

## **Durham's Bionomic Education and Training Center Program and the Future of our Youth**

ICMA, Dec 4, 2014

In April, 2013, the Environmental Protection Agency calculated that fifty-five percent of monitored waterways in the United States are impaired by pollution, meaning they are too polluted for healthy recreation, public drinking water and subsistence fishing. Twenty-five percent of the nation's beaches are under advisories or closed at least once per year due to water pollution. The leading cause of this impairment is nonpoint source (NPS) pollution, nutrient-rich stormwater runoff from roads, parking lots and neighborhood lawns.

While local and state government departments argue over who is responsible and how much of the billions of dollars in cleanup costs they should pay and receive, Durham's Soil and Water Conservation District (SWCD) has its boots on the ground, implementing holistic, nature-based solutions in real time. The SWCD is a local unit of government established under state law to carry out natural-resource management programs at the local level. Durham's SWCD is one of 3,000 conservation districts across the country, all part of the nonprofit National Association of Conservation Districts. Their basis is that "conservation decisions should be made by local people with technical and funding assistance from federal, state and local governments and the private sector."

One of the responsibilities of Durham's SWCD is to implement North Carolina's Community Conservation Assistance Program (CCAP), which provides up to seventy-five percent matching funds to install best-management practices (BMPs), including rain-gardens and rain-water-collecting cisterns on urban, suburban, and rural land that isn't directly involved in agriculture.

These BMPs direct stormwater from impervious surfaces (roofs, driveways, roads) to garden beds and other landscaped areas where plant roots prevent erosion and naturally filter nutrients that are otherwise detrimental to surrounding waterways.

Durham's conservationists visit properties of CCAP applicants, survey their land and suggest the best sustainable solutions to their runoff problems. If applicable, they help the applicant navigate the process to acquire matching funds for BMP installations. The SWCD has facilitated the installation of over a hundred residential rain gardens and cisterns in the last few years at private residences and public schools throughout Durham County. As part of the process, conservationists educate homeowners' associations and schools about environmentally responsible landscaping and stormwater management, thus amplifying the program's educational impact.

As a well-known proverb states, "Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime." Using the CCAP program as a stepping-stone, Durham's SWCD appears determined to do the latter— by equipping Durham youth and, through them, our society with the knowledge and practical experiences to ensure the health of our waterways in the long term.

In 2010, the SWCD board implemented the Bionomic Education and Training Center (BETC) at Durham's Southern High School. Conceived by a small group of local business owners and educators who wanted to produce job-ready applicants for the Green Industry and improve the way science is taught in secondary schools, BETC is a workforce-development training program whose mission is to teach high school students environmentally sustainable horticulture and landscaping practices. The BETC program also addresses water quality issues

by designing and implementing stormwater retrofits on school grounds.

Southern High School is a Title-I school with an Occupational Course of Study (OCS) curriculum, which trains socially and economically disadvantaged youth. The BETC program prepares youth in the OCS program for green infrastructure careers by teaching them about the sources of urban containment and how BMPs can improve water quality.

Given the state of our waterways, our ever-increasing population, and our imperative need for clean water to survive, green infrastructure careers will be in increasingly high demand in our states over the coming years. Thus, the BETC program provides the means to obtain a livable wage for a population that usually only qualifies for low-paying jobs as well as an opportunity to improve the life of the local community.

Many of these low-income students have rarely, if ever, put their hands in soil, and most have never gardened in any way. The joy they receive in learning how to sustain the environment as well as themselves and their families is reason alone for the BETC program. The fact that they get exposure to sunlight and the outdoors and are physically active during school hours are significant fringe benefits, particularly given society's increasing concern with current students' general lack of physical activity, obesity, and lack of exposure to nature and the outdoors (including sunlight and Vitamin-D deficiencies).

While learning to help sustain their natural environment, the BETC participants also learn to sustain themselves and their families, not just by training to earn a livable wage but also by learning to grow the food that they eat. In addition to maintaining a successful agribusiness, the participating youth have also

developed noteworthy and visible changes in self-esteem. As the students' pride improves, so do their performance and their sense of place in and accountability for their community and their world, at large. What's more, the students take what they learn back to their families and their neighborhoods, spreading (far beyond school grounds) the need for protecting and preserving our soil and water resources and the means by which to do so.

Conservationists from SWCD and the Southern High School teachers and students involved have also applied for and received over \$530,000 in grant funding from state and federal sources. The money will be used to install a rain-water-collection and reuse irrigation system for the school's athletic fields, saving the school approximately \$15,000 per year in conserved water. By installing stormwater retrofits on the existing school campus, the BETC program improves water quality in Durham County streams and reduces the financial burden on Durham taxpayers, on whom North Carolina has imposed nutrient reduction mandates to improve downstream reservoirs. This program serves as an example for future schools and other developments and could save Durham County hundreds of thousands of dollars in cleanup funds in the long run. Thus, the students' sense of meaning and pride extends beyond their immediate community to the county and even the state levels.

Additionally, in a time when government and private organizations are often competing for credits as well as taxpayers' money, the BETC project has created successful collaboration between government, public schools and the community. The SWCD has extended this collaboration further, installing educational gardens, rain gardens, and stormwater retrofits at other Durham Elementary, Middle and High Schools.

The BETC program at Southern High School is intended to be a pilot program, and efforts are underway to extend its work

program, curricula, and retrofit designs and installations to other schools, particularly those with STEM (science, technology, engineering, and math) accreditations. But the SWCD won't have to wait for the accolades. This January, the Southern High School Agribusiness program will be recognized as recipient of the state Urban Conservationist Award from the North Carolina Association of Soil and Water Conservation Districts, and the BETC program is being considered for the national 2015 Alliance for Innovation Award (J. Robert Havlick Award for Innovation in Local Government). But, as the folks at Durham's SWCD will tell you, it's not about the accolades, it's about the future of our youth and their resources.

**Sources:**

<http://www.livescience.com/28669-dirty-water-report.html>

<http://water.epa.gov/polwaste/nps/outreach/point1.cfm>

<http://www.americanrivers.org/initiatives/pollution/runoff/transportation-stormwater-runoff/>