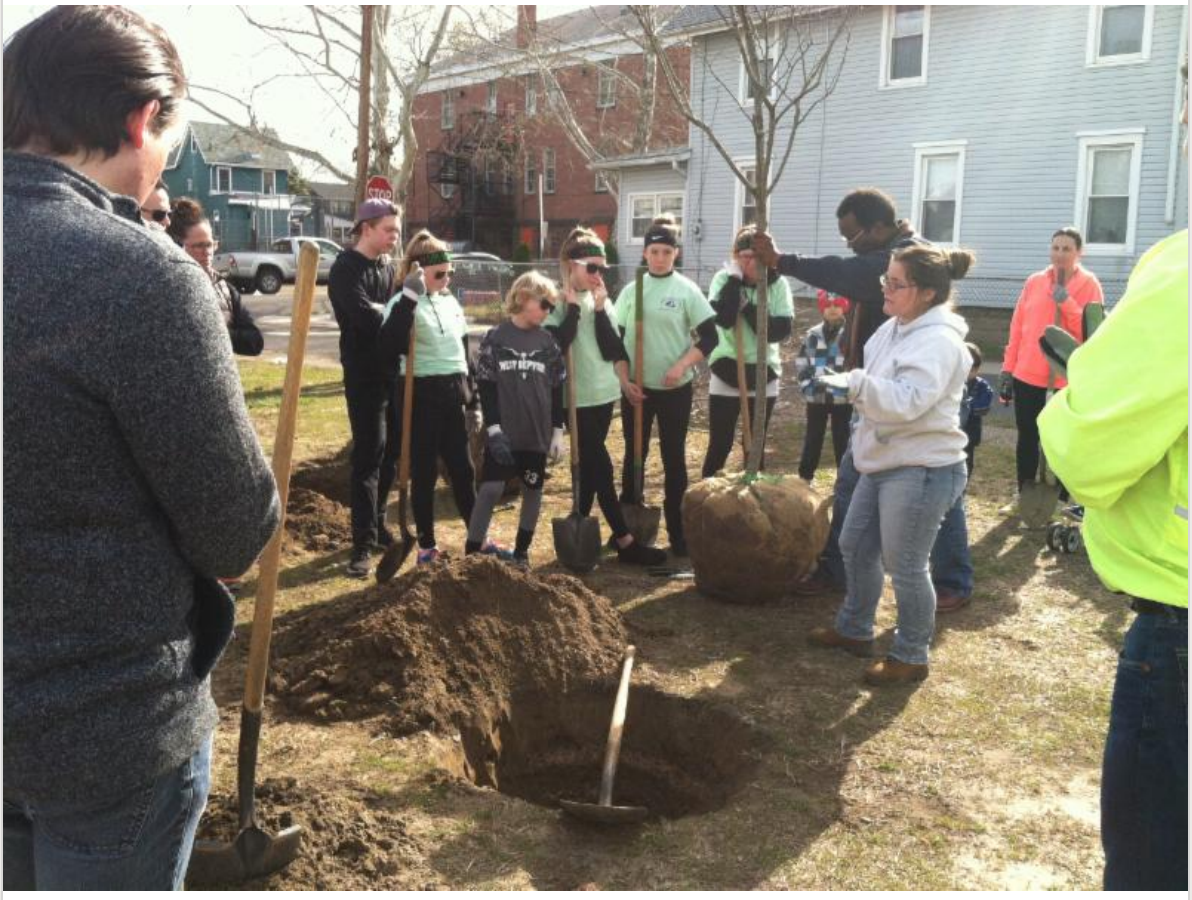
RUTGERS
New Jersey Agricultural Experiment Station

July 2018

WATER PAGES eNEWSLETTER

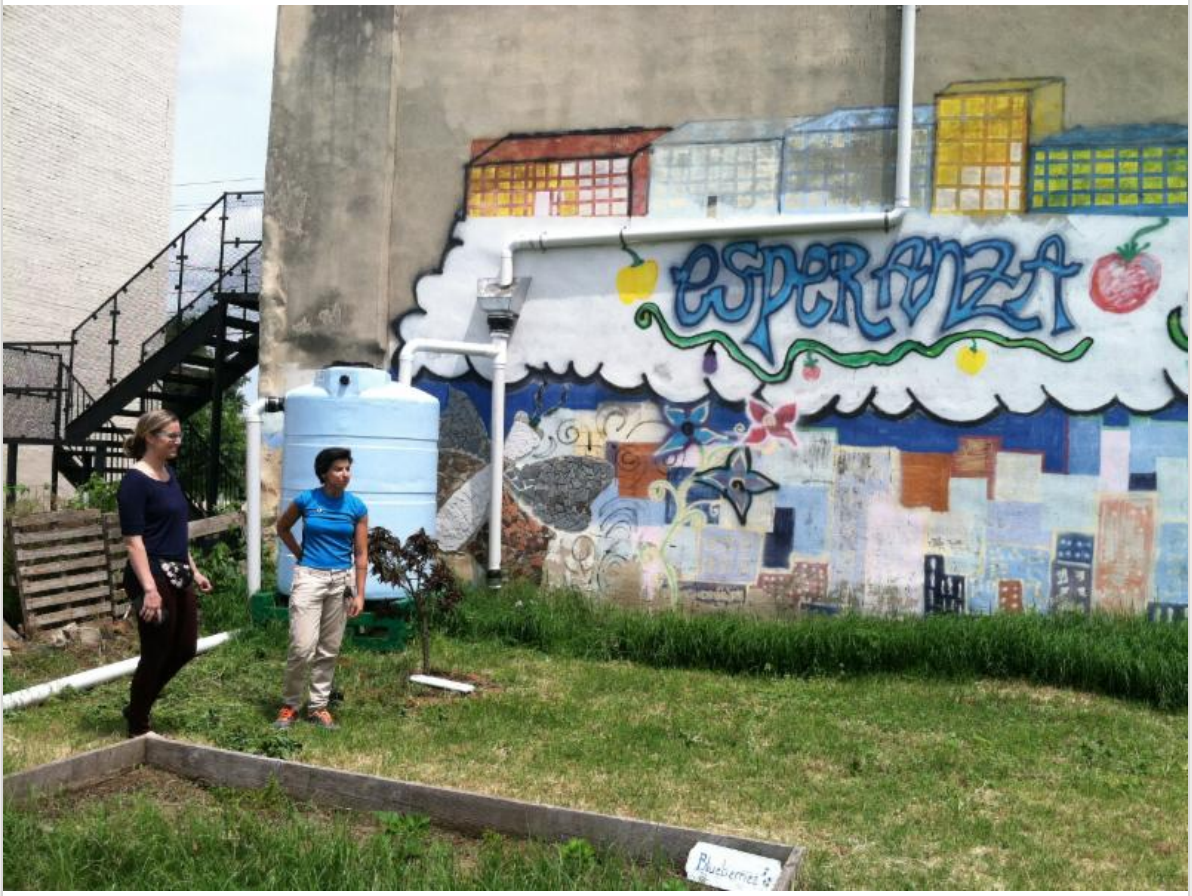
Green Infrastructure Initiative for Gloucester City and North Camden

The RCE Water Resources Program has partnered with the Camden County Soil Conservation District to implement green infrastructure programs in Gloucester City as well as the neighborhood of North Camden. Through a grant from the NJDEP 319(h) nonpoint source pollution program to the Soil Conservation District, funding is being provided for educational outreach and community-based demonstration projects that engage local residents. In Gloucester City, the New Jersey Tree Foundation is working with the Soil Conservation District and Rutgers to conduct outreach and begin the development of several green infrastructure projects. In April, Meredith Brown coordinated and directed the first program with a tree planting at a neighborhood park. Working with community volunteers, the New Jersey Tree Foundation led an effort to plant 15 trees in public spaces.



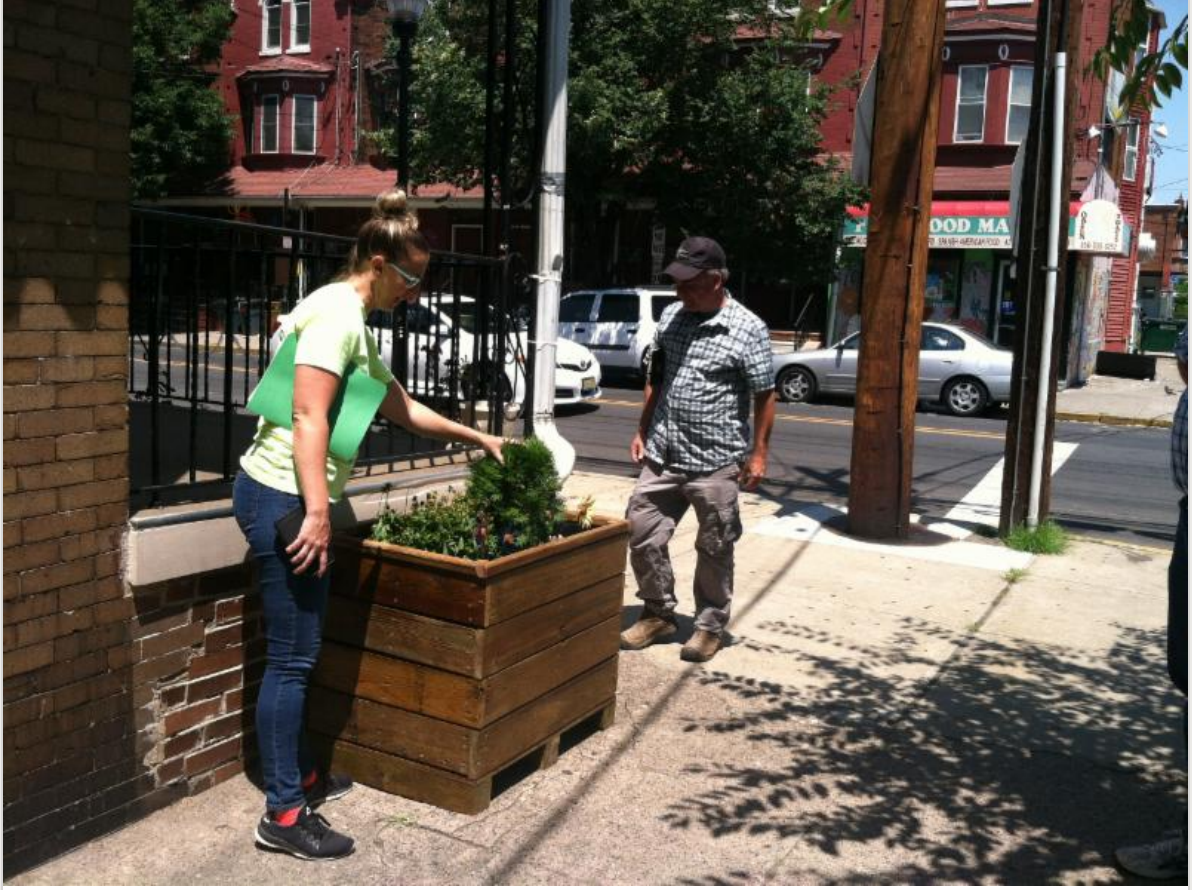
Tree planting at Washington Avenue Park in Gloucester City on April 21, 2018

Project partner, Camden Lutheran Housing, is leading efforts in the neighborhood of North Camden to engage residents in an urban stormwater management and green infrastructure program. Camden Lutheran Housing hosted a public meeting with residents in April to introduce the program. Later in April, a cistern was installed through the program at Esperanza Community Garden in partnership with Hopeworks.



Esperanza Community Garden project partners and cistern

In July, Camden Lutheran Housing and the Block Supporter Initiative built and installed the first five downspout planter boxes at residences in the neighborhood. This program will continue with at least 15-20 boxes installed by the end of the year.



Downspout planter box in North Camden

The partners in both communities are continuing to pursue other implementation projects and educational programs. Efforts are scheduled to continue in both communities for at least another two years.

Microplastic Pollution in New Jersey Rivers

Microplastics are tiny fragments, pellets or fibers of plastics with a size less than 5 mm, which are smaller than a grain of sand and invisible to the naked eye. The widespread production and use of plastics are the main reasons for plastic/microplastic pollution around the globe. Rutgers University has conducted a study at the New Jersey Agricultural Experiment Station (NJAES) on urban New Jersey freshwaters (Raritan and Passaic Rivers) to quantify the extent of microplastic pollution and to identify chemical compounds associated with this pollutant. The study also focused on whether identified associated compounds with microplastics might have physiological effects on aquatic organisms (Ravit et al., 2017).

The samples were collected from 15 locations in the Raritan River Watershed and 10 locations in the Passaic River Watershed; both watersheds are comprised of densely developed urban and suburban areas in New Jersey. Microplastics densities ranged from 28,000 to over 3,000,000 particles/square kilometer and were observed at the 25 sampling locations. Among the counted plastic particles, 85% were microplastics (<5 mm), and 38% of those were <1 mm in size. Microplastics absorb contaminants like polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), pesticides, and flame retardants, all of which were found in high concentrations in the collected samples. When contaminated microplastics were mistaken for

food resources by the species living within this habitat, the microplastics were incorporated into the food webs. Several studies showed that microplastic contamination was found in the tissues of finfish and shellfish, which then has the potential to move up the food chain and pose harm to human populations. In the Rutgers study, larval zebrafish exhibited morphologic abnormalities when exposed to the microplastic fragment recovered from the field samples.

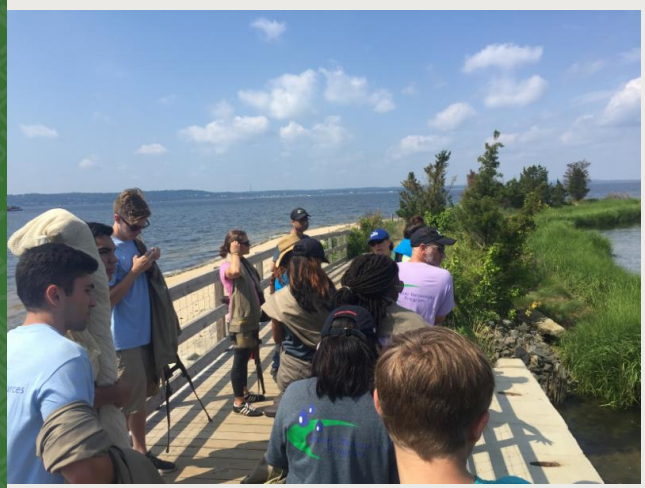
EPA Trash-Free Waters (**https://www.epa.gov/trash-free-waters**) states that nearly 80% of trash found in marine waters comes from terrestrial sources, and between 33%-66% of trash on beaches is single-use disposable plastics. The EPA also contends that source reduction is the most effective way to reduce marine debris as well as plastic pollution of freshwater bodies. Changes in public consumption and proper disposal habits will dramatically decrease the amount of microplastics getting into the waterways and subsequently into the aquatic food chain.

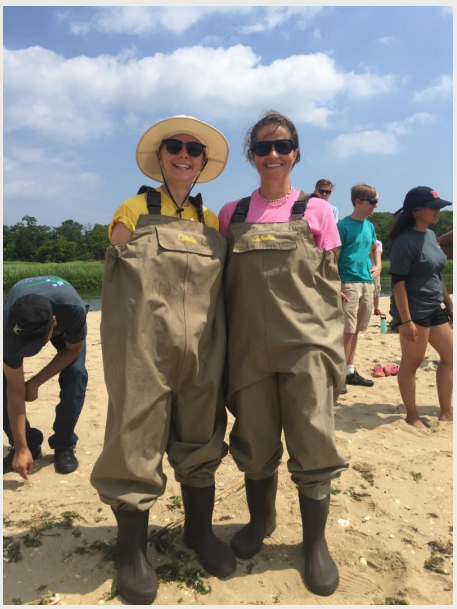
References:

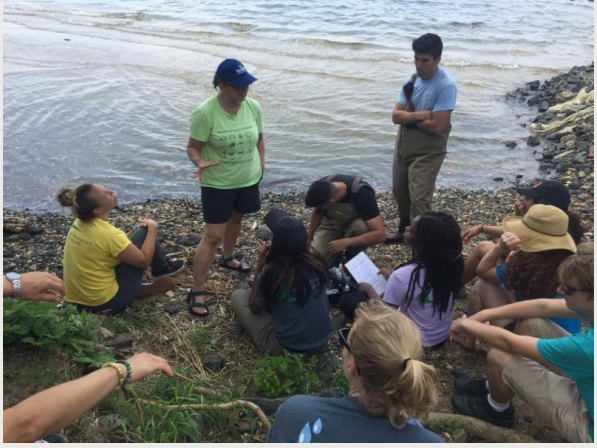
Ravit, B., K. Cooper, G. Moreno, B. Buckley, I. Yang, A. Deshpande, S. Meola, D. Jones, A. Hsieh. 2017. Microplastics in urban New Jersey freshwaters: distribution, chemical identification, and biological affects. AIMS Environmental Science, 2017, 4(6): 809-826. doi: 10.3934/environsci.2017.6.809.

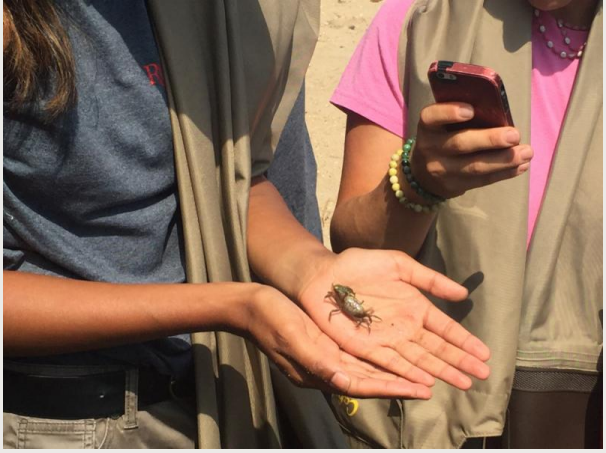
The Water Resources Program Takes a Field Trip to Sandy Hook

The RCE Water Resources Program would like to thank the **New Jersey Sea Grant Consortium** for hosting our program out on the Hook on July 17th! We want to especially thank Diana Burich for showing us the ropes, or as Sea Grant would say, *the seines*. The RCE Water Resources Program staff and undergraduate student interns were able to explore the beaches of Sandy Hook and learn about the marine environment. The outdoor program introduced us to the salt marsh and ocean beach environment through a variety of hands-on activities. Some of those activities included plankton sampling and identification, water quality testing, seining with waders, and a walk to the ocean to learn about beach erosion. These activities helped advance our knowledge about our state's marine and coastal resources.









Municipal Action Teams' Green Infrastructure Initiative Updates

Harrison TIDE (Transforming, Infrastructure and Defending our Environment) meetings have been suspended for individual project meetings for the summer. Members of Harrison TIDE will be meeting with Harrison Middle School on August 2nd to discuss a rain garden at the school. Rutgers and PVSC are leading the design of a right-of-way stormwater planter along South 7th Street adjacent to the Harrison Fire Headquarters.

Jersey City START (Stormwater Treatment and Resiliency Team) partners met on July 12th. Plans for the MLK Boulevard tree pits are moving forward to bid. For more information, please contact Kate Lawrence at **KLawrence@jcnj.org**.

Newark DIG (Doing Infrastructure Green) partners met at Passiac Valley Sewerage Commission (PVSC) on July 24th, 2018. Rutgers Cooperative Extension Water Resources Program (RCE) presented on the PVSC Administration Building green infrastructure demonstration project designed and built in collaboration with PVSC. DIG was then led on a tour of the Administration Building and stormwater best management practices. Newark DIG's Green Infrastructure Reformers introduced their Clean Waters Healthy Waters and GI Pledge outreach programs. The City of Newark Office of Sustainability continues to promote awareness about stormwater and environmental issues by conducting a catch basin painting program and the Newark Love Your Block Program. The City of Newark continues work on implementing several green infrastructure demonstration projects in partnership with the New Jersey Environmental Infrastructure Financing Program.

Paterson SMART (Stormwater Management and Resource Training) members met on June 27th. Rain gardens at JFK High School, Public School 28, and Frank J Napier Public School 4 were replanted with students from each school.

Municipal action teams have been formed to foster collaboration and collective action that helps the municipality speak with a common voice and achieve a common goal while advocating for green infrastructure. Updates on the various municipal action teams across the stated are listed in this newsletter.

Technical assistance provided to these municipal action teams by the RCE Water Resources Program is funded in part by the Surdna Foundation, the Passaic Valley Sewerage Commission with support from the New Jersey Department of Environmental Protection (NJDEP) and our local partners.

Camden SMART

Gloucester City Green Team

Harrison TIDE

Jersey City START

Newark DIG

Perth Amboy SWIM (Stormwater Infrastructure Management) has continued their efforts toward promoting green infrastructure throughout the city of Perth Amboy. On July 19th, the group met to discuss upcoming project installations and ground breaking events throughout the city. In the upcoming months, residents can expect more green infrastructure projects and a demonstration at Washington Park (dates and time to follow). In addition, the group continues to discuss the new Long Term Control Plan regulations and the potential for green infrastructure as part of this process. Recently, the City of Perth Amboy published their Public Participation Process Report (June 29, 2018). The report is available to view through the New Jersey Department of Environmental Protection website at: https://www.state.nj.us/dep/dwq/pdf/CSO_PublicParticipation_MCUA_2_20180629.pdf. The SWIM partners continue to meet regularly on the 3rd Thursday of the month. The next meeting will take place at the Brighton Avenue Community Center (56 Brighton Avenue, Perth Amboy) on Thursday, August 16th at 10AM. All are welcome.

Trenton Green Infrastructure Partners members met on June 28th to discuss updates on green infrastructure projects. Tree plantings in the spring on North Clinton Avenue were a success, and the public school projects are moving forward over the summer. The next meeting is scheduled for July 31st.

Paterson SMART

Perth Amboy SWIM

Trenton Green Infrastructure Partners

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Connect with us