

Water Pages

FALL 2008
Edition

*A Quarterly Newsletter Produced by the Rutgers Cooperative Extension
Water Resources Program: Creating Solutions for Water Quality Issues in NJ*

Troy Brook Regional Stormwater Management Implementation Project

The RCE Water Resources Program and the Whippany River Watershed Action Committee completed the first Regional Stormwater Management Plan in New Jersey that complies with NJDEP's new regulations. This plan is for the Troy Brook Watershed, which encompasses portions of three municipalities in Morris County: Mountain Lakes, Parsippany-Troy Hills, and Hanover. The plan identifies specific watershed management projects that will help mitigate the flooding issues, as well as the water quality issues in the watershed.

NJDEP has just awarded the RCE Water Resources Program \$471,000 to begin the implementation of the recommendations in the plan. These funds were made available through NJDEP's 319(h) Program, which is focusing efforts on funding the implementation of

watershed plans across New Jersey. The State is targeting their support in areas where they believe significant water quality improvements can be made, ultimately cleaning up waterways to such an extent where that they can be removed from the official "impaired waterways" list. To compliment this project, the RCE Water Resources Program has been provided some limited funding from the New Jersey Agricultural Experiment Station (NJAES) to conduct water quality and flow monitoring of the Troy Brook to develop a complete characterization of stream health prior to the implementation of the Regional Plan. Additional data will be collected during the course of this project to clearly document the water quality improvements that result from the implementation of the Regional Plan. For additional information on this project, please see our web site at www.water.rutgers.edu.

The Rain Garden Symposium

The Rain Garden/ Bioretention Research and Extension Symposium was held May 29th and 30th at the Heldrich, in New Brunswick, NJ. This symposium covered a wide range of related topics through presentations from experts in the area of bioretention systems/rain gardens and related stormwater management topics. Researchers from across the country shared their latest research findings. Background information about the beginnings of bioretention was presented along with case studies of implementation and education projects. Additionally, panel discussions explored future research needs and how to bridge the information gaps between researchers, educators, and activists.

The symposium was attended by 118 people. Attendees included: representatives from the New Jersey Department of Environmental Protection; United States Geological Survey; United States Environmental Protection Agency-Region 2; New York City Department of Environmental Protection; Rutgers, the State University of New Jersey; New Jersey Institute of Technology; North Jersey Resource Conservation and Development Council; AmeriCorps; Environmental Commissions

throughout New Jersey. Also in attendance were engineering consultants, members of planning boards, public works departments, watershed organizations, and representatives from various school districts.

Speakers from the University of Minnesota Extension; University of Maryland; Villanova University; University of New Hampshire Stormwater Center; Kansas State University; University of Wisconsin; Rutgers, the State University of New Jersey; North Carolina State University; Griffith University, Australia; City of Columbia, Missouri; University of New Hampshire; Washington Conservation District; and Cornell University presented at the symposium.

This symposium was presented by the Rutgers Cooperative Extension Water Resources Program, New Jersey Sea Grant Extension Program and the USDA CSREES Regional Water Coordination Program for New York, New Jersey, Puerto Rico and the Virgin Islands. A copy of the symposium agenda, as well as available presentations, can be found at www.water.rutgers.edu. For more information, please contact Gregory Rusciano at 732-932-9800 x 6130 or at greg.rusciano@rutgers.edu.

Lots of Fun in the Sun for Summer Student Interns

Once again, this summer the RCE Water Resources Program employed several students to assist in summer research and extension projects. Daryl Strom and Ben Pearson returned to us from last year. Both are entering their senior year as bioenvironmental engineering students. Dan Yu, a sophomore bioenvironmental engineering student, joined our team this summer along with two high school students, Darius Griffith and Immanuel Krogmann. Additionally, this summer we had the pleasure of working with Ariel Martin, an Environmental Sciences graduate student. The students conducted water quality sampling and flow monitoring of the Black River, Assisunk Creek, Musconetcong River, Tenakill Brook, Musquapsink Brook, Troy Brook, and Strawbridge Lake. The data collected by the students will be used to develop watershed restoration and protection plans and to help us document the impact of stormwater management practices. The students also helped construct and maintain rain gardens throughout the State. They conducted



a lake dredging feasibility study. They also performed column experiments to help determine which additives to bioretention soil mixes will improve nitrogen removal. Finally, the students built a low impact development demonstration project at the Environmental & Natural Resource Sciences (ENRS) Building. A patio was constructed with a rain garden to capture, treat and infiltrate the additional runoff created by this new impervious surface. The patio itself was constructed from old laboratory bench tops and old bricks from previously demolished urban buildings. This was a perfect example in reuse of old construction materials and a demonstration of how to offset the impact of new impervious surfaces.

Every year we try to hire summer student interns to provide them with some real world experience. Daryl, Ben, Dan, Darius, Immanuel and Ariel did a great job this summer, earned a little money, and had a lot of fun.

The Passing of Karan Bhandari

It is with heavy hearts that we inform you of the untimely death of graduate student, Karan Bhandari, in a fatal car accident on a warm summer Thursday evening in early July. Karan graduated two years ago with a degree in Biore-source Engineering from Rutgers. He was pursuing his Masters degree in Civil Engineering at Rutgers under the guidance of Dr. Christopher Obropta. Karan was one of the Water Resources Program's best summer interns. He recently began working in New York City as an Environmental Engineer at EDAW. Prior to this appointment, he



worked for CMX as a Project Engineer. Karan was a hard working, kind, gentle man with an infectious smile. He will be missed.

On September 15, 2008, we held a memorial ceremony to honor Karan. We dedicated our newly constructed rain garden in our low impact development demonstration project at the Environmental Sciences Building to Karan. Please feel free to stop by the rain garden, read the memorial plaque, and spend a moment to say goodbye to our friend.

Christopher C. Obropta, Ph.D., P.E.
Associate Extension Specialist in Water Resources

Pervious Pavement Pilot Study at Pinelands Nursery

Pinelands Nursery (Pinelands) in Columbus, New Jersey is a native species nursery that services the tri-state area. Stormwater runoff from Pinelands drains to a water reuse pond at the nursery. This water reuse pond, like many ponds found at nurseries throughout the State, contains elevated levels of nutrients, namely phosphorus and nitrogen. Every summer, almost the entire surface of the pond is covered with duckweed. This has been a reoccurring problem for many years at Pinelands. The overabundance of duckweed is due to the excess nutrients found in the stormwater runoff draining to the pond throughout the year resulting in a eutrophic condition.

Nutrients, particularly phosphorus, are commonly bound to sediment and other particulate matter transported in stormwater runoff. If the stormwater runoff from Pinelands was reduced by decreasing the amount of impervious surfaces at the nursery, the amount of nutrient laden sediments being transported to the pond would be reduced, as well. Pinelands has gravel roadways throughout the nursery. These roadways were once pervious, but due to years of traffic from heavy equipment, they have been compacted so much that they have become impervious. The staff at Pinelands has decided to reduce the amount of impervious gravel roadways at the nursery to reduce the amount of stormwater runoff and therefore sediment draining to the water reuse pond by replacing the gravel roadways with a pervious pavement. Pervious pavement is structurally as strong as a gravel road but is pervious with an infiltration rate similar to open space. Pervious pavement increases infiltration, lowers the volume of runoff, and eliminates the gravel roadway as a source of sediment. In addition, there is a financial benefit as well; the gravel roadways at Pinelands need to be replaced every few years, thus increasing their facilities maintenance costs. The pervious pavement will last much longer than the gravel roadways and end up saving Pinelands money in the long run.

Pinelands has recently replaced a portion of the gravel road on their site with a pervious pavement product called Turf Stone. The Rutgers Cooperative Extension Water Resources Program, as part of a pilot project

funded by the Natural Resource Conservation Service (NRCS), is monitoring the effect the pervious Turf Stone roadway has on the water quality of the stormwater runoff from the nursery and the water quality of the water reuse pond. The Water Resources Program has set up a small monitoring station (See the photo below) and a sampling plan to study the stormwater runoff from the Turf Stone roadway over the course of a year. Samples were collected during two storm events this summer, (i.e., Summer 2008) and the study will conclude in December 2008. By then the Water Resources Program will be able to report on whether replacing the impervious compacted gravel roadway with the pervious Turf Stone roadway resulted in a change in the water quality of the stormwater runoff from the nursery and the pond, as well as any impact on the facility maintenance costs of Pinelands. For more information about this pilot project, please contact Sean Walsh at 732-932-9800 x 6126 or at swalsh@envsci.rutgers.edu.



Monitoring station at Pinelands Nursery

WANTED

Tenure Track Extension Faculty Positions No Ph.D. Required



Have you ever thought that you would like to make a difference? Well here is your chance. Rutgers Cooperative Extension is seeking five (5) Environmental and Resource Management County Agents. Each Agent will provide leadership in developing educational programming and conducting research to address New Jersey's environmental problems with a particular focus on water resources protection, watershed and stormwater management, low impact development and water reuse. These are tenure track faculty positions and require three years of

experience along with a bachelor's and master's degree from an accredited institution in environmental science, environmental planning, natural resource management, environmental engineering, or related field.

A copy of the formal position announcement can be found at <http://njaes.rutgers.edu/jobs/>. This is a unique opportunity to join a winning team and help the residents of New Jersey solve their environmental problems.

We Have Arrived - It's Tenure Time



Dr. Christopher Obropta joined Rutgers six years ago as an Assistant Extension Specialist in Water Resources, leaving a twelve year career as an environmental engineering consultant. When hired, Dr. Obropta was asked to develop a water resources program for Rutgers Cooperative Extension. The goal of the program is to

provide solutions for many of the water quality and quantity issues facing New Jersey. This is accomplished through the integration of research, education and extension efforts. Six years ago, the program started with Dr. Obropta and a single Program Associate, Lisa Galloway Evrard. Since then the program has grown to nine full-time staff, all supported on grant funding. The program also supports several graduate students as well as hourly undergraduate students.

For those of you who do not know how it works in an academic setting, as a newly hired tenure-track faculty

member, you have five years to put together a comprehensive portfolio that is submitted at the end of your fifth year to the university promotion committee. This package highlights your efforts in three areas: teaching, scholarship (publications and grants), and service. A committee reviews the package and determines if you have achieved all the necessary requirements to be promoted to an Associate Professor and receive tenure. On July 1, 2008, Dr. Obropta passed the test and was promoted to Associate Extension Specialist with tenure. What does this mean for the RCE Water Resource Program? Basically, we are here to stay! The average faculty member stays at Rutgers for 23 years. So, we are good for another 17 years!

SAVE THE DATE
Watershed University 2

October 24, 2008
The Heldrich,
New Brunswick, NJ

Go to www.water.rutgers.edu to register

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