Uncovering Chronic Trash Sources in Philadelphia's Tacony Creek

The Center is assisting Temple University and other local partners uncover sources of trash in the City of Philadelphia's watersheds. The study is part of a larger effort to reduce litter in the Tookany/Tacony-Frankford Watershed and help to restore and beautify Tacony Creek Park.

When it rains in older urban areas such as Philadelphia, runoff from impervious areas picks up trash and other pollutants from the ground and carries them directly into nearby waterways. Litter-clogged streams are a serious issue in the City's Tookany/Tacony and Frankford creeks, whose watersheds drain a portion of the City and its suburbs. Much of the trash ends up in nearby Tacony Creek Park, which has been plagued by chronic trash and safety issues, and is the subject of an effort to improve the park area so that neighbors have safer and healthier places to live, work, and play.

To address the trash issue in the watershed, the Tookany/Tacony-Frankford Watershed Partnership and the Philadelphia Water Department (PWD) developed a trash task force in December 2012. The trash task force is organized by four subcommittees that address litter prevention, trash monitoring, education and outreach, and clean-ups. As part of this effort, a year- long research study to quantify and identify the trash in a small catchment draining to Tacony Creek began at the end of 2013.

The study is being conducted by Temple University under a contract with PWD, with the Center providing a technical advisory role. The catchment, called the T-04 Combined Sewer Overflow drainage area, is located entirely within the City and was chosen by PWD as a pilot study because its relatively small drainage area (68 acres) lends itself to such a study and because it contains a representative mix of land use types. One of the study goals is to determine if there is a relationship between the type of trash found in the stream and the surrounding land use. A breakdown of major land uses in the study catchment is provided below.

Land Use	% of Watershed
Commercial	24
Manufacturing: Light Industrial	20
Parking	20
Residential: Multi-Family	27
Vacant	3
Wooded	6

This study is designed to inventory the types and amount of trash found on top of and immediately adjacent to storm drain inlets and catch basins. Additionally, the study will evaluate the relationship between storm event characteristics and the amount of trash inventoried. The T-04 study area contains both open mouth and drop grate inlets that are inventoried once a week as weather allows by two undergraduate Temple University students. To guide the assessment, the team created a standardized trash inventory form that documents the percentage of the inlet that is clogged with trash, the primary and secondary types of trash (i.e., leaves, plastic bags, bottles) and the number of each type of trash item observed.

The weekly monitoring, which began in December 2013, will continue for one year to allow for identification of any changes associated with the seasons. For example, because the Philadelphia region has experienced a fair amount of snow this winter, blocking inlets and delaying trash collection, trash has been blown around the neighborhoods into the snow and ends up in the inlets once the snow melts (see photos). Results from the first six survey weeks identify the biggest trash problems as plastic bottles, plastic wrappers, paper wrappers, and cigarette butts. The study results will be used to develop strategies to address trash accumulation in the creek that are targeted to the major sources of trash.

For weekly updates on the trash monitoring study, visit the project blog. For more information on the study, contact Julie Schneider, Center for Watershed Protection, at jas@cwp.org.

Center Releases Discussion Paper on Nutrient Credits and Offsets for Stormwater Compliance in the Chesapeake Bay

Compliance with stormwater regulations in the Chesapeake Bay watershed has recently become more complex with the development of a Bay-wide total maximum daily load (TMDL) for nitrogen, phosphorus, and sediment. The TMDL establishes a comprehensive "pollution diet" with rigorous accountability measures to achieve the water quality standards for the Chesapeake Bay and its tidal tributaries. This requires reducing nitrogen by 25%, phosphorus by 24%, and suspended sediment by 20% by 2025. To meet these load reductions, each of the six Chesapeake Bay states and the District of Columbia developed a watershed implementation plan, or WIP.

Urban stormwater is one of the major sources of pollution in the Bay. Because the TMDL essentially caps the total nutrient and sediment load to the Bay, any new or increased loads of these pollutants must be either accounted for in the TMDL or offset by reductions from other sources. Nutrient credit trading in the Chesapeake Bay watershed offers both risks and opportunities for meeting TMDL nutrient reduction targets. Although most of the Bay states and the District of Columbia have already established nutrient trading or offset programs, the vast majority of trades have involved wastewater treatment plants, with little involvement from the stormwater sector.

The Center has developed a paper that discusses the potential to generate and purchase nutrient offsets and/or credits as a compliance option in response to the Chesapeake Bay TMDL and state stormwater regulations. The paper presents a summary of the requirements for stormwater permittees who must comply with state stormwater regulations and the challenges of compliance with the Chesapeake Bay TMDL. It discusses three scenarios to generate and purchase stormwater credits and offsets as part of a potential structure for achieving future compliance.

The Center's discussion paper was originally published in the December 2013 issue of the *Watershed Science Bulletin*. The paper is now available on the Online Watershed Library.

For more information, contact Karen Cappiella at kc@cwp.org.

Partnership Surpasses 35,000 Hours of Training for Stormwater Practitioners

As the Center embarks on its fifth year of participating in the **Chesapeake Bay Stormwater Training Partnership** (also known as CBSTP or simply the Partnership), you may be wondering what the partnership has accomplished? To answer that question, it helps to start at the beginning.

Around 2009, Tom Schueler of the Chesapeake Stormwater Network was looking around the Chesapeake Bay states and Washington, D.C. and seeing considerable transformations happening in the world of stormwater. A runoff reduction and nutrient reduction method of managing stormwater was taking hold. This was starting to lead to design specifications and regulations different from those that had been in place for the last decade or two. Thousands of engineers, plan reviewers, and other professionals out there in the watershed would need to learn new strategies for site design and new stormwater program elements. So Schueler thought it was time to get to work: time to provide low-cost training for as many stormwater colleagues in the watershed as possible. Tom called up the Center for Watershed Protection to bring us on board, called up state environmental agencies across the whole watershed, and the Chesapeake Bay Stormwater Training Partnership concept was born. Generous funding from the National Fish and Wildlife Foundation then turned it into a reality.

Just three years into its existence, the Partnership had collectively provided more than 37,000 training hours to 15,000 participants on 37 different stormwater topics. We used training techniques such as webcasts, 1-day and 2-day workshops, online training modules, training videos, and intensive surveys of stormwater practitioner needs and preferences. Since much of the training content must be tailored to the stormwater rules of specific states, we conducted state-specific stormwater trainings in Washington, D.C., Delaware, Pennsylvania, West Virginia, Virginia, and New York. Since 2009, the Partnership of trainers has grown as more organizations have joined the effort: the Alliance for the Chesapeake Bay, Stormwater Maintenance and Consulting, and several municipalities.

So, what's next? Break out your popcorn and headsets because the Partnership is gearing up to offer nearly *30 webcasts* in four different topic series: (1) MS4 Implementers and the Bay TMDL, (2) Urban Nutrient Management for Landscape Contractors, (3) Assessing, Designing, and Installing Residential Stewardship Practices, and (4) Highlighting Innovation in Green Infrastructure. If you prefer in-person trainings, keep an eye out for one of our workshops. We will have several on the subject of stormwater BMP installation, maintenance, and inspections as well as field trainings on pollution prevention and inspections on industrial sites and public works yards. The next two years of Partnership trainings promise to be action-packed.

To keep abreast of these upcoming training opportunities and get *your* piece of the action, visit the [Chesapeake Stormwater Network's *Training News* webpage](#).