



Managing Water in Response to a Changing Climate in Southwest Nova Scotia: Water Conservation

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Water Conservation

What is the importance of water?

Water is perhaps the most important component of any ecosystem; all living organisms need water in order to survive – it is a basic necessity for life. In fact, the average adult human body is made up of 50-65% water (ThoughtCo., 2018). Apart from drinking water, people have many uses for water such as; cooking, washing clothes, personal hygiene, recreation (pools), plants, cleaning, farming, etc.

In an ecosystem, water cycles through the atmosphere, soil, rivers, lakes and oceans. Water helps to provide important nutrients for the plants in an ecosystem. Water is also beneficial to the ecosystem where it is absorbed by the soil and is held for later use for plants and animals, while providing a home for numerous species.



Image source:

<https://www.victoryhvac.com/blog/2015/02/whats-causing-low-water-pressure-troubleshooting-help-from-the-pros/>

Surface water is water on the surface of the planet such as in a river, lake, wetland, or ocean.

Groundwater is the water present beneath the Earth's surface in soil pore spaces and in the fractures of rock formations. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water. The depth at which soil pore spaces or fractures and voids in rock become completely saturated with water is called the water table. Groundwater is recharged from and eventually flows to the surface naturally. Wells draw on ground water as a drinking water source.

Atmospheric water is the result of evaporation and transpiration, which changes liquid water into vapor allowing it to ascend into the atmosphere due to rising air currents. Cooler temperatures allow the vapor to condense into clouds and strong winds move the clouds around the world until the water falls as precipitation.



The need for water conservation in Southwest Nova Scotia

Although we expect to see more precipitation as a result of climate change, there may be an even higher rate of evaporation due to warmer temperatures resulting in an overall decline in water levels. This may mean reduced water levels in surface waters (eg. lakes, ponds) and a lowered water table.

In the summer and fall of 2016, southwestern Nova Scotia (NS) experienced moderate to severe drought conditions, with data from provincial observation wells showing historical lows or below normal water levels (Kennedy, 2017). *“It is estimated that over 1000 private well users in southwestern NS experienced water shortages because of the drought, especially well users relying on dug wells for domestic water supply (Kennedy, 2017).”*

Prolonged summer drought conditions and changes in precipitation regimes may also create challenges for users that rely on surface water for their regular operations, such as farmers who use water for irrigation or livestock watering, plant nurseries or home gardeners.

Economic benefits of water conservation (Nova Scotia Environment)

- to save money on your water and sewer bills
- to save money on your power bills by using less energy to heat and pump water
- to make your home sewage disposal system last longer by not overloading it
- to delay or prevent the expansion of costly water and wastewater treatment plants which can save money on taxes

How can I conserve water?

Water conservation includes all the policies, strategies and activities to sustainably manage the freshwater resources, to protect the hydrosphere, and to meet the current and future human demand.

Physical water conservation measured involves the use of simple devices and technology that can be installed in your home, such as:

- Low flow faucet aerators
- Toilet displacers
- Low-flush toilets
- Rain barrels and cisterns



A dual-flush toilet is a variation of the flush toilet that uses two buttons or a handle mechanism to flush different amounts of water.

Image source:

<https://www.pinterest.ca/pin/213569207298999321/?lp=true>



Best Management Practices (BMPs)

Changes to everyday practices and behaviours play a critical role in meeting water conservation objectives.

Practices for outdoor water use:

- Don't water lawn and garden if rainfall has been sufficient
 - Established lawns only need about 2.5 cm/week, avoid overwatering
- Water early in the morning or in the evening to limit evaporation
- Situate sprinklers to avoid watering paved surfaces, only lawns and gardens
- Check hoses and sprinklers frequently for leaks
- Don't mow your lawn shorter than 6-8 cm as longer grass has more protection for roots and will retain water better
- Leave grass clippings when you mow as they return nitrogen to the soil and make for a healthier lawn
- Aerate lawn yearly to better allow for percolation of water into the soil
- Water plants with harvested rainwater from rain barrels
- Use mulch in your garden to protect against water evaporation and decrease frequency of watering
- Plant native plants that are adapted to the climate and require less water
- Manage storm water using a rain garden to filter runoff and aid in restoring groundwater
- Decrease stress on well by collecting water from your roof into a rain barrel and using it for irrigating lawn and garden
- Avoid using the hose to clean the driveway, sweep it instead
- When washing your car, use a bucket of soapy water to wash. Only use the hose for the last rinse or wash it while it's raining!
- Put a cover on your swimming pool to reduce evaporation

Practices for indoor water use (Nova Scotia Environment):

Toilets

- The toilet is the single biggest user of water. Replace a toilet that is older than 10 years with a new ultra-low-flush toilet and reduce water use by 15 - 20 per cent. Retrofit an older toilet to use less water with a specially designed flapper valve that closes more quickly, a dual-flush device, a toilet dam or a tank insert that displaces water. (Don't use a bare brick or rock as dissolved particles can clog pipes and septic's.).
- Follow an old ditty: "When it's yellow, let it mellow; when it's brown, flush it down." Repair toilet leaks promptly.



- Check for a leak by putting a few drops of food colouring in the tank. Without flushing, see if the food colouring moves from the tank into the bowl. If it does, you have a leak. Check for leaks around the base of the toilet and repair promptly.
- Ensure that the float ball is properly adjusted so the tank water level does not exceed the height of the overflow tube. Periodically examine whether the plunge ball and flapper valve in the tank are properly “seated” and replace parts when necessary.
- Consider replacing a water toilet with a composting toilet and reduce total water use by 30 per cent.

Showers

- Install low-flow shower heads or adjustable flow reducer devices, preferably with shut-off buttons, and save 25 per cent of shower water and about \$100 a year in heating costs.
- Short showers use less water than baths.
- Turn taps off snugly so they don’t drip. Promptly repair leaks.

Sinks

- Install an aerator and or a water flow-reducer attachment on your faucets.
- Turn taps off snugly so they don’t drip.
- Promptly repair leaks in and around your taps. (One leak can waste several thousand litres of water each year, enough to fill a swimming pool or stress out your leaching bed.)
- Use a partly filled sink rather than running water for shaving or washing hands.
- Turn off water between wetting your toothbrush and rinsing.

Kitchen sinks

- Put pipe wrap on basement hot water pipes so heated water arrives at your tap more quickly.
- When hand-washing dishes, don’t run water continuously.
- Wash dishes in a partly filled sink and rinse in a second partly filled sink or with the spray attachment.
- Wash fruits and vegetables in a partly filled sink, not under running water, and rinse quickly under the tap. In summer, wash dishes, fruits and vegetables in a basin and put this greywater on trees and bushes.
- In winter, try using used dishwater on house plants. Don’t store used water.



Dish washers

- Wash only full loads in the dishwasher, use the short or water/energy conserver cycle and let dishes dry on their own. (Following these practices can mean using less water than hand washing.)
- If replacing your washer, choose a high efficiency model

Refrigerator

- Keep a pitcher of chilled water in the fridge to avoid waiting for cold water to arrive at your tap.

Laundry

- Wash only full loads in the washing machine. Use suds-saver, short cycle and load size features. Promptly repair any leaks.
- Select a front-loading washer the next time you replace your machine. They generally use much less water than top-loading machines.
- Spread your laundry out over the week. Consider doing one load a day or two, instead of several loads on the same day.
- If replacing your washer, choose a high efficiency model.



Sources

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