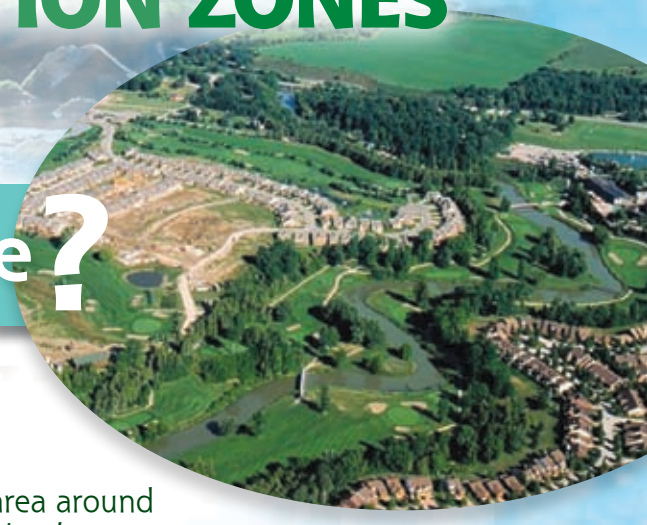
Conservation ONTARIO
Natural Champions

INTAKE PROTECTION ZONES



What is an Intake Protection Zone?

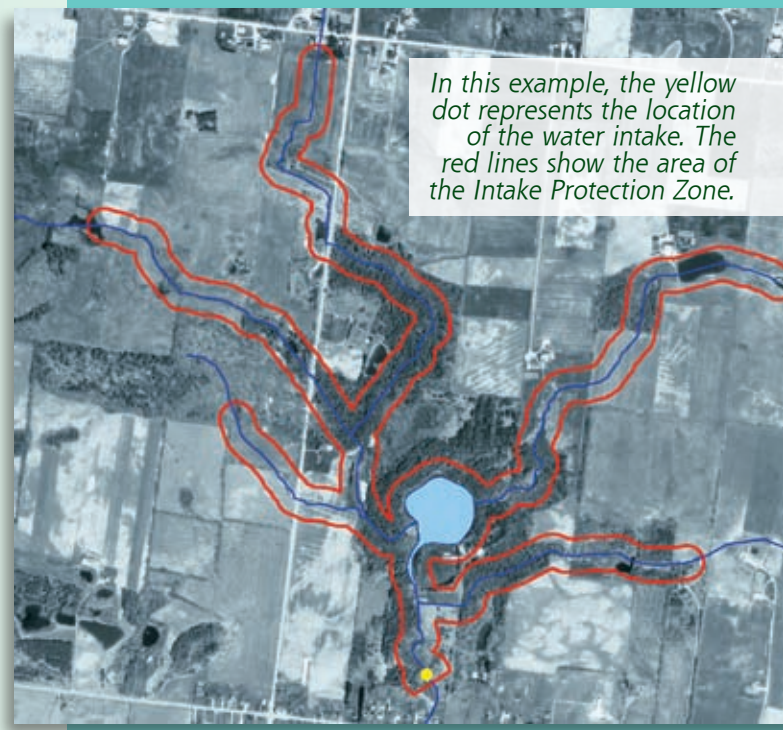
Many municipalities rely on *surface water* to supply drinking water to their residents. *Surface water* is water that is visible on the landscape. In Ontario this includes lakes, rivers and streams.

The majority of Ontario's population draws its drinking water directly from the Great Lakes and large rivers, such as the Ottawa River and the St. Lawrence River. *Surface water* is transported through an intake pipe directly from the lake, river or stream and into a water treatment system. Fortunately, many of these drinking water intakes are located far from shore in deep water, like in the Great Lakes, where contamination is less likely. However, many other municipal surface water intakes in Ontario are located in areas where there are greater risks of contamination.

Protecting the area around a *surface water intake* means protecting the surrounding water and, in most cases, the land that surrounds the water. This area of water and land is known as an *intake protection zone*, or *IPZ*. Protecting it ensures a healthy supply of water now and in the future. *Intake protection zones* in a large lake, such as a Great Lake, may end up in the shape of a circle and never touch shore, however, *intake protection zones* in smaller lakes or on rivers may also include the land surrounding it, as well as several smaller *feeder* rivers or tributaries.

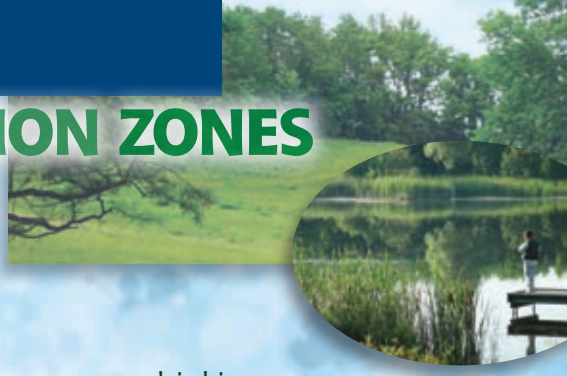
Almost 2/3 of Ontarians rely on surface water to meet their daily needs.

The area of water and land within an *intake protection zone* is determined by a variety of factors such as the amount of time it would take any material spilled in or near the river to flow downstream to the water intake. This is called the *time of travel*. A fast or slow flowing river can change the area of an *intake protection zone* significantly. Under the Clean Water Act, 2006 the province has required that several *intake protection zones* be identified: one for the area immediately adjacent to the intake; one for the area further upstream where a spill might reach the intake before the plant operator can deal with it; and a third that includes a larger part of the watershed. For the purposes of establishing the second *intake protection zone*, technical staff examine a minimum *time of travel* of two hours, although it could be longer if the water treatment plant operator response time is longer. River flows, streams feeding into the river or lake, and the location of municipal storm sewers or rural drains are all considered when determining an *intake protection zone* since they all affect *time of travel*.



In this example, the yellow dot represents the location of the water intake. The red lines show the area of the Intake Protection Zone.

INTAKE PROTECTION ZONES



Why do Surface Water Intakes Need Protection?

Surface water is replenished through rain and melting snow and also through underground sources of water called aquifers. Surface water and underground water sources, or *groundwater*, are linked through the water cycle and what affects one can also affect the other.

Pollutants can seep into the ground, contaminate groundwater and therefore contaminate the water in a surface source. Runoff from rain or melting snow can also pick up and carry contaminants directly into a surface water drinking source. *Surface Water Intake Protection* is a good way to prevent drinking water from becoming polluted because it manages potential sources of contamination on both the land and water.

Much can be done to prevent the risk of contamination near a *surface water intake*. Under the *Clean Water Act, 2006* local Source Protection Committees will develop plans for protecting local *surface water intakes*. They will look at potential sources of contamination in their area and what needs to be done to manage existing and future land and water uses that pose a threat.

What are Potential Sources of Contamination in an Intake Protection Zone?

If not managed properly, pollutants from a variety of activities on or near surface water intakes can negatively affect the quality of municipal drinking water. Some examples include:

- Chemical storage
- Spreading of sewage treatment sludge
- Storage and spreading of road salt
- Animal feedlots
- Use and spilling of fertilizers and pesticides
- Accidental spills of hazardous materials
- Septic systems
- Underground storage tanks
- Underground pipelines or sewers
- Landfills
- Wastewater discharge
- Sewage bypasses
- Storm water runoff

What are the Benefits of Protecting Intake Protection Zones?

A very clear benefit of drinking water source protection in *intake protection zones* is protecting public health. In addition, preventing drinking water contamination in the first place costs a lot less than cleaning it up after it has been contaminated. There are a number of ways *intake protection* impacts our day-to-day lives and reduces the costs to maintain good water supplies:

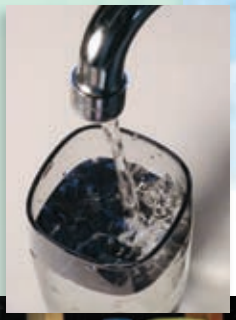
- Not having to find new drinking water sources when old ones become contaminated
- Avoiding the need to clean up contaminated water
- Reducing the cost of water treatment
- Ensuring a long-term supply of clean water
- Ensuring a positive climate for economic growth

INTAKE PROTECTION ZONES

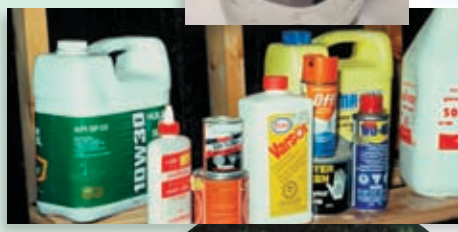
What can you do to Protect your Local Intake Protection Zones ?

To find out if you live near a municipal *intake protection zone*, contact your local conservation authority. You can find out which conservation authority you live in at **www.conservation-ontario.on.ca**

Even if you don't live near an *intake protection zone* it is important to take steps to protect water. Everything is connected through the water cycle and it is important to remember everyone lives downstream. What you do today can affect local water quality. These are some of the things you can do to protect your surface water:



1. **Conserve water.** Not only is conserving water helpful to maintaining a constant supply of drinking water, too little water in a source can mean contaminants are more concentrated and, therefore, may be above acceptable levels.



2. **Dispose of hazardous waste properly.** Take unused paints, cleaners, pesticides, and medical prescriptions to your local hazardous waste facility. Take used engine oil to recycling facilities. Use drop cloths or tarps when working with hazardous materials such as paints, driveway sealers or wood stain to prevent spills from leaking into the ground. If a spill occurs, clean it up with an absorbent material such as kitty litter or sawdust and scoop the contaminant into a container.

3. **Use non-toxic products for cleaning** and environmentally-friendly soaps, shampoos and personal care products. Remember that what you use in your house goes back down your drain.

4. **Clean up pet waste** which contains nutrients and pathogens that can run into storm sewers during a rain storm.

5. **Prevent pollutants from entering into runoff** by reducing or eliminating the use of pesticides, fertilizers, sidewalk salts and by not over-watering your lawn. If you run an agricultural operation and haven't already, consider developing and implementing a Nutrient Management Plan.

6. **Take care when refueling gas tanks** for cars, lawn mowers, chainsaws, weed trimmers, boats, tractors or other machinery to avoid spilling fuel on the ground or in the water. Also take care when changing engine oil. One litre of gas or oil can contaminate a million litres of water.

7. **Take your car to commercial car washes** designed to prevent pollutant runoff from entering storm sewers. Use commercial car washes that use water efficient sprays, reducing their water consumption.

8. **Stay informed and get involved** in your local source protection process. To find a Drinking Water Source Protection Planning Region or Area near you go to **www.conservation-ontario.on.ca**

INTAKE PROTECTION ZONES

Some additional ways to protect water for those who live on rural properties include:

1. **Keep your septic system in proper working order** and empty the tank regularly.

2. **Protect and maintain your private well.** Wells provide pathways for contaminants to enter the groundwater. If you have a well, be sure it is sealed properly and if you own a well you no longer use, have it properly decommissioned by a licensed well technician. Test your well water regularly to ensure the water is safe to drink.

3. **Manage animal waste on farms to prevent water contamination.** If you operate a farm, contact your local Ontario Soil and Crop Improvement Association (OSCIA) at **www.ontariosoilcrop.org** or your local conservation authority at **www.conservation-ontario.on.ca** for information about workshops you can take to assist you in developing an Environmental Farm Plan (EFP) for your farm business.

4. **Manage livestock grazing.** Overgrazing exposes soil and increases erosion.

5. **Protect the vegetation along the banks of ponds, streams and lakes** to help control erosion, provide food for aquatic life, and maintain cooler water temperatures necessary for some species of fish.

For More Information on Intake Protection Zones

Please contact your local Source Protection Region or Area:

Conservation ONTARIO
Natural Champions

120 Bayview Parkway, Box 11,
Newmarket,ON L3Y 4W3
Tel.: 905.895.0716
Fax: 905.895.0751
info@conservation-ontario.on.ca

DRINKING WATER SOURCE PROTECTION
ACT FOR CLEAN WATER

Ontario

www.conservation-ontario.on.ca

For more information on the Source Protection Program, please visit the Ministry of the Environment's website:
www.ene.gov.on.ca/en/water/cleanwater/sourceprotection.php

This project has received funding support from the Ontario Ministry of the Environment.
Such support does not indicate endorsement by the Ministry of the contents of the material.

November 2007