2008 Watershed Report Card

Reporting on the ecosystem health of the Kawartha Conservation watershed

Overall Watershed Grade!

B

Our watershed received an overall "B" average, based on surface water quality, wetlands and forests. The following pages show how we determined this grade.

Abundant, clean water is the lifeblood of the Kawarthas, essential for our quality of life, health and continued prosperity. It supplies our drinking water, maintains property values, sustains an agricultural industry, and is the basic infrastructure for a tourism-based economy focused around recreation.

This watershed report card is designed to provide basic information on the state of our watershed, on the land and waters that sustain our communities. It shows the results of watershed monitoring data collected over a number of years, indicating the current health of our watershed and helping us to better protect and improve our environment.

Across the province, other conservation authorities are also completing watershed report cards, focusing on the priority areas of surface water, groundwater, wetland cover and forest cover.

What is a watershed?

A watershed is an area of land that drains to a common point such as a stream, river or lake. Rain, snow and other precipitation that falls within this area eventually drains to the same place.

Conservation authorities, of which there are 36 in Ontario, use watershed boundaries to help protect Ontario's resources and environment. The Kawartha Conservation watershed is a 2,563 square kilometre basin overlapped by six municipalities, each with representatives who sit on the Kawartha Conservation Board of Directors.

The six municipalities that govern Kawartha Conservation through representation on our Board of Directors:

- City of Kawartha Lakes
- Township of Scugog
- Municipality of Clarington
- Township of Brock
- Township of Galway-Cavendish &Harvey
- Township of Cavan Monaghan

The highlights of our watershed are the five major lakes that form part of the Trent Severn Waterway. These lakes, and the watercourses that flow into them, create smaller drainage areas called subwatersheds. In most of the following sections of this report card, we assign grades to the subwatersheds to show which areas are doing well and which require greater attention.

The Kawartha Conservation watershed typically receives up to 880 millimetres of precipitation annually, with 160 to 180 millimetres of this being from snow. The lay of the land, or topography, influences the direction that water flows across it, indicated by arrows on the map to the right.

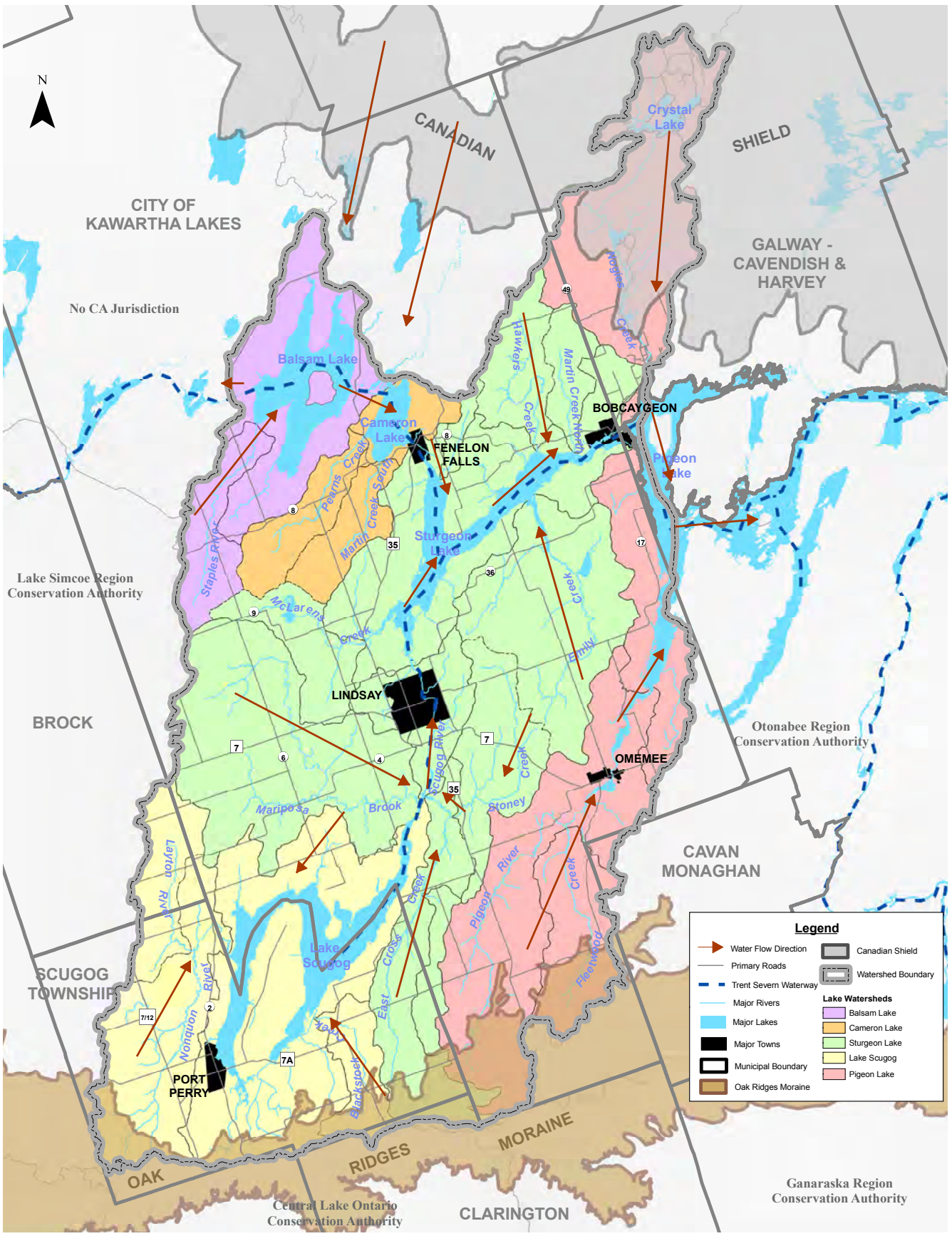
On the south side of the watershed, the Oak Ridges Moraine causes water to flow north into Lake Scugog and Pigeon Lake. Water in Lake Scugog continues north into Sturgeon Lake via the Scugog River.

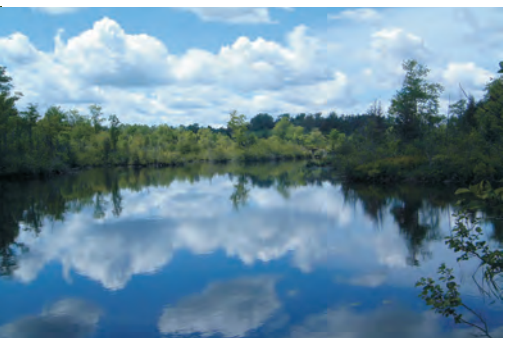
From the north side of the watershed, water flows off the Canadian Shield from the Gull and Burnt rivers into Balsam and Cameron lakes. A small amount flows into the Lake Simcoe watershed through Balsam Lake, with the majority of water flowing over Fenelon Falls into Sturgeon Lake. Water from Sturgeon Lake flows into Pigeon Lake and the Kawartha Lakes to the east, and finally into the Trent River.

Trent-Severn Waterway (TSW), operated by Parks Canada, influences water levels using four locks and water control structures within our watershed. TSW manages lake levels to minimize flooding and provide adequate water depth for boating and recreation.

In the summer, an estimated additional 17,500 people come to the Kawartha Conservation watershed to enjoy many types of recreational opportunities, mainly water-focused activities.

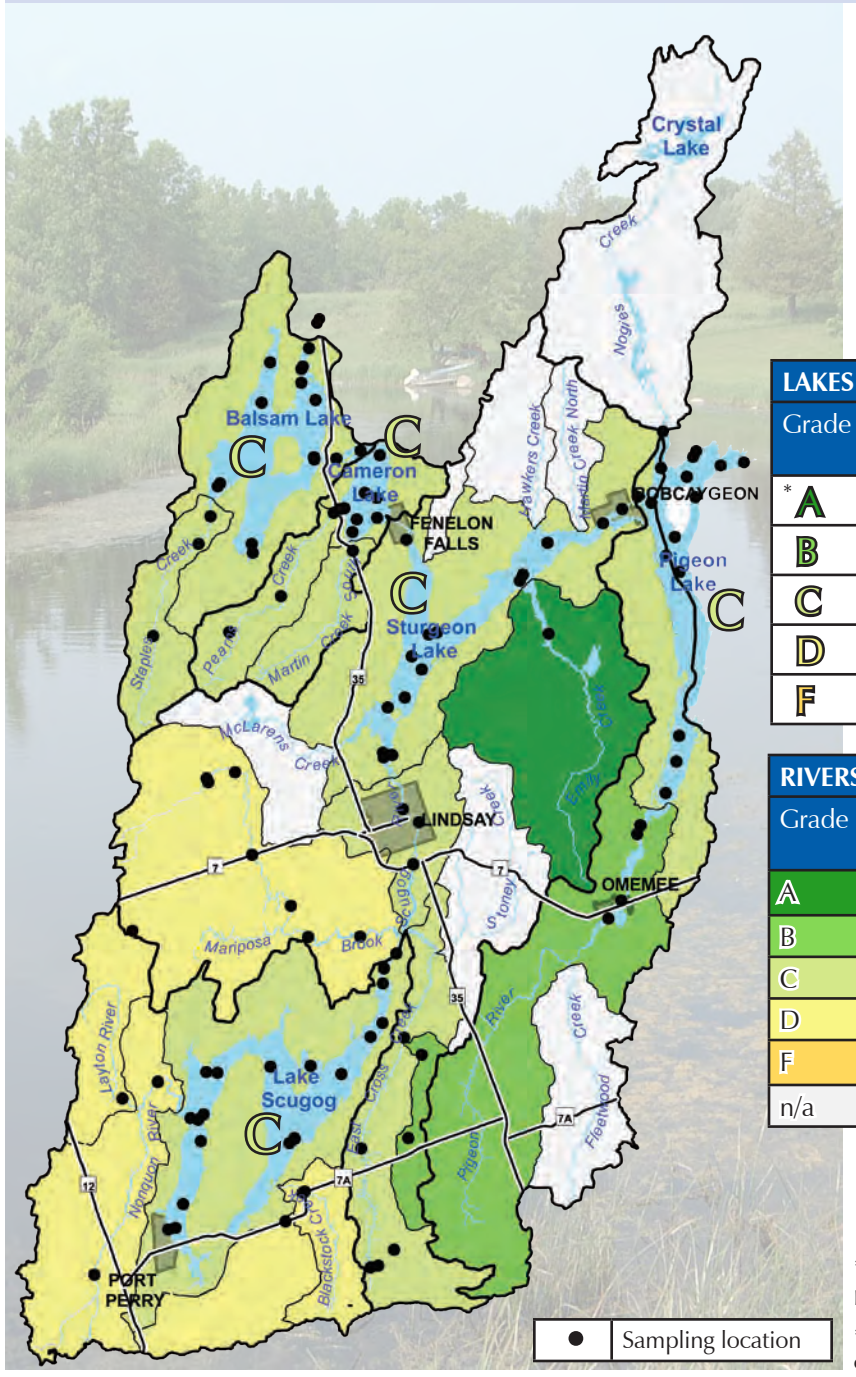
The Kawartha Conservation watershed





Surface Water Quality: Lakes and Rivers

Average Grades: Lakes: C Rivers: C



What is it and why is it important?

Surface water is the water that moves through rivers and lakes. We looked at the levels of nutrients and metals in these waters to assess their overall health. The black dots on the map indicate surface water sampling locations.

Two of the main nutrients that we examined were nitrogen and phosphorous. High levels contribute to excessive aquatic plant and weed growth, higher water temperatures and less oxygen in the water. These factors combine to reduce water quality and can impact recreational opportunities.

We also tested water samples for metals such as cadmium, lead, zinc, aluminum, cobalt and iron. These metals in the water can pose immediate and long-term health concerns to both humans and wildlife alike.

Another indicator of surface water quality is bacteria in the form of *E. coli*. High levels of *E. coli* often prompt local beach closures. These bacteria may come from leaky septic tanks, an overloaded sewage treatment plant, agricultural runoff, or even high numbers of waterfowl such as Canada geese. *E. coli* data is collected through our Kawartha Water Watch program and by the Haliburton Kawartha Pine Ridge District Health Unit.

LAKES			
Grade	Total Phosphorous (mg/L)	**CCME WQI Metals Score	CCME WQI Nutrients Score
*A	0 to .01	95 to 100	95 to 100
B	.0101 to .02	80 to 94	80 to 94
C	.0201 to .03	65 to 79	65 to 79
D	.0301 to .06	45 to 64	45 to 64
F	greater than .06	0 to 44	0 to 44

RIVERS			
Grade	Total Phosphorous (mg/L)	CCME WQI Metals Score	CCME WQI Nutrients Score
A	0 to .02	95 to 100	95 to 100
B	.0201 to .03	80 to 94	80 to 94
C	.0301 to .06	65 to 79	65 to 79
D	.0601 to .1	45 to 64	45 to 64
F	greater than .1	0 to 44	0 to 44
n/a	Limited data		

Successes and opportunities

Surface water quality throughout the watershed can be improved. Lower grades in the southern part of the watershed are often a result of high levels of phosphorous and nitrogen in the water. In the north, low grades are more often due to elevated metals.

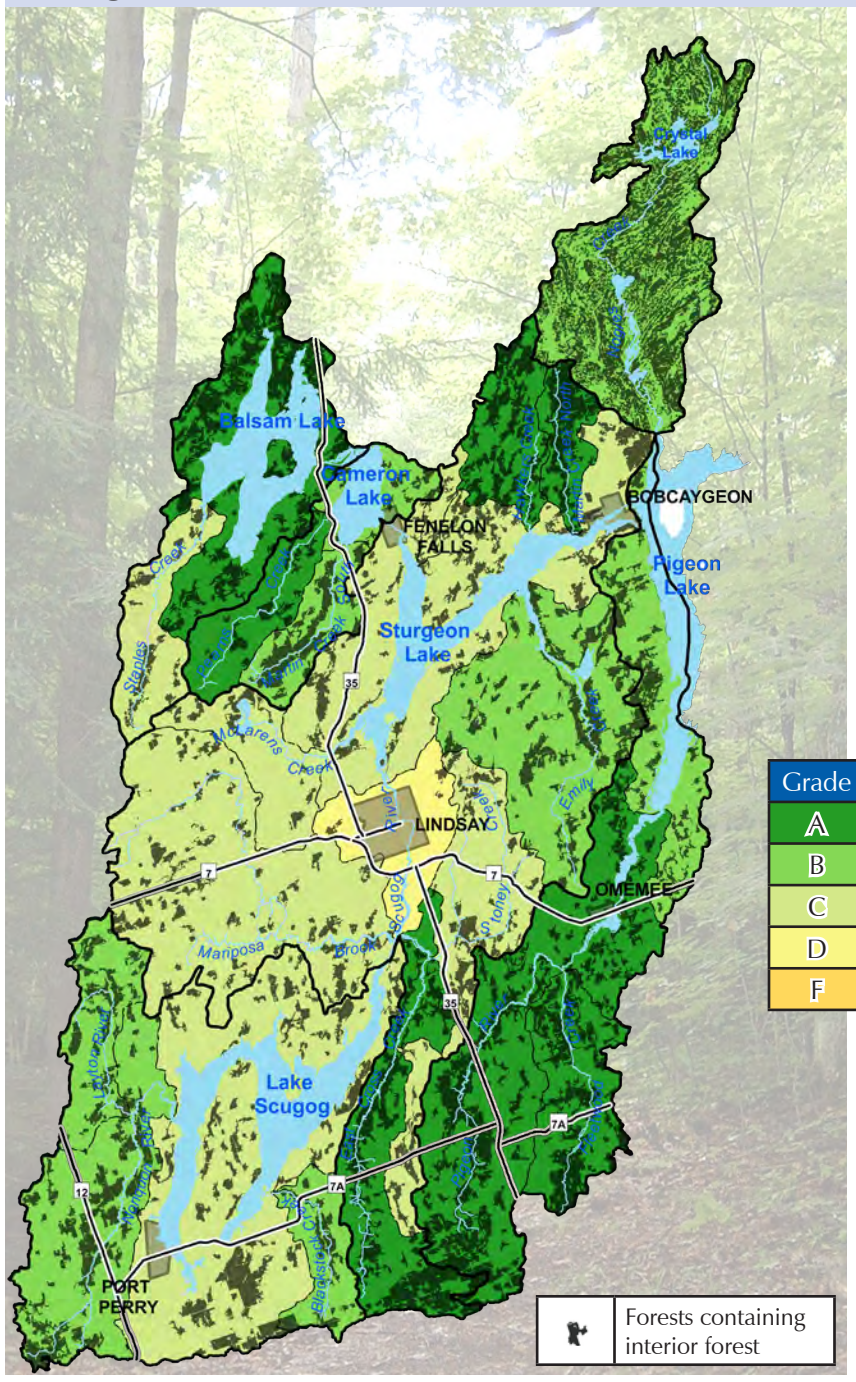
The water quality within our lakes is influenced by the rivers flowing into them. Maintaining the water quality of rivers and lakes requires good land-use practices on properties across the watershed.

* The overall subwatershed grade was calculated by averaging the grade for phosphorous, metals and nutrients.
Example: Phosphorous C, Metals B, Nutrients D produces an average grade of C.

** The Canadian Council of Ministers of the Environment Water Quality Index (CCME WQI) was developed by water quality experts in Canada to provide a snapshot of water quality using complex technical data.

Forest Cover

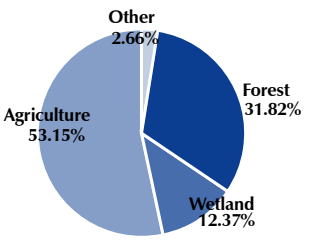
Average Grade: B



What is it and why is it important?

How we use the land can impact the health of our ecosystem, including our rivers and lakes. In urban areas, water can run across hard, impervious surfaces such as roads, parking lots and rooftops, and carry automotive fluids, pesticides and other pollutants directly into rivers and lakes. In agricultural areas, water can also run across surfaces and carry animal wastes and other agricultural runoff into surrounding surface waters.

Land use in the watershed

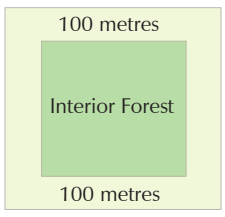


Forests and other naturally vegetated areas help improve water quality by reducing erosion and filtering the water that passes through them. The significant forests in our watershed are indicated on the map in black.

Grade	Criteria (combined forest cover and interior forest)
A	greater than 33.3%
B	between 24.4% and 33.3%
C	between 15.5% and 24.4%
D	between 6.7% and 15.5%
F	Less than 6.7%

Forests also provide important habitat for native species of plants and animals. Their quality and quantity can impact greatly on biodiversity and the ability of wildlife to thrive. Biodiversity is the ability of a system to support many different kinds of plants and animals.

When considering forest cover, we looked at the amount of forested area and the amount of interior forest. Interior forest is the portion of forest remaining after a 100 metre border has been subtracted from any edge or defined break in the forest.



Small, fragmented forests have smaller interiors. As a result, they support fewer sensitive species of plants and animals than larger, continuous forests.

We based the grades on both the amount of total forest cover and the amount of interior forest. For the scope of this report card, however, we did not consider forest health, including invasive species and forest quality.

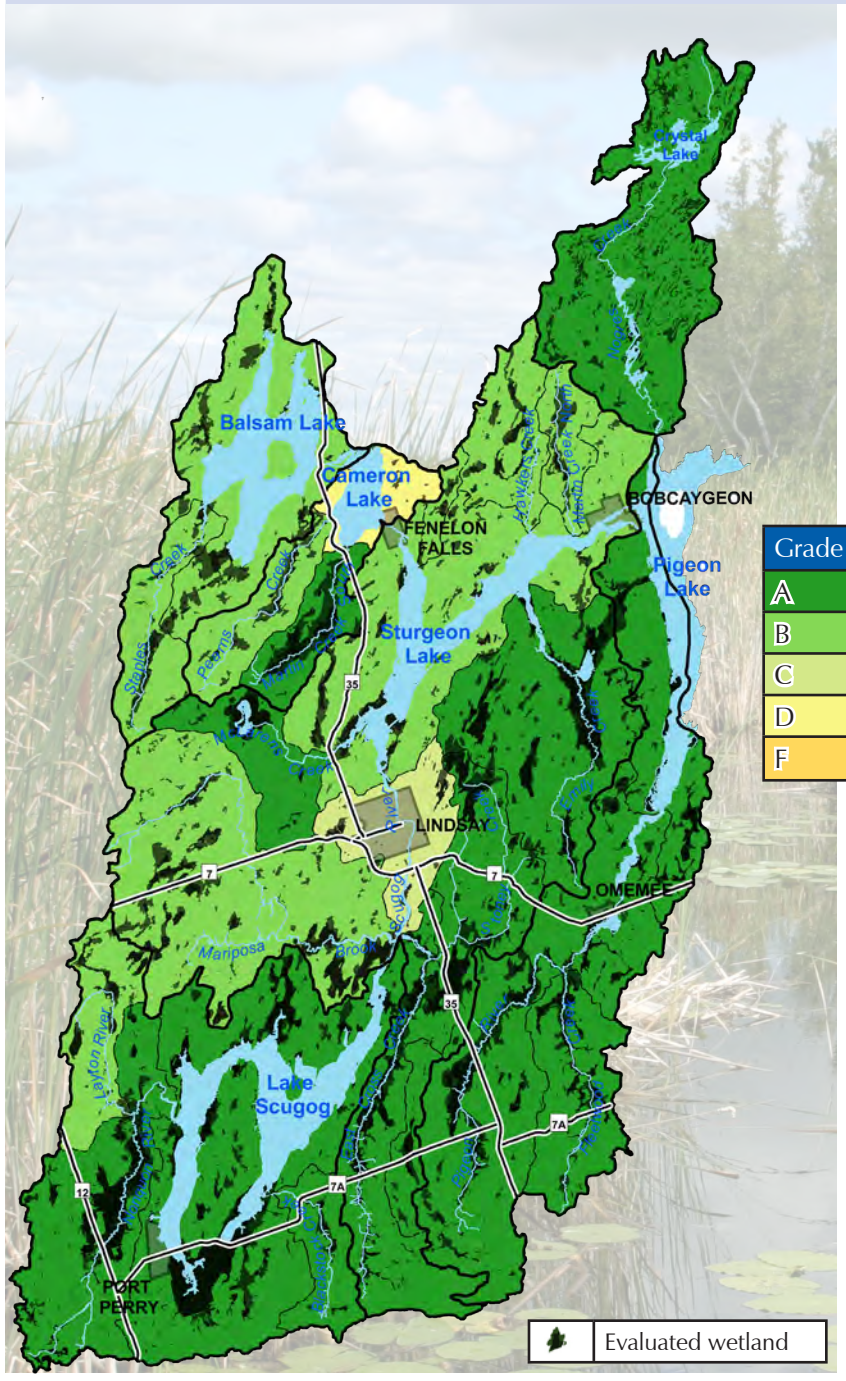
Successes and opportunities

Subwatershed grades for forest cover and forest interior mainly ranged from "C" to "A," with only the Scugog River subwatershed receiving a "D."

Many subwatersheds have good forest cover, but the forests are often fragmented with little or no interior forest and cannot be classified as good habitat for sensitive wildlife species. As we look into the future, it is important to maintain large tracts of forest to encourage and protect healthy ecosystems.

Wetland Cover

Average Grade: A



What is it and why is it important?

Marshes, swamps, bogs and fens are all different types of wetlands. Each subwatershed was graded based on the percentage of wetland cover in the area; the higher the percentage the better the grade.

Wetlands are a very important part of the natural ecosystem and the water cycle. They provide habitat for plants and animals, and act as filters by removing sediment, nutrients and bacteria from water that travels through them. Wetlands also provide natural flood control, acting like a sponge to absorb water. They release water over a longer period of time, instead of all at once.

Grade	Criteria
A	>10 % Wetland cover
B	7-10% Wetland cover
C	4-7% Wetland cover
D	1-4% Wetland cover
F	<1% Wetland cover

Many wetlands are located throughout the watershed due to low gradients and the slow, sluggish nature of our watercourses. Within our watershed, there are 57 provincially significant and 48 locally significant wetlands, shown on the map in black.

Successes and opportunities

Our watershed received excellent grades for wetland cover. The geographic features within our watershed, both the rolling hills and the flat areas between hills, promote natural wetland cover. The result is a very high overall average.

There is still a need, however, for improving and protecting existing wetland cover. Our wetlands are under pressure from increasing urban development and agricultural production. This report card gives us a starting point that we can use in the future to monitor decreasing or increasing amounts of wetland cover.

Wetlands fall into four broad categories:

Marshes – Are the most common type of wetland, almost always flooded with shallow waters usually less than 1 metre in depth. Marshes often have water flowing through them. They contain plenty of vegetation, such as floating plants, cattails, and reeds, which provide good habitat for birds. Marshes are among the most productive ecosystems in the world.

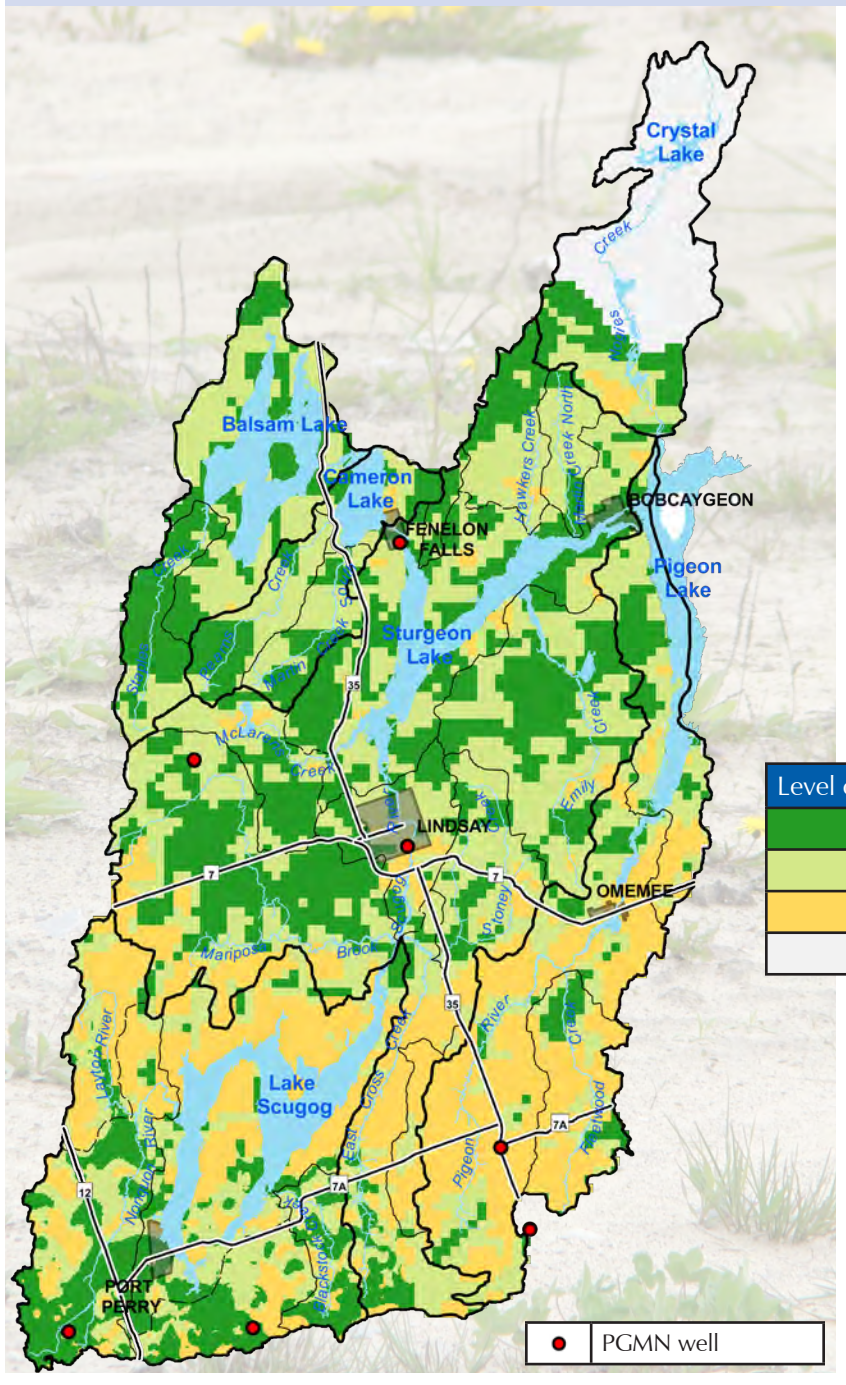
Swamps – Are most often flooded at some point throughout the year. They are very productive, and have high levels of oxygen, nutrients and decomposers. They also contain at least 30% tree or shrub cover.

Bogs – Are very low in nutrients due to their dependency on rain water. They support a unique ecosystem dominated by peat and sphagnum moss, which tolerate a low pH, or acidic, environment.

Fens – Support a wider variety of plants and animals than bogs, including wildflowers and some trees such as tamarack.

Groundwater

Not Graded (Insufficient Information)



What is it and why is it important?

Groundwater is an important part of our watershed. It maintains the flow in rivers and streams, in addition to supplying water to wells.

Groundwater is the water that is stored beneath the surface of the earth. It generally flows with the slope of the land, like surface water, but can sometimes move in other directions due to rock formations under the ground.

Throughout the watershed, information on the quality of groundwater is compiled through the Provincial Groundwater Monitoring Network (PGMN). The red dots on the map show the location of PGMN wells. We will be using data from these wells more extensively in future watershed report cards. However, in order to have a better understanding of groundwater quality, greater sampling coverage is required.

Currently, there are 14 municipal water supply systems in the Kawartha Conservation watershed. In addition, approximately 42% of the population relies on their own private drinking water wells. This makes the need for more intensive groundwater monitoring and protection a priority throughout the region. Information and awareness about our groundwater health is vital for making management decisions and sustaining our environment.

Level of protection
Good protection
Moderate protection
Low protection
Limited Data

Local groundwater quality can vary considerably, especially with shallow or dug wells. It can be impacted by the soil type and the thickness of the soil layer that surrounds your well.

Soil has the ability to filter some contaminants. The finer the soil particles, such as clay and silt, the slower water and thus chemicals or bacteria can move through it. In contrast, the coarser the particles, the more quickly water, chemicals and bacteria can move through it. This leaves less time for bacteria to die off and for soil particles to filter some of the contaminants.

Dug Well: Draws water from shallow aquifers that are more prone to contamination due to a shorter travel time of water.

Drilled Well: Draws water from deeper aquifers that are less prone to contamination due to a longer travel time of water.

Have water from your well tested by the Health Unit at least twice annually! It's free and helps you detect problems early!

The map on the left uses soil types and soil depth as an indicator for how much protection the soil can potentially provide. This is called an Aquifer Vulnerability Index. The map itself does not indicate the quality of groundwater and should not be used as an indicator of whether or not well water is safe to drink. Rather, this data can help us pinpoint where groundwater quality monitoring should be focused and where we need good management practices that protect groundwater.

Successes and opportunities

The groundwater samples that we have collected throughout the watershed have been of high quality. However, we need more sampling information than is currently available to provide an accurate grade for groundwater quality on a subwatershed basis. As groundwater sampling initiatives are enhanced, grading for groundwater quality will be possible.

What is Kawartha Conservation?

Kawartha Conservation is a watershed-based, non-profit environmental organization established in 1979 under the provincial *Conservation Authorities Act* (1946). We are governed by the six municipalities that overlap the natural boundaries of our watershed and voted to form the Kawartha Region Conservation Authority.

Our mandate is to ensure the conservation, restoration and responsible management of water, land and natural habitats through programs and services that balance human, environmental and economic needs.

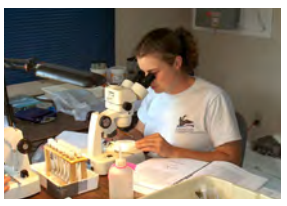
What do we do?

Our **Environmental Technical Services** department provides the scientific foundation for environmental management plans, planning and regulation services and environmental stewardship programs. This foundation is based on:

- surface water assessment;
- groundwater assessment;
- aquatic habitat assessment;
- flood and water level monitoring.

Services provided by this department include Flood Forecasting and Warning, Low Water Response, Drinking Water Source Protection, Environmental Information Services (primarily GIS mapping), and Environmental Management Planning.

Environmental management plans involve detailed field inventories of specific subwatersheds or lakes to identify



natural features, factors affecting their health, and an "Action Plan" to address the problems. Planning and implementation is directed by steering committees comprised of landowners, volunteers and representatives from community organizations, governments and agencies. Plans in development include:

- the Lake Scugog Environmental Management Plan;
- the East Cross Creek Aquatic Resources Management Plan;
- the Nonquon River Fisheries Management Plan;
- the Nonquon River Watershed Plan;
- Watershed Plans for Oak Ridges Moraine tributaries within the Region of Durham.

Our **Environmental Advisory Services** department reviews planning and development applications generated by local landowners and member municipalities. We promote wise land-use and planning practices to protect the natural environment and human safety, while ensuring that developments are not damaged by flooding and erosion. When reviewing certain applications, Kawartha Conservation works in collaboration with Fisheries and Oceans Canada to ensure that fish and fish habitat are protected.

Permits and approvals are issued under Ontario Regulation 182/06, *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*. If you are planning any construction, site grading, temporary dumping or removal of material in low-lying areas, near water, or on a steep slope, please contact us to find out about permit requirements.

Our **Environmental Protection and Restoration** department manages conservation area properties and offers various stewardship programs for landowners within the watershed. The science provided by Environmental Technical Services ensures that our protection and restoration efforts are targeted to provide greater effectiveness and efficiency.

Some of our programs and services include the following:

- Management of conservation areas to protect key water features and natural habitats / heritage within the watershed. These properties provide recreational and nature appreciation opportunities, often only a few minutes from your home. They include Ken Reid Conservation Area, Fleetwood Creek Natural Area, Pigeon River Headwaters Conservation Area, Windy Ridge Conservation Area, and Dewey's Island Nature Reserve. The grand opening of East Cross Forest is scheduled for 2009.
- See the chart to the left for our other program areas.

Partnerships

We work with landowners, community groups, municipal partners, educational institutions, governments and other conservation authorities to ensure abundant, clean water within a healthy landscape. Among our partnerships are Conservation Ontario, Trent Conservation Coalition, Conservation Authorities Moraine Coalition, Friends of Kawartha Conservation, Sir Sandford Fleming College, Community Stream Stewards, Lakeland Alliance, Stewardship Councils and others.

FINANCIAL INCENTIVES AND INFORMATION SERVICES

Organization	Program	Index
Kawartha Conservation 705-328-2271	Shoreline Naturalization	$, IN, SW, WL, VL
	Scugog WATER Fund	$, IN, GW, SW, AG
	Kawartha Waterwatch	IN, SW, VL
	Ontario Drinking Water Stewardship	$, IN, GW, SW
	Blue Canoe	IN, GW, SW, WL,AG
Trent-Severn Waterway 705-750-4900	Waterway Wildlife	IN, SW, WL
Ontario Soil and Crop Improvement Association 705-374-4975	Environmental Farm Plan (EFP)	$, IN, AG, FR, SW, GW
Well Wise 905-983-9911	Well Aware	IN, GW
Haliburton, Kawartha, Pine Ridge District Health Unit, 705-324-3569 Durham Region Health Department, 905-985-4889	Water testing, Septic system information	IN, SW, GW
Ducks Unlimited Canada, 1-800-665-DUCK (3825)	Ontario Wetland Care	$, IN, WL, VL
Ministry of Natural Resources 1-800-667-1940	Conservation Lands Tax Incentive Program (CLTIP)	$, IN, FR, WL
	Community Fisheries/Wildlife Improvement Program (CFWIP)	$, IN
Stewardship Councils City of Kawartha Lakes, 705-755-3362 Durham Region, 905-713-6048	Numerous stewardship programs and services	$, IN, FR, AG, WL, GW, SW, WL, VL
Ontario Federation of Anglers and Hunters 705-748-6324	Community Stream Stewards (CSSP), Invasive Species	IN, VL, WL, SW, AG
Ontario Forestry Association, 1-800-387-0790	Managed Forest Tax Incentive Program (MFTIP)	$, IN, FR
Ontario Woodlot Association, 1-888-791-1103	Managed Forest Tax Incentive Program (MFTIP)	$, IN, FR
Gamiing Centre for Sustainable Lakeshore Living 705-799-7083	Shoreline management services	IN, SW, VL

LEGEND

Stewardship Areas		Service Areas	
SW	Surface water	$	Financial incentives/grants
GW	Groundwater	IN	Information
AG	Agriculture	VL	Volunteer opportunities
FR	Forestry/Horticulture		
WL	Wildlife		

How to take action!

Here are some of the things you can do to enhance your property, protect your health and protect the health of our watershed:

- Leave a 3 metre, or wider, buffer strip of natural vegetation along waterfronts and stream banks to filter runoff and provide wildlife habitat.
- Mow your lawn to no less than 3 inches in height; leave the clippings on the lawn to decompose naturally and reduce needs for fertilizer. Longer grass will absorb more moisture and reduce the need for watering.
- Reduce (or eliminate) fertilizer use on shoreline lawns. Any runoff with fertilizer stimulates aquatic plant growth.
- Clean up after your pets and don't feed or encourage ducks and geese. This will reduce the amount of runoff containing nutrients and fecal matter, potentially with E. coli.
- Make sure your well is properly dug or drilled and maintained. Learn more about wells from Well Wise.
- Have a professional legally decommission unused wells. Old wells can provide a path for contamination to enter your groundwater supply and, often becoming hidden over time, can be a safety and liability concern.
- Maintain your septic system to achieve optimum efficiency and to prevent leakage of nutrients and E. coli. Call the Haliburton, Kawartha, Pine Ridge District Health Unit or Durham Region Health Department for further information.
- Use phosphate free soaps and detergents. Phosphate is a nutrient that encourages aquatic plant growth.
- Take hazardous wastes to a hazardous waste disposal facility. Contact your local municipality for locations near you.
- Control invasive plants and shrubs such as buckthorn, dog strangling vine and garlic mustard to maintain species diversity.
- Set aside areas for reforestation. Forests filter water, prevent erosion and play a role in re-charging aquifers.
- Encourage vegetated buffers along fence rows as corridors for wildlife to move from area to area.
- Manage your woodlot by selective harvesting to promote a healthy, productive woodlot. The above table provides a list of organizations that can provide you with more information.
- On the farm, practice nutrient management planning and fence livestock out of watercourses to prevent nutrient runoff. The above table provides contact information for the Environmental Farm Plan, a financial assistance program for your projects.
- Take advantage of the financial assistance programs and information services offered by the organizations listed above.

The 3 'A's that lead to great grades!

Awareness: Awareness is the first step to understanding. Monitoring and collecting data is our early warning system for changes in watershed health.

Accountability: We are all responsible for our water, so we need to manage our impact on the watershed.

Action: Even small changes can have a big impact. If we all participate, our watershed health will greatly improve!

KAWARTHA CONSERVATION
277 Kenrei Rd., Lindsay ON K9V 4R1
705.328.2271
geninfo@kawarthaconservation.com
www.kawarthaconservation.com
Member of Conservation Ontario Natural Champions