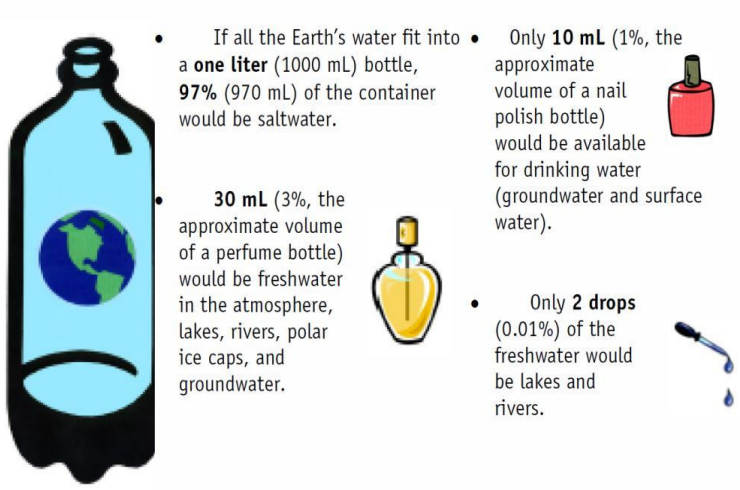
Phase II Stormwater Program

Fall 2015

Nonpoint Source Water Pollution

Nonpoint source pollution is a fancy term for polluted runoff. Water washing 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, our precious water resources are still threatened by the effects of polluted runoff. In fact, the Environmental Protection Agency had estimated that this type of pollution is now the single largest cause of the
deterioration of our nation's water quality.

The World's Water Supply



Courtesy of Alabama Water Watch

The effects of polluted runoff are not limited to large lakes or coastal bays. In fact, chances are that you don't have to look any further than your neighborhood stream 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 contaminated drinking water.

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 raw shellfish, can cause a variety of illnesses. 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 animals, farm animals, 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 that stimulate plant growth, like nitrogen and phosphorous. Under normal conditions, nutrients are beneficial and necessary, but in high concentration, they can become an environmental threat. Nitrogen contamination of drinking water can cause health problems, including "blue baby" syndrome. Overfertilization of ponds, bays and lakes 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 agricultural fertilizers, septic systems, home lawn care products, and yard and animal wastes.

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

Toxic Contaminants: Toxic contaminants are substances that can harm the health of aquatic life and/or 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. 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, yards, and on farm corporations, are major sources of toxic contaminants.

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.

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 municipal level, through the actions of town officials and local commissions like planning, zoning and wetlands. There are many techniques and regulations that can greatly reduce the effects of polluted runoff, and there are more being developed every day.