



# STORMWATER steward

A Stormwater SMART publication

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*at a  
glance*

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## Welcome to the New Look of Stormwater SMART

Stormwater SMART is excited to announce we are getting a facelift. The new logo reminds us of the impact upstream neighbors can have on water quality downstream. Whether we live in an urban or rural environment, all activities including development, construction, landscaping, forestry, and agricultural practices can affect the health of our watershed.

While flooding and property damage might be the most dramatic consequences of stormwater runoff, there are other impacts. Stormwater pollution also causes stream or lake impairment, meaning it can no longer support its uses. In other words, it is too dirty for fishing, swimming, or drinking. The more pollution going into the water, the more money we must spend to remove it. When it comes to drinking water, we don't have a choice. Think of all

the great stuff we could do with our money if we didn't have to pay for clean water!

All the pollutants sitting on impervious surfaces in our urban areas eventually find their way into nearby streams, rivers, and lakes through municipal separate storm sewer systems (MS4s). Impervious surface areas include rooftops, roads, sidewalks, parking lots, and compacted soil. A common misconception is that stormwater eventually finds its way into a sewage treatment plant. This is not true. Stormwater is rarely treated.

Every time it rains, the flowing water carries salt, sand, soil, pesticides, fertilizers, leaves and grass clippings, oil, litter, and many other pollutants into nearby waterways. Since these pollutants are washed off countless surfaces, their origin cannot be traced to a single



source. This is called nonpoint source pollution or stormwater runoff.

The more people we can get to understand the impact stormwater runoff has on our waterbodies, the closer we are to restoring them to a healthier status. You've heard the old saying, "It takes a village to raise a child." Well, it also takes a village to save a watershed. Check out our website or call your local Stormwater SMART Outreach and Education Coordinator to schedule a presentation for your civic group!

## Stormwater SMART Launches New Website

In January 2009, Stormwater SMART will be launching a new and improved website. This website is designed to provide citizens with the information they need to reduce their impact on our waterways.

The website provides detailed information about why stormwater runoff is a problem and what you can do about it. For example, did

you trees, shrubs, and ground cover absorb up to 14 times more rainwater than a grass lawn and doesn't require fertilizer?

The website also provides viewers with the opportunity to participate in programs like NC StreamWatch, an Adopt-a-Stream program allowing you to keep track of the health in your own backyard. This and many other pro-

grams are available to Stormwater SMART communities to help citizens connect and understand their local watershed.

The website is only the tip of the iceberg. There is a tremendous amount of research being done on stormwater management. Check out the links page to find out what organizations across the country are working on.



**Curbing Stormwater Runoff Requires:**

- Slowing down the flow of water decreasing its ability to cause erosion and carry pollutants.
- Reducing the amount of runoff by providing plenty of permeable surfaces for water to soak into.
- Preventing pollution by reducing the use of toxic and hazardous materials and ensuring leftovers are properly disposed of.
- Removing pollutions through the use of Best Management Practices (BMPs) including bioretention cells, wetlands, buffers, and other treatment devices.

**The Runoff Rundown: The Dog Poop Scoop**

Bacteria is a naturally occurring organism in our waterways. However, too much bacteria can threaten human and animal health. Animal waste is growing more and more common in urban areas. While forested areas provide plenty of permeable surfaces which filter bacteria from wildlife waste, urban areas have high levels of impermeable surfaces. As a result, stormwater is likely to pick up excess waste and deposit it into our local waterways.

Think about the cumulative impacts of dog poop. One dog may not seem like it could have a dramatic effect on local waterbodies, but consider how much pet waste is produced by your neighborhood, your city, your county, or your watershed. Pet waste is one of many smaller sources of pollution that can add up to a big problem. Remember, just because you don't live on the water doesn't mean your actions don't affect it. Everything left on an impervious surface eventually finds its way into the watershed. What's the result? Too much poop in our water!



While bacteria is one of the largest problems associated with pet waste, other problems occur as well. When waste decays, it uses up oxygen. Just like us, fish and other aquatic organisms need oxygen to survive. As pet waste decays, it can lead to low oxygen levels and may sometimes release ammonia. Ammonia, low oxygen levels, and warm temperatures can result in fish kills.

Pet waste also contains nutrients. Although nutrients can be beneficial, it's easy to have too much of a good thing. High nutrient levels can encourage weeds and algae to

grow. This water is usually cloudy and green making it unappealing to swimmers, boaters, and fishermen. Some types of algae may even produce poisonous toxins which can be dangerous to humans and animals.



Your neighbors and your neighborhood streams will appreciate clean streets.

**What Can You Do?**

**1. Flush it!**

Toilet water goes to a septic system or sewage plant where it is treated before being released back into the water. Just make sure you



don't flush any additional debris so you don't clog your plumbing!

**2. Bury it!**

Burying your pet waste at least five inches deep will allow the microorganisms to break down waste and release nutrients, fertilizing nearby plants. Just



make sure you keep pet waste away from vegetable gardens and waterbodies!

**3. Trash it!**

The most common solution for dealing with pet waste is to trash it. Many towns have pet waste stations providing plastic bags, garbage cans for disposal,



and signs informing people of the risk pet waste poses to our health.

## Middle School Mayhem

This fall, Stormwater SMART worked with almost 1,000 middle school students in the Triad. The presentation entitled, "There is No Point to this Pollution" is a takeoff from an activity in "Healthy Water, Healthy People," an innovative water education program sponsored by Project WET. Stormwater runoff is required for 8th graders under the NC Standard Course of Study.

The program ran about an hour and began with a PowerPoint presentation about the effects of stormwater runoff. Students learned why flash flooding occurs, differences between permeable and impermeable surfaces, effects of erosion, how drinking water is affected, and the economic impacts of all these factors. We also looked at various methods scientists use to determine the health of a stream and what we could do as citizens to restore and preserve the health of our waterbodies.

Following the PowerPoint, students watch a demonstration using the Enviro-scape®, a popular environmental education device that represents a mini watershed. Kool-Aid® powder is used as fertilizers and pesticides, making vivid green and red streams run through the storm drains and into the lake. Hot chocolate is used as sediment and parking lots covered in vegetable oil demonstrates how everything we do impacts our streams, rivers, and lakes.

The demonstration makes a powerful impact. At the beginning of the presentation, the lake represents a place students spend their summer days. The crystal clear water is a great place for swimming and fishing and safe for drinking. As the presentation moves on, the students reconsider spending their summer at the lake. By the end of the presentation, the lake is overflowing with fertilizers, pesticides, motor oil, and sediment. We go back to each area the



Students at Southwest Middle in High Point

pollution originated in and discuss options for reducing the amount of pollution.

For the final part of the program, students become scientists to determine whether a new factory is polluting their city lake. Using topographic maps and scientific data, students draw a conclusion about whose to blame. So what's the answer?

**THERE IS NO POINT TO THIS POLLUTION!**

**Did you know that stormwater runoff is North Carolina's biggest source of water pollution?**

## Why Environmental Education?

Nobody denies environmental education is important, but how important is it? Is information gathered from school, media, friends, family, and other experiences enough to keep us environmentally literate? Unfortunately not. A study published by the National Environmental Education and Training Foundation and the Roper Institute indicates most of us believe we know more than we actually do.

The average American adult fails to grasp simple aspects of environmental

science such as runoff pollution and water flow patterns. Even when general theories are understood, it's often not enough to change behaviors. Our environmental responsibilities are going to increase tremendously in the next few years, making the need to act today even more imperative. No longer will we be able to rely on skilled experts to handle our environmental needs. Community leaders, individuals, government organizations and nonprofits are going to have to take action. Educational strate-

gies that give the learner a sense of involvement and ownership is a necessary step to achieving pro-environment behavior.

Take advantage of an infinite number of resources available to those of us who are ready to step up to the plate! For more information on environmental literacy, check out "Environmental Literacy in America" at

<http://www.neefusa.org/pdf/ELR2005.pdf>



**Project WET is a popular water education curriculum used by environmental educators.**

Davidson County  
Randolph County  
Archdale  
Asheboro  
Burlington  
Elon  
Gibsonville  
Graham  
Green Level  
Haw River  
High Point  
Lexington  
Mebane  
Summerfield  
Randleman  
Thomasville  
Trinity



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PIEDMONT TRIAD  
COUNCIL OF GOVERNMENTS

## Get Involved!

Most people don't realize the water running down the streets and disappearing into storm drains goes untreated. Every year hazardous chemicals, paints, pesticides, antifreeze and used motor oil are poured down our storm drains. Just think, One quart of motor oil can contaminate 250,000 gallons of water and create an oil slick the size of two football fields. These materials affect fish, wildlife, and recreational opportunities.

You can help clean up our waterways by installing markers next to the storm drains in your neighborhood. Storm drain markers will help members of your community realize nothing but rain water should go into the storm drain.



For more information, or to order storm drain markers for your community, please contact [Ltrosper@ptcog.org](mailto:Ltrosper@ptcog.org) or visit our website at [www.stormwatersmart.org](http://www.stormwatersmart.org)

## Address:

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