

# When it rains... *it drains!* Be the solution to stormwater pollution



## **What is stormwater pollution?**

Stormwater is water from rain or melting snow that doesn't soak into the ground. Stormwater starts off clean and flows directly into our rivers, lakes and streams. Along the way, it picks up everything it comes in contact with as it flows over the land surface, roadways, sidewalks, parking lots, construction sites, industrial parks, etc. These materials become part of the stormwater runoff which is funneled through gutters, storm drains, canals, and drainage ways into local surface waters—untreated! It is estimated that more than one-half of the pollution in our nation's waterways comes from stormwater runoff. The primary pollutants of concern in the Syracuse Urban Area (SUA) are phosphorus and sediment.

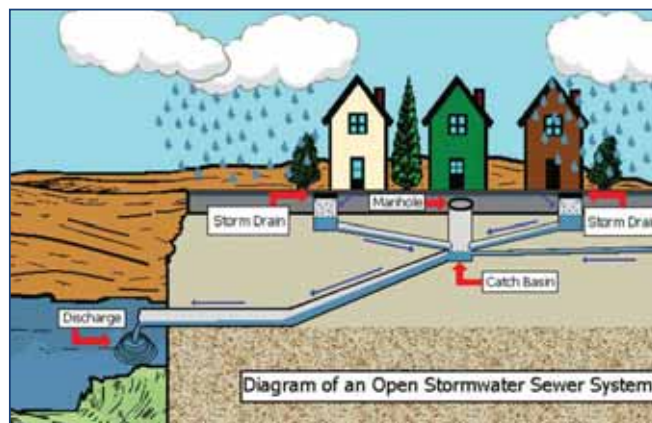
## **Why is stormwater such a big problem?**

During runoff events, pollutants carried by stormwater degrade the quality of the lakes, rivers, wetlands and other waterways they eventually enter. Nutrients—such as phosphorus and nitrogen—can promote the overgrowth of algae and deplete oxygen surface waters. Toxic chemicals, sediment, and careless application of pesticides, herbicides and fertilizers threaten the health of the receiving waterway and can kill fish and other aquatic life. Bacteria from animal waste and illicit sanitary sewer connections to storm sewer systems can make lakes unsafe for wading, swimming and fishing.

## **Stormwater is everyone's responsibility. Be the solution to stormwater pollution!**

Just as polluted stormwater affects us all, we can all affect stormwater.

Take action. Become informed. Practice healthy household, yard, and personal habits every day. For more information about stormwater issues and how you can make a difference, visit the CNY RPDB stormwater web site at [cnyrpd.org/stormwater-phase2](http://cnyrpd.org/stormwater-phase2).



Source: Arkansas Department of Environmental Quality

This information was developed by the Central New York Regional Planning and Development Board as part of a public stormwater education program jointly funded by the following municipalities: the Towns of Camillus, Clay, DeWitt, Geddes, LaFayette, Lysander, Manlius, Marcellus, Onondaga, Salina, Sullivan, Van Buren, Hastings, Cicero, West Monroe, and Pompey, the Villages of Baldwinsville, East Syracuse, Liverpool, Phoenix, Fayetteville, Manlius, Marcellus, Minoa, North Syracuse, Solway, the City of Syracuse, and Madison and Onondaga Counties.



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## **What's being done to control stormwater pollution?**

In the past, it was thought that water pollution was caused mainly by industrial and municipal end-of-pipe discharges. A lot of effort was put into cleaning up these "point sources" of pollution. Now, the focus is on cleaning up "non-point source" pollution, that is, water pollution that does not originate from a single source but is generated over a large area.

The problem with controlling non-point source stormwater pollution is that it is very expensive to treat. Treatment facilities would have to be very large to treat peak storm flows and would sit unused more than 95% of the time. The best way to control stormwater pollution is to prevent clean stormwater from becoming contaminated in the first place.

Federal stormwater management regulations, commonly known as Stormwater Phase II, are helping to address stormwater issues. As part of a general permit program administered by the NYS Department of Environmental Conservation, regulated cities, towns, villages, and counties are controlling the quantity and quality of stormwater being discharged from their Municipal Separate Storm Sewer Systems (MS4s). A state-wide general construction permit requires developers to control the quantity and quality of stormwater runoff from construction projects that disturb one acre of soil or more.

There are 31 permitted MS4 municipalities in the SUA. Twenty-nine of these municipalities are working with the Central New York Regional Planning & Development Board (CNY RPDB) to jointly implement a wide range of activities to reduce stormwater pollution, including public education and training for municipal employees and elected officials. In the past, regulated SUA communities worked with CNY RPDB to establish common standards for mapping stormwater outfalls, develop common procedures for inspecting construction sites and secure grant funding to lower program costs.

# You can make a difference!

## Lawn and Garden Care

Apply fertilizers and pesticides sparingly and use the recommended amounts found in the instructions on the container. Avoid spillage onto sidewalks, driveways, or streets. Test your soil before applying fertilizer and only use the required amount. Never apply fertilizers or pesticides if the weather forecast calls for rain, which can wash these chemicals into nearby storm drains and surface waters. If you live on the shoreline of a lake or stream, maintain a buffer strip of unmowed, natural vegetation to reduce fertilizer runoff.

Water your lawn and garden during the cool times of the day (early morning or late afternoon) to avoid evaporation and don't let excess water flow into the storm drain. Adjust sprinklers to avoid having water flow onto the street or sidewalk. Direct roof gutters and downspouts away from paved surfaces and onto lawns, natural areas, or rain gardens to increase infiltration and reduce stormwater runoff.

Cover stockpiles of soil, sand, and mulch to prevent it from blowing or washing off your yard and into local waterbodies. Replant bare spots in your lawn as soon as possible to avoid soil erosion. If you find invasive plants growing in your yard, remove them before they have a chance to spread. Select only plants that are native to Central New York for your landscaping project. Native plants are drought and pest resistant and require less water, fertilizer, and pesticides.

Sweep your sidewalk instead of using a hose. Use a compost bin to turn yard waste into a useful gardening product and use it as mulch. Let grass clippings remain on the lawn. Never allow yard and household waste to wash down storm drains.

Consider participating in an "Adopt a Stream" or "Adopt a Highway" program in your municipality. When walking your dog, place the waste in a trash receptacle or flush it down the toilet. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local water bodies.

## Home Repairs and Improvements

Before beginning an outdoor project, protect nearby storm drains from debris and other materials. Properly dispose of construction debris such as concrete and mortar. Use hazardous substances like paints, solvents, and cleaners in the smallest amounts possible, and follow the directions on the label. Clean up spills immediately and safely dispose of the waste. Carefully store paint and other materials to avoid leaks and spills. When possible, use nontoxic, biodegradable, recycled, and recyclable products. Clean paint brushes in a sink, not outdoors, and re-use turpentine once the paint has settled.

Never dump anything down a storm drain, as all storm drains flow directly to local streams and lakes. Take used oil and other household hazardous waste to a recycling center or a household hazardous waste collection program.

Have your septic tank inspected by a professional every 3-5 years and have the system pumped if needed. Plant only grass (not trees or bushes) over the leach field and keep all vehicles away from the area. Remember – it's illegal to connect your household wastewater (including sinks, laundry drains, and sanitary sewers) to storm sewers.

## Vehicle and Equipment Maintenance

Check your car, boat, motorcycle, and other equipment for oil and gasoline leaks and spills and make repairs as soon as possible. Clean up spilled fluids with an absorbent material such as kitty litter or sand. Be sure to properly dispose of the absorbent material. Don't rinse spills of any kind into nearby storm drains. Recycle used oil and other automotive fluids. Never dispose of these chemicals down storm drains or with other household trash. Use a commercial car wash or wash your car on a lawn or other unpaved surface to minimize the amount of dirty, soapy water flowing into the storm drain and eventually into local waterways.

## Swimming Pool, Spa, and Fountain

Test the water before draining your swimming pool, spa, or fountain and only drain the water when no chlorine and other chemicals are detected. Drain the water onto a grassy area to increase soil infiltration. Store chlorine and other chemicals in a covered area to prevent leaks and spills and avoid exposure to precipitation and runoff.

## Local Government and Education Programs

Local governments are making great strides with stormwater management, but they need your help. Become familiar with the stormwater management program requirements. Read the Stormwater Phase II permits and consider how they can be applied in your community. Attend planning board meetings and support the use of Stormwater Phase II requirements. Get involved in your community's vision for future growth and development. New and redevelopment projects should not cause an increase in stormwater runoff and flooding. Be sure to report water quality violations—such as discharges of any material other than stormwater into storm drains—to local authorities. If you are a teacher, use Project WET to teach about stormwater.



## Which pollutants are a concern?

Too much of anything can be a problem. It's important to remember that not all pollutants are man-made. Sunlight, soil, and grass can have significant negative impacts on water resources and aquatic life. In the SUA phosphorus and sediment are the primary stormwater pollutants of concern, but there are others. The following summary outlines some of the stormwater pollutants to be aware of.

### Phosphorus

Phosphorus and other nutrients promote weed and algae growth in lakes and streams. Excessive weed growth clogs waterways and blocks sunlight. When algae die they sink to the bottom and decompose in a process that removes oxygen from the water. Many fish and other aquatic organisms can't exist in water with low dissolved oxygen levels. Sources of nutrients include fertilizer, failing septic tanks, and non-laundry detergents.

### Silt and Sediment

Stormwater runoff that contains silt and sediment can damage the habitat needed by aquatic plants and animals. Fish eggs are buried, food supplies are reduced, and recreational activities are impaired when sediment fills swimming areas and navigation channels. In addition to blocking sunlight needed for aquatic plant growth, sediment can transport toxic chemicals to waterbodies.

### Toxic substances (gasoline, household products, paint thinner, etc.)

Toxic substances may enter surface waters either dissolved in runoff or attached to sediment or organic material. In surface water the principal concerns are the entry of toxic substances into the food chain; bioaccumulation; toxic effect on fish, wildlife and microorganisms; habitat degradation; and potential degradation of public water supplies. Toxic substances can originate from residential areas, businesses and construction sites.

### Pathogens (bacteria and viruses)

Pathogens include infectious agents and disease producing organisms normally associated with human and animal waste, leakage from sewers, and seepage from septic tanks. Pathogens make lakes and streams unsafe for drinking, swimming, fishing, and other forms of water recreation. Biological contaminants come from litter, organic matter and animal waste.

### Oxygen demanding organics (human and animal waste, decaying plants and animals, discarded litter, and food waste)

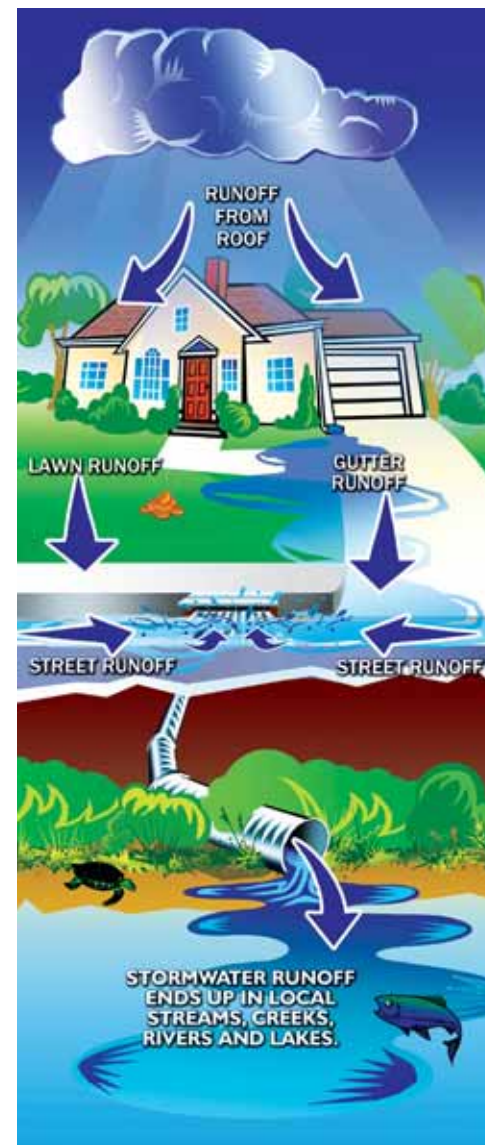
Organic material (natural or synthetic) can enter surface waters either dissolved or suspended in stormwater runoff. Natural decomposition of organic material can deplete dissolved oxygen supplies in surface waters. When dissolved oxygen is reduced below a certain threshold, it can impair or kill fish and other aquatic plants and animals.

### Thermal stress (sunlight)

When streams lack nearby trees and shade, the elevated water temperature can exceed fish tolerance limits, which lowers their resistance to disease and reduces their survival. Street surfaces and other impervious areas which have been heated by sunlight may also transport thermal energy to a streams, lakes and ponds during a storm event. Cold water fish species (such as trout) may not be able to survive.

### Litter

Floating litter in water may be contaminated with toxic chemicals and bacteria. It's also unattractive to look at and can be harmful or fatal to aquatic organisms.



Source: North Carolina Department of Environment and Natural Resources



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