

Healthy Lake Huron

Clean Water, Clean Beaches

Newsletter
2016

This Issue:

- Ways you can protect Lake Huron
- Water level fluctuations and how to reduce erosion
- Finding out about *E. coli* levels before swimming
- How soil health and plant cover on gardens and fields can benefit water quality in Lake Huron
- Phragmites control by Chippewas of Kettle and Stony Point First Nation
- ... and much, much more!

Healthy Lake Huron:

Clean Water, Clean Beaches

A partnership of landowners, communities, all levels of government, public health, and local conservation agencies

Federal Government – Environment and Climate Change Canada; Parks Canada; Fisheries and Ocean Canada

Ontario Provincial Government – Ministry of the Environment and Climate Change; Ministry of Natural Resources and Forestry; Ministry of Agriculture, Food and Rural Affairs; Ministry of Municipal Affairs and Housing

Counties and municipalities – Bruce County; Huron County; Lambton County

Public Health – Grey Bruce Health Unit; Huron County Health Unit; Lambton Public Health

Conservation authorities – St. Clair Region; Ausable Bayfield; Maitland Valley; Saugeen Valley; Grey Sauble

Other organizations – Bruce Peninsula Biosphere Association; Environmental Defence; Lake Huron Centre for Coastal Conservation; Pine River Watershed Initiative, Western University; and more

International Stakeholders

– Lake Huron Binational Partnership
... and our other valued partners.

Editor's note: The Healthy Lake Huron: Clean Water, Clean Beaches newsletter is published once a year. We would like to express special thanks for submissions to this issue by Chippewas of Kettle and Stony Point First Nation and by the Historic Saugeen Métis. We look forward to publishing in future issues articles from other Lake Huron indigenous communities as well.



Photo by Grace Dekker

Community volunteers help to maintain 'clean water, clean beaches' along Lake Huron's southeast shores. Above, volunteers and members of the Centre Ipperwash Beach Association take part in a shoreline cleanup, part of the Great Canadian Shoreline Cleanup. To learn more visit healthylakehuron.ca and shorelinecleanup.ca.

Lake Huron communities help to clean up shoreline

Each year, St. Clair Region Conservation Authority (SCRCA) hosts a shoreline cleanup at Centre Ipperwash Beach. This past September (2015), volunteers and members of the Centre Ipperwash Beach Association got really involved and helped clean more than one kilometre of beach and dunes.

"We had a great team of hard-working volunteers," said Jessica Van Zwol, SCRCA Healthy Watershed Specialist. "This cleanup is always a good reminder of shoreline litter issues, especially cigarette butts."

About 50 pounds of garbage was removed, with the most prevalent items being cigarette butts. Approximately 900 cigarette butts were collected in only two hours.

This year's cleanup is scheduled for September 10, 2016. To register call Jessica Van Zwol at 519-245-3750, extension 241.

"We want to ensure Lake Huron stays healthy for generations to come," said Van Zwol. "Even small events like this one raise community awareness of the importance of water quality and clean shorelines."

What Lake Huron can learn from Lake Erie:

The importance of reducing phosphorus discharge

By Ted Briggs, Ontario Ministry of the Environment and Climate Change

The Great Lakes Water Quality Agreement is a commitment between the United States and Canada to restore and protect the waters of the Great Lakes for everyone to enjoy for generations to come. The agreement provides a way for the two countries to set and agree on priorities for actions that improve water quality.

One of the key issues the agreement addresses is the problem of excess nutrients, such as phosphorus. Phosphorus is an important nutrient for plant growth, but when it runs off the land and into the lake in high concentrations it can result in harmful algae blooms.

Under the nutrient reduction section of the agreement, the United States and Canada will work to establish phosphorus targets for each of the Great Lakes while continuing to assess and implement actions designed to manage excess phosphorus from urban and rural sources.

Within Lake Erie, large algal blooms have begun to resurface over the past several years resulting in Lake Erie being identified as the first Great Lake to undergo a review of the lake's phosphorus concentration and loadings targets.

In February of 2016 the United States and Canada announced a phosphorous reduction target of 40 per cent for Lake Erie. These reductions will occur through the development of an action plan to implement remedial projects targeting priority watersheds, such as the Leamington tributaries and Thames River watersheds, within the Lake Erie basin.

In the next few years the federal governments, in cooperation and consultation with state and provincial governments, tribal governments, First Nations, Métis, municipal governments, watershed management and other local public agencies, and the public, will begin work to develop phosphorus concentration and loading targets for Lake Huron.

Continued on next page

Reducing erosion, promoting soil health benefits Lake Huron

By Doug Rogers, Farmer, Lambton Shores

Healthy Lake Huron is about engaging the community to work together toward the goals of Clean Water, Clean Beaches. The St. Clair Region Conservation Authority (SCRCA) has been working with local citizens in Lambton Shores (a Lake Huron priority watershed) to support the community in taking action to protect our lake.

It all started 25 years ago when farming practices focused on saving labour and equipment costs. Farming practices have since evolved to stop erosion by wind and water, promote soil health, and prevent soil degradation.

In September 2015, SCRCA hosted a conservation farming bus tour in Lambton Shores. Farmers travelled to local farms that were practising techniques that helped reduce erosion and phosphorus loss. One of the farms was mine. It is located not far from the shores of Lake Huron. We are attempting to do all we can to ensure our farm is not contributing sediment and nutrients to the lake.

Over the years, our farming techniques have ranged from the tried and true to innovative approaches to agriculture, always trying to balance the needs of the farm with the needs of the watershed. After doing a lot of research and attending many agriculture conferences, we now strive to maintain a 'living crop' on our fields year-round. To ensure the ground is not left bare, we plant a cover crop that is made up of 10 different plant species after winter wheat is harvested. Some species die off when the frost and snow arrives, but their roots remain and armour the top of the ground, keeping soil and nutrients on the field instead of eroding and ending up in Lake Huron.



Doug Rogers received a Conservation Award from St. Clair Region Conservation Authority Chair Steve Arnold at the SCRCA Annual Meeting in February 2016 for his efforts that support a Healthy Lake Huron.

The residue left behind is a food source for the biological network under our feet. Soil microorganisms help improve soil structure, and create better soil aggregates. This provides better water infiltration into the soil profile so it will not run off the fields.

This year, we are also inter-seeding cover crops into corn and soybeans when they are growing so that, after harvest, the cover crop is already established, reducing erosion in the autumn and the following spring.

Cover crops are not only beneficial because they secure soil by their roots but they also can contribute nitrogen for the next year's crops and maintain soil moisture to help reduce wind erosion.

Do you remember driving around the countryside this past winter when we had some snow? Did you notice the fields that were tilled had dirty snow along the roadsides and ditches? This is caused by wind erosion of our soil and is visible proof of the problem.

I am committed to sharing my experience to encourage other farmers to contribute to a Healthy Lake Huron. I have noted some agricultural fields that are without crops during spring and autumn – our seasons of heaviest precipitation. This is when we have the highest losses of soil erosion by wind and water. If we stay this course, there will not be enough topsoil to farm within the years to come.

Studies have shown we lose, on average, about five to seven tons of topsoil every year, not including the soil lost from large rain events. We need to make some changes now and not later.

Over the last two years, working with St. Clair Region Conservation Authority, we have been taking water samples from field tile and surface runoff after large rain events from conventional, no-till, and cover crops and, this year, we plan to add samples from green cover crop fields to compare the loss of phosphorus from these various farming practices.

The SCRCA is working to spread the word and provide opportunities for farmers to learn more about soil conservation. They are planning another bus tour in August. I would encourage anyone interested in protecting Lake Huron to join us on the tour.

You can get more information by calling Jessica Van Zwol at 519-245-3750, extension 241.

Cover crops reduce loss of topsoil, nutrients Healthy soil benefits food production, water quality

By Jo-Anne Harbinson,
Saugeen Valley Conservation Authority

About 50 people, including agricultural producers and industry representatives, attended a Soil Health Day and learned more about the role of cover crops and soil health in reducing soil and nutrient loss. The workshop took place August 25, 2015 near the Grain Elevator in Amberley.

The Pine River Watershed Initiative Network, Parrish and Heimbecker Limited, and the Saugeen and Maitland Valley conservation authorities hosted the demonstration.

The purpose of the workshop was twofold. First, those who took part had a chance to discuss the effectiveness of various cover crops in keeping precious topsoil on the land. Secondly, the workshop showed how this helps maintain good fish habitat and water quality in our local waterways.

Brendan Zettler, of Parrish and Heimbecker, grows various cover crops. Attendees were able to see the soil health benefits from seed mixes, both above and below the ground.

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) set up a rainfall soil demonstration unit to show the benefits of cover crop practices in reducing soil loss and runoff. Jo-Anne Harbinson, of Saugeen Conservation, showed how soil structure differs between a tilled and no-till operation. P&H and Ausable Bayfield Conservation staff excavated a soil profile to show how corn roots draw water and nutrients from different soil zones.



Soil health workshop in Amberley.

The effect of soil compaction, due to equipment passage, was also discussed.

A manure dribbler was also on hand to show participants how a closer ground application could provide a more consistent and effective coverage.

For more information, contact:

Saugeen Conservation: www.svca.on.ca

Maitland Conservation: www.mvca.on.ca

Ontario Ministry of Agriculture, Food and Rural Affairs: www.omafra.gov.on.ca

or on Twitter: @ONAgEnviro

Importance of reducing phosphorus discharge

Continued from front page

While work is underway, communities can act to protect and restore their corner of the Great Lakes and implement initiatives to reduce phosphorus runoff. As part of Ontario's Great Lakes Strategy, the Great Lakes Community Guardian Fund provides funding for not-for-profit organizations, First Nations, and Métis communities for local projects that help protect and restore the Great Lakes. To learn more visit:

[Ontario.ca/document/
ontarios-great-lakes-strategy](http://Ontario.ca/document/ontarios-great-lakes-strategy)

Great Lakes Guardian Community Fund

Grants to support your work

As part of Ontario's Great Lakes Strategy, the Great Lakes Guardian Community Fund was set up to help people take action to protect and restore their corner of the Great Lakes. To learn more and to view the recent fund recipients for the Lake Huron watershed please visit:

[ontario.ca/page/
great-lakes-guardian-community-fund](http://ontario.ca/page/great-lakes-guardian-community-fund)

This program provides grants up to \$25,000 for projects in lakes Huron, Erie, Ontario, and Superior as well as the St. Lawrence and Ottawa rivers. The fund is open to not-for-profit organizations; First Nations communities and organizations; and Métis communities and organizations.

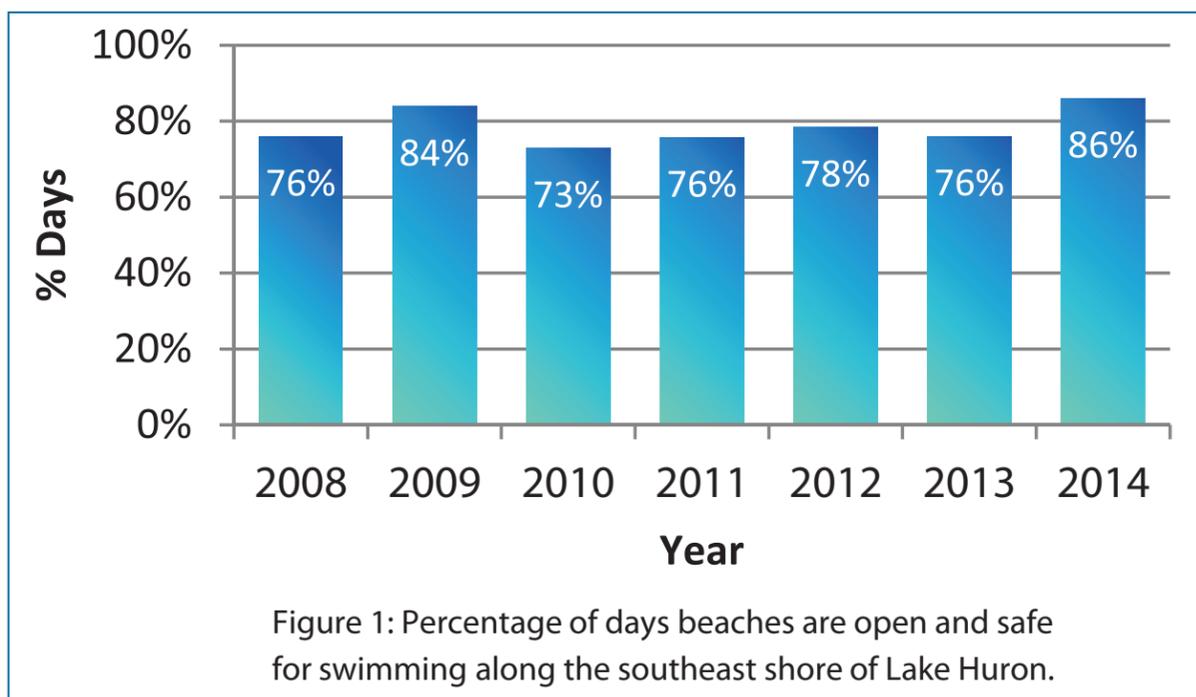


Figure 1: Percentage of days beaches are open and safe for swimming along the southeast shore of Lake Huron.

Find out about *E. coli*, beach conditions before deciding where, when to swim

Beach water quality can change with weather

By Greg Mayne,
Environment and Climate Change Canada

“Let’s go to the beach!” is a phrase often heard on a hot Ontario summer day. Before you can pack up and head to one of the many Lake Huron southeast shore beaches, you may want to check if there is an advisory for your favourite beach.

Beach water quality can change quickly depending on the amount of rainfall and varying sources and levels of pollutants. Bacteria such as *E. coli* (*Escherichia coli*) cause the most concern among health officials and beachgoers. *Escherichia coli* or *E. coli* refers to a large group of bacteria naturally found in the intestines of warm-blooded animals including people. Some strains, such as *E. coli* O157: H7 can lead to sickness such as stomach cramps, diarrhea, and vomiting. Infection with this strain of *E. coli* can cause kidney failure and can sometimes be fatal.

Municipal health units are responsible for monitoring public beaches and when test results show elevated *E. coli* concentrations, beaches remain posted until samples indicate safe levels.

Beach advisories are a State of the Great Lakes indicator. A closer look at beach water quality by Environment and Climate Change Canada shows that southeast shores beaches typically remain open and safe for much of the swimming season (Figure 1), with some beaches open for the entire season.

No beaches, however, were open 100 per cent of the swimming season in 2014 according to a recent analysis (Figure 2). Huron County Health Unit’s Beach Water Monitoring Report (2014) shows deteriorating nearshore water quality at Port Albert, Port Blake, Houston Heights, as well as some other beaches in the county.

You can find detailed information on beach monitoring and beach health reports on the Huron County Health Unit website (www.huronhealthunit.ca/health-topics/beach-water-quality).

Primary sources of *E. coli* from wildlife and human activity include guano from geese and gulls, faulty septic systems, and stormwater runoff from urban, farm, and rural non-farm sources. Groundwater, rivers, and small creeks also act as conduits for pollutants like *E. coli* and many non-point sources (NPS) of pollutants like excess sediments, fertilizers and chemicals that enter and degrade nearshore water quality and beaches.

Non-point sources of pollution are complicated and elusive but represent a growing threat to the environment and public health. Because NPS pollution originates from the combined actions of many individual citizens and businesses, their close involvement and participation in addressing the issue is absolutely essential.

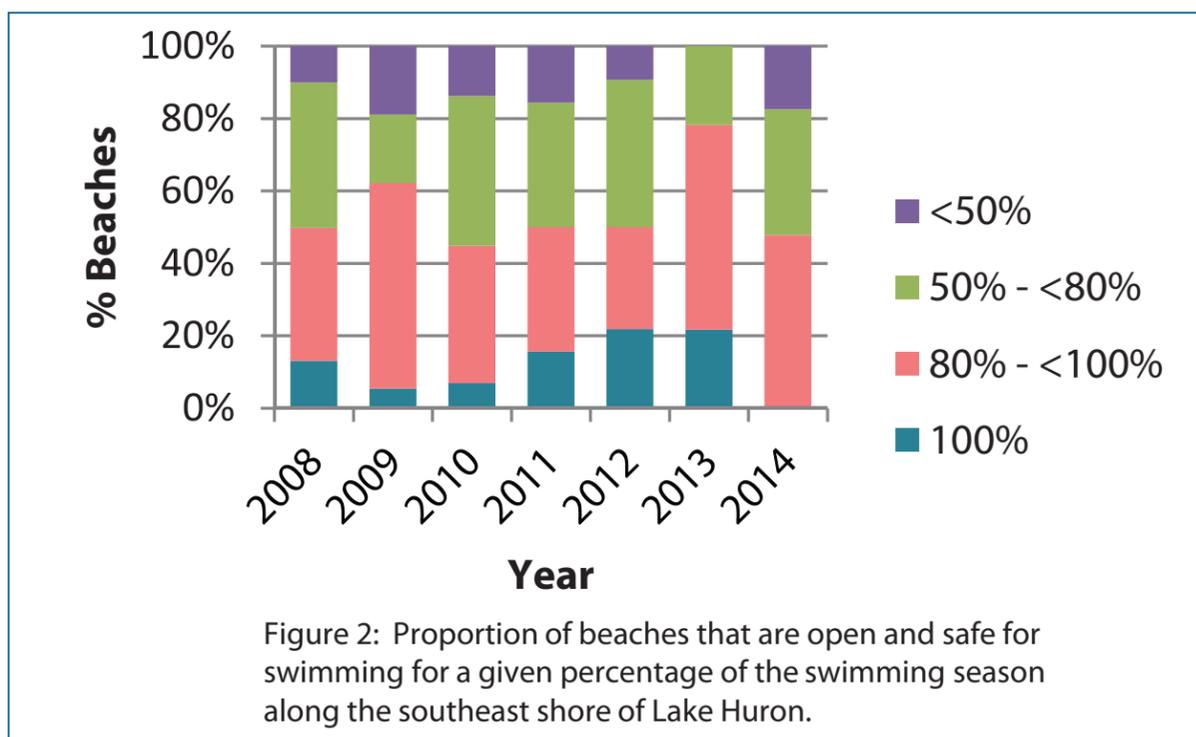


Figure 2: Proportion of beaches that are open and safe for swimming for a given percentage of the swimming season along the southeast shore of Lake Huron.

You can help to reduce pollution of Lake Huron

Whether you live in a town or the countryside you can help prevent non-point source pollution (pollution carried by water running off of land, from multiple sources) by taking action on your property and in your community:

- Inspect, maintain and/or repair your septic system to avoid contamination of surface and groundwater with nitrates, phosphorus, and pathogens that can cause disease like dysentery. Consult your county health unit to learn if you are subject to a mandatory inspection under the Ontario Building Code.
- Slow down water so that nutrients can be assimilated and sediments can settle. In urban and developed shoreline areas, give water more places to go to soak through and infiltrate into the ground.
- Establish a healthy, vegetated riparian corridor. A healthy, vegetated riparian corridor can help regulate water temperature, protect the bank from erosion, filter pollutants from stormwater, and provide habitat for wildlife.
- Adopt a beach, help conserve dunes or get involved in the proper removal of the invasive Phragmites. Visit lakehuron.ca.
- Be a beach stewardship champion. Take part in water quality monitoring like the Bayfield Beach Stormwater Monitoring Program.

Grants to help you

Municipal, provincial, and federal governments offer a wide variety of funding programs to support your efforts to improve and protect Lake Huron. Local community-based environmental-groups have received support from Environment and Climate Change Canada’s community funding programs (www.ec.gc.ca/financement-funding):

- EcoAction provides financial support to community-based, non-profit organizations for projects that have measurable, positive impacts on the environment. (www.ec.gc.ca/ecoaction/)
- The National Wetland Conservation Fund supports on-the-ground activities to restore and enhance wetlands.
- The Habitat Stewardship Program funds projects that conserve and protect species at risk and their habitats and help to preserve biodiversity. (www.ec.gc.ca/hsp-pib/)
- The Environmental Damages Fund (EDF) manages funds received as compensation for environmental damage. (ec.gc.ca/edf-fde/)
- Get involved in the Healthy Lake Huron: Clean Water, Clean Beaches Initiative. Visit healthylakehuron.ca or contact one of our partner organizations for ways you can help.

Binational Nearshore Framework

A binational nearshore framework to guide environmental action has been under development over the last three years by agencies working to address commitments made through the Canada-U.S. Great Lakes Water Quality Agreement. The framework underscores coordination, cooperation and actions by communities to address water quality issues, sources and threats (The framework is to be at binational.net sometime in 2016).



Lynn Berg, of Lethbridge, Alberta, reads the Healthy Lake Huron: Clean Water, Clean Beaches newsletter in Grand Bend, as she sits beside a beach dune planting project. "It's a beautiful beach," she said. "It definitely deserves to be kept the way it's supposed to." The healthylakehuron.ca website and newsletter (print and online) are just some of the ways to share with you ways to protect Lake Huron and work being done by landowners, community groups, and governments and agencies, along Lake Huron's southeast shore, an area stretching from Sarnia to Tobermory.

Dude, Where's My Beach?

Lake water levels changed from low to high, showing how levels change unpredictably

By Geoff Peach,

Lake Huron Centre for Coastal Conservation

As people made their way to the beach last summer, some arrived wondering where the beach had gone. Particularly in dune areas, the shoreline appeared to be overtaken with dune grasses. What actually happened was a confluence of natural processes.

After Lake Huron's last high lake level in 1997, water levels dropped dramatically in 1998 and stayed well below average for nearly a decade and a half. With the low levels came wide expansive beaches. These open sandy beaches were prone to wind erosion, and sand was being blown and deposited into the dunes as part of their natural re-building process.

Marram grass, a dominant dune grass on Lake Huron beaches, has its growth rate stimulated by sand burial. The wide open beaches created an opportunity for the grass to grow lakeward. That's a good thing. If it didn't grow lakeward, causing the dune to grow wider, the dune would instead grow higher and people would be living beside a vertical wall of sand. Most dunes instead grew wider, toward the lake, building up the sand reserve that would help protect the shore and maintain good quality beaches once higher lake levels returned.

Well, since that extreme low lake level of 2013, lake levels have rebounded impressively, having risen nearly a metre. The wet autumn, winter, and spring contributed to levels continuing to rise well into 2015. Despite the warm El Niño winter of 2016, levels have remained steady, even though there was a lack of ice cover.

El Niño is the warm phase of a complex weather pattern coming out of changing ocean temperatures. Lake Huron has been warmer than some years but the air above it has been warmer too and this leads to lower rates of evaporation. There is more evaporation when cold Arctic air masses flow over a warm lake. There weren't any significant cold air masses either during the autumn of 2015, or the winter of 2015-2016. In addition, a wet December in 2015 slowed the seasonal decline in lake water levels.

What changing lake levels have meant for some cottagers has been alarm at a perceived loss of beach. The dunes that had grown lakeward for the past number of years were being met with a

rising shoreline, leaving little open sand to lay a beach towel. But Mother Nature eventually puts things right. Open beaches are open because of an important process: storm waves.

The reason we have open beaches at all is because of storm wave activity. If that were not the case, we would have forests growing right up to the water's edge.

Fluctuating lake levels are part of the magic of living along the coast. They're always changing, and always unpredictable. The dramatic changes experienced recently underscore our need to be adaptable and flexible to the natural rhythms of the lake. There is a period of re-adjustment as narrowing beaches are widened by storm waves. With higher lake levels, dunes will erode, providing a needed supply of sand to your beach.

How to help protect your beach

How can you aid long-term protection of your beach?

1. Leave native dune vegetation to perform its role. The vegetation and root structure provides some resistance to erosion, and allows for a gradual and sustainable exchange of sand between the dunes and the beach. Removing dune vegetation can accelerate erosion and alter the natural balance, causing beaches to deteriorate.
2. Hardened structures, like seawalls, revetments and groynes can disrupt sand movement and diminish the amount of sand available to the beach. Avoid hardened structures in beach and dune areas (and most coastal areas, for that matter).
3. Motorized vehicles, like all-terrain vehicles, can be very destructive to dunes. Use these vehicles on roadways and designated pathways away from the beach.

Monthly updates on lake levels are available through Environment and Climate Change Canada's Level News available on their website. For more information on water levels, beach and dune stewardship, and other lake-related issues, you can contact the Lake Huron Centre for Coastal Conservation at 226-421-3029 or visit the website at www.lakehuron.ca.



Cigarette butts have been recovered from stomachs of birds, fish, and turtles. Protect living creatures. Keep cigarette remains off our beaches. Find out how to help at lakehuron.ca.

Be a Beach Bum, not a Beach Butt!

Help keep beaches clean

By Erinn Lawrie,

Lake Huron Centre for Coastal Conservation

About 45 per cent of all litter items removed from the Lake Huron shoreline are discarded cigarette butts. The filters contain up to 165 toxic chemicals and are made of cellulose acetate, a plastic that will never fully biodegrade. They pose a risk to fish and wildlife, as the cigarette butts can be mistaken for food, and they are also a hazard to children playing in the sand. Furthermore, once wet they are more likely to leach their toxins into the sand and water, degrading water quality.

Cigarette butt litter also affects our economy, requiring significant costs and time to clean up, with the bill usually being passed to the local community.

Cigarette butts are one of the most littered items on the planet, with an estimated one in three cigarette filters ending up as litter.

The Lake Huron Centre for Coastal Conservation has developed a campaign called 'Butt Free Beach' on several Lake Huron beaches to raise awareness on the harmful effects of cigarette butt littering. The program uses a combination of educational signs and events, along with providing smokers with free, reusable ashtrays to safely and easily recycle their cigarette butts.

To learn more about the Butt Free Beach program, please visit www.lakehuron.ca.

How You Can Help

- Never toss cigarette butts on the ground.
- Minimize your ecological footprint by using a beach ashtray.
- Never leave plastic litter, such as water bottles, on beaches.
- Plan or take part in a Great Canadian Shoreline Cleanup in your community.

Climate and Lake Huron Storms, rising temperatures, less ice cover, affect lake

Average recorded temperatures have risen dramatically in recent decades. Less ice cover, combined with more rain and severe storm events, can lead to more erosion. Visit lakehuron.ca to learn about effects of changes to our climate and to find out how to help.



This photo of demonstration area shows dense growth of invasive *Phragmites australis* prior to 2010 treatment and control by Chippewas of Kettle and Stony Point First Nation.



This photo shows the *Phragmites* control demonstration area, at Chippewas of Kettle and Stony Point First Nation, after 2010 treatment and 2012 touch-ups.



Birds are returning and the beautiful view of Lake Huron is returning at Chippewas of Kettle and Stony Point First Nation. The First Nation is treating and controlling invasive *Phragmites*.

Kettle and Stony Point First Nation controlling *Phragmites*

Species returning as invasive reed is managed

By Peter B. Cloud Sr., Chippewas of Kettle and Stony Point First Nation

We were facing the loss of many of our natural shoreline plants; the decline of our annual shorebirds, mammals, and waterfowl; and losing much of our beautiful view of Lake Huron at Chippewas of Kettle and Stony Point First Nation. This was because of an invasive plant known as *Phragmites australis* or European Common Reed. This is why our First Nation undertook a project in autumn of 2010 to control this invasive plant.

The first obstacle we faced in the project was the lack of funding.

A generous donation of time and equipment from Frank Letourneau, *Phragmites* Control Specialist, enabled us to complete a demonstration area using modified equipment and expert applicators following strict guidelines. We were successful in applying for and getting a grant in 2011. The grant was from the Canada-Ontario Resource Development Agreement (CORDA).

We were then able to begin two years of control efforts involving mechanical spraying, rolling, burning, backpacking, and cutting. We managed to control and eradicate *Phragmites* in approximately half of our coastline and all of our drainage ditches in that time frame.

Phragmites control is expensive and must be monitored and touched up annually. The lack of approved 'over-water' chemicals and rising water

levels are more obstacles we encounter. Currently, we are trying underwater cutting, hoping to drown out some of the *Phragmites*.

Our successes are evidenced by the return of a number of species at risk including the Least Bittern (a small heron) and the Eastern Musk Turtle. Numerous Snapping Turtles, Painted Turtles, and Bald Eagles are now a regular sight, as is our seasonal clan of Sand Hill and other cranes. Many shorebirds are returning and the migrating species are now actually stopping in our First Nation. The re-emergence of Cattails and other native plants, signals the return of the muskrats, amphibians, and reptiles.

We do have our setbacks, but we strive forward towards our ultimate goal: the control and eradication of the invasive *Phragmites* and the return of the natural life cycles of our lands and waters.

Tips to control *Phragmites*

The tall, thick, aggressively spreading grass called *Phragmites australis* (European Common Reed) has been described as Canada's "worst" invasive plant. It can reach heights of more than five metres. It chokes out native plants, alters wetlands, and impacts species. It limits people's ability to enjoy their properties or have access to shorelines and streams. It can pose a fire hazard during the dormant period with standing dead biomass and creates safety hazards blocking sight lines. Control and management needs to start now, be done properly, and continue.

You can help to stop the spread of *Phragmites* by controlling the plant on your property and not spreading it with contaminated equipment. Control options are site-specific and include herbicide application, excavation, cutting or burning. Animals, including nesting birds and turtles, may be on the edges of *Phragmites* cells. Timing control to reduce potential harm or mortality should be a consideration.

Cutting does not kill the plant but it may slow growth and reduce stand density and seed head development. If this management method is used, permanent regular cutting must remain in place since the plants grow rapidly and dense cells can re-establish when cutting stops.

The Lambton Shores *Phragmites* Community Group has created fact sheets on *Phragmites* control with support of funding partners. For links and to learn more visit: www.abca.on.ca/page.php?page=Phragmites

Project to reduce phosphorus loss, measure reductions

Huron subwatersheds chosen for OSCIA Great Lakes Agricultural Stewardship Initiative project to measure improvements in soil health, water quality, evaluate effectiveness of focused agricultural stewardship

The Ontario Soil and Crop Improvement Association (OSCIA) Great Lakes Agricultural Stewardship Initiative (GLASI) Priority Subwatershed Project has selected two subwatershed areas in Huron County to act as sites to help evaluate the effectiveness of agricultural stewardship in improving soil health and water quality. The selected areas are the Gully Creek watershed, north of Bayfield, and the Garvey-Glenn watershed, north of Port Albert. Both subwatersheds were also priority areas for Healthy Lake Huron: Clean Water, Clean Beaches and the Rural Stormwater Management Model Project.

"There are many factors that change from year to year, such as weather conditions and what crops are on the land," said Mari Veliz, Healthy Watersheds Supervisor at Ausable Bayfield Conservation. "It's important to monitor on an ongoing basis, to collect a data set that helps to explain how well the different agricultural best management practices are working."

The GLASI Priority Subwatershed Project began in autumn of 2015, and aims to evaluate the effectiveness of focused stewardship efforts in a subwatershed by measuring improvements in soil health and water quality. The project will continue until December 2017. The project plans to implement focused best management practices (BMPs) in these defined subwatersheds. Staff members hope that they can measure reductions in loss of soil and nutrients – in particular, phosphorus. The project team also hopes these practices will benefit the farm operation.

Landowners in these two watersheds are eligible for up to 80 per cent cost-share grants (up to \$25,000 per year) and, in some cases, per-acre incentives.

These incentives are for specific BMP projects in these categories:

- Cover crops
- Soil amendments
- Erosion control structures
- Retiring marginal lands
- Contour and strip cropping
- Conservation tillage
- Phosphorus management
- Crop and field nutrient management plans
- Windbreaks and strips
- Buffer strips
- Drainage water management, and
- Other innovative actions.

Landowners applying for grants must enrol in the program and eligible applications must be sent to OSCIA through Ausable Bayfield Conservation Authority (ABCA) or Maitland Valley Conservation Authority (MVCA). Final decisions on eligibility of projects for grants rest with OSCIA. This year's projects must be completed by January 2017, and next year's projects must be completed by December 15, 2017. For more information on eligible invoice and claim dates, please contact your local conservation authority.

To enrol and apply for a grant or per-acre incentive, contact Mari Veliz at ABCA, 1-888-286-2610 or mveliz@abca.on.ca, or Chris Van Esbroeck at MVCA, 519-335-3557 or cvanesbroeck@mvca.on.ca.

Lake Huron plays important role for Historic Saugeen Métis

Traditional knowledge can help work to sustain land, water for future generations

By George Govier,

Co-ordinator of Lands, Resources, and Consultation, Historic Saugeen Métis

The Historic Saugeen Métis (HSM) have relied on Lake Huron and traditional lands and waters to harvest deer and other mammals, water and land fowl, and plants. Whitefish was a staple of the Métis from the early days in Lake Huron. Other subsistence fishing focused on species commonly caught along the coastal shores and rivers, including Channel Catfish, Carp, Chub, Yellow Perch, Lake Trout, Brook Trout, Brown Trout, Cisco/Lake Herring/Tullibee, Smelt, Suckers, and Largemouth and Smallmouth Bass.

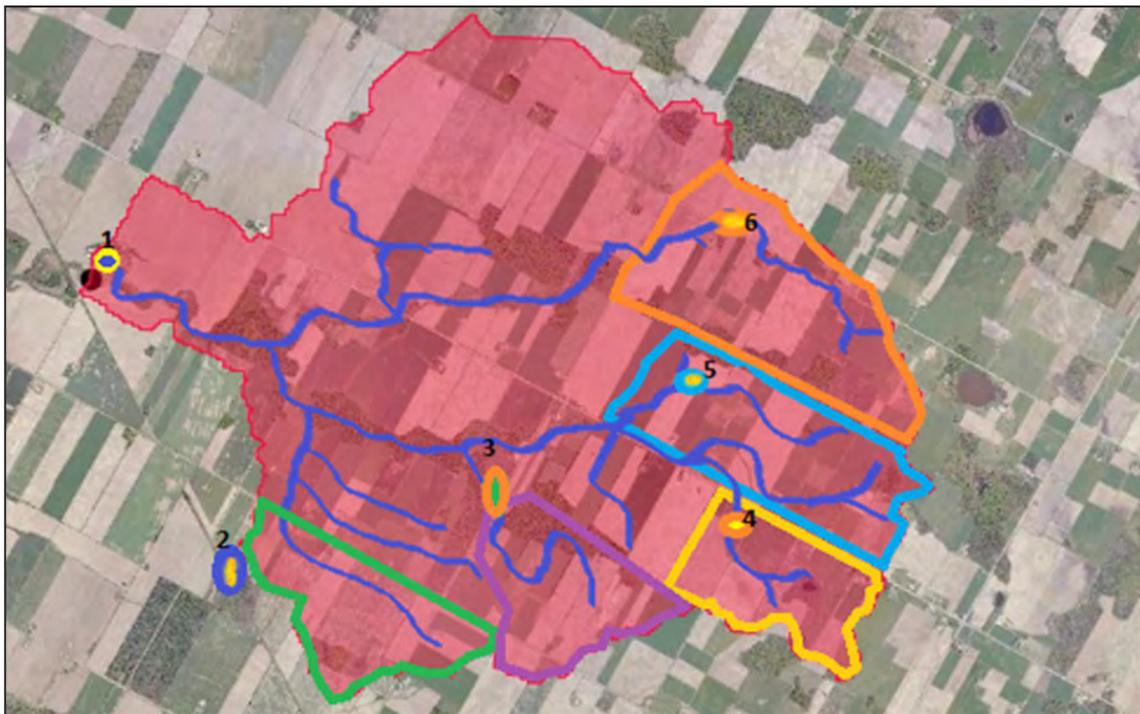
Métis people maintain a close connection to the land, particularly wilderness areas and heritage and spiritual sites.

We can provide invaluable traditional knowledge to help sustain the environment for future generations.

In May 2013, the Historic Saugeen Métis community opened the HSM Interpretive Learning Centre in the heart of the Southampton.

A successful environmental workshop was held on November 24, 2015 with speaker Ted Briggs, Great Lakes Advisor, Ontario Ministry of the Environment and Climate Change, at the HSM Interpretive Learning Centre. The informative workshop was called *State of the Great Lakes*.

The Historic Saugeen Métis host various environmental workshops focused on the sustainability of our significant waterways and lands. Most workshops are free of charge. Check out the website for more information: www.saugeenmetis.com



Improving Pine River, one project at a time!

By Adrienne Mason,

PRWIN Project Coordinator

The Pine River Watershed Initiative Network has completed many environmental projects. The Pine River Watershed Initiative Network, or PRWIN, is located in the watershed of the Pine River, in Southern Bruce County.

What started out as a small group of interested individuals sitting around a kitchen table has grown into an incredible force of local residents, groups and organizations, such as Saugeen Conservation and many other partners, aimed at improving this amazing watershed. Since 2008, when the group was formed, more than 219,000 trees have been planted across the entire Pine River Watershed.

In 2015, water and sediment control berms were constructed in the northeast portion of a tributary to the South Pine River. This project site (#6) is located in the northeastern portion of the accompanying map. These berms resulted in saving approximately 33,554 kilograms of sediment per year from washing into the South Pine River and into Lake Huron. This was based on research conducted by the Healthy Lake Huron: Clean Water, Clean Beaches team, utilizing data and water samples collected from an automated sampler.

Through Healthy Lake Huron's model, it is estimated that the South Pine River is currently losing 75 kilograms of sediment per hectare during storm events. That's a lot of precious topsoil. We will continue to do all that we can in improving the environmental conditions along the Pine River Watershed.

Learning about soil through 'cotton test'

A 'brief' demonstration of managing for soil health

A highlight of the Soil Health Workshop in Amberley was the 'cotton test,' a demonstration of soil management and soil health by OMAFRA. This tool gives "an exciting, eye-catching and engaging way to demonstrate soil health and biology." Staff buried four pairs of clean white cotton briefs (made of 100 per cent cotton) in various soil structures to see which pair would decompose quickest to reveal the best soil health based on management practices. The winner, in terms of the healthiest soil biology activity, was found to be the no-till soils.

Healthy soil biology resulting from the no-tillage land management practice was better able to break down the cotton. As this healthy soil was able to break down cotton, good soil biology helps filter chemicals and excess nutrients that could otherwise end up in our water. Try the cotton test at home. Bury 100 per cent cotton underwear in your lawn, field, or garden. Compare at the end of the growing season. What does it tell you about what you can do for your soil? Can you add more diversity of native plant species for soil health?

2,000 water quality projects completed

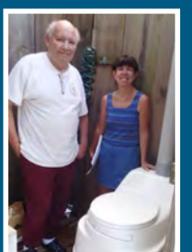
Huron County's Clean Water Project has helped residents and community groups in Huron County to complete 2,000 water-quality projects over ten years. The program offers up to 50 per cent grant support for projects such as composting toilets; cover crop incentives; tree planting; manure storage decommissioning; clean water diversion; wetland creation; rural stormwater management; fragile land retirement; livestock fencing; well decommissioning; wellhead protection; forest management plans; woodlot enhancement; and stewardship guide implementation. County funding can be combined with other cost-share programs and landowner contributions. To apply, call Maitland Conservation at 519-335-3557 or Ausable Bayfield Conservation at 519-235-2610 or toll-free 1-888-286-2610. Visit mvca.on.ca online, abca.on.ca online, or huroncounty.ca online.

Take the Plunge – Install composting toilet

Advantages for you, water

Composting toilets can have a positive impact on land and water and on your wallet. "Composting toilets significantly reduce household water use and reduce the waste load on septic systems," said Doug Hocking, Maitland Conservation Water Quality Specialist. "This helps to extend the life of the septic system and has the added benefit of potentially reducing the amount of nutrients entering local watercourses and Lake Huron."

In 2015, the Huron County Clean Water Project launched a new grant category for composting toilets. Landowners in Huron County who install a composting toilet, and also undertake a septic tank pump-out and inspection, are eligible for a maximum grant of \$1,000. Three composting toilet grants have been approved so far. To learn more contact Ausable Bayfield Conservation Authority toll-free at 1-888-286-2610 or Maitland Valley Conservation Authority at 519-335-3557.



Protect water quality, plant rain gardens

Main Bayfield Watershed, Bluewater Beach Committee engage people in creation of local rain gardens

By Hope Brock, Ausable Bayfield Conservation

A rain garden is one way people and groups in your community can manage stormwater runoff in towns, villages, and other urban centres. Rain gardens are shallow depressions that contain soil and plants that treat pollutants and promote infiltration. The Main Bayfield community included rain gardens in the Main Bayfield Watershed Plan as a method to manage urban stormwater.

People in the Main Bayfield Watershed, a priority area along Lake Huron's southeast shore, plan to construct and plant a rain garden in June at Pioneer Park. The rain garden will serve as a demonstration project to encourage similar projects on private property. Funds from the Great Lakes Guardian Community Fund support the rain garden project. Pioneer Park applied for the grant with Municipality of Bluewater and Ausable Bayfield Conservation as partners. The project will include planting days with volunteers and local schools and interpretive signs.

The Bluewater Beach Committee (Municipality of Bluewater; Huron County Health Unit; Pioneer Park Association; and Ausable Bayfield Conservation) is working to engage people in stormwater management improvements in this priority area. Citizen scientists have been actively monitoring water quality from stormwater outlets along the beach for two years.

Here are some ways you can take positive action to manage stormwater runoff in towns and villages along and near Lake Huron's southeast shore:

- Reduce or eliminate the use of fertilizers containing phosphorus.
- Use designated car wash centres to wash vehicles.
- Plant native plants, which require less fertilizer and water. Native plants occur naturally in a region and are therefore suited to local growing conditions. Examples include Joe-pye Weed, Blue Vervain, and Black-eyed Susan.
- Install permeable pavement. This is concrete or asphalt that allows water to drain through and into soil.



Volunteers plant native plants into newly constructed rain garden.

- Leave lawn clippings and mulch leaves as opposed to piling leaves on curbsides.
- Purchase and use a rain barrel. This provides you with a needed source of water for landscaping and it helps protect water quantity and water quality.
- Install filter strips, grass swales and rain gardens to slow water and increase filtration. Grass swales are open vegetated channels that slow stormwater, promote infiltration, and trap and treat pollutants.
- Protect and create more naturalized areas. Naturalized landscapes include trees, and shrubs and flowers. These natural areas absorb more rainwater than a regular patch of grass. Visit abca.on.ca for tree order and wetland restoration information or visit this page: www.abca.on.ca/page.php?page=rain-gardens.

For more information contact your local conservation authority or conservation agency or visit healthylakehuron.ca or abca.on.ca.

Rented farmland: Who's implementing best management practices? Important for landowners, farm renters to plan for best management practices; Increased amount of rented farmland makes it important to discuss BMPs

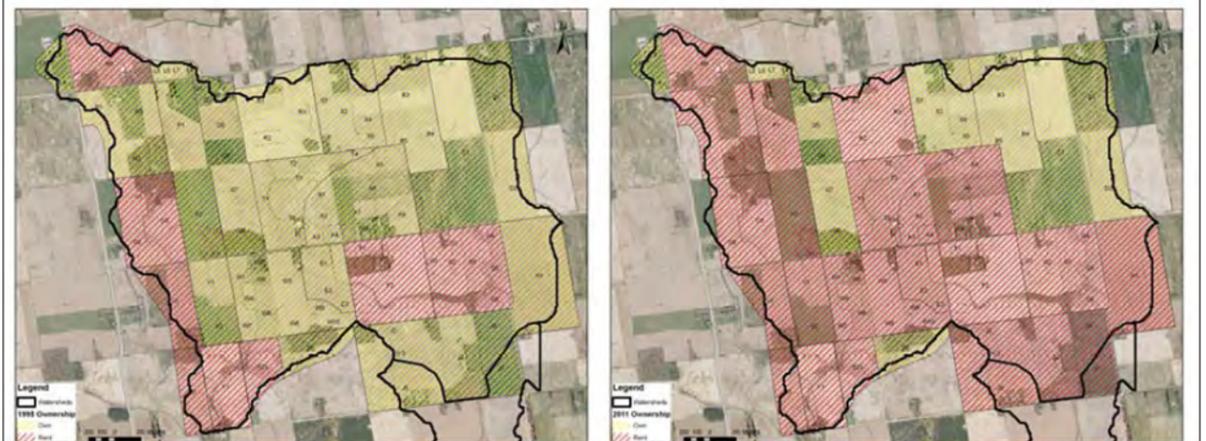
By Jacqui Empson Laporte (Ontario Ministry of Agriculture, Food and Rural Affairs) and Mel Luymes (Farm & Food Care Ontario)

In Ontario, 35 per cent of farmland (roughly 1.6 million hectares or four million acres) is rented – landowners with land suitable for farming rent their land to full-time farmers under short-term or long-term rental agreements. As the images at right show, rented farmland in Ontario is on the rise. While the type of farming practice a farmer uses is often a reason a landowner will rent to a certain farmer, some land is rented because of family operations, historic neighbourly agreements, or simply the highest price per acre. The amount of land rented in a watershed can significantly affect the stewardship practices and the target audience of stewardship programs.

Research and observations indicate that the attention given to rented land may be different than that given to owned land. Soil health, water quality and the economic benefits of good farming practices can only be realized through long-term land management.

Soil is built by diversifying crops and minimizing tillage over many cropping seasons, and structural improvements like grassed waterways and erosion control berms require significant investment. Best management practices, such as cover crops and crop rotation, and the adoption of alternative cropping practices may not be possible due to short-term rental agreements, existing farming practices and the farming equipment used.

Stewardship programs are geared towards landowners; however, some landowners may not be actively engaged in land management



The amount of rented farmland in the Kettle Creek watershed in 1995 (left image) compared to 2011. Rented land is shown in red. Images used courtesy of Upper Thames River Conservation Authority and the Soil and Water Environmental Enhancement Program (SWEEP) Project.

practices. If landowners are not actively engaged, it is challenging for local stewardship coordinators to educate, coordinate and encourage the adoption of best management practices. Renters may be the ones in a position to identify the need for best management practices, but have little incentive to make changes.

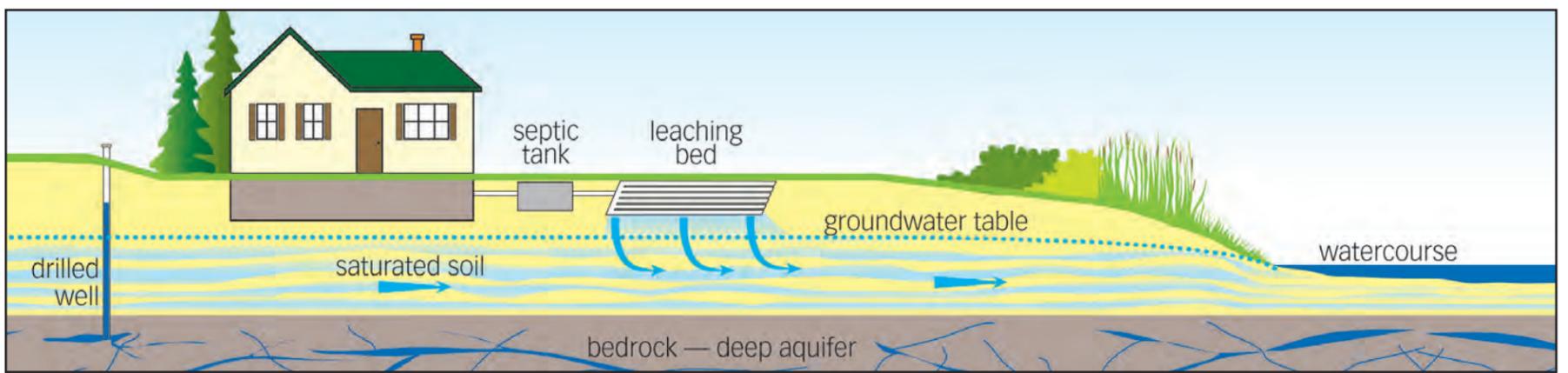
Communication between landowners and those renting their land is crucial. Landowners need to understand why long-term stewardship goals are important and find renters that share the same long-term conservation goals. As a minimum, the landowner and renter could talk yearly about possible land management practices, including:

- Diversity within a crop rotation
- Inclusion of cover crops
- Tillage practices
- Fertilizer timing and placement
- Erosion mitigation

Soil and water quality could be improved by increasing the length of tenure. The lease agreement could include expected land management practices, such as cropping practices to use, conservation goals, or an agreement for financing larger structural investments, such as erosion control.

With Great Lake Agricultural Stewardship Initiative (GLASI) funding, Farm & Food Care Ontario is working with the Ontario Farmland Trust, conservation authorities, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) staff, landowning companies, lawyers and farmers to create resources on these important issues. They are looking for ways to promote soil conservation and water management on rented land through a suite of educational and rental agreement resources available at:

www.farmlandagreements.ca



Regular maintenance can prevent your system from contaminating drinking water, and nearby lakes and rivers. The illustration above is from 'SepticSmart! Understanding Your Home's Septic System.'

Faulty septic systems: Hazardous to your health, the environment ... and your wallet

Have your septic tank inspected, cleaned regularly

By Jennifer Jarvis, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and Deborah Brooker (OMAFRA)

If you live in a rural area or a small community or if you have a cottage, chances are you have a septic system.

After installation, homeowners with septic systems are responsible for the inspection, operation and maintenance of standard septic systems, except in isolated areas where there are mandatory septic inspections or pump-outs. Regular maintenance and management will help extend the life of your system, saving you thousands of dollars in septic repairs or replacement.

There are many contaminants in wastewater that can affect your health and the environment. Regular maintenance can prevent your system from contaminating local drinking water supplies, including your well, and can protect the water quality of nearby lakes and rivers used for swimming, fishing and other uses.

Be Septic Smart

Anything that goes down the drain flows into your septic system, so you need to be 'septic smart' when it comes to maintaining and managing your septic system.

Good practices

- Know where your septic leaching bed is and plant only grass in this area
- Keep accurate records of septic system maintenance and service calls
- Test your well water at least three times a year
- Divert surface water away from your leaching bed
- Have your tank inspected and cleaned out regularly (every three to five years)
- Conserve water to reduce the amount of wastewater that must be treated (for example, repair leaky plumbing fixtures)
- Consider the location of your system when planning a new well

Things to avoid:

- Planting vegetable gardens and trees in the area of your leaching bed
- Parking cars or heavy machinery on the septic bed
- Emptying eavestrough runoff, sump pumps, and hot tub/spa water into the septic holding tank

- Putting cooking oils or food waste down the drain
- Flushing hazardous chemicals or pharmaceuticals
- Using special additives that claim to enhance septic performance – you don't need them!
- Digging without knowing the location of your leaching bed

Failing septic system warning signs

Failing septic systems can be hazardous to your health, the environment, and your pocketbook. It can degrade water supplies and reduce your property value.

Here are some warning signs that your septic system is failing:

- Grass growing on the leaching bed area is unusually wet or soggy or looks abnormally healthy compared to other lawn areas
- Sinks, showers or toilets drain more slowly
- Sewage begins backing up in drains or the toilet
- Bacteria or nitrate contamination shows up in your well water quality tests

Spring and early summer are good times to check that your septic system is working properly. Have a professional do a thorough check of your system, and do the necessary maintenance promptly to avoid bigger issues. This is especially important when there is sudden increase in the number of people using the system, such as during summer cottage season.

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has resources that provide information on how you can maintain your system. Visit ontario.ca/septic for:

- Four short videos with information on how septic systems work, how to take care of your system and descriptions of newer types of systems for challenging locations
- The Rural Septic System Checklist with reminders of best management practices to keep your septic system working properly and a table to record maintenance activities
- Introductions to our two booklets, 'SepticSmart! Understanding Your Home's Septic System' and 'SepticSmart! Advanced Treatment Systems – Alternatives to Conventional Septic Systems' that you can order through OMAFRA or ServiceOntario

For more information on rural septic systems and system maintenance, contact OMAFRA's Agricultural Information Contact Centre at 1-877-424-1300 or ag.info.omafra@ontario.ca.

Canada, Ontario work to keep microplastics out of lakes

Help keep microplastics out of Lake Huron through stormwater management

Microplastics are small but harmful pieces of plastic. They can harm Lake Huron and other lakes, creeks and rivers, and fisheries and wildlife. You can keep these plastic particles out of our lake by not purchasing products with microbeads and by managing stormwater runoff at home and work.

Sampling by the Ontario Ministry of the Environment and Climate Change (MOECC) has found microbeads entering Ontario's waterways. Ministry scientists have found them in Ontario's Great Lakes and rivers. Microbeads accounted for 14 per cent of microplastics in nearshore sites in Lake Erie and Lake Ontario.

Many companies are phasing out microbeads in their products. Ontario is working with stakeholders to ban microbeads in personal care

products sold in the province.

The federal government has announced it intends to add microbeads to its list of toxic substances and is considering options to manage the manufacturing, import, and sale of personal care products with plastic microbeads. Ontario will closely monitor and provide input to the national process to ban microbeads to protect our lakes, rivers, fish and wildlife.

Microbeads are just one type of microplastic found in lakes and streams. They are used in as cleansing or exfoliating agents in cosmetics, soaps or toothpaste, among other ways. Microbeads do not dissolve, and after they are rinsed down the drain they can end up in our rivers and lakes for decades.

Scientists at MOECC are doing their own studies, as well as working with academic

researchers in Canada and the United States to better understand microplastics in the Great Lakes. Using fine mesh nets, staff collected surface water samples in 2014 from nearshore areas in Lake Erie and Lake Ontario. Up to 6.7 million particles of plastic per square kilometre were found.

More microplastics were present after rainstorms, indicating that runoff of debris from the landscape through stormwater is an important source to the lakes. This is another reason to help to manage runoff over lawns, fields, parking lots, and streets.

Contact your local conservation agency for ways you can reduce runoff through erosion control projects, wetlands, rain gardens, and other barriers of protection and filtration. To find out more visit: www.ontario.ca/page/microplastics-and-microbeads