

Polluted Runoff in Your Municipality: Local Problems, Local Solutions

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What is Polluted Runoff?

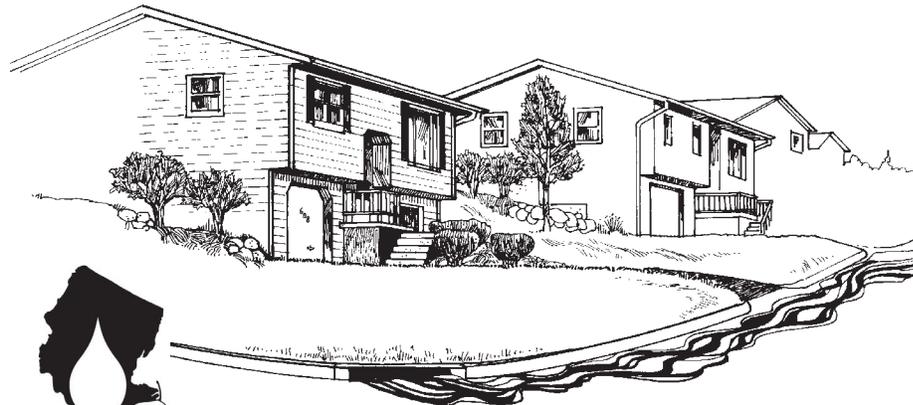
Polluted runoff or “nonpoint source pollution” consists of rain water or snow melt runoff that picks up an array of contaminants including oil leaking from cars, dirt and debris on roadways, fertilizers and pesticides from lawns

is also a source of contaminants, such as mercury to water bodies.

The term “nonpoint” is used to distinguish this type of pollution from “point-source pollution” that comes from specific “points” such as outfall pipes at sewage treatment plants and discharge pipes at industrial facilities.

These are mostly regulated under the federal Clean Water Act. Scientific evidence shows that although huge strides have been made in cleaning up point sources, our water resources are degraded whenever it rains by the effects of polluted runoff. The Environmental Protection Agency has estimated that polluted runoff is now the single largest cause of water quality deterioration nationwide.

According to the *New Jersey 1996 State Water Quality Inventory Report*, polluted runoff “is a contributing factor as to why fishable and swimmable goals have not been met in many of New Jersey’s



Storm runoff and snow melt pick up accumulated street litter, sediment and pollutants such as bacteria, nutrients, and toxic materials. This “polluted runoff” enters storm drains and flows untreated into local rivers, streams, ponds, lakes and in some cases, drinking water intake systems.

and farmlands, and other substances as it moves over paved (or impervious) surfaces. This polluted runoff – and its complex combination of contaminants – then finds its way into your waterways through street storm drains and storm water collection systems. Air deposition

waters. Contaminated storm water, for example, has been the principal cause of beach closings in New Jersey...Most of the public lakes investigated are either threatened with, or are actively undergoing deterioration, largely because of nonpoint source pollution.”



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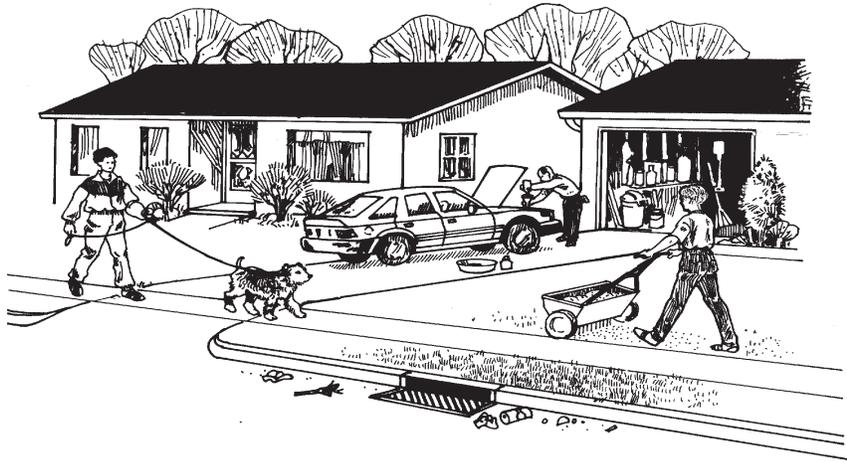
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Why Should You Care about Polluted Runoff?

The impacts of polluted runoff are not limited to lakes or beaches. In fact, chances are that you don't need to look any farther than your neighborhood stream or duck pond. Polluted runoff flowing from your community's streets, and perhaps your own backyard or driveway, can cumulatively result in weed-choked ponds, unsightly algae blooms, and fish kills. Polluted runoff may also affect the quality of your drinking water. What's more, polluted runoff increases the cost of treatment for water utilities that draw their water directly from streams and rivers. That means increased water treatment costs passed on to you.

There is little chance that you can ignore this problem, even if you want to. For years, it has remained a low priority due to the focus on "point sources" of pollution such as wastewater discharge pipes, sewage treatment plants, and combined storm overflows. Public awareness and concern over polluted runoff has resulted in an ever-increasing number of federal, state, and local laws enacted over the last 25 years. In 1975, New Jersey passed a soil erosion and sediment control act to reduce soil runoff from new development sites. Other examples of state and local standards that address water quality include the Residential Site Improvement Standards, Stream Encroachment Rules, Freshwater Wetlands Rules, Coastal Area Facilities Review Act, and local ordinances. However, even today, a large percentage of polluted runoff sources remain uncontrolled despite the laws passed to minimize them.

Under 1999 Phase II amendments to the federal Clean Water Act's National Pollution Discharge Elimination System approved by the U.S. Environmental Protection Agency, New Jersey will begin implementing a regulatory statewide permit program administered by the State Department of Environmental Protection to prevent and reduce common pollutants being carried in storm water system discharges. Under this program, municipalities will receive permits for storm drain systems. This regulatory program will put polluted runoff on the agenda of municipal government officials statewide. (See box highlighting the six minimum control measures for municipal storm water runoff.)



Everyday activities can often impair water quality. Oil residues on the driveway, overapplied or misapplied fertilizer, and pet droppings can be carried away by storm runoff into waterways.

Under the Phase II Storm Water Rule, the NJDEP must have a statewide municipal storm water program in place by 10/29/2002 and municipalities must apply for state approval by 2/28/2003. Full implementation is due in 2008. In addition to implementing these federal requirements, many states including New Jersey already have plans and measures in place to influence local land use (planning and zoning) processes and building codes to address the problem of polluted runoff. These measures are included in the *Municipal Land Use Law*, *Communities of Place*, *The New Jersey State Development and Redevelopment Plan*, and the *Uniform Site Improvement Standards and Development Act*. The bottom line is that polluted runoff and stormwater management will be major issues in your municipality sooner rather than later.

Storm Water Phase II Rule Minimum Control Measures

- 1) *Public Education and Outreach*
- 2) *Public Participation and Involvement*
- 3) *Illicit Discharge Detection and Elimination*
- 4) *Construction Site Runoff Control*
- 5) *Post-Construction Runoff Control*
- 6) *Pollution Prevention/Good Housekeeping*

Source: USEPA Fact Sheet 833-F-99-002, April 1999.



***DON'T** apply fertilizer near a waterway, street, sidewalk, or driveway where it can be carried away in storm runoff. **DO** apply granular and soluble fertilizer accurately by calibrating the spreader or measuring the application amount.*

Who and What Causes Polluted Runoff?

You do. We all do. Personal actions as well as local land uses contribute to polluted runoff. Here's a brief rundown of the major types of nonpoint contaminants carried by polluted runoff into local waterways.

Pathogens

Pathogens are disease-causing microorganisms, such as bacteria and viruses, that come from the fecal waste of humans and animals. Exposure to pathogens, either from direct contact with water or through ingestion of contaminated raw shellfish, can cause a variety of illnesses. Because of this, beaches and shellfish beds are closed to the public when testing reveals significant pathogen levels. Pathogens wash off the land from wild animal, farm animal, and pet waste, and can also enter our waterways from improperly functioning septic tanks, leaky sewer lines, illegal sanitary connections, and boat sanitary disposal systems. Many New Jersey waters suffer from high coliform levels due to animal waste runoff from geese, birds, and other wildlife. New Jersey has had success in controlling pathogen contamination in the ocean, bays, and bathing beaches. However, pathogen pollution in streams is still a problem.

Nutrients

Nutrients are compounds that stimulate plant growth, like nitrogen and phosphorous. Homeowners and landscape companies apply fertilizers to lawns, landscapes, and gardens to enhance plant growth but when overapplied (or misapplied) certain nutrients can cause a water quality problem. Excessive nutrients in waterways decrease water quality in many ways. For example, increased algae growth can result, depleting oxygen necessary for fish and other aquatic species. Underwater plant growth increases, often making the lake or waterway unusable for swimming, fishing, and boating. Fish species more tolerant of pollution eventually will take over. Occasionally nitrogen can seep into ground water, often a source of drinking water. Nitrates are most hazardous to infants less than 6 months old at amounts greater than 10 mg/l. Ingested in a large enough amount, an infant can develop a potentially fatal disorder which impairs blood oxygen transport and can cause brain damage. Sources of nutrients in polluted runoff range from agricultural fertilizers, septic systems, home lawn care products, and pet and wildlife wastes.

Sediment

Sand, dirt, and gravel eroded by runoff usually ends up in stream beds, ponds, or shallow coastal areas, where it can alter stream flow and decrease the availability of healthy aquatic habitat. New construction sites, agricultural fields, roadways, and new or renovated residential lawns may be major sources of sediment if not properly protected from rain and wind erosion. Nationwide, sediment is the number one nonpoint source contaminant in terms of volume and it affects all waterways.

Toxic Contaminants

Toxic contaminants are substances that can harm the health of aquatic life and human beings. These contaminants are created by a wide variety of human practices and products, and include heavy metals, pesticides, and organic compounds like PCBs. Toxins may be resistant to breakdown and can be passed through the food chain to be concentrated in top predators. Fish consumption health advisories in many rivers, the ocean, and most coastal lakes are the result of concern over toxins. Oil, grease and gasoline from roadways, and chemicals used around homes, gardens, yards, and on farms can be major sources of toxic contaminants.

Debris

Trash in our waterways is the one type of contaminant that everyone can see. Trash along a streambank, or in a local pond or lake looks ugly, mars the appearance of the water, and often interferes with our enjoyment of the water.

Worse yet, plastic and styrofoam can choke aquatic organisms that mistake plastic litter for food. Typically, this debris starts as street litter tossed or discarded carelessly by humans that is carried by runoff into local waterways.



When it rains, accumulated oil, grease, dirt, leaves, litter, and other pollutants run untreated into local storm drains and your community's waterways.

How Can You Help?

First of all, you can make a difference simply by **being aware** that polluted runoff is affecting water quality in New Jersey. The next step is **sharing that information** with a neighbor or local official. Also make sure that you join in community cleanups, don't litter, and recycle as much as possible. Simple but important things such as conserving water and landscaping your home in an environmentally friendly manner can make a big difference. Consult the following list to get started today.

Additional Resources

NJ Department of Environmental Protection. 1997. *The Clean Water Book: Lifestyle Choices for Water Resource Protection*. NJDEP: Trenton, N.J. 92 pp.

NJ Department of Environmental Protection. 1999. *Planning for Clean Water: The Municipal Guide*. NJDEP: Trenton, N.J. 64 pp.

NJ Department of Environmental Protection. 1997. *Nonpoint Source Pollution. What You Can Do Today!* NJDEP: Trenton, N.J. Brochure.

The above publications can be ordered from:
**New Jersey Department of
Environmental Protection
Division of Watershed Management
CN 418
Trenton, NJ 08625-0418
609-292-2113**

Olohan, M.T. and T.B. Shelton. 1998. *Polluted Runoff and You: Solutions for Your Home and Environment*. RCE Fact Sheet FS925. 4 pp.

The above publication may be obtained from your Rutgers Cooperative Extension Service listed in the blue pages under "County Government" of your telephone directory, or

**Visit RCE on the web:
www.rce.rutgers.edu**