

# STORMWATER RUNOFF

By Libby Smith-Holmes

## FROM MY YARD TO OUR STREAMS

The sleet has turned to rain—big drops are pounding furiously against the windows and roof. When I take the dog out, I see water from my downspout has created a small lake in my driveway. Rock salt spread during the last snowstorm has disappeared, but the sand I had scattered for traction still lies in soggy ridges. A spot of oil that leaked from our old truck shows a rainbow shimmer. Water sheets off the still-frozen slope toward the culvert under the driveway, carrying the sand, oil and fresh dog droppings out of sight. Styrofoam pellets from an overturned trash can join the flow as it makes its way to the street drain. This is stormwater runoff, in its early spring flow. And I have helped make it worse.

I consider myself an environmentally aware citizen who would never knowingly pollute or cause flooding. Can I do anything to change this messy scene? Of course!

### Every Little Bit Helps

First of all, I can make sure that my downspout empties into a planted area, preferably lined with rocks to slow the water's flow and prevent soil erosion. Water would be kept off the paved driveway, where it runs off rapidly from the surface instead of infiltrating the soil. Water that is allowed to percolate through the soil is cleansed of many pollutants, which stick to the soil particles. Infiltrated water recharges underground aquifers; whereas paved surfaces increase the volume and speed of runoff. As the speed of runoff increases, groundwater supplies may diminish.

Rock salt is not the best choice as a deicer—salt concentrations can make fresh water unsuitable for native plant and animal species. Calcium chloride crystals work just as well and cause far less damage. If traction is what you need, gravel or sand is a better choice, but it should be swept up in the spring so it won't clog culverts or smother fish eggs in streams where the storm sewers empty.



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Downspouts should drain to a planted area on your property, like a lawn.

Gravel and sand can give you traction on snowy or icy walkways, without the pollution caused by rock salt.



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Do you have oil leaking from a vehicle? Car repairs are always in season. Even a few drops of oil can harm aquatic life, and swimming in oily water is no fun. Keeping a vehicle from leaking oil will help avoid the possibility of contaminating your neighborhood's drinking water. While the storm sewers in some parking areas draining to sensitive waters are fitted with oil separators, most storm water is piped directly to a nearby water body without treatment.

What about that overturned garbage can? Trash and street litter are not only unsightly, they cause problems in the storm sewer system as well as in the receiving waters. In some areas, stormwater is routed to settling basins to allow water to infiltrate into the soil slowly—or to be released gradually into storm sewer pipes. Where trash accumulates, basins must be periodically cleaned out. Make sure your trash cans are secure, and recycle styrofoam and other qualifying materials whenever possible.

Clean up after pets year round to keep bacteria and nitrogen out of the runoff. Many cities and suburbs now enforce pooper-scooper laws that require you to do so. If you think that one small pooch can't possibly make that much of a difference, multiply your pet's twice-a-day contributions by the hundreds of other dogs in your community. On Long Island, where runoff is a significant problem, nearly 500,000 dogs are estimated to be adding waste to fresh and coastal waters. Carry a bag and either put pet wastes in the trash—if local laws allow it—or flush them down the toilet, as long as the droppings are not mixed with litter or

other materials. Never dump pet waste into a storm drain or catch basin.

As spring advances, homeowners' attention will turn to lawns and gardens. Restricting the use of fertilizers on plants and using pesticides only when necessary aid water quality. A friend of mine parks his car on the grass before washing it with an organic soap helping water the lawn instead of sending suds into the storm drain. All of these actions should help keep our local streams and lakes clean.

### **More Than a Good Neighbor**

New regulations will help us all be better stewards of clean water. Stricter federal stormwater regulations went into effect on March 10, 2003. All areas with municipal separate storm sewer systems within an urbanized area will have to draft a stormwater management plan. Municipalities and county agencies will conduct outreach and education programs in the near future to help people comply with the new regulations. The regulations aim to prevent erosion and require permits for construction activities with potential to disturb one acre or more. For more information about the requirements for your municipality, business or agency, see the DEC website at [www.dec.state.ny.us/website/dow/mainpage.htm](http://www.dec.state.ny.us/website/dow/mainpage.htm).

### **Stormwater Management Awards**

New York State is supporting community efforts that go beyond the federal requirements, recognizing projects that reduce or eliminate pollutants in stormwater runoff and mitigate flooding. At the Quality Communities Conference held in Albany in October 2002, three communities received the first Empire State Awards of Excellence for Advancement of Stormwater Management:

**Monroe County Stormwater Coalition**, for creating an intermunicipal approach for compliance with the new regulations;

**Town of Southampton Stormwater Abatement Program** for its productive partnerships and success in leveraging shared assets to address flooding and water pollution;



The rock-lined channel shown in this housing development slows the flow of runoff and safely conveys it to a place where it can percolate into the ground.



**Town of Cortlandville**, with help from the Cortland County Soil and Water Conservation District, for developing a model ordinance and model stormwater pollution prevention plan that can be used as a template for other small New York State communities to meet the new regulations.

Many worthy projects were nominated, and although

some did not receive an award, every little bit helps. Individual efforts, community projects and an understanding of the importance of clean water will help all of our neighborhoods stay clean and healthy.

**Libby Smith-Holmes** retired from the DEC's Division of Water, where she managed outreach for statewide programs. She keeps an eye on local land use decisions regarding watershed protection.

## Stormwater Management

Stormwater runoff is a water quality and quantity problem, and is especially acute in urban and developing areas. Runoff starts as rain or melting snow that can't infiltrate the ground because of saturated soil or impervious surfaces. Development and urbanization have accelerated runoff problems by altering natural drainage patterns and creating more paved surfaces that shed water quickly without absorbing it.

Stormwater can pick up oil, metal particles, litter, animal wastes, fertilizers, and pesticides as it washes across the landscape. Bare soil from unprotected construction sites adds sediment to runoff. Winter conditions compound the problems with sudden snowmelt and vast areas of impervious ice. Despite what many people believe, most stormwater washing from neighborhood streets flows untreated into local waterways, eventually polluting even large lakes, rivers and estuaries. Changes in flow and water quality can lead to habitat loss, flooding, threats to drinking water supplies, sediment buildup and a decrease in biodiversity.

Municipalities can improve stormwater management by providing information about what residents themselves can do. They can work with developers to provide infiltration basins, porous pavement, vegetated buffer zones and swales, and constructed wetlands—all designed to slow or filter the flow of runoff and allow it to infiltrate soil. Other measures include preserving open spaces and zoning.



DEC

Development and urbanization have accelerated runoff problems by creating impervious surfaces that shed water quickly.

Stormwater retention basins allow runoff and snowmelt to collect and slowly percolate into the ground.



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# WEBSITES

## **DEC Stormwater Homepage**

**<http://www.dec.state.ny.us/website/dow/mainpage.htm>**

This web site contains the latest information on the stormwater Phase II Regulations in New York State. Features a stormwater manager's "toolbox" of resources to understand and implement the new Phase II regulations. Also links to pdf versions of the actual permits for Construction Activities and Municipal Separate Storm Sewer Systems (MS4s), and a mapping tool to look up geographic information related to the Phase II Stormwater Program.

## **Turn Your Home into a Stormwater Pollution Solution! [www.epa.gov/nps](http://www.epa.gov/nps)**

This web site links to an EPA homeowner's guide to healthy habits for clean water that provides tips for better vehicle and garage care, lawn and garden techniques, home improvement, pet care, and more.

## **National Management Measures to Control Nonpoint Source Pollution from Urban Areas**

**[www.epa.gov/owow/nps/urbanmm](http://www.epa.gov/owow/nps/urbanmm)**

This technical guidance and reference document is useful to local, state, and tribal managers in implementing management programs for polluted runoff. Contains information on the best available, economically achievable means of reducing pollution of surface waters and groundwater from urban areas.

## **Onsite Wastewater Treatment System Resources [www.epa.gov/owm/onsite](http://www.epa.gov/owm/onsite)**

This web site contains the latest brochures and other resources from EPA for managing onsite

wastewater treatment systems (OWTS) such as conventional septic systems and alternative decentralized systems. These resources provide basic information to help individual homeowners, as well as detailed, up-to-date technical guidance of interest to local and state health departments.

## **Low Impact Development Center [www.lowimpactdevelopment.org](http://www.lowimpactdevelopment.org)**

This center provides information on protecting the environment and water resources through integrated site design techniques that are intended to replicate preexisting hydrologic site conditions.

## **Stormwater Manager's Resource Center (SMRC) [www.stormwatercenter.net](http://www.stormwatercenter.net)**

Created and maintained by the Center for Watershed Protection, this resource center is designed specifically for stormwater practitioners, local government officials, and others that need technical assistance on stormwater management issues.

## **Strategies: Community Responses to Runoff Pollution**

**[www.nrdc.org/water/pollution/storm/stoinx.asp](http://www.nrdc.org/water/pollution/storm/stoinx.asp)**

The Natural Resources Defense Council developed this interactive web document to explore some of the most effective strategies that communities are using around the nation to control urban runoff pollution. The document is also available in print form and as an interactive CD-ROM.