



Soil & Water

FY2013

Annual Report

Durham Soil and Water Conservation District

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Farmland Protection Advisory Board Breakfast Series



In fiscal year 2013, the Durham Farmland Protection Advisory Board (FPAB) developed a series of informal community breakfasts to show their appreciation for Durham farmers and offer them opportunity to learn more about topics that are having an impact on their operations.

Guest speakers and topics were selected by the FPAB and the concept was launched in December of 2012 with a series of three breakfasts being held.

The first of the series was held on December 12th, at the home of Linda & Ted Hoffmann of Sherron Road. The group discussed the present use taxation policies and the impact on the farming community. Farmers had a chance to ask questions with tax office personnel and then the group had a lengthy discussion on the impact of deer and farm commodity production.



The second breakfast was held on January 23, 2013 at the home of Roger and Lisa Tilley on Tilley Farm Road. A presentation on Fire Ants and how to control them was given by Michelle Wallace, Horticulture Extension Specialist with the NC Cooperative Extension. The farmers who participated



in the session on fire ants were able to receive pesticide applicator renewal credits. The third breakfast was held on February 20, 2013 at the home of Beecher "Gus" and Sue Gray on Stage Coach Road and included a discussion of the new requirements on Good Agricultural Practices (GAP) certification for commodity producers.

All three of the breakfasts were well received by the farming community and the FPAB intends to implement the program in FY2014.

Market Brochure– Highlighting Durham Farms

The Durham Farmland Protection Advisory Board has developed a brochure to promote Durham farms and Durham Farmers' Markets. The brochure lists locations of Durham farmers markets and hours of operation, the farms that accept retail traffic within the county and the CSA's and their delivery locations. The brochure has been shared with neighborhood list serves and funding for printing and distribution

Continued on p. 6.....

Awards

Congratulations to Mike Dupree!



PICTURED LEFT TO RIGHT: Ralston James (Hugh Hammond Bennett Society President), Mike Dupree (Durham SWCD staff), Matt Kinane (NRCS staff)

On February 9, 2013 Ag Development\ Watershed Conservationist, Mike Dupree received the Merit Award. Dupree received this award from the Hugh Hammond Bennett Society due to his dedication and commitment to the protection of water quality in Durham County. The Merit Award is given in recognition of an outstanding activity, product, or service by a group, business firm, corporation, or organization that promotes the conservation of soil, water, and related natural resources.

In 2011 Michael developed the 'Voluntary Nutrient Reduction Program' (VNRP) for Durham County citizens. Durham County's VNRP encourages citizens to voluntarily reduce their fertilizer use by 40%. Mike is very passionate about his job and protecting our drinking water supplies and is always searching for innovative approaches to engage the public in becoming more aware of their water quality. Congratulations Mike on receiving the Merit Award!

Durham SWCD Supervisor, Robert Rosenthal Receives Years of Service Award

November 2012- Rosenthal received his 10 year of service Award from the NC Association of Soil & Water Conservation Districts.



Jennifer Brooks—Certified Environmental Educator

October 2012—Jennifer Brooks became a certified NC Environmental Educator through the NC Office of Environmental Education.



Lisa Marochak—Certified Environmental Educator

February 2013—Lisa Marochak became a certified NC Environmental Educator through the NC Office of Environmental Education.

Stream Restoration and Stormwater Projects

Upper Sandy Creek Phase V Project

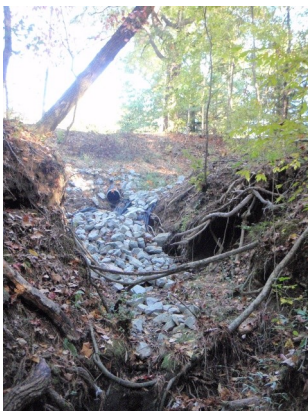
The Soil and Water Department has recently completed the stormwater best management practice (BMP) and a portion of the stream restoration efforts for the Upper Sandy Creek Phase V Project. The original scope of work called for the implementation of a stormwater wetland and restoration of 434 linear feet (LF) of channel along an unnamed tributary to Upper Sandy Creek. The project installed a vegetative buffer with a minimum width of 50 feet on both sides of the stream throughout the project area as measured from the top of the stream bank. Permits used during construction were obtained from a previous \$253,000 design and permitting grant.

The completed project produced a three celled stormwater BMP (one forbay and two wetland cells) and restoration of 420 LF along this unnamed tributary. This tributary handles 7.01 acres (with 70.3% impervious surface) of runoff from parking lots on Duke University’s campus. The final stream length is 420 LF, a decrease of 14 LF from the design due to additional room needed for the stormwater BMP outlet.

The water quality benefits of this project are pending successful implementation and construction of the entire Phase V design. However, expected stream restoration benefits include improved riffle and pool habitat along the project reach and at 95 percent reduction in sediment load from the stream banks resulting in an annual sediment reduction of 100 tons per year into the Jordan Lake Reservoir. Stable riparian buffers exceeding 1 acre were also planted outside the 420 LF of stream restoration in order to establish and preserve the stream work.

In addition, a three (3) acre permanent conservation easement was recorded at the Durham County Register of Deeds in order to protect the completed stormwater BMP and stream restoration. The Soil and Water Department will monitor this easement in perpetuity. The stormwater BMP will reduce flashiness of the parking lot runoff entering this portion of the Sandy Creek tributary and according to NC DWQ Stormwater Best Management Practices Manual dated July 2007 will reduce nitrogen (40% and 5.14 lbs/ac/yr), phosphorus (40% and 0.52 lbs/ac/yr), and suspended solids (85% and 233.71 lbs/ac/yr). These efforts will provide local water quality benefits as well as contributing to nutrient reduction efforts taking place throughout the Jordan Lake Watershed. This project was part of Durham County’s Strategic Plan Goal 4 initiative.

Continued on p 4.....



Before



After



Upper Sandy Creek Phase V Project— *continued from p. 3*

On October 16th the Durham Soil and Water Conservation District received official notification of funding in the amount of \$399,995 from the Clean Water Management Trust Fund (CWMTF). The District's application was one of one hundred fifty-seven local governments, state agencies and land trust that requested over \$122,000,000 during CWMTF 2012 grant cycle. Only six restoration projects were funded during this funding cycle. The proposed project seeks to improve water quality on the Duke University campus in Durham. The project stream is part of Phase 5 of a watershed scale effort to improve water quality in the Upper Sandy Creek Watershed. Sandy Creek is a headwater tributary to the Jordan Lake reservoir and a state-designated Natural Heritage Program Priority Area.

Phase V includes the construction of approximately 3,128 LF of stream restoration along Upper Sandy Creek. The terminus of the project has a drainage area of 1.46 square miles. 100% of the proposed project is on Duke University property. Duke University will donate a conservation easement to the Durham Soil and Water Conservation District to hold and monitor for perpetuity. The project begins at Anderson Street and flows through Duke Forest before entering a culvert under Academy Road which is the end of the project. The permitting for the entire Phase 5 project has been completed and awaiting construction.

Once completed this watershed scale effort will treat approximately 1,365 acres of the Upper Sandy Creek. Duke University representatives are presently in discussions with the Division of Water Quality for nutrient credits generated through the university's donations towards the project.



Durham County Strategic Plan

During the 2012-2013 program year, the Durham Soil and Water department and District staff were active in numerous initiatives and measures of the Durham County Strategic Plan. The Durham County Strategic Plan is a road-map of sorts to enable Durham County Government to become a fiscally sound, responsive, collaborative organization focused on clearly articulated goals. These principles became the foundation of our Strategic Plan, approved by our Board of County Commissioners in February 2012.

The Strategic Plan has five major goals; Community and Family Prosperity and Enrichment, Health and Well-being for All, Safe and Secure Community, Environmental Stewardship and Accountable, Efficient and Visionary Government. Of the five goals, the Durham District naturally more closely identifies with Goal 4: Environmental Stewardship and provides a lead role with staff member, Jennifer Brooks acting as co-champion for the goal. In fact, all 4 staff members have served on a committee related to a strategic plan initiative or measure.

Throughout the year a number of soil and water projects were also Strategic Plan initiatives such as; the completion of the Sandy Creek Stream Restoration phase IV, the planning phase of the Sandy Creek Stream Restoration phase V, the launch of the Voluntary Nutrient Reduction Program outreach campaign and the launch of the Bionomic Education Training Center at Southern High School. Other areas the District participated in include a Social Marketing Campaign, a educators resource guide and the development of the Durham County Water Quality Index Score System.

BETC– Bionomic Educational Training Center

Southern High School Receives \$30,714 for Agriculture Educational Enhancement Program-

The Durham Soil and Water staff received a grant from the National Institute for Agriculture (NIFA) for the Bionomic Educational Training Center (BETC, pronounced "Betsy"), on the Southern High school campus. Exceptional-children teachers Amy Jenkins and Lennie Curington and principal Kenneth Barnes have joined with Durham County Watershed Conservationist Mike Dupree to develop the Bionomic Education Training Center to provide funding, work experience and practical math and science lessons for Southern students. BETC has two parts:

- ***School-based Agribusiness***

In the agribusiness, students grow and sell native plants for rain gardens, bio-retention areas and riparian buffers that reduce polluted runoff into Durham waterways. The agribusiness was designed for special-needs students identified for the Occupational Course of Study (OCS). The students grow native North Carolina plants for rain gardens and various culinary herbs. They built small cold frames and installed an automated irrigation system. They learned how to engineer a rain garden, how rain gardens

remove urban contaminants and are, thus, very important for sustaining our community and environment. This program allows students in the OCS department to obtain valuable hours of experience in order for them to pursue careers in horticulture and to develop *Green Industry* entrepreneurial skills. The program involved 25 students who participated in 250 instructional hours related to the project and the students earned 4,900 hours of work hour credit and produced an income of \$1,360 to date for the OCS Department.

The biggest and most profound change, however, has been the change in the students. They see that they are doing something that really matters. What they are learning will influence the rest of their lives. The BETC program provides them with the tools to be productive (and environmentally conscious) citizens. The students received Certificates of Achievement for their participation in the BETC program and were honored at a reception on May 22, 2013 at Southern High School.

- ***Experiment station***

The Experiment Station is a lab with a series of experiments that is observed by all students enrolled in AP Environmental Science and Biology throughout the school year. The lab focuses on water quality concerns and conservation so that students will develop better research techniques, data collection and analysis which are very important for students who will pursue science careers and degrees from institutions of higher learning. The effects of different land management practices on soil and water quality are the focus of the experiments, especially the complex and delicate relationship between water quality and storm water management, nutrient management, energy and sustainability and ecological diversity. The research equipment was purchased and lessons plans have been developed for full implementation in the 2013-2014 school year.



Voluntary Nutrient Reduction Program (VNRP)



The VNRP is designed to educate and encourage homeowners to reduce fertilizer applications to their property by 40%. The program teaches homeowners how to implement five Best Management Practices and fertilizer application guidelines that will reduce nutrient loading from misapplication of nonfarm fertilizer into the Jordan and Falls reservoirs. In fiscal year 2013 Durham SWCD staff met with 18 Home Owners Associations and community organizations to discuss the VNRP and mailed a brochure to the 4,366 single family residences that are within 100' of surface water within the City limits. These landowners were mailed the program brochure since research indicates that properties that are adjacent to surface waters have the highest probability of nutrient contributions during rain events and from leaching of excessive land applied fertilizer.

During March and April, 2013, a Durham Fertilizer Behavior Survey, conducted by a Duke Graduate student, was mailed to 1,000 randomly selected single family homes. Approximately 40% of landowners participated. The survey asked homeowners questions about fertilization practices and their lawn care behavior/attitudes. Of the 60 questions asked, it is the responses to six that provide an insight to the challenges Durham faces to reduce non-point sources of nutrients. When asked if they have ever had a soil test on their lawns; 79% said never and 21% had a test completed in the last three years. When asked, 'do you ever apply fertilizer before a rain'; 85% said yes and 15% said never. Only 62% sweep up spilled fertilizer on impervious surfaces with 38% stating no. When asked, 'do you apply fertilizer near a stream'; 90% said no and 10% yes, which is great news! Surprisingly, 79% did not know what the numbers on a bag of fertilizer indicate (amount of Nitrogen-Phosphorous-Potassium). The survey had a sample problem on calculating how much Nitrogen to use in a 1,000 square foot lawn and 91% of the respondents answered the question incorrectly.

The survey responses suggest that nutrient loss and misapplication of fertilizer by homeowners could be contributing to excess nutrients making its way to Jordan and Falls Lake.

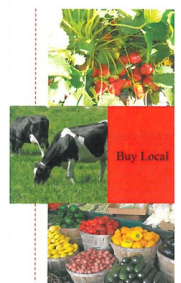
The VNRP program will be expanded to encompass 54,469 single family residences, 2,929 Commercial sites, 142 Industrial sites and 73 Recreational sites within the county. Reductions in nonfarm fertilizer application and implementation of BMP's is the most cost effective method of reducing nutrients in Durham's waterways.

This project is an ongoing part of Durham County's Strategic Plan Goal 4 initiative.

Market Brochure– Highlighting Durham Farms *continued from p.1*

was approved to place brochures at the Durham visitor's center and local businesses in order to increase consumer awareness of the Durham farm community and the opportunities to buy fresh local produce, meat, dairy and other value added products.

FRESH FROM THE FARM-
YEAR ROUND
Durham Markets
&
Farms



FY-2013 USDA-NRCS Conservation Program

USDA-Natural Resources Conservation Service (NRCS) program activities remained steady in Durham County this past fiscal year. Interest of eligible Durham County landowners in cost share opportunities continues to increase. NRCS's natural resources conservation programs help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters. Public benefits include enhanced natural resources that help sustain agricultural productivity and environmental quality while supporting continued economic development, recreation, and scenic beauty. There has been an increased request for Conservation Technical Assistance (CTA) during the past year, resulting in applications for cost-share assistance through USDA cost share programs. As an example of this increased interest, over \$51,000.00 was obligated and approved towards Environmental Quality Incentives Program (EQIP) applications this fiscal year.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audio tape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).



Piedmont Conservation Council

Piedmont Conservation Council, Inc. (PCC) continued implementation of its Durham-based project, Fab Lab Carolinas, during FY 2012 finishing out the second year of a 2-yr, \$70,000 seed grant from Z. Smith Reynolds. The project serves to foster education, innovation, and invention through community access to high-end fabrication tools that can construct almost anything. In the Fall, Fab Lab Carolinas worked with Neighborhood Impact Services and Build A Better Block project to work with residents in the Angier-Driver Historic district to learn skills on the ShopBot CNC to create chairs and other items for themselves and their communities. In the late summer of 2012, Fab Lab worked out of the Little Five Points area of Durham and conducted free skills classes through a partnership with Healing with CAARE clinic on Broadway Street. Since then, Fab Lab has conducted one-day volunteer days at several other community events and also participated in the NC New Schools Statewide Scaling STEM Conference. The Durham-based Fab Lab is one of the few Fab Lab sites worldwide that is led and used primarily by women!

In the coming year, Fab Lab Carolinas will be launching a soap-box derby at American Tobacco to raise funds for the project. PCC will also be searching for a new location in Durham to set up Fab Lab and continue outreach and programming to the community. Please contact Michelle Green for more information at michelle@fablabcarolinas.org and visit www.FabLabCarolinas.org to learn more!

PCC is also currently working on the design of a green roof for the Durham County Agricultural Center at 721 Foster Street. In 2012, the North Carolina Department of Justice awarded a \$50,000 grant through its Environmental Enhancement Grant Program (EEG). PCC and its partners are working with Wildlands Engineering, Inc. to complete the design by Fall 2013. Funds to construct the green roof are currently pending. For more information about this or other projects of PCC please contact Jacob Leech at jacobleech@piedmontconservation.org.

ENVIRONMENTAL EDUCATION



Conservation Contests for Kids:

During the 2012-2013 school year, the Durham District sponsored 6 different conservation education contests for students in Durham County. The contests included a Poster Contest for 3rd – 6th grade; an Essay Contest for 6th grade; a Public Speaking Contest for 7th and 8th grade; a Computer Slide Show contest for 6th grade and a Computer Designed Poster contest for 9th grade. The theme for all of the above contests was 'Water...the Cycle of Life'. Judges awarded a 1st, 2nd and 3rd place award for most grade levels. 1st place winners received a plaque and \$50. 2nd place winners received a certificate and \$25. 3rd place winners received a certificate and \$10. Teachers of the 1st place winners also received a cash reward for their participation.

These contests are part of a statewide event sponsored by the NC Association of Soil and Water Conservation Districts. 1st place winners from Durham advanced on to an area level contest, where we had a number of Durham entries place and take prizes.



KG 1st place bookmark

For younger students, the District also held a spring Bookmark contest for K – 2nd graders. We had a number of wonderful, creative entries from across the county. 1st place winners in each grade level received an award certificate and laminated copies of their bookmark for their entire class. The theme for this contest was 'Helping the Environment'.



5th grade 1st place poster

Durham County Environmental Field Days for 3rd graders

On October 9– 11, 2012 the Durham District held its annual Durham County Environmental Field Days event for 3rd graders in Durham County. Over 430 students, teachers and parents from six different county schools attended the event, held at the District owned Dr. Roberts Environmental Education Park in Bahama, NC.

Students met resource professionals from a number of different agencies, participated in hands-on activities and learned about the environment in a natural setting. The goal was for each student to leave with a better knowledge of the environment, and have fun while learning. The Durham Soil and Water Conservation District, in partnership with various County, City and State departments as well as local non-profits, presented a variety of topics to the groups.

The event was sponsored by the Durham County Farm Bureau and the Durham Soil and Water Conservation District Board.



R.N. Harris Elementary Aquatic Field Day for 5th Graders

On April 23, 2013, the entire 5th grade class from R.N. Harris Elementary School on Cooper St. participated in the annual Aquatic Ecology Field Day sponsored by the Durham SWCD. Students were divided into teams and spent the morning rotating between learning stations revolving around the two environmental habitats present on the RN Harris campus, a wetland and a stream.



Students were able meet resource professionals from a variety of fields, participate in activities designed to complement the 5th grade science curriculum, and learn about aquatic environments. Activities included wetland plant identification and adaptations, aquatic insects as a determiner of water quality, aquatic food webs and water quality testing.

The District would like to thank all the teachers, volunteers, sponsors and presenters for making this year's events possible. Organizations that contributed presenters to the event included; the Durham Soil and Water Conservation District, the City of Durham Stormwater Services and the US EPA.

Envirothon

During the 2012-2013 school year, 8 teams of students from 5 Durham County schools or clubs participated in the Envirothon competition. The Envirothon is a hands-on, natural science academic event that challenges and engages students to think critically about the natural world and their role in it. The teams, each consisting of five students, demonstrate their management knowledge and problem-solving skills in a competition centered on five categories: soils/land use, wildlife, forestry, aquatics, and current environmental issues.

District staff spent numerous hours working with and training the teams in forestry management practices, wildlife identification, aquatic sampling, soils determinations and more. Some of the hands-on skills the students learned included how to measure the height of a tree using a Biltmore stick, how to identify and track NC wildlife, how to sample macroinvertebrates and determine a stream's water quality and how to texture test soils. The hands-on training the students participate in are all skills that resource professionals use in the field each day.

After months of study and training, the teams competed against others from an 11 county area at the Area 4 Envirothon event in Edgecombe County on March 15, 2013. The teams that represented Durham County at the 2013 Area 4 Envirothon were as follows:

- 'Cypress Knees' from the NC School of Science and Math
- 'Killer Kudzu' from the NC School of Science and Math
- 'Divided by 0.Because we can' from Northern High School
- 'e-lemon-ators' from Northern High School
- 'The Eno Crew' from Riverside High School
- 'Duck Dynasty' from the Durham 4-H Envirothon Club
- 'Raiders' from Sherwood Githens Middle School
- 'Enviromatics' from Sherwood Githens Middle School



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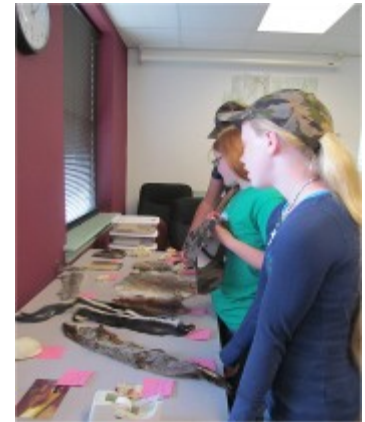
Envirothon-continued from page 9



At this qualifying event, two Durham teams placed in the top 7 of their division, thereby allowing them to participate in the state level Envirothon event. The 'Killer Kudzu' team placed 3rd in the high school division and the 'Duck Dynasty' team placed 5th in the middle school division.

On April 19-20, 2013 these two teams competed in the NC Envirothon competition held at Cedar Rock Park in Burlington, NC. There

they competed against teams from across North Carolina. The Killer Kudzu high school team from the NC School of Science and Math included Yohana Dierolf, Abigail Smith, William Ge, Matthew Kornberg and Caitlin Seyfried. They placed 3rd overall at the state event and received a first place medal in the Aquatics test. The Duck Dynasty middle school team from the Durham 4-H Envirothon club included Aubrey Fletcher, Kelsey Fletcher, David Bass, Rachel Bass and Summer Rook.



Please visit www.ncarea4envirothon.org and www.ncenvirothon.org to learn more about the Envirothon program.



Durham County Big Sweep

Each fall, the Durham Soil and Water Conservation District coordinates the annual Durham Big Sweep clean up event as part of the NC Big Sweep. Durham Big Sweep, sponsored in part by the City of Durham's Stormwater Services Division and Keep Durham Beautiful Inc., tackles the task of removing litter from Durham. In 2012, trash disposal assistance was provided by Durham County's General Services Department and the City of Durham's Solid Waste Department.



Held the 1st Saturday of October, the 2012 official clean-up day was on October 6th. Many volunteers do participate on that day, but in Durham County, groups are allowed to participate as an 'official' Big Sweep clean up throughout the months of September and October. During that 2 month window, over 416 volunteers cleaned up 24 different sites across the county.

Continued on page 11.....

Durham County Big Sweep *-continued from page 10*

An estimated 20,513 pounds of trash was cleaned out of various city parks, neighborhoods and roadsides, as well as local streams, rivers and other water bodies around the county.

New in 2012 was a website dedicated to Durham's clean up effort. The website allowed volunteers to register online, view a calendar of local clean ups and has an interactive map with clean up locations and dates listed. The site also allowed volunteers to enter their trash clean up totals online. The Durham Big Sweep site can be viewed at bit.ly/DurhamBigSweep



Some of the more unusual items collected during the 2012 clean up included: 1 toilet, 2 skate boards, large piece of board, 15' of hard plastic tubing 3 basketball, 1 plastic downspout extension filled with mud, 1 plastic planter, 1 wooden door, rusty bicycle, metal pipes, 3 TV's, 2 shopping carts, 25 weight plate, volleyball post with net attached, car battery, 2 car bumpers, plastic lawn chair, tricycle, tricycle parts, paint cans, drywall, car mats, child car seat, car parts- bumpers, tire rims, hubcaps, pieces of torn tires, 1 gasoline can, 2 pieces of rebar, 1 plastic milk crate, 2 Five-gallon buckets, Kiddie car, 1/2 door, Duke University Police and Security traffic cone, Wooden Pallet, Cast iron grate from an old storm drain, Camping stove top and grate, Plywood door to a cabinet, parts of a rear projection TV and a total of 12,860 lbs of trash hauled off in a dump truck.

The Durham County Big Sweep is part of the NC Big Sweep, a state-wide event to clean our state's beaches, streams, rivers and lakes. NC Big Sweep is an award winning, 501(c)(3) grassroots nonprofit organization whose mission is a litter-free environment.

To volunteer for the up-coming 2013 Big Sweep event, contact Jennifer Brooks, Big Sweep county coordinator, at jbrooks@dconc.gov or 919-560-0558.

The Durham SWCD would like to thank the following groups for participating in the 2012 Big Sweep: (The sites they chose to clean follow the group's name)

- Durham Academy's 4th Grade Science - DA campus and adjacent Sandy Creek;
- Junior Scout Troop 449 - Rockwood Park;
- Boy Scout Troop 424 - Long Meadow Park;
- Pack 880 and Heritage Girls Chapel Hill Bible Church - Rolling View Campground area on Falls Lake;
- Madagascar club - Elmira Park;
- Durham Cub Scout Pack 424 - West Point on the Eno;
- Duke Basketball Community Service Committee - Lyons Park
- Bob Brueckner - 2 clean ups on Third Fork Creek**;
- Forest Hills Neighborhood Association - Forest Hills Park;
- Mike Shiflett / Ellerbe Creek Watershed Association - Ellerbe Creek, Northgate Park Neighborhood
- Ian Pond / Ellerbe Creek Watershed Association - Ellerbe Creek from Redmill Rd to Falls Lake;
- Sean Doig / Ellerbe Creek Watershed Association - Goose Creek (tributary of Ellerbe);
- South Durham Green Neighbors - Woodcroft parkway at Third Fork Creek and trail;
- Family-friendly Big Sweep Clean-up - Horton Hills neighborhood;
- Cub Scout Pack 495 - Northeast Creek;
- College of William and Mary Branch Out program - Burton Park;
- Duke School for Children - Hwy 751 in Western Durham Co;
- Eno River Association - Coulter Conservation Area on Eno River ;
- New Hope Creek Corridor Advisory Committee - Sandy Creek Park and Trail;
- Woodlake HOA - Woodlake subdivision's lake and pond;
- Communities in Partnership - Driver St Community;
- Old North Durham - Bay-Hargrove Park; Old North Durham neighborhood;
- William Foy - nature trail along Ellerbe Creek



2013 –Annual Awards Banquet

The Durham Soil and Water Conservation District held their Annual Conservation Awards Banquet to honor students, teachers and Durham Citizens that participated in the FY 2013 Soil and Water Conservation contests on May 30, 2013. The 2013 Awards banquet was held at the Redwood Ruritan in eastern Durham County.

Those awarded this year included first through third place winners in the District's Poster, Essay, Computer Poster and Computer Slide Show. The theme for the 2012-2013 year was Water The Cycle of Life. We also recognized the first place bookmark contest winners, Big Sweep Group of the Year, The Durham County teams who participated in the NC Envirothon Event, Urban Conservationist of the Year, Teacher of the Year, Volunteer of the Year and the Environmental Excellence Award.

Poster- 1st place District Winners



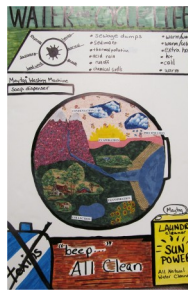
4th Grade

Joanna Brandenburg

School: Central Park School for Children

Teacher: Judy Compton

(NC Area IV Association of Soil & Water Conservation Districts 2nd Place Winner)



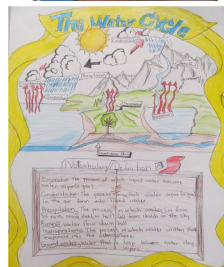
5th Grade

Kelsey Fletcher

School: Southview Academy

Teacher: Elaine Fletcher

(NC Area IV Association of Soil & Water Conservation Districts Honorable Mention)



6th Grade

Hen-Ri Siu

School: Lowes Grove Middle

Teacher: Samuel Brown

(NC Area IV Association of Soil & Water Conservation Districts 2nd Place Winner)

Poster -2nd Place District Winners

- Andre Timblin, Newton Academy, 4th Grade
- Mia Foglesong, Voyager Academy, 5th Grade
- Aubrey Fletcher, Southview Academy, 6th Grade

Poster –3rd Place District Winners

- Leslie Zuniga, Cresset Christian Academy, 4th grade
- Charity McCotter, Eno Valley, 5th Grade
- Sa Bat Siu, Lowes Grove Middle, Samuel Brown, 6th

Essay Winners– 6th grade

- 1st place- Keith Hightower Gibbs, Lowes Grove Middle
- 2nd place-Regina Javier, Lowes Grove Middle

Computer Poster Winners– 6th grade

- 1st place– Maggie Pyrant, Voyager Academy
- 2nd place-Lexie Yauchzee, Voyager Academy

Bookmark Contest Winners– 1st place

- K– Jayden Pei, Creekside Elementary
- 1st grade-Haley Paramore, Creekside Elementary
- 2nd grade– Summer Pence, Bethesda Christian Academy

Computer Slide Show Winners– 6th grade

- 1st place– Aubrey Flethcer, Southview Academy
- 2nd place-Jarianna Freeman, Voyager Academy



Teacher of the Year

On May 30, 2013 at the annual Durham SWCD Awards Banquet, the District awarded Tomika R. Altman-Lewis with its 2013 Outstanding Environmental Educator of the Year Award. This award is in recognition of outstanding conservation/environmental education effort by a Durham County teacher. Ms. Altman-Lewis is the Academically and Intellectually Gifted (AIG) Facilitator at Burton Magnet Elementary School. She provides enrichment learning for AIG identified students (K-5) and nurturing for all students in Kindergarten - Second Grade. The students are identified as gifted in mathematics and literacy and as such she is not required to integrate science into the curriculum. However, Ms Altman-Lewis goes above and beyond what is required of her by using environmental education and nature based learning as a vehicle to build curiosity and provide students additional opportunities in sciences that they may not be exposed to in their traditional classrooms. Her program for involving students in the enrichment of natural resources/science is an integration of environmental science and engineering. Through field trips, hands-on nature experiments or just simple nature walks around the school grounds, Ms. Altman-Lewis engages the students to explore the world around them.

For her award, Ms Altman-Lewis was presented a plaque, a \$100 prize and her application will be entered in the statewide NC Association of Soil and Water Conservation's Teacher of the Year contest to be awarded in January 2014. Congratulations Ms. Altman-Lewis.



Urban Conservationist of the Year

The South Durham Green Neighbors (SDGN) was selected as the Urban Conservationist of the Year for the Durham District and received recognition for their efforts on May 30, 2013 at the Durham Soil and Water Conservation District Annual Banquet. The SDGN organization exemplifies leadership in environmental stewardship. They have participated in the installation of storm drain decals, created door hangers that increase public awareness that they have distributed to several neighborhoods, participated in Big Sweep and Creek Week cleanup projects and have assisted city officials in local water monitoring projects.

One of the most significant achievements by SDGN is the development of the curriculum, *Knowing Our Local Watershed*. The organization has collaborated with the South Durham Library to offer the course to the citizens of Durham. This course is free and invites citizens of Durham to learn more about their local watershed and current water quality issues. The course has six sessions, offered in the evenings one day a week. The first four sessions involve background reading and discussions relating to the hydrologic cycle, water quality and stormwater. In session five, a presentation by a local water quality expert is given, followed by a group discussion. Session six is a tour to a relevant local site, chosen by the group. This curriculum and program is an excellent venue for individuals to participate in a program that encourages individual innovation and action on local water quality issues.

The SDGN is a dedicated environmentally conscious group that has done an outstanding job to educate and encourage landowners within the community to become better stewards of the land and to participate in local cleanup efforts. Congratulations to the SDGN.

Volunteers

SWCD Intern & NRCS Earth Team Volunteer– Kim Yewchuk



Durham SWCD & NRCS welcome Kim Yewchuk a senior from State University of New York, College of Agriculture & Technology, and Bachelor Degree Internship Program from Cobleskill, New York, to the District. Kim is serving as an intern with the Durham Soil & Water Conservation District & NRCS Earth Team Volunteer for 10 weeks. Kim has been working with the SWCD staff to gain experience in Best Management Practice design and installation for urban and agricultural water quality concerns and has special interest in the impact of nonfarm fertilizer on urban waterways. She has been compiling research data on Nitrogen and Phosphorus leaching and runoff from misapplication of nonfarm fertilizer and state regulations that have passed in ten states and county ordinances addressing the issue to reduce or mitigate the impact of the nutrients. Additionally, she has begun the GIS inventory of present use agricultural parcels in Durham County and has been reviewing the parcels and developing a list of parcels that will need a site visit and a buffer determination by Durham SWCD staff. This work is part of the Falls Reservoir Water Supply Nutrient Strategy (passed in January 15, 2011) which requires the Local Advisory Committee to develop a Local Nutrient Control Strategy for agricultural operations. Kim's technical expertise and efforts to begin this project have been extremely valuable and beneficial for the agriculture community and the Durham SWCD staff.



Volunteer– Kevin Parham

FY 2013, the Durham SWCD was lucky enough to receive some much needed volunteer help from high school junior, Kevin Parham. Kevin, a long time participant in Boy Scouts, was seeking his Eagle Scout certification in the fall of 2012 and approached the Durham District about volunteer opportunities at the District owned Dr. Roberts Environmental Education Park. Lacking key amenities, the Park is only used by the Durham District on a limited basis currently, but with the beginning of a trail system, a kiosk stand was needed so maps and notices could be posted. Kevin took it upon himself to design, raise funds for and build a two sided kiosk for the Park. He also built a wooden bench for a site on the trail. Kevin again returned to the Durham District in early summer of 2013 to volunteer as a summer intern with the District for a service learning project required by his high school, the NC School of Science and Math. During the month of June, Kevin volunteered for 60 hours with District staff. He worked on various projects such as the NC Community Conservation Assistance Program, the NC Agricultural Cost Share Program, the district environmental education program, office administration, stream restoration and more. He also undertook another major building project for the Dr Roberts Environmental Education Park. With help from District staff, Kevin designed and constructed a 12 ft long wooden bridge to span a section a creek leading to the next phase of the trail system.



Pictured above: Kiosk built by Kevin Parham

Cost Share Programs

AgWRAP– Agricultural Water Resources Assistance Program

Responding to an increased demand on the water supply in NC, the NC General Assembly created the NC Agricultural Water Resources Assistance Program (AgWRAP), to be administered by the NC Soil and Water Conservation Commission and the 96 soil and water conservation districts across the state. Similar in design to the NC Agricultural Cost-Share Program, AgWRAP is a voluntary program for farmers and agricultural landowners to help address water quantity resource concerns/needs on farms. AgWRAP is intended to; Identify opportunities to increase water use efficiency, availability and storage, Implement best management practices (BMPs) to conserve and protect water resources, Increase water use efficiency and Increase water storage and availability for agricultural purposes.

AgWRAP best management practices include; new Ag Water Supply/Reuse Pond, Ag Pond Repair/Retrofit, Ag Pond Sediment Removal, Conservation Irrigation Conversion, Micro-Irrigation System and Wells for crop irrigation or livestock watering.

In its first year of life, NC AgWRAP received \$1 million in non-recurring funds from the NC General Assembly. In FY 13, AgWRAP received \$500,000 in non-recurring funds. Due to the limiting amount of funding for the 2012 – 2013 operating year, the NC Soil and Water Conservation Commission decided to award funds through a competitive state pond application process instead of the normal District allocations. Furthermore, the only BMP available for cost share in FY 13 would be new Ag Water Supply/Reuse Pond constructions.

The Durham District submitted application for 2 new agricultural water supply ponds on behalf of 2 farmers in Durham. Both applications were approved for a maximum cost share rate of \$18,000 each for construction of the ponds. Both projects are currently in the engineering design phase and will hopefully be constructed within the next year.

Interested farmers are encouraged to contact us for more information about eligibility or to sign up for future allocations. For more information, please contact the Durham Soil and Water Conservation District at (919) 560-0558



Soils investigation for new pond



Agricultural Cost Share Assistance Program

The NC Agricultural Cost-Share Program (NC ACSP) is a voluntary assistance program to provide technical, educational and financial assistance to agricultural producers to address natural resource concerns on their land, particularly water quality issues. A wide variety of best management practices (BMPs) are offered through the NC ACSP to address Sediment/Nutrient Delivery Reduction from fields, Erosion Reduction/Nutrient Loss Reduction in fields, Agricultural Chemical Pollution Prevention, Animal Waste Management and Stream Protection from Animals. *Continued on page 16.....*

Sheet and rill erosion



Agricultural Cost Share Assistance Program

From its start in the 1980's, the NC ACSP has provided farmers across the state of NC the means to address soil erosion, water quality pollution, improve soil health and more. Durham County has benefited greatly from this program, providing local farmers the ability to conserve our natural resource while improving farming production.

Allocation:

In August 2012, the NC Soil and Water Conservation Commission allocated \$44,301 of funding for the Durham District for fiscal year '13. Funding for the ACSP is allocated to NC counties from the NC General Assembly in the state budget and is used for Best Management Practice (BMP) installation to address soil erosion and water quality issues on farms. The Durham District allocated 100% of this funding to be used by farmers and qualifying landowners here in Durham County. Due to the high program demand, Durham was also the recipient of a spring allocation of funds in the amount of \$11,347, of which 79% has been allocated to local Durham County farmers for BMPs.



Newly completed Grassed Waterway

Projects funded during the 2012-2013 Program Year:

- 1 well for watering livestock
- 8 Agriculture Pond Sediment Removal projects
- 2.53 acres in grassed waterways
- 24.7 acres in Cropland Conversion to Grass
- 1 Heavy Use Area Protection for livestock

These projects were either completed in FY12 or will be completed in the next 2 years.

Annual Spot Check

In May of 2013, the Durham District program staff, with assistance from the USDA NRCS District Conservationist and 3 Supervisors from the Durham SWCD Board, Ray Eurquhart, Talmage Layton and Danielle Adams, conducted its annual review of NC ACSP projects. Through a random selection process, 5% of all completed ACSP projects still under maintenance by the participating applicants or landowners were visited and evaluated. During the spot checks it was determined that all sites were in compliance with the NC ACSP standards.



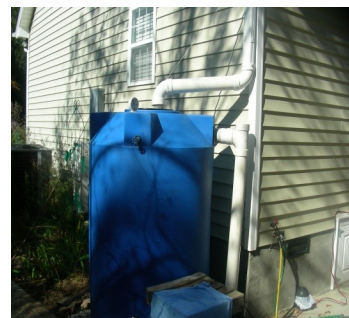
Ag Pond Sediment Removal

If you have any NC ACSP questions or needs, please feel free to contact Durham Soil & Water staff at 919-560-0558.



Community Conservation Assistance

The CCAP program is a voluntary state-funded program intended to assist landowners with best management practices in order to improve water quality on urban lands. The Durham district was allocated \$3,867.00 for projects for fiscal year 2013 by the Division of Soil and Water and the Durham District received an additional \$20,022 in grant funds from an EPA 319 Grant for the Jordan Lake Watershed. The Durham staff designed 13 BMP's on nine sites and the District Board allocated \$23,889 in cost share assistance for the installation. The BMP's for these sites include four rain gardens, three cisterns, three streambank stabilization and three critical-area riparian buffer plantings. The BMP's will provide nutrient reductions for 10 years. This voluntary incentive-based cost share program is administered by the Soil and Water Conservation District Board of Supervisors, who rank the applications for assistance by the water quality benefit to be attained.



Grant proposals submitted during FY2013 for CCAP

The Durham staff collaborated on three grant applications in FY2013 in order to obtain additional funding for the CCAP cost share projects in 2014 & 2015. The grants submitted included:

- Wells Fargo & Keep Durham Beautiful for \$6000, to install BMP projects in the Third Fork Creek watershed, focusing on under-served populations.
- National Wildlife Federation & American River's for \$11,000 to install BMP Projects in Durham County.
- Division of Soil & Water & CWMTF for \$30,000 to install BMP projects in the Jordan Lake Watershed .



2013 Annual Pond Clinic



The Durham Soil & Water Conservation District held their annual pond clinic on Saturday, April 27th, 2013. This year the Durham District partnered with Granville Soil & Water to hold a bigger and better pond clinic, with over 85 people in attendance. The clinic was held at the NC State Beef Cattle Research Farm located off of Cassam Rd in Bahama, NC. Those in attendance learned about the important role ponds play in water quality and how they qualify as a best management practice (BMP). They also learned about pond maintenance, fish production, pond construction and wildlife management. The Pond clinic concluded with a Catfish lunch and the shock boat which is always the highlight of the workshop.

A Fishing Tournament was held prior to the pond clinic at 7am . There was Youth and Adult prizes for the 1st and 2nd place winners.

Thank you to the following sponsors: Baker Engineering, RiverWorks, Durham Farm Bureau, Durham Soil & Water Conservation District, Granville Soil & Water Conservation District, Granville Farm Bureau, Foster Lake and Pond Management and SePRO.



Watershed



2013 National Conservation Districts Annual Meeting

On January 28, 2013, Mike Dupree was a presenter at the 67th NACD annual meeting during the concurrent breakout session 'Reducing Nutrient Loading by Reaching out To Home and Small Acreage Owners'. The session focused on the Durham VNRP program and the education and outreach efforts to reduce nutrient loading from non-farm fertilizer application. The information was well received and Conservation Districts from four states, Washington, New Hampshire, Pennsylvania and Oregon expressed an interest in the program and requested additional information on how to implement the program.



2013 NCASWCD 68th Annual Meeting

Durham SWCD Watershed Conservationist, Mike Dupree has been working with members of the Community Conservation Committee (CCC) of the North Carolina Association of Soil and Water Conservation Districts. He presented a power point presentation on January 7, 2013 during the annual meeting of the CCC describing the Durham VNRP program and urged the committee to address nutrient contributions from misapplication of nonfarm fertilizer. The Committee drafted and passed the following resolution:

"The Association recognizes that misapplication of non-farm fertilizers contributes to non-point pollution of the surface and subsurface waters of the state and that a consistent statewide program to significantly reduce such contributions is needed and desirable. The Division, and the Division of Water Quality, DENR, will join with the Association in consulting with a wide spectrum of interested and knowledgeable parties, including from other states and federal agencies, to formulate a comprehensive approach to the problem of non-farm fertilizer use."

The resolution was then passed by the Association on January 8, 2013 and was sent to the Executive Committee and passed on March 19, 2013.

The Executive Director, Dick Fowler will be assembling a group to begin formulating a Voluntary Best Management Practice manual for North Carolina and make recommendations to the North Carolina Department of Agriculture & Consumer Services Fertilizer Section for potential fertilizer labeling requirements for retail fertilizer products sold in North Carolina.

Falls & Jordan Watershed Update

Durham County has an important part in improving the water quality of two reservoirs serving triangle residents. The NC legislature passed nutrient management strategies for the two lakes, Jordan Water Supply Nutrient Strategy (August 11, 2009) and the Falls Reservoir Water Supply Nutrient Strategy (January 15, 2011). These nutrient reduction strategies have specific requirements for local governments and landowners to implement in order to improve water quality.

The Falls Rules and Local Advisory Committees (LAC)

The Durham Soil and Water Conservation District staff and the LAC are required to complete the following tasks:

Register all agriculture operations in the watershed. The registration forms are available at the Durham district office or online. To date, 49 agriculture operations have registered in Durham County, which is approximately 29% of the estimated total of operations in the county. The DSWCD staff will continue to contact landowners and register local agriculture operations.

Develop a Local Nutrient Control Strategy (LNCS). The local nutrient control strategy that is to be developed must specify the numbers, acres, and types of agriculture operations in the area; numbers of BMP's that will be implemented by enrolled operations; estimated nitrogen and phosphorus loading reductions; schedule for BMP implementation; operation and maintenance requirements.

The DSWCD staff has been working with the tax office and GIS and has identified 395 PUV Ag parcels in the county that either contain surface water or are within 100' of surface water. This list of agriculture operations is the starting point for the development of the LNCS. These parcels are first reviewed using the GIS system and imagery as an initial screening. To date, DSWCD staff has recruited interns to assist with the initial screening of parcels. After the initial screening it is necessary to complete a site visit by department staff. During the site visit DSWCD staff will conduct an interview with the landowner and complete a buffer evaluation. This process is necessary in order to complete the nutrient control strategy, specifically the BMP design, estimated reductions, the schedule of BMP's implementation and the operation and maintenance requirements. All of this data would be compiled and tracked in a software package that would work with the county GIS system. The LNCS requires an inventory of all agriculture operations in the county and once this is completed the DSWCD staff and District Board would be able to complete a ranking of water quality projects and tracking of the nutrient reductions required for the annual reporting.

Annual reports from the Durham LAC documenting the progress toward the nutrient reductions required by agriculture producers are required by the Falls rules. The Durham LAC met on March 12, 2013 to compile the Neuse report as required. The reports and the documented progress are to be submitted to the Falls Water Oversight Committee by May of each year. The report submitted by May of 2016 will be used by the EMC to determine the progress of the agriculture community towards the nutrient reduction goals and the likely hood of the implementation of the Stage II rules.

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Jordan Lake Watershed Baseline for Agriculture

The Durham Soil and Water staff compiled the baseline data for the Agriculture producers in the Jordan watershed and in comparison the Agriculture producers documented a 70% reduction in nutrients losses in crop year 2011 than they reported in the baseline period between 1997 and 2001. This reduction exceeds the requirement of a 35% Nitrogen reduction required by the Jordan rules passed in 2009 for agriculture producers. Annual reporting and nutrient accounting is required by the DSWCD staff to the Jordan Water Oversight Committee until such time as the EMC determines that the annual reports are no longer needed to fulfill the purposes of the rule.

Jordan Nutrient Management Rule

The Jordan rules state that all fertilizer applicators be certified and implement a nutrient management strategy for land applied nutrients in the Jordan watershed. The rule requires that a *“landowner who hires an applicator to apply nutrients to the land that they own or manage in the Jordan watershed shall ensure either that the applicator that they hire has attended and completed nutrient management training or that the applicator they hire follows a nutrient management plan that has been developed for the land they own or manage”*. This rule applies to properties of at least five acres including cropland for commercial purposes, commercial ornamental and floriculture production, golf courses, public recreation lands, road or utility rights-of-ways or any other commercial or institutional lands or combination of lands under common management that totals at least five acres.

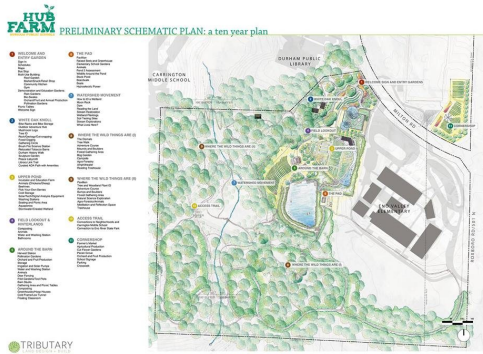
DSWCD trains DPS Maintenance Staff

Watershed Conservationist, Mike Dupree has been working very closely with Allen Bailey, the Director of Operations for Durham Public Schools (DPS). This year several training seminars for DPS landscape maintenance staff were conducted. The first training was the Nutrient Management Training to become certified applicators as required by the Jordan Nutrient Management Rule and the second seminar focused on the nutrient management of athletic fields and calibration of fertilizer application equipment. The DPS landscape staff of 18 is responsible for the maintenance of 51 schools and approximately 1500 acres in Durham County. These training seminars focus on precise application of fertilizers and proper turf management of the DPS school properties and collaboration on the training with DSWCD has had a significant impact on the reduction of nutrients and sediment into Durham waterways.

In addition to the nutrient management training seminars and a training program on water management of the athletic fields was organized. A NIFA grant obtained by DSWCD will pay for a *Smart Controller* upgrade to the irrigation system on four athletic fields for Southern High School. Once the new controller is installed the system will save 20% to 50% of the current potable water usage. DPS currently spends \$15,000 a year on average for the irrigation of the four fields. The annual savings in the water bill from the technology upgrade at this school will be able to fund one upgrade per year for the eight other schools in the system. This technology upgrade funded by DSWCD and the Water Management training will save the school system money, reduce water use and will likely reduce nutrient runoff and leaching from the highly managed turf operations.

Ag Development

Community Farm Project



Durham Public Schools owns a 30-acre parcel of land that is adjacent to three schools: Eno Elementary, Carrington Middle and Northern High. This property is ideal for the creation of a community farm that has the potential to provide a substantial part of the three schools' fresh produce needs into their cafeterias and the site has the potential of hosting a year-round farmers' market for local producers.

DSWCD staff provided assistance to DPS officials with this project by conducting a site evaluation of the surface waters and buffer requirements with representatives from the Division of

Water Quality and the US Army Corp of Engineers, participating in the meetings with the City of Durham Planning Department for site plan approval and providing technical assistance in the layout of the row crop production area.

New Farmer's Market Ordinance

Farmland Protection Advisory Board members and staff of the DSWCD worked with City & County planning staff to revise the ordinance relating to farmers' market "retail sales". The ordinance revision was amended and approved and now allows farmers' markets in areas not typically open to retail activities. One such location that was a driving force behind the initiative was the Northern High School Saturday Market. The farmers' market had been operating in the parking lot for numerous years and vendors paid a small fee and to support the high school band program. The market was not permissible according to the ordinance and the market was issued a cease and desist order by the planning department. This and the emergence of numerous agricultural operations within city limits have lead to an ordinance that offers more opportunities for Durham producers and new market locations.

Northern High School Agriculture Education Program



The Outdoor Classroom- A courtyard area is being transformed to create an outdoor learning lab and edible gardens. The DSWCD staff has been assisting the Occupational Course Study teacher, Susan Poole, the Administration and local volunteers to establish gardens that will be maintained by the OCS students to receive training in the Green Industry Careers and supply the Culinary Arts program with fresh herbs and vegetables.



**DURHAM SOIL & WATER
CONSERVATION
DISTRICT**

721 Foster St
Durham, NC 27701

Phone: 919-560-0558
Fax: 919-328-6192

Mission Statement

To conserve, enhance, promote the natural resources of Durham County by providing technical assistance, environmental education information, and economic incentives to County citizens and by exhibiting a diversified program to meet its changing needs.



Find us on facebook:

www.facebook.com/pages/Durham-County-Soil-and-Water-Conservation-District

Visit our website
www.dconc.gov

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Curtis Richardson– Supervisor
Kathryn Spann– Associate Supervisor
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Mark Dewitt– Associate Supervisor
Melissa Rooney– Associate Supervisor

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Eddie Culberson– Director
Lisa Marochak– Administrative Officer II
Jennifer Brooks– Soil Conservationist/ Environmental Education Coordinator
Mike Dupree– Ag Development/ Watershed Conservationist
Matthew Kinane– NRCS
Steve Bennett– Regional Coordinator-Central
Ralston James– Regional Coordinator-Central

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Anthony Lopez– Falls/Lick Creek VAD
Roger Tilley– At Large
Demetrius Thompson– At Large
Samantha Gasson– At Large
John Monroe– At Large

Items For Sale

FY2013– the district sold the following items:



**Ivy
rain barrel**



**Moby
rain barrel**

Sold 23



**Soil Saver
Compost Bin**

Sold– 6



Tree Seedlings

Sold– 925