

## What Is Polluted Runoff?

As precipitation reaches the earth, some soaks into the soil and eventually reaches the groundwater system, and some runs across the surface and enters water bodies. When our activities leave nutrients, chemicals or waste materials on the surface, water from rain or melting snow can dissolve and carry these materials to water systems where they can cause harm to the environment and public health. Runoff also transports soil particles and any contaminants that may be attached. This transport of contaminants is called polluted runoff or nonpoint source (NPS) pollution. The term NPS pollution has been used by regulators because it distinguishes runoff pollution from point source pollution, the pollution in discharges from factories and wastewater treatment facilities. These facilities are regulated under the National Pollutant Discharge Elimination System (NPDES) program. Most pollution from runoff or nonpoint source pollution is generally regulated outside of the NPDES program.

## Where Does It Come From?

Water is a good solvent. Precipitation may be contaminated before it even reaches the earth's surface. When precipitation reaches the ground, it dissolves or transports bacteria, soil particles, nutrients (phosphorus and nitrogen), biocides and toxic substances. These contaminants come from livestock, pets, wildlife and failing septic systems (bacteria & nutrients), agricultural and home applications (pesticides & herbicides) and a host of other sources including automobiles, factories, homes, farms and polluted air (toxic substances).

## NPS Pollution Control in Alabama

In 1987, the Federal Clean Water Act was amended to address problems specific to nonpoint source pollution. In Alabama, the Alabama Department of Environmental Management (ADEM) is designated as the lead agency for the implementation of strategies and programs for reducing the impacts of

polluted runoff or NPS pollution. Management of NPS pollution relies heavily on education and technical and financial assistance, although enforcement actions are taken as needed.

The Alabama NPS Program is coordinated by ADEM through formal and informal agreements with state and federal agencies. These include the Alabama Forestry Commission, the USDA Natural Resources Conservation Service, Alabama Department of Public Health, the Surface Mining Commission and the State Soil and Water Conservation Committee. There are also agreements with local agencies, governmental units, educational institutions and non-profit groups. The NPS program works in cooperation with the regulated community and others to reduce polluted runoff from a number of sources:

### Agriculture

Agriculture involves land disturbance activities, animal wastes, chemical fertilizers, biocides (pesticides, herbicides and fungicides), petroleum products and organic wastes.



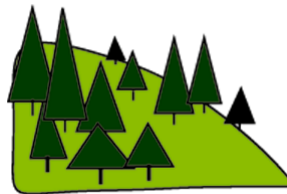
### Construction

Construction typically involves soil movement or disturbance. Subdivision development, road building and road maintenance all can produce large quantities of sediment. Sediments can have nutrients and many other pollutants adsorbed on them.



### Silviculture

Silviculture is the cultivation, harvest and transport of



timber. Logging roads, skid trails and other timber management activities can produce significant erosion and sedimentation. Improper handling of waste materials such as tree tops and limbs, hydraulic fluids, oil and tires can result in water pollution.

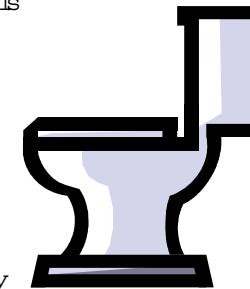
### Urban Runoff

Urbanized and rapidly urbanizing areas have special NPS pollution problems. Replacement of vegetation with impervious surfaces reduces infiltration of water into the ground and increases the rate and quantity of runoff. This results in less attenuation or removal of pollutants by natural processes that take place in the soil. In addition, automobiles produce hydrocarbons, heavy metals and other pollutants which become part of this runoff.



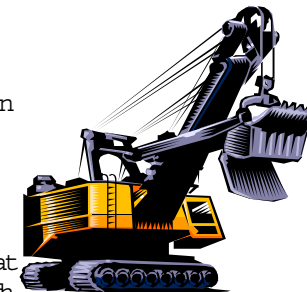
### Septic Tanks

Over half of all homes in Alabama utilize septic tank systems for waste disposal. Septic systems can be safe, effective and ecologically sound. However, when septic systems are poorly designed or not properly maintained, surface and groundwater contamination can result.



### Resource Extraction

The pollution that commonly occurs with mining, oil and gas extraction activities is sediment. However, increased acidity and metallic contaminants can be associated with mining of coal and metal ores. Oil and gas operations can result in release of hydrocarbons and salt water.



In addition to the sources of polluted runoff already noted, other human activities can produce runoff or nonpoint source pollution whenever they cause soil disturbance or disperse pollutants onto the ground or into the air. Controlling polluted runoff self-interest to modify the behaviors of people.



## Alabama's NPS Program Implementation Measures Public Education/Involvement

Alabama NPS education efforts deliver information on polluted runoff sources, impacts and controls to the general public and targeted groups. Education efforts are coordinated by ADEM's Office of Education and Outreach (OEO) and delivered by OEO staff, cooperating agencies, institutions, the regulated community, non-profit groups, associations and interested individuals. The effort focuses on encouraging the implementation of appropriate best management practices (BMPs) to prevent or correct water quality degradation as a result of runoff pollution impacts.

General education program elements include:

- a nationally recognized citizen volunteer water quality monitoring program
- an education outreach program
- resources for educators and students and the general public
- BMP manuals
- support for community-based inspection of water bodies and cleanup activities
- support for and delivery of technical training for erosion and sediment control and other polluted runoff control training needs

Education priorities and activities are guided by several NPS pollution control task forces composed of representatives of the cooperating agencies, the regulated community, professional and non-profit groups and interested citizens. These include:

- Alabama Erosion Control Task Force
- On-Site Septic System Committee
- Animal Feeding Operations Advisory Group
- Agricultural Interest Group

## Best Management Practices (BMPs)

Proven practices for preventing pollution or reducing the amount of polluted runoff that reaches waterbodies or groundwater systems (BMPs) can be nonstructural or structural. An example of a nonstructural BMP is using techniques to minimize fertilizer application and avoiding application at inappropriate times. An example of a structural BMP would be construction of a sedimentation pond for catching sediment from a construction project.

## Compliance Program

The preferred approach for control of polluted runoff is voluntary compliance through education, technical and financial assistance. In some cases where individuals or organizations fail to respond to the voluntary approach it is necessary to utilize compliance inspections and legal remedies to protect water quality. The NPS program compliance effort is staffed by ADEM's Field Operations Division.

## Targeted Watershed Projects

When addressing polluted runoff, it is essential to look at a watershed with a holistic approach that employs education, technical assistance and financial incentives to improve water quality. The ultimate goal of this approach is to prepare and encourage local citizens and communities to conduct ongoing water quality and watershed protection activities. Alabama has a number of targeted watershed projects.

## To Learn More Or To Participate

### ADEM Office of Education and Outreach (Program Information)

(334)-213-4306 OEO Secretary  
(800)-533-2336 ADEM Ombudsman

### Visit the ADEM Home Page:

<http://www.adem.state.al.us>

### Alabama Water Watch (Citizen Volunteer Monitoring)

(888)-844-4785

### NPS Education Coordinator (Teacher Programs, Materials)

(334)-670-3624

### Visit One of the U.S. EPA Home Pages:

<http://www.epa.gov/OWOW/> (Polluted Runoff)

<http://www.epa.gov/surf/> (Watershed Information)

## Additional Information

Other brochures about control of specific polluted runoff problems are available as are much more detailed manuals. Contact ADEM's OEO for information.

Provided everyone does their part,



Alabama can protect its valuable streams, rivers, lakes and bays from damage due to polluted runoff!

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# Alabama Department of Environmental Management



## Prevention and Reduction of Polluted Runoff in Alabama

Alabama's Cooperative Nonpoint

Source Pollution Program :

Agencies and Citizens Working

Together for Clean Water.