



STORMWATER steward

A Stormwater SMART publication

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at a
glance

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BUFFERS FOR THE BEES

ECONOMIC IMPACT OF
BEES

NC DRIP

GET INVOLVED:
TAKE PICTURES OF
TURTLES

UPCOMING EVENTS



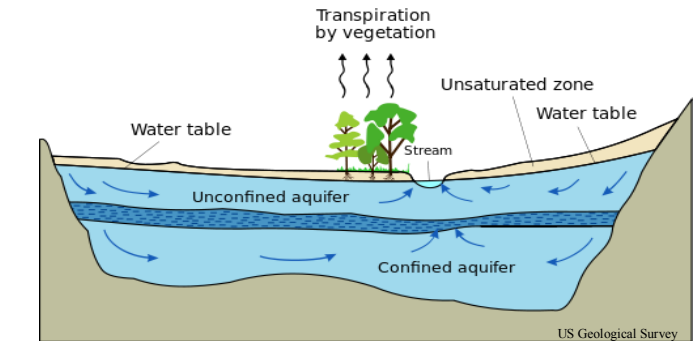
PIEDMONT TRIAD
REGIONAL COUNCIL

RUNNING OUT OF WATER

Aquifers at Risk:

Many of the world's biggest sources of drinking water are disappearing. An aquifer is underground soil or rock that water can easily move through. Groundwater is stored in aquifers. According to safewater.org, 97% of the world's liquid fresh water is stored in aquifers. In North Carolina, over half of our drinking water comes from groundwater.

In some places of the world, it may take thousands of years for aquifers to be re-filled. Because of this, it is possible for people to remove ground water faster than it can be replaced. The rate of groundwater renewal depends on the amount of rain, soil type, landscape type and slope and other factors. In the fall in North Carolina, groundwater levels rise and fall during and



after rain. Groundwater levels are higher in late winter and early spring because of slower evaporation. Reduction of groundwater is becoming a very troubling issue for North Carolina, particularly the Eastern part of the state. As groundwater is removed from the aquifers, the space is being filled by salt water from the ocean in a process called saltwater intrusion.

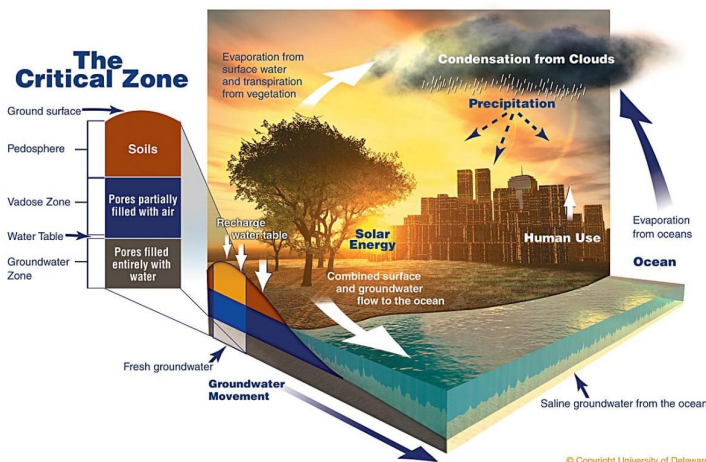
Connected to our Rivers: Increasing our groundwater helps the rivers have more water in times of less rain.

Between rain storms most of the water in the river is water that has bubbled up from a spring or seeped into the river from the groundwater. Having more water in the river also helps the life in the water survive in times of drought.

Keeping Aquifers Full:

There are several ways people can reduce their water use around their home and help to keep water in our aquifers:

- Install a water efficient showerhead.
- Turn off the tap when you brush your teeth.
- Regularly check your home for leaks.
- Only run your dishwasher and washing machine when you have a full load.
- Let the water from your gutter downspout water your yard and soak into the soil.
- Aerate your lawn.



View the [Washington Post Article](#) for more information.

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Did you Know?

1 out of 3 bites of food we take is made possible by honey bee pollination.



35% of crop production worldwide require insect pollination which is usually bees.



There are seven species of honey bees.



More than 85% of flowering plants require an animal, mostly insects to move pollen.



Household brands of pesticides often recommend application rates that are 100x higher than pesticide concentrations recommended for agricultural fields.

RUNOFF RUNDOWN: BUFFERS FOR THE BEES

Bees for Food: The world is seeing a decrease in the numbers of honey bees. Honey bees are very important to American agriculture, as they pollinate and help scatter the seeds and pollen of plants, which is important for plant growth and reproduction.

Buffers: Our streams and rivers connect communities throughout NC together and can in turn connect wildlife such as bees. Making sure plants like trees, wildflowers and shrubs are growing along the stream will give the bees food and shelter as



Apple blossom image from: Xerces.org

they travel to our fields.

Colony Collapse Disorder

Disorder: One cause of decrease in honey bees is called Colony Collapse Disorder, which is when a colony has no living adult bees, but has a live queen and young bees. There is no known cause of Colony Collapse Disorder. The disorder is so severe that President Obama established a national Pollinator Health Task Force last year in order to address it.

Pesticides: Pesticides, or chemicals designed to kill bugs, do not tell the “good” insects from the “bad” insects and can hurt the bees that we need to grow our food. A group of pesticides known as neonicotinoids, are a danger to bees. While these chemicals have been banned in



Europe, they are still used on a large scale in the United States. The Environmental Protection Agency, also known as the EPA, is currently studying the use of neonicotinoids pesticides.

Reducing the amount of pesticides we use can help the bees and keep the pesticide chemicals from blowing or washing into our rivers, streams and lakes.

To find out more about bees and pollinators visit: www.xerces.org/

ECONOMIC IMPACT OF BEES



Cucurbit blossom image from: Xerces Society

Can you imagine a world without pumpkins to carve for Halloween or apples to eat? That would be the world without bees. Many crops that are economically important require bees and other insects for pollination. Examples include:

- Blueberries \$66 million
- Strawberries \$27 million
- Apples \$27 million
- Cucurbits (including cucumbers, squash, pumpkins and watermelon) \$10 million

Not all of our crops require bees to be pollinated but many produce more with their help. Examples of increased yield with cross-pollination include:

- Soybeans \$469 million
- Cotton \$451 million
- Tomatoes \$53 million

NC DRIP



Drinking Water Resilience Interactive Project

Thanks to technology, people have access to more information than they have in the past. Drinking Water Resilience Project (DRIP) is an interactive resource for students, teachers, and citizens. If you want to learn more about where your water comes from and the life that lives in the water, this resource is right for you. The website features videos, maps, pictures and learning modules, or lessons.

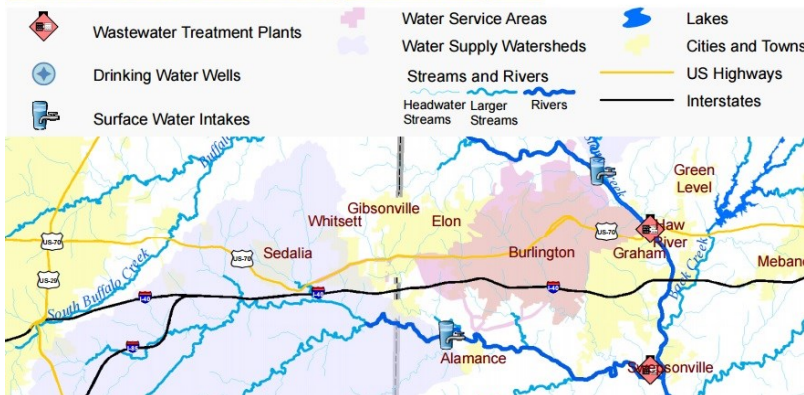
matter such as leaves that collect in the streams. The River Basin View module (below) looks at how our drinking water system is affected by water



drip.unctv.org

movement from the headwaters to the ocean. Lastly, The Urban View module aims to show how our drinking water system can be positively affected by smart city planning that ensures there is water for a growing population.

Water Service Area: City of Burlington



To Learn more about our drinking water, our rivers and our creek life through technological interaction, visit drip.unctv.org

If you are interested in combining technological exploration of rivers with hands-on real life exploration of creeks, contact Stormwater SMART. Stormwater SMART routinely leads classes, scout troops and other groups through FREE programs that introduce creek life and determines how clean

the water is based on the life that is found. Dip your net into the water and turn over rocks to find out more about the bugs or macroinvertebrates that are essential for the food web of the creek. To schedule a program with Stormwater SMART email stormwatersmart@ptrc.org or call 336-904-0300.

One feature of the project is called Map Your Water Supply (above). This feature allows you to learn about the local water supply in your county or city by seeing where the water comes from. The maps also show the location of streams, rivers, wastewater treatment plants, and drinking water wells in your area.

Another feature of the project is the learning modules. There are four learning modules. The Micro View module focuses on how our drinking water system is positively affected by slime that helps keep the nutrient levels in balance. The Macro Community module looks at how our drinking water system is positively affected by aquatic insects that help break down organic



Davidson County
 Randolph County
 Rockingham County
 Archdale
 Asheboro
 Burlington
 Elon
 Gibsonville
 Graham
 Green Level
 Haw River
 Lexington
 Mebane
 Oak Ridge
 Summerfield
 Randleman
 Reidsville
 Thomasville
 Trinity



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www.stormwatersmart.org



PIEDMONT TRIAD
 REGIONAL COUNCIL

GET INVOLVED: TAKE PICTURES OF TURTLES

THE BOX TURTLE



The Box Turtle Connection is a long-term study of Box Turtles in North Carolina through the University of North Carolina at Greensboro.

The purpose of the study is to learn about Box Turtle populations, identify threats, and create strategies to prevent the endangerment and extinction of Box Turtles.

The Box Turtle, North Carolina's State Reptile, is considered to be in serious decline across its range. The North Carolina Wildlife Resource Commission identifies Box Turtles as a Priority Species in North Carolina. They are considered Threatened by the IUCN Red list. Box Turtles have a similar life span to humans. However, they are not living as long as they once did due to road mortality and habitat loss. In addition,

when found on roads, well-meaning people move or relocate them, which can be dangerous for the turtle, rather than simply placing them on the side of the road where they were headed.

The Box Turtle Connection is a citizen-science project that relies on citizens to help collect data. If you find a turtle near your home, you can report it to the Herp Mapper (www.herpmapper.org). Your report must include a photo of the top and bottom of the shell.

To learn more about The Box Turtle Connection, visit: boxturtle.uncg.edu



LOOK FOR STORMWATER SMART AT A EVENT NEAR YOU.

- 10/17/15—Fall Jubilee; Reidsville
- 10/24/15—Lexington BBQ Festival
- 10/24/15—NASCAR Days; Randleman



Stormwater SMART was created by the Piedmont Triad Regional Council (formerly Piedmont Triad Council of Governments) to help Phase II communities comply with National Pollution Discharge Elimination System (NPDES) and Jordan Lake Public Education and Outreach requirements. Stormwater SMART is supported through dues paid by member governments.