



WATER PAGES

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

Fall 2009
Edition

Lawrence Brook Water Quality Analysis

The Lawrence Brook is a tributary of the Raritan River and flows directly through Rutgers University Cook Campus. This 45-square mile sub-watershed contains nearly ten miles of mainstem stream and a series of man-made lakes created by dams built in the 19th and 20th centuries. Urbanization is prevalent throughout much of the Lawrence Brook watershed, and today it suffers from the impacts of point and non-point source pollution. Stormwater runoff carrying pollutants from lawns, roadways, and other impervious surfaces contributes largely to its degraded state. Illicit discharges from industrial sites, effluent from wastewater treatment plants, and historic contamination also threaten the health of the watershed. The Lawrence Brook is listed in the draft 2008 Integrated Water Quality Monitoring and Assessment Report as a non-attainment waterbody and does not meet water quality standards for phosphorus, total suspended solids, arsenic, fecal coliform, dioxins, and polychlorinated biphenyls (PCBs).

The staff and student interns of the Water Resources Program conducted water quality sampling in the Lawrence Brook subwatershed during the summer of 2009 to further examine its impairments, identify potential sources, and ultimately develop restoration projects to improve the overall health of the stream. Samples were collected at four sites along the mainstem and two along its major tributaries. The samples were analyzed for phosphorus, nitrate, nitrite, ammonia, and total suspended solids. Temperature, pH, dissolved oxygen, and flow measurements were also recorded for each of the six sites. In addition, student interns also learned about and completed Stream Visual Assessments for the Lawrence Brook.

Data analysis of the sampling results will be completed within the next month to identify areas of the Lawrence Brook with the most severe impairments.

Restoration projects, such as riparian buffer improvements or best management practice implementation will be developed to target the priority areas of the subwatershed.

For more information, please contact Jillian Thompson, Program Associate, 732-932-9800 extension 6166 or email at jthompson@envsci.rutgers.edu



Undergraduate students, Tolin Hessell and Kate Sullivan collecting samples from a tributary of the Lawrence Brook.



Undergraduate student, Dan Yu preparing to take flow measurements.



www.water.rutgers.edu

Big Bucks Awarded to Rutgers for Implementing Stormwater Management Solutions in the Pompeston Creek Watershed

The Rutgers Cooperative Extension (RCE) Water Resources Program has been working with the New Jersey Department of Environmental Protection (NJDEP) for over seven years on addressing watershed issues throughout New Jersey. This partnership has led to the development of several Regional Stormwater Management Plans, Watershed Restoration Plans, and on-the-ground stormwater management implementation projects. Under Section 319(h) of the Clean Water Act, the United States Environmental Protection Agency (US EPA) provides states with funding to pass through to various groups to reduce water quality impairments through the implementation of nonpoint source (NPS) pollution control projects. NJDEP has granted the RCE Water Resources Program \$1,000,000 of this 319(h) funding to design, implement and evaluate stormwater best management practices (BMPs) in the Pompeston Creek Watershed. The Pompeston Creek Watershed is located in Burlington County and discharges to the Delaware River.

The Water Resources Program has been working in the Pompeston Creek Watershed since July 2004 when it began to prepare a Regional Stormwater Management Plan for this watershed. The plan assessed water quality and water quantity problems occurring within the watershed. Local areas of flooding, poor water quality and low recharge to groundwater were several issues that were addressed in the plan through site specific recommendations for stormwater BMPs.

The Water Resources Program, along with the Pompeston Creek Watershed Association, Burlington County and the new Burlington County RCE Environmental and Resource Management Agent, Mike Haberland, will work through four objectives of the implementation project to meet the water quality and water quantity goals that have been identified in the plan. The four objectives are: 1) the identification and quantification of bacterial sources and the design of remedial actions, 2) the design and implementation of NJDEP approved management practices for flooding and NPS pollution control projects specifically in Delran, 3) the disconnection of impervious surfaces and the infiltration of stormwater runoff and 4) the design of habitat restoration and stabilization projects within Pompeston Creek Park.

In addition to reducing flooding and improving the water quality of the Pompeston Creek, these projects will provide many New Jersey municipalities with meaningful examples of how to address the water quality impairments and flooding issues that they are often faced with today. For example, methods of creating a sanitary survey for bacterial source loading will help to ultimately reduce the pathogens in our waters. Infiltration of the runoff from impervious surfaces will result in greater recharge of our depleting aquifers. Stream restoration and site specific flooding analyses will address water quantity issues from increased urbanization.

For more information about the Pompeston Creek Regional Stormwater Management Plan Implementation Project, contact Sandra Goodrow at 732-932-9800 x 6125 or at sgoodrow@envsci.rutgers.edu.



Build a Rain Barrel Workshops are a Huge Success in New Jersey

In the summer of 2009, a rain barrel education program was developed by Rutgers Cooperative Extension as part of its expansion of the Stormwater Management in Your Backyard program for homeowners. The goal of the Build a Rain Barrel workshop is to educate homeowners about stormwater management and water conservation and for the homeowners to build their own rain barrels for their homes. The workshops include an in-class lecture and hands-on portion where the audience is guided with the construction of their very own rain barrel.

Over two hundred homeowners participated in the Build a Rain Barrel workshops held from July to September 2009, which spanned a total of six counties (Middlesex, Ocean, Burlington, Union, Gloucester, and Essex). Additional workshops are planned for this fall. A rain barrel art program for communities is currently under development by Rutgers Cooperative Extension. For information on upcoming rain barrel workshops and frequently asked questions, visit: water.rutgers.edu



Michele Bakacs, Environmental County Agent for Middlesex and Union Counties, delivers an in-class lecture on rain barrels at the Rahway Recreation Center in August 2009.

Rain Barrel Workshop for Rutgers University

Faculty and Staff
Build a Rain Barrel Workshop
Monday, October 26, 2009
12, noon – 1 PM and 5-6 PM
Cook Campus Center
\$45 per barrel



Tina Campangna, a Rahway resident, enjoys her new rain barrel that she constructed at the Build a Rain Barrel workshop in August 2009.



Environmental Justice for the City of Newark

Newark is home to over a quarter million residents, with a median household income under \$27,000. This is less than half of the New Jersey median household income (US 2000 census). In 1999, over 28% of Newark residents lived below the poverty level. The population density (11,494 people/sq mi) is an order of magnitude higher than the New Jersey average. Because of these intense urbanization pressures and lack of economic resources, the City of Newark has multiple environmental issues – issues that we must address.

The New Jersey Department of Environmental Protection 319(h) grant program is now funding an environmental justice project in the City of Newark. This project focuses on providing educational opportunities for school children in Newark, as well as job training for the adults in this low-income community to improve both the environment and the quality of life for residents.

As part of the educational programs, stormwater best management practices (BMPs) will be constructed to capture, treat and infiltrate (where possible) stormwater runoff. By capturing this runoff, the combined sewer overflow (CSO) system in Newark will discharge less frequently, thereby preventing the input of raw sewage to the waterways that surround Newark. Additionally, this control of stormwater runoff will help prevent surcharging of the manholes in the sewer system, which will help stop the discharge of raw sewage through the manhole covers into the city streets.

Gregory Rusciano, the new County Environmental and Resource Management Agent for the Rutgers Cooperative Extension (RCE) of Essex and Passaic counties, has already conducted several site visits with stakeholders from the partner organizations, the Greater Newark Conservancy and the Weequahic Park Association. Staff from the RCE Water Resources Program will develop engineering designs of the demonstration BMPs for the chosen sites. Educational programs will be developed based on these projects and disseminated by project partners to the public. An environmental science education curriculum will be developed for the Newark schools that will bring the science and engineering related to stormwater treatment systems into the classroom. In addition, the curriculum for a job training program for adults will be developed. Working through local nongovernmental organizations, Newark residents will be hired to construct the stormwater management BMPs. The training will include information about maintenance measures for the newly constructed BMPs.

Today, Newark has the ability to capitalize on political, economic, and social changes which promise to highlight the positive attributes of the City of Newark's excellent location, diverse population, tremendous infrastructure, and rich culture. This environmental justice project will address water resources management, green space needs, and economic development while producing tangible results for Newark.

For more information, contact Jillian Thompson at 732-932-9800 x6166 or at jthompson@envsci.rutgers.edu.



Welcome to our new Program Associate, Benjamin Pearson!

Ben Pearson, graduated in May of 2009 from Rutgers, The State University of New Jersey, with a B.S. in Bioenvironmental Engineering. As an undergraduate student, Ben focused on water resources and designed stormwater management controls for both a new development and a waterfront park in Cataret, NJ, and also prioritized rain garden placement to reduce stream bank erosion in the Ross Brook. Ben interned with the Water Resources Program for the summers of 2007 and 2008 and has been involved with the staff for many projects. During the internship, he assisted with surface water sampling and stream assessments, built and maintained rain gardens throughout the Garden State, and also assisted in a dye study for the Bordentown wastewater treatment plant. Ben is a welcome addition to our Water Resources Program and can be reached at 732-932-9800 x6165 and at bpearson@envsci.rutgers.edu.



Welcome New Environmental and Resource Management County Agents

Rutgers Cooperative Extension (RCE) has recently hired five Environmental and Resource Management County Agents. The New Jersey Department of Environmental Protection (NJDEP) jointly funded these positions with RCE. These five new Agents will focus on helping urban and non-urban stakeholders address water resources issues. Each Agent is serving a two county area, and all of them have gotten off to a great start. We hope you will join us in welcoming these new Agents and consider partnering with them on your next project.



Pat Rector is the Agent for Morris and Somerset Counties. She is working with stakeholder groups to implement the Troy Brook and Black River Watershed Restoration Plans in Morris County. Pat is also working with New Jersey Water Supply Authority to conduct educational and outreach programs in the Peter's Brook Watershed in Somerset County. Additionally, she is currently working to develop educational programming for Department of Public Works (DPW) employees, which will include several demonstration projects of greening of DPW yards in Somerset County.

Agent Contact Information

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Sal Mangiafico is the Agent for Salem and Cumberland Counties. He has begun to work with stakeholders in the Upper Cohansey River and Upper Salem River to complete the Watershed Restoration Plans for these waterbodies. He is also working with NJDEP and our RCE Water Resources Program to develop demonstration projects on turf management for stormwater control and water conservation. Additionally, he is adapting a survey for the nursery industry to help assess their needs.



Michele Bakacs is the Agent for Middlesex and Union Counties. She has begun to focus her efforts on working with stakeholders to implement the Robinsons Branch Regional Stormwater Management Plan and the Manalapan Lake and Brook Watershed Restoration Plan. As part of the statewide water conservation program Michele is also testing a residential incentive program in the City of Rahway to encourage residents to adopt water saving practices in their homes. Michele has given several "Build-a-Rain-Barrel" workshops and has also developed a train-the-trainer program so she can instruct local organizations on how to deliver these workshops.



New Environmental and Resource Management County Agents Continued



Greg Rusciano is the new Agent for Essex and Passaic Counties. He has already offered several "Build-a-Rain-Barrel" workshops in his counties. He is working closely with the Greater Newark Conservancy and the City of Newark on providing green job training. He is also working closely with several communities on implementing rain garden programs and water conservation programs. Finally, Greg has been working closely with stakeholders in Passaic County to help implement the Watershed Restoration Plan for the Molly Ann Brook.



Mike Haberland is the Agent for Camden and Burlington Counties. He has begun to work with schools in the Cooper River Watershed in Camden County to deliver educational programs on stormwater management. He is also working with stakeholders in the Pompeston Creek Watershed to implement their Regional Stormwater Management Plan. Additionally, he has begun to conduct research on naturalizing detention basins to improve their pollutant removal efficiency and reduce their maintenance requirements.

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Steven Yergeau Defends Doctorate Thesis

Steven Yergeau successfully defended his doctorate thesis on September 25, 2009. Dr. Yergeau's thesis was titled "Development and Application of a Coupled SWMM-MODFLOW Model for an Urban Wetland." His research focused on modeling the surface water and groundwater hydrology of Kearny Marsh as part of a restoration effort for the marsh. This ecologically important wetland is located in the Hackensack Meadowlands and provides habitat for many state threatened and endangered species. For more information on the restoration of Kearny Marsh visit the Rutgers Environmental Research Clinic's website at <http://rerc.rutgers.edu/kearnymarsh/index.html>.



Rain Garden Calendar Order Form



The Rain Garden Calendar for September 2009 to December 2010 is ready for distribution! The calendar includes photographs of demonstration rain gardens throughout the state. If you are interested in obtaining your very own Rain Garden Calendar, please fill out and mail back this form with your donation to:

Rutgers Cooperative Extension
Water Resources Program
c/o Cheryl Burdick
14 College Farm Road
New Brunswick, NJ 08901

*Thank you for supporting the
Water Resources Program!*

Name: _____

Mailing Address: _____

Email Address: _____

I would like to be included on the Water Resources Program mailing list for their quarterly newsletter, *Water Pages*.

Quantity requested: _____

Suggested donation: \$5 per Rain Garden Calendar

Please make checks payable to: "Rutgers, the State University of New Jersey"



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Water Resources Program
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New Brunswick, NJ 08901

Visit our web site for more information:

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