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Stormwater Management Practices Underway

Laura Lombardo Szpir, Karen Hall, NCSU Water Quality Group

With Section 319 Nonpoint Source Program grant funding from the NC Dept of Environment and Natural Resources, Division of Water Quality (DWQ), the NCSU Water Quality Group is in the process of designing and installing practices in downtown Pittsboro to control stormwater runoff. Urban runoff was identified by DWQ as a major contributor of pollutants, and in particular, phosphorus, to Robeson Creek and its tributaries.

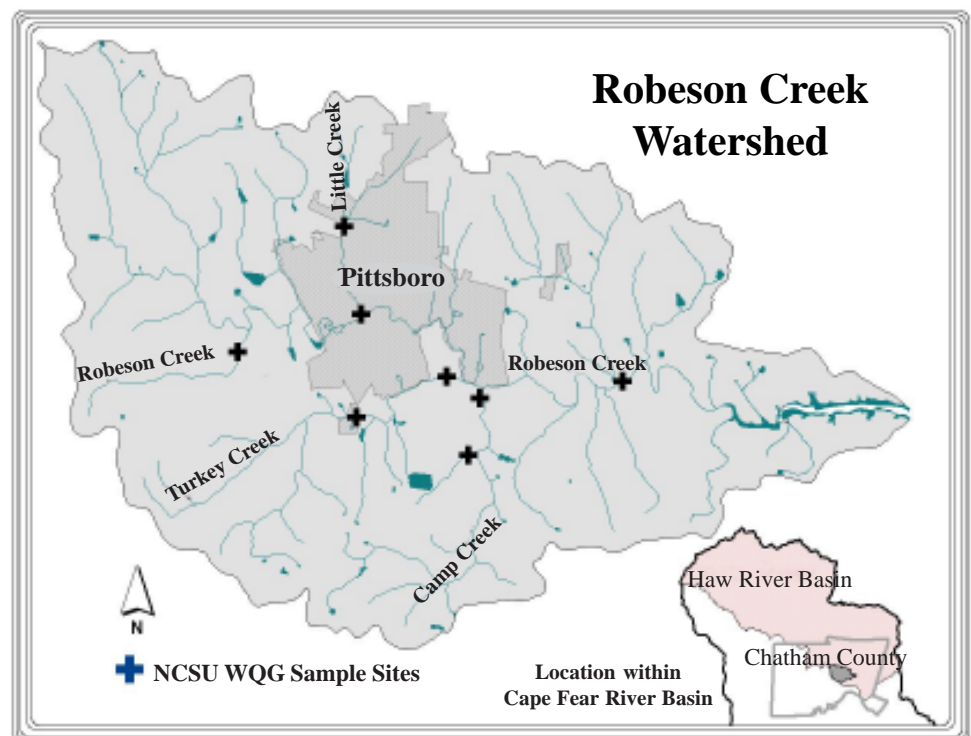
In August 2003, DWQ issued a *Total Maximum Daily Load (TMDL)* for Robeson Creek, which placed a limit on the amount of total phosphorus that can be discharged to the Creek from both *point sources*, such as discharge from industrial or waste water treatment facilities, and *nonpoint sources*, such as urban and agricultural stormwater runoff. A

TMDL is defined as the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and includes an allocation of that amount among the pollutant's sources. NCSU is working in conjunction with DWQ and other stakeholders on the Robeson Creek Watershed Council (RCWC) to address *nonpoint sources* of total phosphorus in order to achieve the *TMDL* and improve the water quality of Robeson Creek and its tributaries. Robeson Creek is considered impaired due to high levels of Chlorophyll-*a* (over 40 mg/l) and impaired aquatic life. Excess levels of phosphorus encourage algae blooms, which in turn cause high levels of Chlorophyll-*a*.

NCSU has been soliciting and continues to solicit landowners who are interested in installing stormwater *best management practices (BMPs)* on their properties, with full funding provided by DWQ. Some of the projects currently underway or

Robeson Creek Watershed Council Announcement

The next meeting of the Robeson Creek Watershed Council will be on Tuesday, December 6, 2005 at 9 a.m. Meetings are held quarterly in the conference room of the Chatham County Extension Center in Pittsboro. Contact Karen Hall, NCSU Water Quality Group, at 919-515-8242 for more information.



planned for the future are presented below. Many of the projects are located near Little Creek, the tributary of Robeson Creek that runs through downtown Pittsboro, as this stream was identified as a major contributor of phosphorus and other non-point source pollutants to Robeson Creek from urban stormwater runoff. Land-owners interested in working with NCSU to install stormwater BMPs on their property, particularly those in the Little Creek, Camp Creek or Turkey Creek watersheds, are encouraged to contact Karen Hall, NCSU Water Quality Group, at 919-515-8242.

Stormwater Runoff Control Projects:

□ In summer 2005, a small asphalt parking lot was installed at 23 Rectory Street in Pittsboro. NCSU and the Robeson Creek Watershed Council (RCWC) are working with Steve Carr, owner of the property, and the Town of Pittsboro to install a rain garden along the edge of the lot adjacent to Little Creek. The rain garden will capture stormwater runoff from the lot and allow it to slowly infiltrate into the ground instead of flowing directly into the creek. Pollutants will be captured in the soil while the filtered water will infiltrate back into the ground and slowly into the stream. A variety of native plants will be installed in the garden to increase pollutant removal of the stormwater through uptake by plant roots. This project is expected to be completed in winter 2005.

□ Across Rectory Street, just upstream from the parking lot rain garden described above, NCSU and the RCWC are planning a stream restoration project. Many

years ago, a small tributary to Little Creek located on Jane Pyle's property had been straightened and relocated to the edge of the property. Due to numerous factors including the relocation, the small stream is now a deeply incising ditch which continually erodes during large rain storms. This project will relocate the stream to its original location and treat excess stormwater runoff from parts of the west side of Pittsboro with a rain garden before it enters the tributary. Native trees, shrubs, and forbs will be planted to provide streambank stability, improve aquatic and wildlife habitat, and aesthetically-enhance the landscape. This project is planned for spring 2006.

□ A third project involves a former pond located on the Rural Advancement Foundation International (RAFI) property in Pittsboro, located on Pittsboro Elementary School road just east of the school. Slowly filling in with sediment over the years, this pond has slowly become more shallow and vegetated, acquiring the characteristics of a wetland. The goal of the project is to fully convert this wetland-like pond into a constructed stormwater detention wetland, and direct storm-water runoff from the surrounding areas into it for capture and treatment prior to slow release into the nearby stream. Educational signs will be posted and a walking trail established on the property. The project is currently in the design phase, with construction planned for spring 2006.

□ In February 2005, community volunteers planted 200 native trees and shrubs, creating a 15-30

foot wide buffer along 300 feet of Little Creek on Steve Carr's property (see article below). These trees will stabilize the streambank, reducing erosion and property loss, improve aquatic and wildlife habitat, and help filter stormwater pollutants.



Volunteers Plant a Riparian Buffer to Protect Little Creek

Catherine Deiningger, Haw River Assembly

On a sunny Saturday afternoon in February, over 30 eager volunteers gathered along the banks of Little Creek, a small urban stream in Pittsboro, to help plant trees and shrubs. A 15 to 30-foot stream buffer of native trees like Green Ash and Ironwood and flowering and berry producing shrubs like Sweet Pepperbush and Sweet Shrub were planted along 300 feet of Little Creek. In addition to adding beauty to the urban landscape, this new stream buffer will help slow down and clean the polluted runoff that pours into Little Creek whenever it rains. In time, the roots from the new woody vegetation will strengthen the stream banks of Little Creek and decrease the erosion of its stream channel.

The planting took place on commercial property where an old chicken hatchery building is home to several local businesses – Hill Creek Vet, Baroke Builders, a local barber, and Carr Amplifiers. Steve Carr, owner of the property, enthusiastically agreed to the project, and he and his family joined in with other volunteers in digging holes and watering newly



Buffer planting along Little Creek.

planted trees. The planting went quickly; in less than 2 hours over 200 trees and shrubs were given new streamside homes.

Funding for the project was provided by the State's 319 program for non-point source pollution thru the Haw River Assembly (HRA) Stream Stewardship Campaign, which organized the planting, and NCSU, which purchased the trees and shrubs for the planting from Cure Nursery, a local nursery that supplies plants for stream restoration projects.

Division of Water Quality's (DWQ) impaired waters list.

A community focal point, the land areas adjacent to the lake are currently used as a town park and soccer fields. Several trails are located around the lake. Groups including the Robeson Creek Watershed Council (RCWC), Haw River Assembly (HRA), Town of Pittsboro, and local citizens are concerned about the lake's water quality and have expressed avid interest in restoring it and making the surrounding area more appealing for recreational use. As a result, the NCSU Water Quality

Group has obtained grant funding from the Clean Water Management Trust Fund to perform a detailed assessment of water quality and other ecological conditions of the lake and provide recommendations for restoration. Results of this effort will be compiled in the form of a Feasibility Study, which the Town of Pittsboro and other stakeholders may use for making decisions and acquiring funds for lake improvements. The Feasibility Study is planned for completion in spring 2007.



Pittsboro Businesses Learn About Stream Stewardship

Catherine Deininger, Haw River Assembly

On May 13th, representatives from local businesses in Pittsboro enjoyed sandwiches courtesy of the Pittsboro General Store while hearing about what they can do to care for their local watershed. The Haw River Assembly hosted the event together with NC Cooperative Extension. HRA's Catherine Deininger talked about

Town Lake Restoration Feasibility Study

Karen Hall, NCSU Water Quality Group

Town Lake, also known as Pittsboro Lake, is located in the town limits of Pittsboro. This 38-acre lake impounds Robeson Creek and previously served as a water supply for the town. Due to an aquatic weed problem, namely, parrot feather (*Myriophyllum aquaticum*), the lake is on the NC



Parrot Feather infestation along Town Lake.

the impaired condition of Robeson Creek and about stream stewardship practices that businesses could adopt to protect local streams. Practices as simple as dry sweeping a parking lot rather than washing the dirt off into the street or sewer drain can make a big difference in how much pollution ends up in Robeson Creek.

Karen Hall, NCSU Water Quality Group, discussed various best management practices (BMPs) for controlling stormwater run-off that businesses could install. NCSU currently has funding from the State to install stormwater runoff control practices within the Robeson Creek watershed and is seeking potential sites for these installations (see related article *Storm-water Management Practices Underway*).

As part of the Stream Stewardship Luncheon, Catherine Deininger presented two businesses with Stream Stewardship Awards. Both Rural Advancement Foundation International (RAFI) and Circle City Screen Printing and Embroidery received the awards for their current efforts towards protecting local streams. The Haw River Assembly will continue to award businesses that exemplify stream stewardship.

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Robeson Creek Watershed Project Cooperators

North Carolina State University
NC Cooperative Extension
Chatham County
Town of Pittsboro
USDA-Natural Resource Conservation Service
Chatham County Soil and Water
Conservation District
Farm Service Agency
Chatham County Farm Bureau
North Carolina Division of Water Quality
Triangle J Council of Governments
Haw River Assembly
Townsend Foods

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