoe. Among the recommendations are calls for the following actions:

- continue to focus on reducing phosphorus loads while increasing the protection of shoreline and natural heritage areas
- continue leading edge research and monitoring activities, and
- transfer scientific information to policy makers, stakeholders and the public in plain language.

The committee's input has helped guide the development of strategies to protect Lake Simcoe. As a result, 31 of the 41 recommendations in their report have already been addressed. The remainder are under review by the ministry and its partners. These recommendations will help inform actions to be taken during the coming year. The table below summarizes the advice the committee gave during 2011 and the resulting actions taken.

Lake Simcoe Science Committee Recommendations 2011

Topic	Recommendations	Response to Date
Phosphorus Reduction Strategy	Include a no-net phosphorus increase requirement for development approvals.	Phosphorus budget tool was developed and will provide guidance on how to calculate the phosphorus budgets for development.
	Designate stormwater from new development as point sources to regulate it in a similar manner to sewage treatment plants with discharge limitations.	The Lake Simcoe Region Conservation Authority, in collaboration with partners, developed Subwatershed Planning Guidance in 2011. To date, six subwatershed plans have also been developed; these plans will also help to manage phosphorus. The recommendations remain under review for further actions.
Stormwater Management	Develop stormwater criteria that include phosphorus, salt, and other harmful contaminants of water, along with percentage total suspended solids (TSS) removal from stormwater facilities to requirements for end-of-pipe concentrations of parameters.	Comprehensive Stormwater Management Master Plan Guidelines have been developed in collaboration with the Lake Simcoe Region Conservation Authority.
	Ensure stormwater/snow melt runoff stored in strategic locations to reduce lethality of salt spikes.	Recommendations take into consideration the development of stormwater best management practices.
Climate Change Adaptation Strategy	Conduct precipitation analysis and use results in strategy.	Recommendations were taken into consideration in the development of the draft Climate Change Adaptation Strategy, which will be released for public consultation on the Environmental Registry in early 2013.
	Include land use changes, e.g., increase in impermeable surfaces.	
	Leverage partnerships with modellers and practitioners in order to build climate change modelling capacity.	
	Commit to review strategy within two years based on new information.	

Lake Simcoe Science Committee Recommendations 2011 (continued)

Topic	Recommendations	Response to Date
Water Quality Trading	Committee recommends using a conservative approach with trading ratios to address key risks such as uncertainty between different sources of phosphorus.	Showcasing Water Innovations funded project led by Lake Simcoe Region Conservation Authority is exploring water quality trading as a way to lower the amount of phosphorus discharges.
	Consider including regulatory incentives to interest developers and owners of sewage treatment plants to buy and sell credits.	
	Trading should occur in areas that are monitored to increase availability of program results and benefits.	
	Monitor costs associated with running the program, as well as effectiveness in reducing phosphorus.	
	Ensure clear indication of investor interest and assurance that adequate incentives exist to facilitate participation, such as tax incentives.	
Shoreline/Natural Heritage	Include wetlands with permanent surface water connections to a lake or permanent stream in policies regarding septic setbacks.	Recommendations will support the development of a comprehensive monitoring strategy (to be released later this year) and the Shoreline Management Strategy.
	Define the ideal sample size to determine the scale of the terrestrial monitoring project.	
	Integrate existing monitoring programs and identify gaps.	
Shoreline Voluntary Action Program	Conduct scientifically sound surveys to develop and assess the voluntary action program.	In 2011, a shoreline Voluntary Action Plan campaign “My Actions, Our Lake Simcoe” was launched to increase voluntary efforts to protect the shoreline and reduce use of phosphate-containing fertilizers. This campaign was expanded in 2012 to include awareness of invasive species and sustainable recreation practices. Recommendation will be considered in future development of a community-based social marketing pilot program. Supports development of Shoreline Management Strategy. Recommendation will assist in determining whether additional measures should be pursued.
	Conduct review within five years, with option of pursuing regulatory measures if established targets are not met.	
	Educate landowners on best practices and stewardship regarding fertilizer management.	
	Consider and respond to changing demographics, i.e., increasing population, in the watershed.	