

WATER MODULE

What Is Sustainable Water Use?

How much water do you think you use every day? 20 gallons? 25 gallons? When you consider all of the water used to produce the food you eat, the coffee you drink, the clothes you wear and the products you buy, it is actually much more. Average daily residential water use is 100 gallons per person, but the daily per capita industrial water use in the United States is [over 2,000 gallons](#). That's enough water to fill a cement truck being used by every American, every day!

Likewise, the water footprint of your office is more than just the sum of toilet flushes. It includes the water used to heat and cool the building you work in, the water used to produce the electricity you consume, and the water used to manufacture the products you use. This module will focus more on direct water consumption and impacts, but it's important to keep the invisible, indirect uses of water in mind when you make decisions for your office.

Sustainable water use is widely divided into two categories: conserving water and protecting the quality of downstream waters. These are also the focus of Sustainable Carolina's net zero water use goal.

Conserving Water

Water can be saved through a variety of interventions. Structural interventions take two forms: purchasing or retrofitting appliances and water fixtures to use less water and converting to non-potable water where possible.

Sinks, showers, toilets, urinals, and even lab equipment can be changed so that they use water more efficiently, or a smaller amount to achieve the same purpose. Low-flow aerators for showers and sinks are low-cost additions that can have a big impact. These devices add air to the water stream making less water feel like more. Low-flow toilets and urinals also use less water and in the case of dual-flush toilets allow the user to choose how much water is necessary for the job. Switching to a dual-flush toilet could save 400 gallons of water per employee per year. In an office of ten, that's two cement trucks a year!

Non-potable water, such as harvested rainwater or reclaimed water, can serve a variety of uses and requires minimal additional treatment, saving drinking water and energy. This water can be used to flush toilets, irrigate athletic fields or landscapes, and as make up water in the chiller systems that keep buildings cool.

UNC has an amazing, reclaimed water system that brings treated wastewater back to campus for use as make up water in our cooling towers. This system saves more than one million gallons of potable water a day during the heat of the summer. We also collect rain across campus in underground cisterns. After

some treatment, this harvested rainwater irrigates athletic fields and flushes toilets in some newer buildings. Read more about these systems at <https://sustainable.unc.edu>.

Behavioral interventions include “Turn Off the Tap” and reminders to report leaks. While they may seem like small steps, they add up over time and by employee.

Preserving Water Quality

Protecting downstream water is vital to the health of the environment and our communities. If pollutant concentrations in run-off are too high, they may harm wildlife, inhibit recreation, or increase the costs of drinking water treatment. Common stormwater pollutants include oils and grease, metals, nitrogen and phosphorous, sediment, chemicals, cigarette butts, and bacteria.

Groundwater faces similar risks and is also affected by our actions. Impermeable surfaces prevent groundwater recharge and groundwater may become polluted if it travels through soils contaminated with oil or chemicals.

UNC employs a variety of strategies to manage stormwater in our effort to be a good environmental steward and neighbor, from labeling storm drains to limiting runoff and encouraging groundwater recharge with permeable surfaces and green roofs. Look for these sustainable features across campus and read about them at <https://ehs.unc.edu/stormwater/>.

Why is Water an Important Topic at UNC?

After major droughts in 2003 and 2008 highlighted campus’ vulnerability to water shortages and raised concerns about our impact on the region, UNC invested in many innovative water management strategies. By 2020, potable water use per square foot had fallen 67% since 2003. Carolina already uses less water than what falls on the surface of the campus as rain.

We are not stopping there, though. Water conservation and preservation will remain important topics as we are still responsible for using over 316 million gallons of potable/drinking water each year. That’s enough to fill almost 500 Olympic sized swimming pools!

The rainwater that falls on campus flows into six creeks that are part of the Haw River watershed and eventually ends up in Jordan Lake, which supplies drinking water to the residents of Cary, Apex, and Durham. Nutrient loading in Jordan Lake is a long-standing problem and UNC is one of the few regional entities that is in compliance with its discharge limits. When we release fewer stormwater pollutants and nutrients, we improve water quality and access for hundreds of thousands of North Carolinians all the way down to the mouth of the Cape Fear River in Wilmington.

How Can My Office Support Sustainable Water Use?

Your office has an important role to play in the future of sustainable water use on campus. You can help us achieve our Sustainable Carolina net zero water use goal by using less water and protecting the quality of downstream water. The tips below make it easy to contribute!

Key Water Conservation and Preservation Tips:

- 1) Only turn the water on when you need it. Turn it off as soon as possible.
- 2) Make sure to report all leaks immediately.
- 3) Only liquid down the drain, never food, oil, or grease (FOG), medicine, or chemicals.
- 4) Use the right amount of water for the job, whether it be watering plants or soaking dishes.
- 5) Only rain down the storm drain.
- 6) No paper, except for toilet paper, into the sanitary sewer.
- 7) Opt for permeable surfaces and take steps to control erosion.

This list is by no means comprehensive, but it highlights key ideas we hope you consider when making decisions for your office.

Green Office Tasks

To green your office and complete the Water module:

1. Prepare to be a resource.
2. Complete 8 out of 16 water tasks.
3. You Pick! Develop a Community Based Social Marketing (CBSM) Campaign or Take a Campus Sustainability Tour.

Water Tasks

Complete 8 out of the 16 tasks below!

Task	Resources	Check
Ensure that all employees know to report water leaks promptly and how to do so by addressing it at a staff meeting.	Report a Leak 919-962-3456	
Post reminders to conserve water.	Turn Off The Tap Sign	
Check that all applicable faucets have aerators installed and if they are missing,	Campus Building Repair Request	

submit a "Repair" request.		
If your office has a dishwasher, post a flyer near it reminding office mates to run full loads whenever possible.	Dishwasher Sign	
If your office has a shower, confirm showerhead is low flow type using 2.5 gallons per minute (gpm) or less. Obtain shower timer and limit shower times to 5 minutes or less. Consider use of ultralow showerhead using 1.5 gpm or less. *	Energy Management	
Place covers on the drains in your office kitchen sink to keep large food particles from washing down the drain. *	Example to Buy	
Hang up a poster showing what not to put down the sink.	Don't Pour Down the Sink	
Hang up a poster showing what not to flush down the toilet.	Don't Flush Sign	
Host an office stream clean-up or storm drain marking event.	EHS Public Involvement	
Complete Stormwater Awareness Training through Environment, Health and Safety. At the beginning of the test, you will be given the option to copy an additional person on the confirmation. Make this Cindy Shea at cpshea@fac.unc.edu to receive credit.	Stormwater Awareness Training	
Complete a stormwater drain audit for your office building, checking that the stormwater drains are labelled and clear of debris.	EHS Public Involvement	

Ask EHS to give a stormwater management training at one of your staff meetings.	EHS Public Education & Outreach	
Provide employees with information on possible stormwater contaminants and who to contact about concerns. Look out for soap suds, unusually colored waters, and odd odors.	Environment, Health and Safety Report a Problem	
Properly maintain your departmental vehicles to prevent oil and gas leaks that could contaminate stormwater.	Fleet Services Service Station	
Take a Campus Sustainability Tour to learn about water management and other high-performance features.	Campus Sustainability Tour Contact	
Wildcard: Have an idea for another task not listed? Reach out to Sustainable Carolina's Green Office Program to see if it will work!	Sustainable Carolina Contact	
TOTAL		

*These projects may come at some cost to your office. Be sure and approve them with the necessary people before undertaking them. As always, do not hesitate to reach out if you have any questions about completing a task.

Community Based Social Marketing

Identify an ongoing water challenge in your office (Seed). Develop a plan to address the challenge (Sprout). Implement a campaign designed to address the challenge (Sapling). Evaluate and assess your next steps (Tree).

[Link to CBSM Word Document](#)

[Link to CBSM Worksheet PDF](#)

Schedule a Tour

Learn how UNC already conserves water and preserves downstream water quality by taking a tour of the many campus sustainability features. Stops include FedEx Global Education Center, Bell Tower Amphitheater, and Rams Head Plaza. Another option is the Battle Grove Stormwater Restoration site.

Reach out to Sustainable Carolina to schedule a tour for your group. Must have half of the staff members or at least 10 people present to fulfill this requirement.

Interested in a different tour related to water at UNC? Just let us know and we will be happy to give you credit for it. Possible options include OWASA's water treatment facility or wastewater treatment plant.

Resources & Contacts

[Sustainable Carolina | Green Office Program](#)

Cindy Shea | greenoffice@unc.edu

[Report a Leak](#) | 919-962-3456

[Energy Management](#)

919-962-4467 | save-energy@unc.edu

[Environment, Health and Safety](#) | 919-962-5507

[Stormwater Management](#) | stormwater@ehs.unc.edu

[Fleet Services Service Station](#) | 919-966-2967

Alice Moore | alice.moore@facilities.unc.edu

[Orange Water and Sewer Authority](#) | 919-537-4343