Phase II Stormwater Program

Winter 2013

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 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 our own backyard, can result in anything from weed-choked ponds to fish kills to contaminated drinking water. There is not much chance that you can ignore this problem, even if you want to.

Think about it!

One researcher calculated that a one inch rainstorm on a one acre meadow would produce 218 cubic feet of runoff, while a parking lot the same size would produce 3460 cubic feet. Among the pollutants that accumulate on parking lots are cadmium, copper, lead, zinc, nickel, cobalt, and iron, which are found in gasoline, grease and oils, antifreeze, brake linings, and rubber.

-EPA Smart Growth

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 is 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. Over fertilization 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 PCB's. 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 contamination.

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. There are many techniques and regulations that can greatly reduce the effects of polluted runoff, and there are more being developed every day. First of all, you can begin to clean up your own act. There are many good publications and programs that can help you to do simple but important things, like conserving water, disposing of hazardous waste properly and gardening in an environmentally responsible manner.

More information on Nonpoint Source Water Pollution is available from:

www.epa.gov
www.adem.alabama.gov
City of Phenix City Engineering Department - 334-448-2760