

# The Resource

A Publication of the City of North Augusta  
Stormwater Management Department

## What is North Augusta's Stormwater Management Program?



North Augusta Stormwater Management Activities

North Augusta's stormwater management program was developed in 2003 in response to regulations of the federal Clean Water Act (CWA) developed to protect our nation's waters from pollution. The Environmental Protection Agency (EPA) oversees these regulations. Historically, the CWA focused on wastewater from industries and communities that piped wastewater to waterways, called point-sources. The CWA, through the EPA's permit program, required that these point-sources of wastewater had to be processed to

remove pollution. A permit is a document that each point-source discharger is issued detailing strict procedures to remove pollution from their wastewater.

In the 1980's, stormwater runoff (a non-point source) became the focus of the EPA because it was found to be the main source of pollution still entering our waterways. Unlike point-sources from pipes, stormwater washes pollutants from streets, yards, farms, construction sites and businesses directly to streams over the land (runoff) or through stormwater systems that empty directly into waterways.

As a means to protect water quality further, the CWA was amended to include a permit program for non-point sources. In 1999, Phase I of the new program required the development of stormwater permits for industries and for large municipal separate storm sewer systems (MS4s) for cities. These larger to medium sized Phase I MS4 permits required communities to protect water quality through creation of six minimum control measures. The CWA Phase II requirements included nationwide permitting of smaller community stormwater systems (small MS4s) by 2003.

North Augusta leaders, having prepared for the new rules, began the city's stormwater management program in 2003. South Carolina Department of Health and Environmental Control (SCDHEC) began to issue permits to 70

small communities. The North Augusta program was in compliance when the permits were issued.

The SWMD has worked diligently over the past five years to make sure that our community continues to meet our MS4 permit requirements. From the responses we have had from SCDHEC, we are doing just that. For more details please visit our website [www.northaugusta.net](http://www.northaugusta.net).

### MS4 Permit Requires Six Minimum Measures

The six requirements that must be met "to the maximum extent practicable (MEP)" are:

1. **Public Education and Outreach** – to educate citizens about stormwater pollution and how it affects our natural resources.
2. **Public Participation and Involvement** – to involve citizens in the process.
3. **Illicit Discharge Detection and Elimination** – to determine sources of pollution and eliminate it.
4. **Construction Site Runoff Control** – to ensure construction sites do not discharge sediment or other pollutants.
5. **Post-Construction Runoff Control** – to inspect and monitor older stormwater controls.
6. **Pollution Prevention and Good Housekeeping for Municipal Operations** – to prevent impacts from city operations.

## Scouts Stepping Up to Protect Water Quality!



Scouts planting *Pontederia* (pickerel weed)

In July, additional members of Scout Troops volunteered to assist North Augusta at Brick Pond Park to meet award, badge and rank requirements. The city appreciates the efforts of these volunteers. The Scouts will learn about wetland processes, the dependent wildlife that live in our area, and ways to protect our streams from stormwater pollution.

The Girl Scout Bronze Award for Girl Scout Juniors was introduced in 2001. It is the highest award a Girl Scout Junior can earn.

It shows that the girl has made a promise to help others improve her community and to become the best she can be. Earning the award consists of completing a series of prerequisites followed by a service project that takes at least 15 hours to plan and carry out. As the girls progress through the later ranks, they may earn the Silver and Gold Awards.

Girl Scouts participating in the Bronze Award program will be the Girl Scout Juniors of Group 5775, hosted by Grace United Methodist Church (UMC). They are: Hannah Anderson, Brett Boyd, Holly Criss, Alaina and Emily Miller, Katlin Pugh, Savannah Smith, Sara Tyrrell and Angel Watts.

The Girl Scout Juniors first task was to assist with planting wetland plants in the park. The first participants included Hannah Anderson and Sara Tyrrell.

Avery Tyrrell, a member of Boy Scout Troop 7 (also hosted by Grace UMC) participated with the planting efforts to meet a Boy Scout advancement requirement. Volunteers met our staff on a hot muggy July day and assisted in planting over 200 wetland plants. They worked together with

stormwater employees and helped to get the job done in half the time it would have taken. In addition to planting efforts, these young people will participate in designing posters and kiosk materials for the park.

The city thanks each of these volunteers for their time, dedication, and community service helping to create Brick Pond Park. If you would like to get involved with this or other projects to protect water quality in our community, please contact us at (803) 441-4246 or via email at [stormwater@northaugusta.net](mailto:stormwater@northaugusta.net).



Scouts leave hot and muddy, but still smiling! Left to right – Girl Scout Juniors of Group 5775: Ms. Miran Tyrell, Sara Tyrell and Hannah Anderson, and from Boy Scout Troop 7, Avery Tyrrell.

## Species Profile: Marbled Salamander (*Ambystoma opacum*)

Marbled salamanders (*Ambystoma opacum*) are amphibians that can be found near streams and moist forest habitats in North Augusta. Amphibians means “both lives” which describes that they live on land and water. Salamanders are in the Caudata group of amphibians (the only major group of amphibians that have both tails and limbs) and are members of the mole salamander family. Marbled salamanders can grow to about five inches. They are rarely seen since they spend most of their adult life underground.

The Marbled salamander has slimy looking skin (with no scales) that is dark brown to black overall with white colorations from one side to the other. The marbled looking pattern is what gives them their name. Males have whiter colored patches and the female’s marbled patches can appear silver.

During dry weather these salamanders remain underground. During spring and fall rainfalls they will migrate to nearby ponds to find a mate. Male salamanders will only stay above ground a short time. Female salamanders lay their eggs under logs or leaves near the waters edge or in depressions that can become flooded when the water rises from the rains. Marbled salamanders are unique in that they will lie in a semi-circle wrapped around the eggs until the rains come. Once the eggs hatch, they will then leave them.

The eggs will begin to hatch and in three to six months they become young salamanders. The young will swim to safety and hide in the edges of the water hidden from view as they grow to be young adults. They then crawl back to the land to dig burrows in the leaves and soft ground where they remain until the following year. Adult salamanders eat



Marbled Salamander protecting eggs.

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insects, spiders, beetles, snails, slugs and earthworms. Marbled Salamanders live up to 10 years.

Savannah River Ecology Laboratory researchers working at the Savannah River Site have seen as many as 12,000 salamanders emerge from a single seasonal wetland in a 24-hour period. Seasonal wetlands are those that can dry up and then refill when rains come. They found that as many as 100,000 salamanders can live in a single wetland and forested habitat.

In North Augusta, we have seasonal wetlands including the carolina bay at Walnut Lane Park and others nearby including Mathis Pond located near Highway 25 and Interstate 20.

It is important that we prevent stormwater pollution. Stormwater pollution can cause disastrous effects on the development of

the eggs and on young salamanders. For example, if a large storm causes sediment from construction sites or other places to be washed offsite on to forested areas or streams, then the salamanders, their eggs, or young can be buried alive.

Studies done at Georgia Southern University indicate that motor oil from leaking cars or contaminated silt that has been carried into ponds with stormwater causes many negative effects on growth and reproduction of mole salamanders. It has been shown in northeastern states that pollution from acid rain (caused by air pollution) has caused many populations to disappear completely. Worldwide amphibian decline is a problem that many researchers are trying to understand. To learn more about these secretive creatures, visit our website at [www.northaugusta.net](http://www.northaugusta.net).

## Baseline Water Quality Assessment Available On-Line

The SWMD has been collecting data on the city’s watershed for five years. Stormwater personnel pulled water samples and observed the condition of the streams across the city. Studying the streams involved many intern students toting the log books, dip nets, ice coolers, sample bottles, and sampling equipment through thick forests, open fields, and back yards. Heavily populated or commercial basins were studied along with one undeveloped basin for comparison.

The data collected has a story to tell and we have condensed it into one document, the North Augusta Baseline Water Quality Assessment, now available on line. This is the first report of its kind that looks at the overall stream water quality within the city of North Augusta.

As you might expect, the report reveals that we have pollution in our streams like most small cities that are full of people,

places, and things that can create it. Results indicate that we may have been a bit careless by using a little more fertilizer than needed or left yard waste and trash on the ground, thus polluting our watershed. These and other pollutants travel on the wave of stormwater through the pipes or ditches into the creeks. The water samples had higher than normal levels of nitrogen, phosphorus, bacteria and other contaminants. These pollutants come from animal wastes, septic tanks, broken

sewer lines, fertilizers, decaying vegetation, and spills either from cars or human activity.

Mims Branch had little to no problems. The water quality was better than all of the other streams since there are very few homes and business in that area. Mims Branch represents a healthy stream and our goal for all others in the future. Go to the stormwater website [www.northaugusta.net](http://www.northaugusta.net) for the full report and more about our city’s watershed.

### Remember the Date: **Electronics Recycling Event**

North Augusta hosts its second **Electronics Recycling Event** – Oct 4, 2008 at the **Kroger Shopping Center from 9 a.m. – 12 p.m.** Recycle old computers, monitors, CPUs, CDs, floppy and zip drives, scanners, printers, fax machines, cell phones, adding machines and more. No TVs, electric or microwave ovens. Visit our website for more details at [www.northaugusta.net](http://www.northaugusta.net) or call 803-441-4331.



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