

A photograph showing a person's leg in blue jeans and a brown boot stepping onto a muddy stream bed. The water is murky brown, and the stream bed is covered in mud, rocks, and some debris. The background is slightly blurred, focusing attention on the muddy ground.

Sediment is the largest single nonpoint source pollutant and the primary factor in the deterioration of surface water quality.

Soil In Our Streams

What is Sediment?

Nonpoint source pollutants come from a number of sources and are washed into our waterways by surface runoff. When land disturbing activities occur, soil particles are transported by surface water movement. Soil particles transported by water are often deposited in streams, lakes, and wetlands. This soil material is called sediment. Sediment is the largest single nonpoint source pollutant and the primary factor in the deterioration of surface water quality in the United States. Land disturbing activities such as road construction and maintenance, timber harvesting, mining, agriculture, residential and commercial development, all contribute to this problem.

What are the Impacts?

Water Quality and Flooding

Sedimentation of surface waters can cause stream channels to become clogged with sediment. When stream channels become clogged, the result will be an increase in bank erosion, meandering, and flooding. Sediment also reduces the storage capacity of reservoirs, destroys wetland areas, and degrades the quality of water for municipal, industrial, and recreational uses.

Aquatic Habitat

Excess sediment can change a stream from one with a clean gravel bed to one with a muddy bottom. With this change many of our native fish and animals will disappear. Gravel beds and cobble bars within a stream provide important spawning areas for many aquatic stream species, including trout and other game fish. The soil particles cover spawning areas, smothering trout eggs, aquatic insects, and oxygen producing plants. Increased turbidity levels (suspended sediment) in a stream will

increase water temperatures, reduce light penetration and plant growth, and affect the ability of fish to locate and capture prey by greatly reducing visibility. Trout and other fish can die from the abrasive, gill clogging effects of suspended sediment, which interferes with their breathing.

Erosion Control and Habitat Protection Guidelines

A variety of erosion and sediment control measures are available to reduce the potential for sedimentation of our streams. Implementing and maintaining erosion control measures can greatly reduce sediment inputs and prevent further degradation of streams and wetlands. The following measures will reduce sedimentation and the impacts to wildlife and fisheries resources:

Project Scheduling - Plan land-disturbing projects for the seasonal dry period and avoid the critical spawning and migration time of fish. The critical spawning period for trout is from November 1 to April 15.

Vegetative Cover - A good root system reinforces the soil and holds it in place thereby reducing the erosive effects of wind, rain, gravity, and flowing water. Temporary or permanent vegetation should be planted on all bare soil immediately after any ground disturbing activities. Anchored mulch or erosion control fabrics will provide surface protection until the vegetation becomes established.

Buffer Zones - Buffer zones of at least 50 feet should be left between streams and all land disturbing activities. These areas act as filter strips to keep sediment out of streams and keep streambanks stable. In addition, these areas provide excellent food, cover and travel ways for wildlife.

Streambank Stabilization - Millions of tons of soil are lost each year from eroding streambanks. Native material revetments and bioengineering techniques provide excellent bank stabilization. Root wads reduce water velocities, provide fish habitat, and have a natural appearance.

Maintenance of Erosion Control Measures

Maintenance and inspection are essential to the successful performance of erosion control measures. Lack of maintenance is the most common cause of failure. Practices should be inspected on a regular basis and after each storm event. If maintenance is required, it should be performed in a timely manner to ensure proper function. Failure of a structure can release large amounts of sediment, severely impacting surrounding areas.

Find Out More About Erosion and Sediment...

For assistance in evaluating sediment related problems, designing an erosion control system, information on permits and cost share, contact the following organizations:

- North Carolina Wildlife Resource Commission
- Natural Resources Conservation Service
- Resource Conservation & Development Councils
- Soil & Water Conservation Districts
- United States Fish and Wildlife Service

All programs and services are offered on a non-discriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status or disability.

This fact sheet was made possible by the following organizations:

Surry Soil and Water Conservation District
Stone Mountain Chapter of Trout Unlimited
Pilot View Resource Conservation and Development, Inc.
Southwestern Resource Conservation and Development, Inc.
United States Fish and Wildlife Service
North Carolina Wildlife Resource Commission



Sediment in our streams smothers fish eggs, aquatic insects and oxygen producing plants. Clean streams are important to stream life like this trout fry.