



Niagara Watershed

REPORT CARD 2006

OUR HISTORY

In 2006, Niagara Peninsula Conservation Authority and Niagara Region, along with their partners, released Niagara's First Report Card on the environmental health of the Niagara watershed reflecting the conditions in 2005. The Report Card is designed to inform residents about how water resources are affected in the watershed, with the intent of stimulating government action, and encouraging public stewardship initiatives in the watershed.

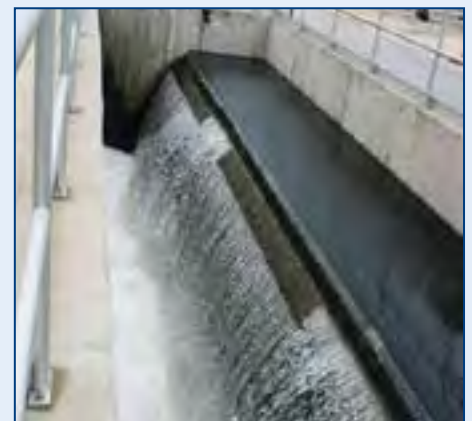
Since, Niagara Water Strategy was initiated in 2003, the Niagara Peninsula Conservation Authority, Niagara Region and their project partners, have been working towards implementing the 340 recommendations from the Strategy, through an on-going program of financial and administrative support. The Strategy separates the Actions into Direct and Indirect Actions. Direct Actions are new actions to be initiated under the Strategy by either Niagara Region or Niagara Peninsula Conservation Authority. Indirect Actions are those actions that are on-going in the watershed or planned for the future. Responsibility for Indirect Actions lies with other existing organizations, supported by the Niagara Water Strategy. For instance, the Niagara Stormwater Management and Erosion/Sediment Control Policy, and the

Niagara Watershed Report Card were undertaken by the Niagara Peninsula Conservation Authority as Direct Actions. In 2006 four Indirect Action projects received financial assistance from the Niagara Water Strategy including the Town of Grimsby for their Stormwater Quality Master Plan and the City of St. Catharines for their Catch the Rain project, which sold rain barrels. Applications for support for local water-related projects will be available on a yearly basis.

BE PART OF THE SOLUTION & GET INVOLVED!

Take a moment to read the 2006 Niagara Watershed Report Card. The environmental indicators used in the Report Card are a subset of the original 18 indicators. The indicators in the 2006 Report Card have been selected based on data availability, rates of change and issues important to the public.

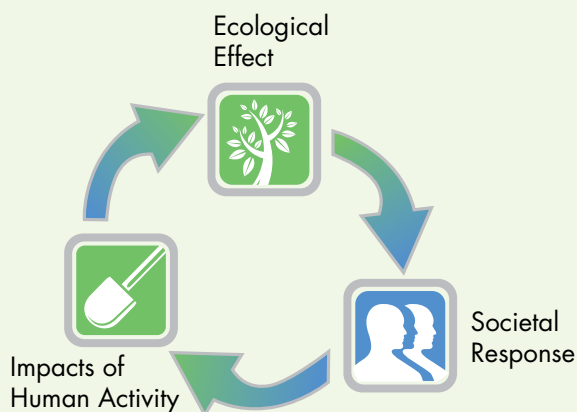
Data is being collected by the watershed partners to be used in subsequent Report Cards. Although Niagara is doing quite well in some areas, there remains room for improvement in others. It is only through the efforts of each and every individual that we will be able to improve on these areas in the future.





REPORT CARD INDICATORS

The Niagara Watershed Report Card provides an overview of watershed health by reporting on various water issues and impacts within the Niagara watershed. The indicators used to assess watershed health have been organized according to the primary themes and associated goals developed through the Niagara Water Strategy.



HUMAN HEALTH

Clean and abundant drinking water for our safe consumption.

NATURAL ENVIRONMENT

Water of a sufficient quantity and quality in natural areas like wetlands and streams ensuring healthy plants, species and the integrity of the ecosystem.

AGRICULTURE

Clean and abundant water for agriculture operations.

FLOODING AND EROSION

Protection for our residential, commercial, industrial and public land uses from detrimental flooding and erosion.

RECREATION

Sufficient, clean water to support and sustain our recreational uses, such as beaches and natural areas.

COMMERCIAL WATER USE

Clean and abundant water for commercial users.







EACH INDICATOR HAS BEEN RATED OR GRADED USING THE FOLLOWING SCALE







- A Very Good
- B Satisfactory
- C Needs Some Improvement
- D Needs Lots of Improvement
- I Insufficient Data Available At This Time
- TBR To be Reported on at a Later Date
- ↔ No Change
- ↑ Improvement
- ↓ Slight Trend Downwards







INTERPRETATION OF GRADES ASSIGNED

The ratings, or grades, in the Report Card indicate the current state of Niagara's Watershed and will be used to track changes and provide updated information in the future. The 2006 Report Card is the second Report Card produced for the Niagara Watershed. Due to various factors including the slow rate of change associated with some indicators and in some cases the lack of "meaningful" short-term data, in 2006 we will only be reporting on a subset of the original 18 indicators. The other indicators not included in the 2006 Report Card will be reported on at a later date, once additional or more trend-orientated data has been collected.

As noted in the 2005 Report Card, in a watershed, the movement of water through the water cycle links everything together. This web of linkages is referred to as an ecosystem. The six theme areas from the Niagara Water Strategy are linked into the ecosystem, as are watershed residents, businesses and agencies. Human activities either harmonize with natural processes and help to maintain the web, or they conflict with them, thereby causing stresses and potentially harming the water and the systems, which rely on them. When the impacts of human activities are harmful, the ecological effects can eventually reach a level that triggers a societal response to reduce these detrimental effects.

INDICATORS		WHAT IS THE CURRENT STATUS?	2005	2006	TREND	OUTCOME
HUMAN HEALTH						
	BOIL WATER ADVISORIES	<p>In 2006 there were two community level Boil Water Advisories issued by Niagara Region Public Health Department. A Boil Water Advisory was issued for a portion of the Township of Wainfleet on April 10, 2006 and is still in effect.</p> <p>A Boil Advisory was also issued for a limited area of Fort Erie on October 19, 2006, which was lifted on October 24, 2006.</p>	A	A-	↓	Boil Water Advisories are issued by the Medical Officer of Health, whose goal regarding the provision of safe drinking water is to reduce the incidence of water-borne illness in the populations. The Niagara Region is working with area municipalities on various initiatives to reduce the occurrence of Boil Water Advisories and ensure the ongoing high quality of our municipal drinking water.
	DRINKING WATER WELLS AND CISTERNS	The Niagara Region Public Health Department provides a free drinking water testing program for people with private water supply in order to detect bacteria.	C	TBR	TBR	The Niagara Region Public Health Department recommends that private well owners test their wells a minimum of four times per year. Water Well tests can indicate the presence of a number of disease causing agents in rural water wells.
NATURAL ENVIRONMENT						
	URBAN INFILL AND GREEN FIELD DEVELOPMENT	A number of Provincial and Regional initiatives are encouraging Urban Infill Development over traditional Green Field development. Green Field is a term that describes land not previously developed for urban uses such as residential, commercial or industrial. Urban Infill development is the economic use of vacant land, or restoration and rehabilitation of existing structures in already urbanized areas where water, sewer, and other public services are already in place. This type of development maintains the continuity of the original community fabric while making use of existing infrastructure	I	TBR	TBR	Watershed partners are currently implementing policies to protect natural resources, while allowing for planned growth. These include the 2006 Action Niagara: Designing the Future, that provides a forum for experts and leading edge innovators to share their thoughts and insights into how municipalities, will build thriving, livable, vibrant and productive communities. Niagara Region has also been implementing various Smart Growth Initiatives throughout the watershed.
	COMBINED SEWER OVERFLOWS (CSO's)	The City of Niagara Falls has invested \$25 million to provide additional pumping capacity and treatment of wet weather flows to control CSO's. The City of St. Catharines is continuing to implement remedial work to further reduce CSO's within the municipality and the City of Welland is implementing storm sewer separation projects.	D	C-	↑	Niagara Region has recently completed a project which has evaluated the current status of CSO's in the Niagara Watershed and prioritized the various locations to optimize future actions. The Region has a comprehensive policy in place and has committed \$100 million dollars over the next 15 years to address CSO's in co-operation with its watershed partners. The goal is to reduce the volume of water discharged from CSO's below the provincial average.
	TOTAL WATER DEMAND	In 2006, the Region's Total Water Demand decreased from 481 litres per capita per day to 424 litres per capita per day. Only 1 area municipality out of 11 had an increase in total water demand. Current initiatives being implemented across the Region are working toward reducing water consumption.	C	B	↑	Total Water demand does not remain static and can be dependent on numerous factors. Such factors as population increase can raise the total amount of water but such factors as water efficiency plans can help in reduce the total amount of water required. Niagara Region's support of such initiatives as the rain barrel distribution in St.Catharines and Niagara-on-the-Lake will help in reduce the total water demand within the Niagara watershed. The partners are working to develop water efficiency strategies that will encourage municipalities to reduce water consumption by at least 20%.
	WETLAND CHANGE	In 2005, wetlands are estimated to cover 6.36% of the Niagara watershed. The Niagara Peninsula Conservation Authority has been active in restoring wetlands as a partner in implementing the Niagara River Remedial Action Plan and has been redefining the wetland evaluation criteria to be able to more accurately define wetlands across the watershed.	I	TBR	TBR	The protection of wetlands continues to be a top initiative for both Niagara Region and Niagara Peninsula Conservation Authority. Wetlands remain one of the most valuable ecosystems for filtering water pollutants and will be continually be protected.

INDICATORS		WHAT IS THE CURRENT STATUS?	2005	2006	TREND	OUTCOME
NATURAL ENVIRONMENT						
	PROTECTED NATURAL AREAS	In 2005 it was estimated that 18.5% of the watershed was covered by natural areas with a long-term target of 30%. Protected natural areas include Conservation Areas, Provincial Parks, the Niagara Escarpment, Provincial Greenbelt Plan areas and local creeks and valleys. It has become evident from recent changes in legislation and new wetland evaluation procedures that there has been an increase in the percentage of the watershed covered by natural areas. The various inventories used to quantify this indicator is being updated and completed to more suitable and accurate mapping requirements to better quantify this indicator in subsequent years.	C	C+	↑	Over the next 3 years the Niagara Peninsula Conservation Authority with Niagara Region, Peninsula Field Naturalists and others will prepare a Natural Heritage Inventory of Environmentally Sensitive Areas (ESAs) in the Niagara Watershed. The data collected during the project will provide a solid resource of information that will aid in developing greater environmental awareness within the community and as a scientifically defensible baseline for use in planning decisions and policy development.
	INDICATOR SPECIES ABUNDANCE	The general health of aquatic and wetland areas are about fair, according to the results of the 2006 Marsh Monitoring Program. In 2006, the indicator abundance score was 5.2 up 0.2 from 2004/2005 data. The Marsh Monitoring Program bases their findings on the abundance of amphibians such as frogs and toads.	C	C+	↑	The distribution and abundance of biota that live or breed in water respond to water pollution and to more frequent runoff events and low flows associated with development by changing their presence and numbers. The Niagara Peninsula Conservation Authority and Niagara Region have been implementing such programs as the CSO Reduction Program and the Agriculture Best Management Program to improve receiving water and to improve water quality.
	STREAM QUALITY	Stream Quality is a function of the levels of pollutants, types of aquatic species and vegetation found along the stream bank. Data collected in 2006 indicates that stream quality is continually being negatively impacted by nutrients. The 2006 grade for Stream Quality has not changed since 2005. The 2006 data riparian buffer was not included. The data needed to quantify the amount of riparian buffer is in the process of being updated.	D	D	↔	The protection and improvement to Stream Quality (surface water) remains an import objective for the Niagara Peninsula Conservation Authority. In 2006, the Authority initiated watershed plans for Fort Erie Creeks, and Fifteen, Sixteen and Eighteen Mile Creeks. The watershed plans will include recommendations on the best way to protect, restore and improve water quality and quantity as part of the land use planning process as envisioned in the Niagara Water Strategy.
	GROUNDWATER QUALITY	Our groundwater is characterized as good quality according to the preliminary data of the Provincial Groundwater Monitoring Network.	B	B	↔	The recent Source Protection Planning legislation being passed by the Provincial government will require watershed partners to take an active role in protecting groundwater resources throughout the watershed. The Niagara Peninsula Conservation Authority and the Niagara Region will be undertaking various initiatives to quantify and protection groundwater resources.
FLOODING AND EROSION						
	STREAM EROSION	Erosion is a natural occurrence in all rivers; streams and coastal shorelines butt it is the rate of erosion that has been causing great concern. Stream erosion is a key indicator of the effects of land use changes and human activities such as modification to riparian floodplain, and shore environment, and general drainage changes. To better understand the effects of flooding and erosion, broader data is needed. The current data available is for selected watercourses throughout the watershed.	I	TBR	TBR	The Niagara Peninsula Conservation Authority has recently completed a project that involved the development of a Niagara-based policy to strengthen current storm water management guidelines and erosion control sediment policy within the Niagara watershed. Consistent application of these policies will ensure that stream systems are better protected from the impacts associated with changing land use.
	FLOODING ADVISORIES	The Niagara Peninsula Conservation Authority issued 9 General Watercourse Safety Bulletins in 2006 (Mar 9, May 10, July 12, July 25, Sept 1, Oct 4, Oct 11, Nov 16, Dec 1). No storm events exceeded the 100-year regulatory floodplain limits although there was incidents of minor localized flooding. Currently, there is no data collection process to determine the number of properties or people affected by flooding events. Even though a grade of incomplete was given to this indicator a negative trend was given as the number of advisories increased from 4 to 9 from 2005 to 2006.	I	I	↓	A flood advisory serves to notify municipalities and the public that the potential for flood exists. It is the job of the Niagara Peninsula Conservation Authority to monitor the Niagara watershed to prevent flooding and erosion problems.

INDICATORS	WHAT IS THE CURRENT STATUS?	2005	2006	TREND	OUTCOME
RECREATION					
	BEACH POSTINGS The Niagara watershed has over 36 public beaches. From May to September, the Niagara Region Public Health Department collects weekly water samples from 10 beach located along Lake Ontario and the northern part of the Niagara River and 22 beach located along Lake Erie and the southern part of the Niagara River and one beach on the Welland River. The overall loss of public beach time in the watershed was 19% in 2005 and 27% in 2006.	D	D	↔	One of the proposed projects, under the direction of the Niagara Water Strategy involves addressing the need for effective storm water management to address the impacts leading to beach closures. Improper stormwater management including combined sewer overflows (CSO) can be contributors to poor near shore water quality, which causes beach postings to occur. This Direct Action is being planned to be completed in 2007.
	USE OF PROTECTED NATURAL AREAS Visits to natural areas increased by 6% from 2005 to 2006 for a total; attendance of 506, 400. Data is based on the visitors to Conservation Areas protected and maintained by the Niagara Peninsula Conservation Authority.	B	B+	↑	The Niagara Water Strategy aims not only to protect natural areas, but to have the public be able to appreciate and enjoy the designated areas. The Niagara Peninsula Conservation Authority manages/owns 36 conservation areas encompassing approximately 7,000 acres of environmentally significant and natural lands. Niagara Peninsula Conservation Authority is continually working with its area partners to promote and encourage the stewardship of its natural areas.
COMMERCIAL WATER USE					
	WATER RESTRICTIONS Water Restrictions are issued by Niagara Region Public Works Department when the water system is unable to support the demand for water across the region. The Region is in the process of developing a formal process for addressing Regional water restrictions.	C	TBR	TBR	The protection of wetlands continues to be a top initiative for both Niagara Region and the Niagara Peninsula Conservation Authority. Wetlands remain one of the most valuable ecosystems for filtering water pollutants and will be continually be protected.
	NUMBER OF WATER EFFICIENCY PLANS Water Efficiency Plans are designed to reduce water demand for residential, commercial and industrial water uses. Niagara Region will continue to implement and encourage the development of water efficiency plans throughout the watershed.	I	TBR	TBR	Niagara Region has recently completed a review. Water Efficiency policies and programs being implemented across the watershed and in other jurisdictions. The objective of this project was to develop a program to enable municipalities to improve their water efficiency program and allow partners and stakeholders the opportunity to tailor programs to their specific needs.
AGRICULTURAL					
	ENVIRONMENTAL FARM PLANS Approximately 268 Environmental Farm Plan projects were implemented in the Niagara watershed in 2006, up from 260 in 2005. The Environmental Farm Plan projects are promoted by the Ontario Soil and Crop Improvement Association with the intent of enabling farmers to identify environmental concerns about their operations and allows them to set realistic goals to improve environmental performance on their farms. Environmental Farm Plans are an voluntary assessment that looks at 23 different environmental aspects on a farm.	B	B+	↑	The third phase of the Environmental Farm Plans program which began in 2005 continues to be implemented across the watershed. In 2006 the Agricultural Best Management Practices study was completed. Niagara Region is committed to proceeding to the next step of the study which includes promoting best management practices programs and developing demonstration sites throughout the region.
	NUTRIENT MANagements PLANS/ STRATEGIES The Nutrient Management Act was enacted in 2002 with the purpose of ensuring the proper management of nutrient containing material to enhance the protection of the natural environment.	I	TBR	TBR	This indicator will be measured by accessing of funds for the implementation of requirements under the Nutrient Management Act.



NIAGARA CHILDREN'S WATER FESTIVAL

In 2003 Niagara Peninsula Conservation Authority, Niagara Region, City of St. Catharines and Ontario Power Generation formed a collaborative partnership to host the first Niagara Children's Water Festival as an outreach program funded in partnership through the Niagara Water Strategy. Each year the Festival has hosted over 5,000 grades 3 and 4 students from schools within the watershed. Over 500 volunteers including students from watershed high schools help to lead over 50 interactive-hands on activities to help children learn about wise water use in our every day lives. The investment in our children is reaping tremendous benefits. The following excerpts from educators and students affirm the ongoing impact of this program.

In Canada we are fortunate that we live close to approximately 20% of the world's freshwater supply which flows through our rivers, lakes, groundwater. The demand for this precious resource continues to grow, but the supply remains the same. In Canada we consume more water per capita (approximately 335 litres per day) than any of the other industrialized nations (with the exception of the United States). That is why it is very important for all of us to do our part by conserving water in our own homes. Whether you live in the city, a small town or in the country, we can all make a commitment to making moderate changes to our daily water consumption. In doing this, we will be protecting our water resources from further degradation. Getting involved in positive environmental activities is a perfect activity for the whole family to get involved in and will have a huge impact on our precious water resources.

COMMENTS FROM TEACHERS

I've been teaching for 15 years, been on a zillion trips, nothing even comes close to the exceptional level of organization of this event...amazing!

Thank you for another great day! Every year the festival gets better. The students learn, have fun and become more aware of the importance of conserving.

COMMENTS FROM STUDENTS

I learned how water goes from the lake to our drinking water. That the dirt, garbage, bacteria and other pollutions must be filtered out before we can drink it. Also, chlorine must be added.
— Savannah

I learned that the water from our toilets goes into the sewer which goes to the water treatment plant where it is cleaned for us to drink. I also learned that in one day I use over 300 litres of water a day.
— Allegra

JOIN US AT THE FIRST ANNUAL PUBLIC DAY OF THE NIAGARA CHILDREN'S WATER FESTIVAL

Sunday, September 16, 2007

11:00 a.m. to 3:00 p.m.

Ball's Falls Conservation Area, Jordan

This event is a **FREE EVENT** and a perfect outing for the entire family. Experience and learn more about what you can do to contribute to a healthier environment.



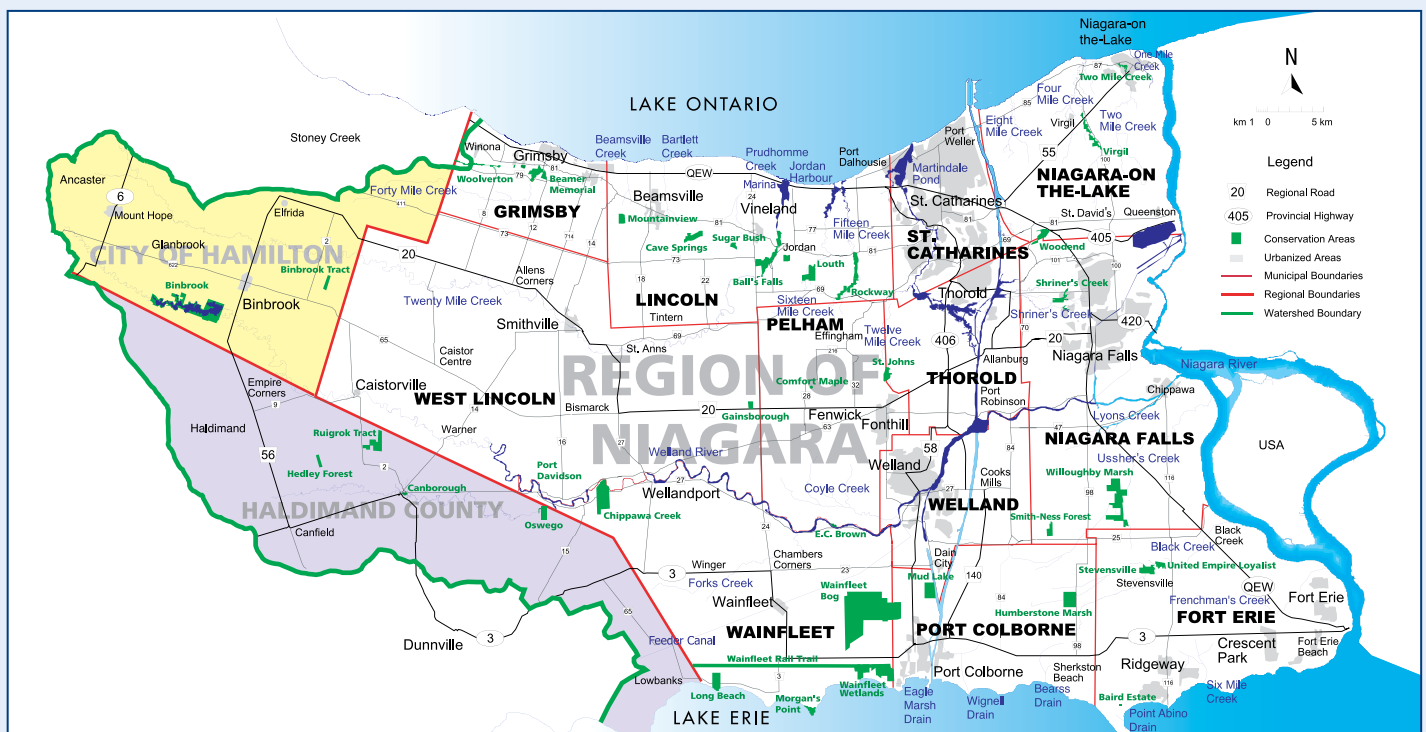
GET INVOLVED IN PROTECTING AND ENHANCING THE WATERSHED.

- Join a local community stewardship group and take part in local clean-up activities.
- Plant a tree – every tree and shrub provides huge benefits to water quality.
- Integrate “Smart Gardening” practices; reduce or eliminate the use of fertilizers – plant native species wherever possible as these types of plants require little water and upkeep.
- Turn off the tap when brushing your teeth – this can save up to 5 litres of water a minute.
- Consider washing your clothes in cold water – it not only saves energy, it's also better for your clothes.
- Sweep your driveway instead of hosing it down.
- Water your lawn once a week – as a general guideline, lawns only need about one inch of water per week. It's best to water in the early morning as temperatures are usually cooler and evaporation tends to be lower. Try to use a sprinkler that sprays water closer to the ground.
- Support your municipalities in implementing their best management practices.

THANKS TO OUR PARTNERS AND STAKEHOLDERS FOR THEIR COOPERATION AND CONTINUED SUPPORT.

Our Watershed Partners are: Town of Fort Erie, Town of Grimsby, Town of Lincoln, City of Niagara Falls, Town of Niagara-on-the-Lake, Town of Pelham, City of Port Colborne, City of St. Catharines, City of Thorold, Township of Wainfleet, City of Welland, Township of West Lincoln, City of Hamilton and Haldimand County.

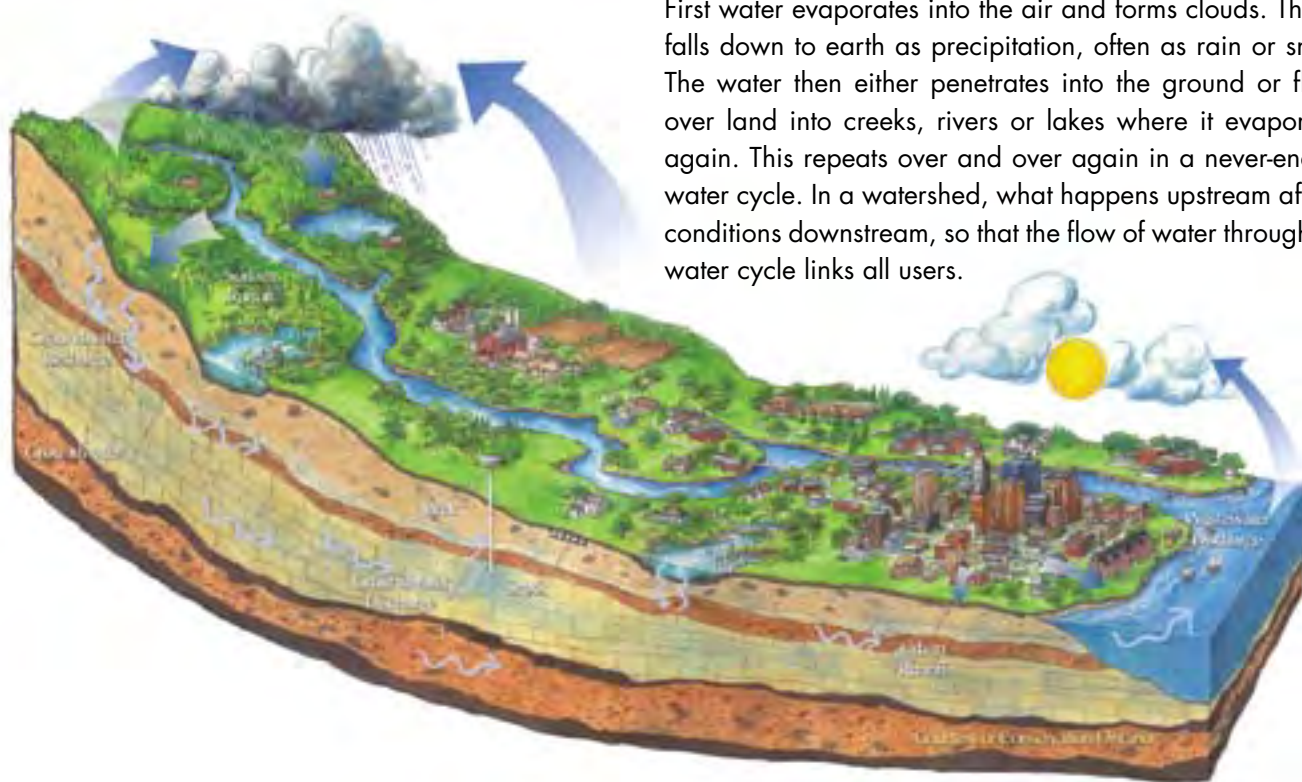
Our Watershed Stakeholders are: local, provincial and national environmental, agricultural and recreational groups and associations, Niagara Escarpment Commission, Ministry of Natural Resources, Ontario Ministry of Agriculture, Food and Rural Affairs, Environment Canada and the Ministry of the Environment.





THE WATERCYCLE: OUR WATERSHED AND YOU!

First water evaporates into the air and forms clouds. Then it falls down to earth as precipitation, often as rain or snow. The water then either penetrates into the ground or flows over land into creeks, rivers or lakes where it evaporates again. This repeats over and over again in a never-ending water cycle. In a watershed, what happens upstream affects conditions downstream, so that the flow of water through the water cycle links all users.



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For more information on
the Niagara Water Strategy
look us up online at
www.watersmartniagara.ca

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