What Is Nonpoint Source Pollution?

Nonpoint source pollution is the largest source of water quality impairments in the nation.

As rainfall reaches the earth and the runoff moves over the ground, it may pick up natural and manmade contaminates and deposit them into lakes, rivers, wetlands, coastal waters, and groundwaters used for drinking water. This transport of contaminates is called nonpoint source (NPS) pollution.

Nonpoint source pollution is not the same as point source pollution. Point source pollution originates from a clearly defined outlet such as an end-of-pipe discharge from an industry or municipal wastewater treatment facility. A National Pollutant Discharge Elimination System (NPDES) permit is required for point sources to discharge treated wastewater to waters of the state. Nonpoint source pollution refers to widespread and diffuse polluted runoff from lawns and septic tanks, roadways and parking lots; some agricultural, forestry, surface mining, and construction practices; and other human daily-living and land-use activities.

NPS Pollution Control in Alabama

In Alabama, the Department of Environmental Management (ADEM) is tasked with implementing a statewide NPS management program. The state management program promotes the implementation of best management practices, education and outreach, pollution prevention, technology transfer, technical assistance, and watershed/water quality monitoring and assessments. Federal grant assistance may be available to implement watershed protection plans designed to achieve water quality standards, or to meet other NPS management goals important to the community.

Potential nonpoint sources and causes of pollution may include:

Agriculture

Agricultural NPS pollution is primarily derived from improper livestock and crop production practices. Land preparation and planting, pesticide and fertilizer applications, irrigation practices, animal waste and by-product disposal, equipment use, and livestock grazing and trampling can degrade water quality, damage wildlife habitat, destabilize streambanks, and impair water clarity and stream flow. Principal NPS pollutants include sediment, suspended solids, nutrients, pathogens, and pesticides.

Construction

Residential housing and commercial building development, road and bridge building, utility right-of way clearing, and other land disturbance activities can introduce large quantities of sediment, suspended solids, and other pollutants to receiving waters. Sedimentation can fill ditches, clog drainage pipes, increase flooding, decrease reservoir storage capacity, impair navigation, damage fisheries and animal habitat, and contribute to recreational-use and aesthetic concerns. Construction refuse, debris from land clearing operations, and inadvertent discharge of fuel, lubricants, and coolants used in equipment may also adversely affect water quality.

Forestry

Forestry activities include the construction and use of logging roads, skid trails, and stream crossings; tree cultivation and harvest, prescribed burning, leaking equipment, and fertilizer and pesticide applications. NPS pollutants include nutrients, sediment, chemicals, and changes in water temperature. Forestry activities may cause streambank degradation, alter base and peak streamflows, accelerate erosion processes, and limit sources of food, shade, and habitat for wildlife and aquatic organisms. The scope and scale of environmental, economic, and aesthetic concerns may depend on post harvest land-use characteristics.

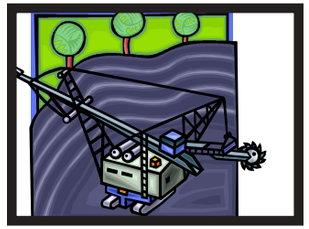
Urban Runoff

Pollutants from urban areas may include sediment from development and construction; hydrocarbons and chemicals from vehicles; fertilizers and pesticides from lawns and gardens; pathogens from septic systems and pet wastes; nutrients from clippings and leaves; or trash and detergents washed down stormwater drains. In addition, urban activities may disrupt natural water flow, degrade wetlands, erode streambanks, and destroy aquatic habitat. Impervious surfaces such as pavement reduce infiltration of water into the ground, reduce pollutant filtering capacity of soil and vegetation, and increase the rate and quantity of polluted runoff.

Onsite Wastewater Systems

Over half of all homes in Alabama use on-site septic tank systems. Poorly installed and improperly maintained household septage treatment systems can contribute pathogens and nutrients to surface and groundwaters and may cause serious human health problems.

Resource Extraction



Surface mining of coal and non-coal minerals, and oil and gas extraction activities may result in the discharge of sediment, heavy metals, hydrocarbons, and brine. Land disturbance activities may disrupt natural surface and groundwater flows, foster acid runoff, and degrade aquatic and wildlife habitat, reproduction and survival.

Provided everyone does their part, Alabama can protect its valuable streams, rivers, lakes and bays from nonpoint source pollution!

Alabama's NPS Program Implementation Measures

Public Education/ Involvement

The ADEM Nonpoint Source Unit may provide federal grant funding or resource material to address NPS polluted runoff. Assistance may be available to agencies, academia, civic and service groups and associations, the regulated community, and others. Public awareness activities support the voluntary implementation of environmentally protective and economically sensible best management practices to improve or protect water quality.

ADEM education and outreach efforts support:

- Watershed and water quality monitoring and assessments
- Watershed protection plan development and implementation
- Citizen volunteer water quality monitoring
- Targeted-audience BMP manuals, videos, brochures, and information sheets
- Multi-media presentations, articles, and newsletter
- Pollution prevention
- Technical training, technology transfer, and BMP demonstrations

Best Management Practices

Best Management Practices (BMPs) refer to structural or nonstructural practices, or managerial measures, policies and procedures recognized to be the most effective, practical, and economical means of preventing or reducing NPS pollution levels to those compatible with water quality standards. BMPs may address a single pollutant source or cause, or be integrated into a holistic management system. Proper BMP design, construction, and operation and maintenance is critical to NPS program effectiveness and implementation success.

Compliance Program

A voluntary NPS pollution management approach is preferred. Traditionally, NPS pollution has been dealt with by providing financial and technical assistance and encouraging voluntary actions. However, if the voluntary approach falters, enforcement of applicable water quality protection rules and regulations is used to ensure responsible compliance and management.

Watershed Protection

The NPS program in Alabama promotes a holistic watershed protection approach. The goal is to focus stakeholder interest on NPS issues and concerns within a hydrologically-defined geographic area. The public and private sectors are encouraged to cooperatively develop and implement a watershed protection plan. A watershed plan provides a management decision framework for achieving water quality standards and protecting natural resources. Watershed plan goals, objectives, and milestones consider partnership interest, geographic scope and scale, sound science and data, and BMP implementation options and resources.

To Learn More or To Participate:

ADEM Education and Outreach
(334)394-4360

Visit the ADEM Home Page:
http://www.adem.state.al.us (Watershed Management)

Visit the U.S. EPA NPS Page:
http://www.epa.gov/region4/water/nps/

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Prevention and Reduction of Polluted Runoff in Alabama

Alabama's Cooperative Nonpoint Source Pollution Program: Agencies and Citizens Working Together for Clean Water