

Winter/Spring 2020 Edition

# STORMWATER STEWARD



2020 Creek Heroes Contest is now open!  
ALL AGES!  
SEE PAGE 10!



**TAKE A PEEK AT WHAT'S INSIDE... THERE'S SOMETHING FOR EVERYONE!**



**STORMWATER SMART**

Stormwater Steward is a publication of Stormwater SMART, an educational program funded by local governments in the Triad.

Our goal is to help people of all ages understand how pollution enters the creeks and streams in our community. Nonpoint source pollution, also known as stormwater runoff, is the number one source of impaired waters in our region. When it rains, stormwater runs along paved surfaces and collects trash, dirt, oil, and other pollutants and carries them to the nearest waterway through the storm drain system. That's why we say, "Only rain down the storm drain!" You'll find us in classrooms, libraries, camps, meetings, parks -- anywhere people gather to learn about and enjoy the outdoors. Maybe we'll see YOU sometime soon!

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# WHAT CAN YOU DO?

BY STEPHEN PETERS

Many people think that storm drains lead to local wastewater treatment plants; this is a common misconception. While water used in households is transported to wastewater plants to be treated and then used again, water that runs down our storm drains is deposited directly into local waterways. Stormwater picks up and carries numerous pollutants into our streams, rivers, wetlands, and oceans. Many of these pollutants can cause problems even in small amounts. We all play a role in keeping our waters clean!



## Here are a few things YOU can do!

**Pick up litter**

**Scoop POOP!**

**Mulch yard waste**

**Dispose of household chemicals correctly**

**Don't spray if rain's on the way!**



**Wash vehicles on the lawn**



**Stephen**



**Maddie**



**Danica**

## MEET THE STAFF

Stephen Peters is our newest staff member! Stephen grew up on the Outer Banks of North Carolina in Kill Devil Hills. Living only 200 ft from the ocean, he grew to love the outdoors and the beauty of nature we have all around us. Stephen attended Wake Forest University where he graduated Cum Laude with a degree in Biology and a minor in Environmental Studies. Following his love for the environment, Stephen applied for the Environmental Educator Americorps position with PTRC's Stormwater SMART program so that he could help educate the next generation of environmental stewards. Stephen joins Madison LaMuraglia and Danica Heflin on the Environmental Education Team. For more information on how you can schedule a (FREE!) session with our Stormwater SMART educators, see the back page of the newsletter.



## SHOUT OUTS: GOING GREEN!



A relatively new area of storm-water management comes in the form of green infrastructure. Green infrastructure is the interconnected network of open spaces and natural areas – greenways, wetlands, parks, forest preserves, and native plant vegetation – that naturally manages stormwater, reduces the risk of floods, captures pollution, and improves water quality. In cities and other urbanized areas, that network can be extended by means of rain gardens, green roofs, tree planting, permeable pavement, and other landscape-based drainage features. They restore, protect, and mimic natural hydrologic functions within the built environment.

SOURCES: WISE, STEVE. "GREEN INFRASTRUCTURE RISING". APA. AUGUST 2019.

Green infrastructure usually costs less to install and maintain when compared to conventional "gray" forms of water infrastructure that rely on concrete gutters, sewers, and end-of-pipe treatment.



This kind of Low Impact Development (LID) also fosters community cohesiveness by engaging residents in planning, planting, and maintaining highly visible stormwater infrastructure that beautifies and adds value to neighborhoods. Projects can include rain gardens, buffer zones, and rain barrels, all of which can be implemented by community volunteers.

An example of green infrastructure can be found in Kernersville at the Paul J. Ciener Botanical Gardens where the parking lot (pictured below) has been paved with permeable pavement. The permeable pavement acts like a sieve, allowing rainwater to move through the pavement and be absorbed by the ground. This is a much better alternative to stormwater running off into a storm drain and eventually making its way to surrounding water sources.





## SHOUT OUTS: BURLINGTON

Our members are doing a fantastic job incorporating green infrastructure in order to lessen the impact of stormwater runoff in their local streams and creeks.



With the help of NC State University (NCSU), the City of Burlington will install two Stormwater Control Measure (SCM) retrofits in the city. We reached out to Amy Cameron, Stormwater Manager with the City, for some more information on these projects. First up: STREET TREES! "NCSU received grant funding from the State of North Carolina Clean Water Management Trust Fund to install a stormwater-treating street tree project on Maple Avenue in Burlington," says Ms. Cameron.



Street trees don't just add beauty to the city, they provide environmental benefits such as mitigation of the urban heat island effect and improved air quality. They have shown initial promise in treating runoff from streets; however, a substantial volume of water that bypasses during high intensity rain events could flood the trees.

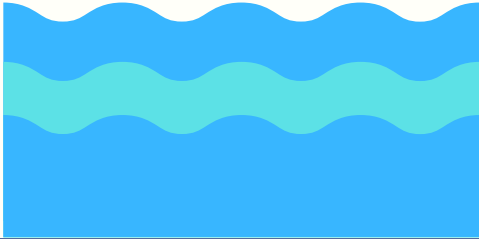
**A schematic showing how the street tree will work is shown on Page 5.**

"For this reason," Ms. Cameron explains, "this project will provide pretreatment to runoff with permeable concrete curbing so more runoff enters the street tree treatment system, providing detention and infiltration to remove pollutants and reduce peak runoff rates in highly impervious areas."

Due to minimal monitoring of this type of SCM in the Piedmont region, NCSU will monitor efficacy for 1 year.

The City will also be adding a bio-retention basin at the City of Burlington Splash Pad! The project is being funded by a 319 Grant received by NCSU. Ms. Cameron explains, "The basin is being installed adjacent to Little Alamance Creek to reduce the amount of runoff from the parking lot and Splash Pad building, as well as decrease pollutants through infiltration before entering the stream."

You can learn more about stormwater management in Burlington, including upcoming events and volunteer opportunities, by contacting Amy Cameron or Carolyn Buckner in the Stormwater Division of the Water Resources Department at (336) 222-5091 or [stormwater@burlingtonnc.gov](mailto:stormwater@burlingtonnc.gov).



## STORMWATER VOCABULARY

**Catch basin:** a curbside opening that collects stormwater from streets and serves as an entry point into the storm drain system

**Conveyance:** The process of moving water from one place to another

**Infiltration:** The process of water moving down through the soil from the soil surface

**Pervious /porous pavement:** Any surface or groundcover that allows water to infiltrate

**SCM or Stormwater Control Measure:** Physical structures requiring engineering design to remove pollutants from stormwater runoff

**Underdrain:** a concealed drain with openings through which the water enters when the water table reaches the level of the drain

This schematic shows the City of Burlington’s street tree from above. The design allows for the maximum amount of infiltration by rain water. The permeable pavement drains water and redirects it to a catchbasin where the tree can absorb the water and grow.



## STREET TREE IN BURLINGTON, NC



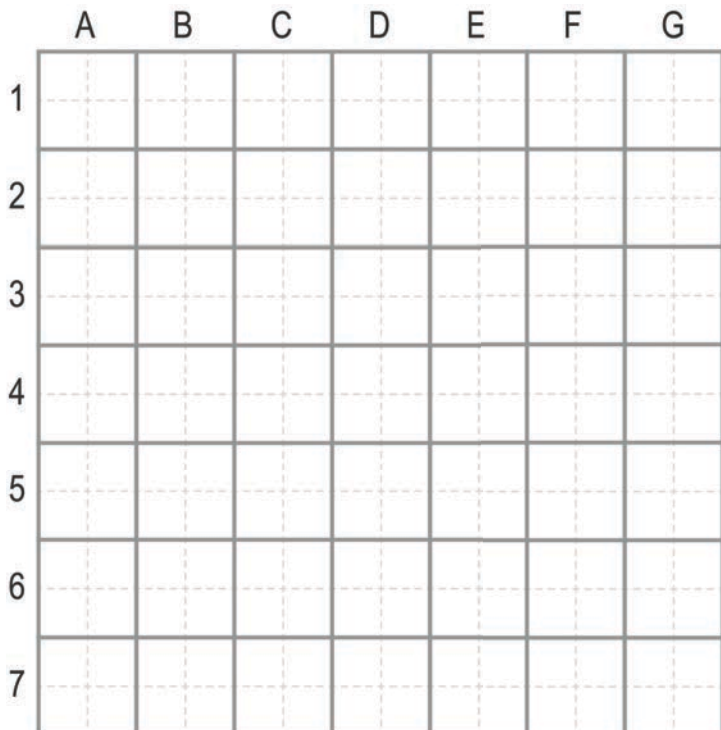
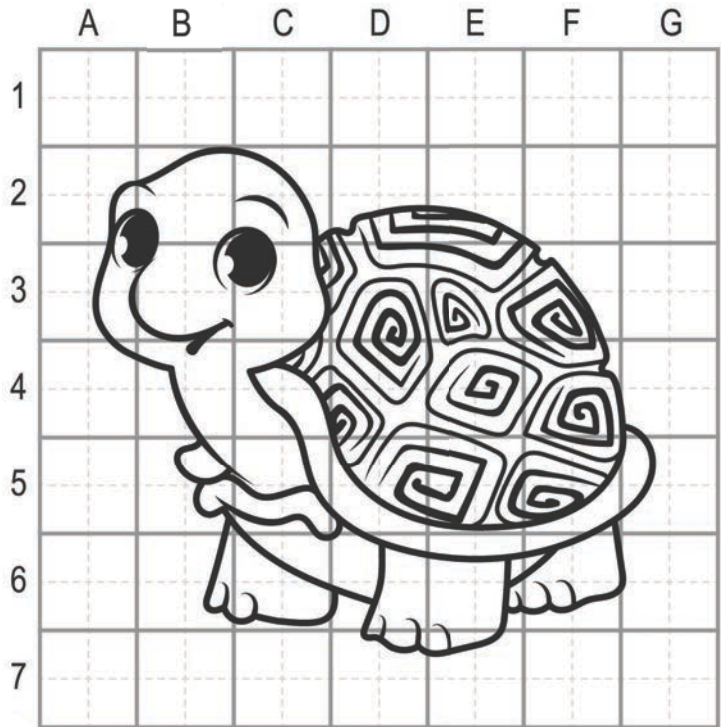
## MEET FRED!

Fred Rogers is a Southern Painted turtle who lives in Greensboro and likes to come along with us to some of our programs in the Triad. Fred is about the size of an Oreo cookie, but in a few years he will be closer to six inches long!

When Fred is grown, will he be smaller than or larger than your hand?

Fred is not native to North Carolina, but he is close relatives with the Northern Painted turtles that live here. When they are young, painted turtles feed mainly on plants and small animals, such as fish, worms, and aquatic insects. All of those creatures need clean water to live and grow. A healthy stream means turtles like Fred can live a long and healthy life!

Have some fun with Fred! Draw a turtle using the grid below!

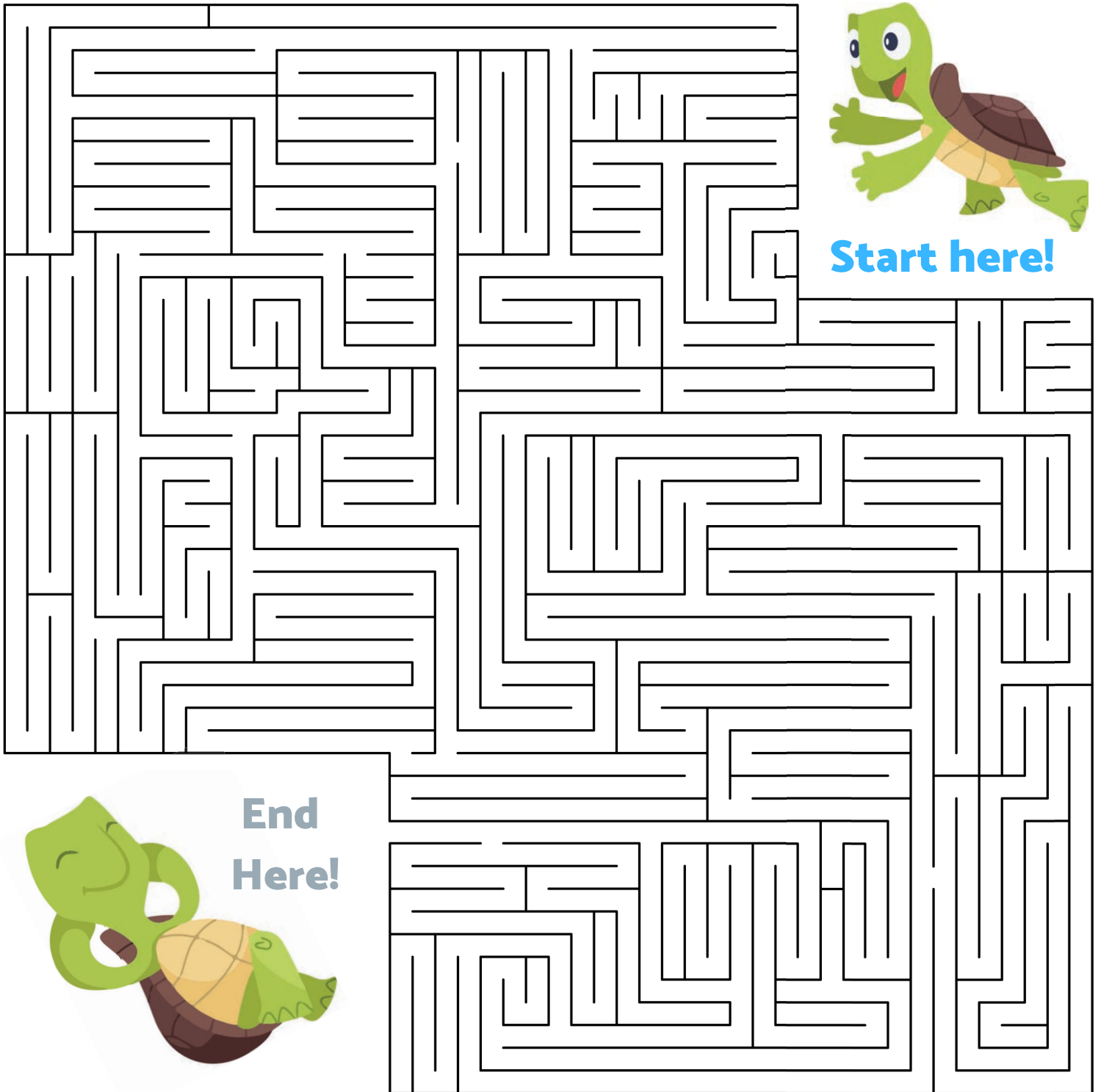




**A-MAZE-ING FACT!** If everyone disposed of cigarette butts in the garbage, we would eliminate the number one source of trash in our world's oceans! Proper disposal of cigarettes saves turtles and other animals who mistake them for food!



**Start here!**



**End Here!**



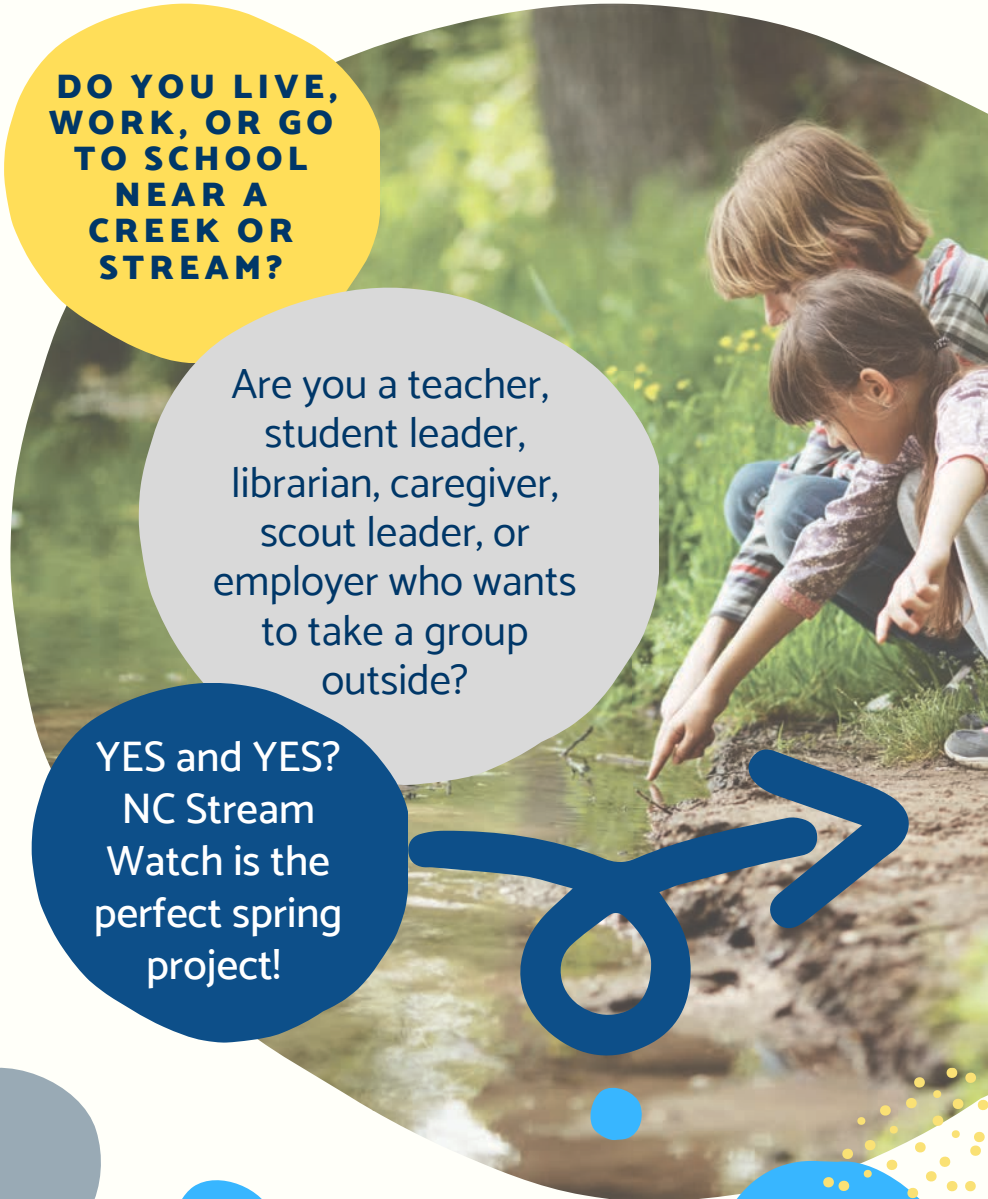
# TIME TO COME OUT OF THAT SHELL!

**The weather is about to start warming up, and that means one thing to us here at Stormwater SMART: it's time for some stream watching!**

**DO YOU LIVE, WORK, OR GO TO SCHOOL NEAR A CREEK OR STREAM?**

Are you a teacher, student leader, librarian, caregiver, scout leader, or employer who wants to take a group outside?

**YES and YES? NC Stream Watch is the perfect spring project!**





NC Stream Watch, the stream monitoring network created and maintained by the NC Department of Environmental Quality, puts your local creek or stream on NC DEQ's statewide map! NC Stream Watch is online at [DEQ.NC.GOV](http://DEQ.NC.GOV) - check it out!



NC Stream Watch is an educational tool that is easy, fun, and makes a difference in your community!

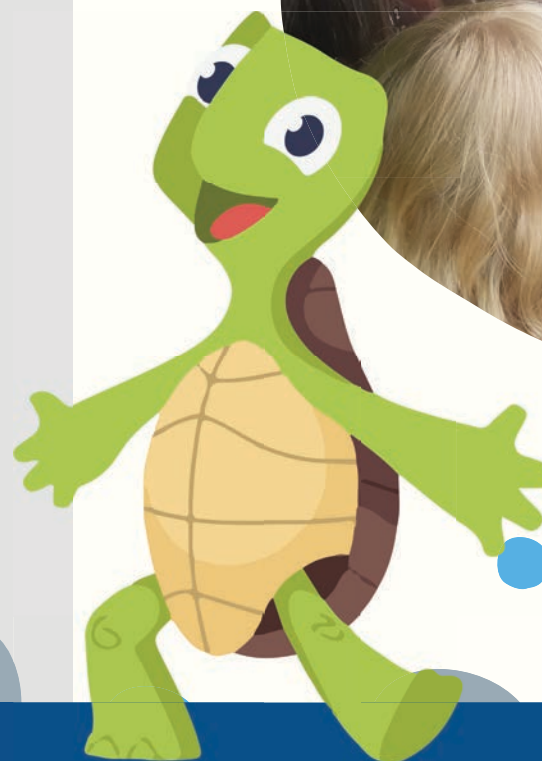
Participants of any age and knowledge level can learn more about nearby waterways, including how to perform a trash density survey, habitat assessment, and water source survey. Want more? Learn how to test for pH, nitrates, phosphates, and become an expert in macroinvertebrate identification!

**INVITE ONE OF OUR  
EDUCATORS TO SPEAK  
TO YOUR GROUP ABOUT  
NC STREAM WATCH!**

**IT'S FREE!**

**[STORMWATERSMART@PTRC.ORG](mailto:STORMWATERSMART@PTRC.ORG)**

**336-904-0300**

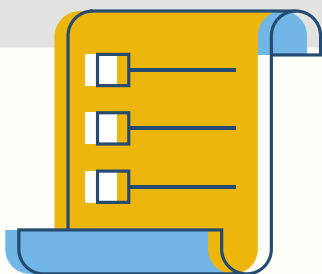


# 20 20

## CREEK HEROES CONTEST

**Win a \$100 Cash Card and a Stormwater SMART swag bag for helping to keep our waterways in the Piedmont Triad pollution free! Winners will also be featured in our next newsletter! All ages are eligible, group entries and multiple entries welcome! Three ways to enter before December 31 2020!**

**INSTAGRAM:** Take a picture that shows how you keep your nearest waterway in Central NC pollution free, then post to your Instagram with the hashtag **#2020\_CREEK\_HEROES**



**ONLINE SURVEY:** Tell us your idea for how people in Central NC can keep our waterways free of pollutants. Fill out the online survey at

[www.stormwatersmart.org](http://www.stormwatersmart.org)

**EMAIL YOUR ART!** Create an art project (drawing, painting, craft, etc.) that illustrates what people can do to keep our waterways clean.

Email a photo of your finished project to [stormwatersmart@ptrc.org](mailto:stormwatersmart@ptrc.org) with the subject **2020 CREEK HEROES Entry**.



# CREEK WEEK! MARCH 28 - APRIL 4

Join us for a weeklong celebration of our waterways! Learn about pollution prevention, help clean up a creek near you, and have some fun outdoors!



[alamancecreekweek.org](http://alamancecreekweek.org)  
[guilfordcreekweek.org](http://guilfordcreekweek.org)  
[randolphcreekweek.org](http://randolphcreekweek.org)

[forsythcreekweek.squarespace.com](http://forsythcreekweek.squarespace.com)\*  
\*MARCH 21 - 29



## EDUCATION MEMBERS

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

Stormwater SMART provides free education in our member communities. Schedule a visit by contacting the Program Coordinator, Danica Heflin, at [stormwatersmart@ptrc.org](mailto:stormwatersmart@ptrc.org)



**FREE STEM lessons in schools:** Pre-K, Elementary, Middle, High School, After-School Programs, Home and Private Schools, Day Care, Summer Camps

**FREE stewardship training** for Boy Scouts, Girl Scouts, Meetup Groups, Employee Associations, Student Organizations, Community Groups, Libraries, Civic Groups, Clubs, etc.

**FREE educational materials** on Rainscaping, aka Stormwater Gardening, Rain Gardens, Rain Barrels



# STORMWATER SMART



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