Background

What is nonpoint source pollution? Water washing over the land from rain, snowmelt and our everyday activities picks up an array of contaminants including oil and sand from roadways, agricultural chemicals from farmland and nutrients and toxic materials from urban and suburban areas. This runoff finds its way into our waterways, either directly or through storm drain collection systems.

The term nonpoint is used to distinguish this type of pollution from point source pollution, which comes from specific sources such as sewage treatment plants or industrial facilities. Although huge strides have been made in cleaning up major point sources, our water resources are still threatened by the effects of polluted runoff. The U.S. Environmental Protection Agency has estimated that this type of pollution is now the single largest cause of the deterioration of our nation’s water quality.

With urbanization comes more intensive land use. People and the pollutants that result from their lifestyles are concentrated in areas largely covered by impervious surfaces (roads, parking lots, driveways, rooftops). This combination of people, pollutants and pavement produces runoff that can carry a greater pollutant load than municipal sewage. Sediment from construction sites, chemicals over-applied to lawns and golf courses, automobile wastes (petroleum products, heavy metals), road salt, pet wastes and industrial contaminants all end up in the nearest body of water.

Major Pollutants

Pathogens: Pathogens are disease-causing microorganisms, such as bacteria and viruses, that are carried in human and animal fecal waste. Pathogens wash off the land in wastes from wild animals, farm animals, pets and can also enter our waterways from improperly functioning septic tanks, leaky sewer lines and boat sanitary disposal systems.

Nutrients: Nutrients are compounds that stimulate plant growth, like nitrogen and phosphorous. Under normal conditions, nutrients are beneficial and necessary, but in high concentrations, they can become an environmental threat. Nitrogen contamination of drinking water can cause health problems, including “blue baby” syndrome. Nutrient loading of ponds, streams and lakes can lead to massive algal blooms, the decay of which can...
create odors and rob the waters of life-sustaining oxygen. Nutrients in polluted runoff can come from fertilizers, septic systems, home lawn care products, yard and pet wastes.

**Sediment:** Sand, dirt and gravel eroded by runoff usually ends up in stream beds, wetlands, or ponds and lakes, where they can alter stream flow and decrease the availability of healthy aquatic habitat. Poorly protected construction sites, roadways and suburban gardens can be major sources of sediment.

**Toxins:** Toxic contaminants are substances that can harm the health of aquatic life and/or human beings. Toxins are created by a wide variety of human practices and products and include heavy metals, pesticides and organic compounds like PCB’s (poly-chlorinated biphenyls). Many toxins are very resistant to breakdown and tend to be passed through the food chain to be concentrated in top predators. Fish consumption health advisories are the result of concern over toxins. Oil, grease and gasoline from roadways, and chemicals used in homes, gardens and yards are major sources of toxic contaminants.

**Debris:** Trash is the simplest type of pollution to understand. It interferes with enjoyment of our water resources and, in the case of plastic and Styrofoam, it can be a health threat to aquatic organisms. Typically this debris starts as street litter that is carried by runoff into our waterways.

**Current Issues for Municipal Officials**

Concern over polluted runoff has resulted in an ever-increasing number of state and federal laws enacted over the last five years. The federal government is currently finalizing regulations for storm water management in smaller communities. The regulations are known as the National Pollutant Discharge Elimination System (NPDES) Phase II Rule. The purpose of the NPDES Phase II Rule is to comply with the requirements of the 1972 Clean Water Act and to further protect our nation’s streams, rivers, wetlands and lakes. Proposed Phase II regulations follow the 1990 NPDES Phase I Rule. The Phase I Rule addressed storm water discharges from medium and large separate storm sewer systems (those serving communities with a population of at least 100,000), as well as, discharges associated with industrial activity.

Two important changes are that the NPDES Phase II Rule will affect small municipal separate storm sewer systems (serving populations of less than 100,000 and located in an urbanized area or designated by the permitting authority) and construction activities disturbing between one and five acres. In addition to implementing these federal programs, many states have passed laws altering local land use (planning and zoning) processes and building codes to address the problem of polluted runoff.

Urban nonpoint source pollution and its management are likely to affect you and your town in the near future. Polluted runoff is largely the result of the way we develop, use and maintain our land. These policies are usually decided at the municipal level, through actions of town officials and local commissions. If you are on a local commission, learn a little about polluted runoff and how you can combat it in your everyday decisions. There are many techniques and regulations that can greatly reduce the effects of polluted runoff and there are more being developed every day. Also, there are many good publications and programs that can help each citizen do simple, but important things to help reduce runoff pollution like conserving water, properly disposing of hazardous wastes, gardening and maintaining lawns in an environmentally responsible manner.

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