



Nonpoint Source Water Pollution

SC NEMO Fact Sheet #2

WHAT IS IT?

Nonpoint source pollution is the technical term for polluted runoff. Water flowing over the land, whether from rain, car washing or the watering of crops or lawns, 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. Scientific evidence shows that although huge strides have been made in cleaning up major point sources the effects of polluted runoff increasingly threaten our precious water resources. In fact, the Environmental Protection Agency has estimated that this type of pollution is the single largest cause of the deterioration of our nation's water quality.

WHY CARE?

The effects of polluted runoff are not limited to large lakes or estuaries. In fact, chances are that you don't have to look any farther than your neighborhood creek or duck pond. Water pollution in your town, and perhaps in your own backyard, can result in anything from weed-choked ponds to fish kills to closed shellfish beds to contaminated drinking water.

There's not much chance that you can ignore this problem, even if you want to. Concern over polluted runoff has resulted in an ever-increasing number of state and federal laws being enacted over the last five years. At the federal level, a permit program for stormwater discharges from certain

municipalities and businesses is now underway, and coastal zone management authorities are in the process of adding nonpoint source control to their existing programs. 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. The bottom line is that both polluted runoff and its management are likely to affect you and your town in the near future.

WHAT CAUSES POLLUTED RUNOFF?

You do. We all do. Polluted runoff is the cumulative result of our everyday personal actions and our local land use policies. Here's a brief rundown on the causes and effects of the major types of pollutants carried by runoff.

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 food can pose risks to human health. Because of this, bathing 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 and boat sanitary disposal systems.

Nutrients: Nutrients are compounds like nitrogen and phosphorous that stimulate plant growth. 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.

Overfertilization of ponds, estuaries and creeks by nutrients can lead to massive algal blooms, the decay of which can create odors and rob the waters of life-sustaining dissolved oxygen. Nutrients in polluted runoff can come from fertilizers, septic systems, lawn products, and animal waste.

Toxic Contaminants: 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 PCBs. Many toxins are very resistant to breakdown and tend to be passed through the food chain, ending up 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, yards and on farm crops, are major sources of toxic contaminants.

Sediment: Sand, dirt and gravel eroded by runoff usually end up in ponds or shallow coastal areas, where they can alter water flow and decrease the availability of healthy aquatic habitat. Toxic contaminants can also bind to sediment particles, which serve as a transportation vehicle from one location to another. Poorly protected construction sites, agricultural fields, roadways and suburban gardens can all be significant sources of sediment.

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Debris: Trash is without doubt the simplest type of pollution to understand. It interferes with enjoyment of our water resources and, in the case of plastic and styrofoam, can be a health threat to aquatic organisms. Typically this debris starts as street litter that is carried by runoff into our waterways.

WHAT CAN I DO?

First of all, you can begin to clean up your own act. There are many good publications and programs, such as *SC Home-A-Syst*, the *Citizen's Guide to Clean Water*, and *SC Coast-A-Syst*, that can help you do simple but important things, like conserving water, disposing of hazardous waste properly and gardening in an environmentally responsible manner.

As you can see, polluted runoff is largely the result of the way we develop, use and maintain our land. These policies are largely decided at the local level, through the actions of decision-making officials like planning and zoning commissions. There are many techniques and regulations that can greatly reduce the effects of polluted runoff. The rest of this fact sheet series is devoted to telling you about possible options. If you're on a local commission, learn more about polluted runoff and how you can combat it in the course of your everyday decisions. If you're not on a commission, ask your friends and neighbors what they are doing about polluted runoff!