CLEARSCAPES

CLEAR

A Newsletter of the Center for Land Use Education and Research at the University of Connecticut.

Teaching & Outreach

Stormwater Corps: Looking for Green Stormwater Opportunities

If you were out and about in the towns of North Haven, Milford, Hamden, West Haven or Cheshire this summer, you may have seen a team of four young adults writing on clipboards, snapping pictures of parking lots, laying their phones down on the sidewalk, and peering down into storm drains. These four intrepid UConn undergrads, nicknamed the *Stormwater Corps*, were evaluating opportunities for "disconnecting" stormwater through the use of green stormwater infrastructure (GSI) practices such as rain gardens, bioswales, and pervious pavements. Such practices help to infiltrate stormwater runoff into the ground, reducing flooding and water pollution. The students, trained by CLEAR's water (NEMO) team, were tasked with using a combination of online mapping technology and good old-fashioned field work to look for "low-hanging fruit"—sites in each town where green stormwater practices were likely to be most feasible, have the greatest impact, and be cost-effective. Their findings were compiled into town reports complete with aerial photos and stormwater reduction estimates, and presented by the team to key municipal staff in each town with an emphasis on the "top five" potential sites.

The Stormwater Corps project, supported by a grant from the Long Island Sound Futures Fund of the National Fish and Wildlife Foundation, includes funds for each of the five towns to put toward construction of their top priority GSI practice. CLEAR's long-range goal is to combine a semester-long stormwater/GSI class with the work with the towns, forming a fully realized third "Corps" program to add to the Climate Corps and Brownfields Corps (pg 3). •

The 2018 Stormwater Corps consisted of undergraduates Rosalinda Sibilio, Katherine Nee, Emma Saavedra, and James Sheridan, shown here evaluating sites for potential green stormwater infrastructure practices with North Haven Town Engineer Jonathan Bodwell (since retired).

High School Science Teachers Come to Campus for a Class on Land & Water

Twenty-five high school science teachers from across the state attended a 3-day **Teacher Professional Learning workshop** conducted by CLEAR and its partners. The training, funded by a USDA/NIFA grant, is one of three related educational programs of the Natural Resources Conservation Academy (NRCA), a partnership of the Department of Natural Resources and the Environment, CLEAR, the Center for Environmental Sciences and Engineering (CESE), and the Neag School of Education. The main focus of the workshop is the relationship of land use to water resource health, and the use of online mapping and other geospatial tools to help explore these relationships—topics near and dear to CLEAR's water and mapping teams.

Connecticut is one of 19 states to date that have adopted the Next Generation Science Standards, an ambitious new way of teaching science that was developed by a consortium of states and nonprofit science organizations. The UConn campus and surrounding area provide an ideal outdoor laboratory to explore the concepts of land use and its relation to water resources. Attendees sampled 3 streams within about a mile of campus, all with very different characteristics based on their predominant land uses—agriculture, urban, and forest. Also used in the instruction is the campus itself, which has become a showcase of low impact development (LID), or green stormwater infrastructure, practices designed to reduce the impact of stormwater runoff on local streams. Teachers leave the training with a wide variety of resources to help them in the classroom, not the least of which is their personal experience working through these topics with the UConn NRCA team. The Neag members of the team have developed a 25-unit lesson plan that follows the educational story line of the workshop, and teachers are encouraged to adapt all or part of the plan for their personal use. Along with this, the workshop introduces them to online mapping and watershed analysis tools that can help them further tailor their plan by using their community waterways as a teaching tool. ●

From a TPL attendee:

"Thanks again for an amazing workshop!… There really are very few workshops that both provide you with immediately usable units for the class AND teach you things you didn't know…yours did both! It was extremely enriching!"

Program Updates

Climate Corps Begins Second Year

With the start of the fall semester, the **UConn Climate Corps** began its second year of operation with 24 students enrolled. The Climate Corps is a unique blend of classroom education, service learning, and Extension outreach supported by the Provost's Office. Students take a fall semester class that emphasizes town-level impacts, issues and responses related to climate change. They can then choose to go on to the spring semester, where student teams work with town officials on various projects related to climate resiliency. The goal is to give the students some practical real-world experience as they get ready to enter the work force, while at the same time providing meaningful assistance to towns attempting to plan for climate change with meager resources. Last spring the Corps students worked with three communities and a multi-town land trust

From Climate Corps students last spring:

"This class has actually given me an idea of what I would like to do after college, and how I would like to apply my degrees to working on resilience strategies and solutions at the local level so I'm very grateful that you...introduced the program here. Thank you again!"

"I actually just accepted a really great post-graduation job offer...as a Catastrophe Risk Analyst, and half of my interview was spent talking about this independent study. I'll be doing natural hazard risk modeling and identifying at-risk areas for certain natural disasters as a result of weather patterns, geographic locations, and climate change, which is something this independent study really prepared me for/got me interested in. This wouldn't have been possible without you two and the Climate Corps class, so thank you so much!!"

Making News & Winning Awards While Educating Connecticut

▶ CLEAR's own Dr. Mike Dietz has been named the new Director of the Connecticut Institute of Water Resources (CT IWR), succeeding Glenn Warner who recently retired after a distinguished teaching career and a record-shattering 18 years at the helm of the Institute. CT IWR is a member of a network of institutes associated with the U.S. Geologic Survey. Its mission is to *cooperate closely with all colleges and universities in the state to resolve state and regional water related problems and provide a strong connection between water resource managers and the academic community, in addition to sharing the results of water resources research and other information with the general public.* Congrats, Mike!

Dave Dickson and Amanda Ryan accepting the "Stormy" Award for Best Stormwater Idea in New England in 2017 for NEMO's MS4 program.

The New England Stormwater Collaborative was formed by the New England Water Works Association, New England Water Environment Association and New England Chapter of the American Public Works Association with the objectives of education, understanding, and action.

CTIWR
Institute of Water Resources

▶ The NEMO Program, in partnership with colleagues at the Rutgers University Water Resources Program, held its second Northeast Green Stormwater Infrastructure Summit, an invite-only discussion of Land and Sea Grant university faculty engaged in stormwater management research and outreach. 14 experts from 7 states ranging from New Hampshire to Delaware met for two days to compare notes and exchange ideas on priority needs within the discipline.

▶ The NEMO Program won an award for its program supporting Connecticut towns regulated under the Clean Water Act's "MS4" stormwater permitting program. The "Stormy" Award for Best Stormwater Idea in New England in 2017 was presented to NEMO by the New England Stormwater Collaborative.

▶ The NEMO team also hosted a well-attended workshop on mapping related to the "MS4" stormwater program. Attendees learned about MS4 mapping requirements, tools and techniques for mapping, and how several towns are currently pursuing their mapping programs. Thanks to the Town of Rocky Hill for hosting!

▶ Emily Wilson and Cary Chadwick gave the Keynote presentation at GIS Educators Day, the kick-off day for NEARC, the Northeast Arc Users Group.

▶ Not to be outshined by Cary and Emily, Dave Dickson gave the Keynote presentation at Great Lakes Sea Grant Green Infrastructure Policy and Stormwater Management Workshop.

Tools & Technology

Coastal Storm Preparedness Story Map for Connecticut
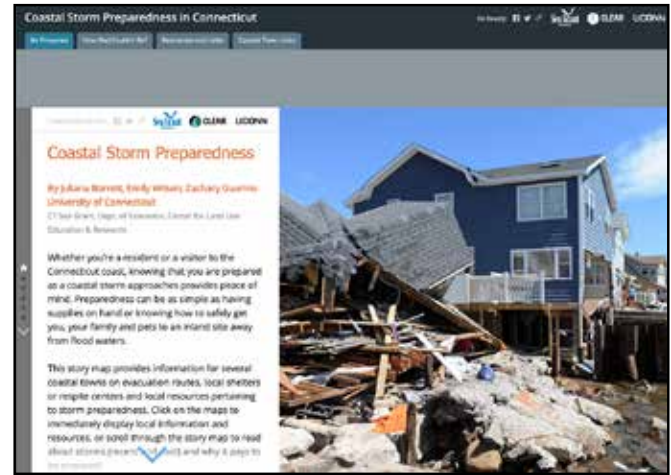
s.uconn.edu/coastalstormpreparedness

by Juliana Barrett

As part of NOAA's Coastal Storm Awareness Program, ten social science research and related technology transfer projects were funded to improve public response to coastal storm hazard information. In one of these studies, Marlon et al. (2015) found that the majority of coastal Connecticut residents (70%) are either unsure or unaware if their home is in an evacuation zone as determined by flood maps developed by the U.S. Army Corps of Engineers, and 74% of coastal Connecticut residents have never seen an evacuation map for their local community.

In order to provide information on evacuation zones, local evacuation routes and customized municipal preparedness, Connecticut Sea Grant and UConn CLEAR developed a Coastal Storm Story Map. A story map is a tool developed by the software company, Esri, that allows one to combine interactive online maps with text, images and videos to tell a story. This story map provides information on evacuation zones and local evacuation routes, as well as links to sign up for town emergency alerts. Piloted with four coastal towns, our goal is to have information for all coastal and riverine communities throughout the state. If any town is interested in providing evacuation route and shelter information for the story map, please contact Juliana Barrett at **juliana.barrett@uconn.edu**.

As a reminder that major hurricanes can hit the Connecticut coast, the story map includes historic aerial photographs and

A screen capture of the new Coastal Storm Preparedness Story Map online at s.uconn.edu/coastalstormpreparedness.

stories from the Hurricane of 1938 which caused massive devastation throughout much of Long Island, NY and New England. This information provides graphic illustration of the powerful flooding and destruction that can accompany such a storm. Also provided are numerous links and resources for storm preparedness from household paperwork to pet safety. ●

Climate Corps Begins Second Year continued...

on five projects, ranging from "downspout disconnection" stormwater programs to town applications to FEMA's Community Rating System (a program where towns that document sufficient resiliency practices can quality for reduced flood insurance rates for residents). The Climate Corps model has also engendered a second program, the Brownfields Corps, part of the **Connecticut Brownfields Initiative** led by the School of Engineering. The many partners involved in these efforts hope to bring on the Stormwater Corps (pg. 1) as a third offering, and coordinate and administer them as one program under the name Environment Corps. ●

Climate Corps students role playing in a mock town hearing. Here, a town resident (upper right) is testifying before the Town Council (left), as local reporters take notes (foreground).