Water conservation and efficiency

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You turn off the faucet while brushing your teeth. You take shorter showers. You’ve replaced your old toilet with a new WaterSense 1.28 gallon/flush model.

These are all good ways to conserve water but are only part of your water conservation opportunity. These practices focus on water demand as it relates to drawing from a water utility or private well. But water conservation and water use efficiency also include using rainwater for outdoor and indoor plant watering, and activities that protect or enhance groundwater supplies.

You may remember learning the water cycle in school: rain falls on the ground, it mostly soaks into the ground to become groundwater that slowly feeds rivers and springs, and some runs directly to fill rivers and lakes. Still more evaporates creating new clouds and more rain.

But when was the last time you thought about how we affect the water cycle with our choices about water use?

On the urban landscape, rain falls and either soaks into the ground or finds pavement and directly runs off into storm sewers, circumventing the benefits of groundwater infiltration such as water purification and replenishing the water table. To supply our drinking water, we withdraw groundwater that would otherwise be discharged to lakes and rivers. We then release this water to rivers downstream of the water’s origin, leaving the aquifers with less water.

With water conservation and water use efficiency we can:
- Decrease our water demand by using more efficient appliances or fixtures such as toilets, washing machines, dishwashers, showerheads and faucet aerators. We can eliminate or decrease water use indoors and outdoors without impacting our final goal (such as clean teeth, clean dishes, healthy and attractive lawns and garden plants). Reducing water demand saves us money in the long run through decreased water and energy bills and reduces our use of a water supply that is energy intensive and expensive to pump, treat and transport.
• Use alternate water supplies such as rainwater that we capture on our property through a rain barrel or other means. Captured rainwater can be used for watering garden plants and indoor house plants. This water is perfect for growing plants and decreases our use of water supplied by the utility or a private well.

• Decrease runoff to storm sewers and augment groundwater supplies by redirecting downspouts to lawns and gardens. This reduces water needs in those areas of the gardens and reduces water “lost” to storm sewers. Creating a rain garden contributes to groundwater recharge. Find out more in the how-to section of this article.

Why be efficient with water in Wisconsin?
There is an argument that suggests that because there is plenty of water in Wisconsin, we really don’t need to conserve water or use it more efficiently here. Often, in Wisconsin, we hear people say they understand why water conservation is important in the desert southwest, but it rains so much in Wisconsin and we have so much water with ample groundwater supplies, rivers, streams, and springs that we don’t need to worry about water conservation.

It is true that water is abundant in Wisconsin with two Great Lakes, 15,000 inland lakes, 32,000 miles of rivers and streams, 11,000 springs and enough groundwater to cover the state in about 100 feet of water. But this water is not evenly distributed across the state. Some communities struggle to provide an adequate supply of water to meet residents’ needs given the geology or other constraints in an area, or a rapidly increasing population.

Even in parts of the state where the water supply is ample, water conservation can reduce your water and energy bills and is part of a conservation ethic — to use only the water we need, to reduce the costs for treating and transporting water, and to keep more water available in the natural environment for fish, birds and other critters that make up some of what is special about Wisconsin.

What can I do?
There are lots of things you can do to conserve and use water efficiently. One important and fun area where you can conserve water is in your lawn and garden. Summer is a great time to assess your yard and see what your options are for using less water, while maintaining that which makes your yard special or important to you. Some changes can be made immediately to reduce your water use and maintain or improve the health of your lawn and garden. Other changes to use less water may require a little more planning and are best implemented over time. All of these options pay big dividends such as contributing to groundwater recharge and a beautiful yard that attracts and feeds butterflies and birds.

#1 Lawn watering: Lawn watering is optional. Some people choose to forgo watering established lawns and allow their lawns to go dormant during hot periods in the summer. Other people prefer to keep their lawn green. If you water your lawn, the following tips will protect your lawn and help you use water efficiently.

Water your lawn with one inch of water weekly. Too much water or watering too frequently can damage the grass roots or create shallow roots.

Water early in the morning. Your grass will get more of the irrigation water and less will be lost to evaporation. In addition, there is less demand for water in the morning, so you put less stress on the water supply system.

Cut your grass no shorter than two inches. Taller grass requires less water and results in less evaporation.

Check the weather. Most newspapers include information on the amount of rain in the past week and a forecast. No need to water if your area has had an inch of rain in the past week. If a rainstorm is forecasted for the next day or two, you can safely put off watering.

More tips on lawn watering including types of sprinklers or ways to water difficult areas are included in this UW-Extension fact sheet: cleanwater.uwex.edu/pubs/pdf/lawnwat.pdf

#2 Decrease your lawn area: Another way to reduce your water use for lawn irrigation is to reduce the amount of lawn you have.

Assess your lawn and decide where to convert lawn into garden beds.

Look for places that are difficult to mow or where adding some varied plants will enhance your yard’s visual appeal. Establishing circles around trees, borders along fences, houses, garages and paths are all good places to start.

Replace the lawn with drought tolerant plants that won’t need water after being established.

Keep your projects manageable by

Convert more yard area to garden beds.
starting with a small area and increase the area of planting beds over time. This can also save on bedding plant costs as you can move divided plants to new areas of your yard.

#3 Use native plants: Plants and shrubs native to Wisconsin come in beautiful varieties with choices to bloom throughout the season, adapted to varied soil types and light conditions and to Wisconsin’s weather. Correctly matched to soil and light needs, once established, native plants will survive wet weather and drought conditions alike. Determine the soil type, moisture and light conditions of the area you want to plant. Match plants to these characteristics. More information on planting with natives including sources of plants and a database of native plants and their characteristics is available online at dnr.wi.gov/runoff/rg/index.htm#plant_lists

Talk to your neighbors. Native plants, like most garden perennials, need to be divided over time, and often you can find a neighbor with plants they would like to share.

#4 Redirect and disconnect downspouts: Water conservation can focus on decreasing the demand for water supplies and protecting water supplies. In this case, redirecting your downspouts into your lawn or a garden, allows for some of that rainwater to infiltrate into the soil and eventually reach the water table. This practice keeps your water local and on your property as much as possible. This does not work for all situations such as if the downspout is keeping water out of your basement, but often the water can be redirected to flow into your lawn or garden with no detriment to your yard and a benefit to water supplies.

#5 Plant a rain garden: The next step after redirecting your downspout is to build a rain garden. A rain garden is a specialized garden that uses water typically captured from a roof, and allows the rain to slowly infiltrate into the ground, contributing to groundwater supplies and reducing stormwater runoff. Rain gardens promote water conservation by contributing to the supply of groundwater available, rather than reducing the water withdrawn. Rain gardens are planted with native plants adapted to the site that promote water infiltration and attract birds and butterflies. Rain gardens can allow 30 percent more water to soak into the ground and help make up for the loss of infiltration area due to houses, roads and other buildings. Rain gardens require some planning, but are worth the effort for the water conservation and other benefits. For more on rain gardens visit the DNR webpage at dnr.wi.gov/runoff/rg/

#6 Rain barrels: Installing a rain barrel connected to a downspout is a great way to create an additional water source. Rain barrel water can be used for outdoor and indoor non-edible plants. These barrels usually hold 50 gallons and fill quickly in a rainstorm. You can make your own or purchase one from a garden supply store. For more information visit dnr.wi.gov/runoff/rg/links.htm#barrels

What’s new? Wisconsin is home to many innovative organizations and businesses trying out new ways to conserve water or promote water conservation and water use efficiency for their customers. Here are a few interesting projects.

UW-Milwaukee Building Dashboards – In their efforts to reduce water and energy use, UW-Milwaukee installed Building Dashboards last fall. These dashboards project real time energy and water usage in three dormitories. UWM plans to install them in several more academic buildings. The
Dashboards are connected to water and electric meters that provide data for the Building Dashboard. The information also can be accessed through a simple webpage or a touch screen at the building entrance that shows trends in energy and water usage and allows dormitory residents to see the impact of their actions to conserve energy and water.

UWM participates in national competitions to encourage conservation in fun and innovative ways. While it is too soon to determine the water use reductions at UWM from the Dashboard project, during the most recent competition the top three schools reduced their water use by 10 to 15 percent.

Kaukauna and Fitchburg water utilities promote water conservation – Many public water utilities in Wisconsin promote water conservation and water use efficiency through programs they sponsor. The Kaukauna Utility and the Fitchburg Utility are two such examples with different approaches. In 2010, Kaukauna Water Utility started offering rebates from $10 to $200 on water-saving faucets, showerheads, toilets, dishwashers and clothes washers. The utility also has a $500 incentive for home-builders who meet the WaterSense new home standard and up to $1,000 incentive for industrial customers who install water-saving measures. For 2010 the utility provided 199 rebates and saw a 10 percent decrease in residential water use over the last four years, while the population has increased by three percent. Using another approach, in 2008 the City of Fitchburg increased its water rates by more than 80 percent for customers with separate irrigation meters to encourage water conservation for lawn watering. Lawn irrigation typically is the main contributor to peak water use in the summer. With more expensive water rates for irrigation the City of Fitchburg intends to reduce summertime water use peaks.

J. F. Ahern Company Rainwater System – J. F. Ahern Co. is a mechanical contractor company in Fond du Lac that upgraded in 2007 to a Leadership in Energy and Environmental Design or LEED Gold certified facility. One of the key innovations J. F. Ahern Co. included in the expanded facility was a rainwater system that collects and treats rainwater to use for flushing toilets and urinals. The system is capable of holding 20,000 gallons of water in a cistern below the building and turns stormwater into a resource for the building. J. F. Ahern Company could have expanded its water service to supply the building addition, but instead took a novel route that reduced the facility’s potable water demand by 61 percent. The J. F. Ahern Co. project is one of the 80 or so reuse projects around the state. It turns rainwater into a resource.

Wisconsin’s Water Conservation and Water Use Efficiency Program – Part of the Great Lakes Compact, an agreement between all of the Great Lakes states to protect water quantity in the Great Lakes, calls for Wisconsin to develop a statewide voluntary water conservation program. The Department of Natural Resources is leading this effort in partnership with the Public Service Commission and the Department of Commerce.

While water conservation efforts are not new to Wisconsin, this team of state agencies will build upon past successes to promote water conservation and efficiency in the state. One of the first steps was to develop program goals to understand water use, adopt policies to promote sustainable and efficient use of water, provide education, and encourage research and technology development. Two early projects of this program are the Water Conservation and Water Use Efficiency rule that identifies water conservation and water use efficiency measures by water use type and promoting Fix-a-Leak Week.

Want to learn more?
These resources can support your efforts to conserve water and increase your water use efficiency:

- Wisconsin Department of Natural Resources: dnr.wi.gov/org/water/dwg/wateruse.html
- EPA WaterSense: epa.gov/WaterSense
- Alliance for Water Efficiency: allianceforwaterefficiency.org

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