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1-1-2005

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Franti, Thomas G. and Tonn, Steven R., "NF05-632 Protecting Your Watershed" (2005). *Historical Materials from University of Nebraska-Lincoln Extension.* Paper 1741.
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Published by Cooperative Extension, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln

NF632

Protecting Your Watershed

By Thomas G. Franti, Extension Surface Water Management Specialist and Steven R. Tonn, Extension Educator

Everyone lives in a watershed. A watershed is the land area that contributes water to a location, usually a stream, pond, lake or river (see *NebFact 05-631, Understanding Watersheds*). Everything we do on the surface of our watershed impacts the water quality of our streams, wetlands, ponds, lakes and rivers. Like organs in a body, every part of the watershed is essential. What happens in one part affects other downstream parts.

The consequences of what we do in our homes and on our land can extend hundreds of miles downstream. As we go about our everyday activities, each of us impacts the watershed day by day, drop by drop.

Runoff Pollution: A Threat to the Watershed

Nonpoint source pollution is a technical term for runoff pollution. Runoff pollution occurs when rainfall, snowmelt or excess irrigation flows over land or through the ground, picks up pollutants, such as eroded soil and nutrients, and deposits them into streams, lakes and rivers, stores them in the soil, or introduces them into the groundwater. It can come from many different sources in the watershed.

Runoff pollution remains the nation's largest source of water quality problems. It is widespread because it can occur any time activities disturb the land, water or vegetation. Agriculture, construction, households, businesses, recreation and urban development are potential sources of runoff pollution. Runoff pollution can impair a watershed.

Common Runoff Pollutants

Most runoff pollutants fall into six major categories: 1) Sediment (soil) 2) Nutrients (fertilizers, organic matter) 3) Acids and Salts 4) Heavy Metals 5) Toxic Chemicals and 6) Pathogens (bacteria, viruses), according to the U.S. Department of Agriculture (USDA), and other state and federal agencies *(Table I)*. Different approaches may be needed to reduce the runoff and impacts of different pollutants.

Best Management Practices For Protecting the Watershed

Best management practices (BMPs) are systems, activities and structures that are constructed or practiced to prevent runoff pollution. They can be a single practice or a combination of practices. A BMP may be designed to reduce pollutants that enter runoff, or a method that reduces the amount of pollutants in the runoff before it

Table I. Common runoff pollutants.

Runoff Pollutants and Major Sources					
1 Sediment	*2 Nutrients*	*3 Acids and Salts*	*4 Heavy Metals*	*5 Toxic Chemicals*	*6 Pathogens*
-Construction Sites	-Croplands	-Irrigated Land	-Mining	-Mining	-Domestic Sewage
-Croplands	-Nurseries	-Mining	-Vehicle Emissions	-Urban Runoff	-Livestock Waste
-Streambank Erosion	-Orchards	-Urban Runoff	-Urban Runoff	-Manufacturing	-Landfills
-Grazed Woodland	-Livestock Waste	-Roads, Parking Lots	-Roads, Parking Lots	-Landfills	
-Logging	-Lawns, Gardens	-Landfills	-Landfills		
-Urban Runoff	-Fertilizer Storage Areas				
-Bare Soil Runoff	-Landfills				
	-Bare Soil in Yards				

Reference: Nonpoint Source Pollution: Water Primer, Ohio State University Extension Fact Sheet AEX-465-93.

enters a waterbody. BMPs are listed below for agriculture, acreage owners, construction/urban development, residential households and recreation.

Agriculture

Best management practices for agriculture focus on management of inputs to provide for economic and production efficiency for crops and animals and to protect water quality. BMPs may be structural or nonstructural. Examples of nonstructural BMPs include: conservation tillage, no-till farming, soil sampling and testing, effective irrigation scheduling, crop rotation, contour farming, nutrient management plans, and integrated pest management. Examples of structural practices include: erosion control terraces, grass filter strips, riparian buffer strips, grassed waterways, wetland development or restoration, irrigation water reuse ponds, livestock waste control systems and structures and native grass plantings.

Acreage Owners

Best management practices for acreage owners target waste management and soil protection to prevent pollutants from entering surface or ground water. BMPs may be structural or non-structural. Examples of nonstructural BMPs include: proper septic system operation and maintenance including inspecting and pumping a septic tank every two or three years, proper livestock manure management and application, good pasture management practices, minimizing the use of fertilizer, and disposing of used oil and household and lawn chemicals properly. Examples of structural practices include proper design and installation of septic systems, windbreak planting, native grass planting, establishing wetlands and riparian areas, and cover crops or landscape plantings to protect bare soil,

Construction/Urban Development

Best management practices for construction and urban development areas are designed to reduce the pollutants available for transport by the normal rainfall-runoff process, or to reduce the amount of pollutants in the runoff before it is discharged to surface water. BMPs may be structural or nonstructural. Examples of nonstructural BMPs include preserving existing vegetation, planting temporary cover crops on open areas, disposing of all wastes properly, off site vehicle maintenance, covering exposed piles of soil or construction materials, cleaning up leaks and spills, and using trash cans and recycling receptacles. Examples of structural practices include silt fences, check dams, stabilized construction site entrances, sediment traps, sediment basins, storm water drain inlet protection, slope drains, grass swales, riprap channels, straw bales, and permanent vegetative cover

Residential Households

Best management practices for homeowners are intended to prevent pollutants from entering stormwater drains. Examples of BMPs include recycling used oil and antifreeze, using commercial car washes, keeping litter, pet wastes, leaves and debris out of street gutters and storm drains, not dumping anything in the street or in stormwater drains, recycling grass clippings, disposing of household and lawn chemicals properly, fertilizing lawns according to soil tests, sweeping excess fertilizer and pesticides back onto lawns, maintaining septic systems, picking up pet waste, using ground covers and mulches to cover and stabilize the soil, sweeping paved areas (not using a hose), using no- or low-phosphate fertilizer, draining down spouts onto vegetation, and not over-irrigating lawns.

Recreation

Best management practices for recreational users help to prevent the direct entrance of pollutants into a waterbody. Examples of BMPs include observing posted wake speeds and no wake signs at lakes, not spilling fuel or overfilling gas tanks, not discharging bilge water, rinsing and scrubbing boats with water and a brush, disposing of trash and litter properly, using public restrooms, picking up trash, saving tangled fishline and disposing of it properly and not dumping trash.

When we live, work or play in a watershed, we have a responsibility to help protect it.

For more information on protecting watersheds contact your local University of Nebraska Cooperative Extension Office, Natural Resources District Office, Natural Resources Conservation Service Office or the Nebraska Department of Environmental Quality.

Developed in cooperation with the U.S. Environmental Protection Agency - Region VII and the Nebraska Department of Environmental Quality Nonpoint Source Pollution Management Program.

File under: WATER RESOURCE MANAGEMENT
A-13, Water Quality
Issued February 2005

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska–Lincoln cooperating with the Counties and the United States Department of Agriculture.

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