

## There Used to be Trout Here... Why is Sediment Harmful to Fish Habitat in Streams?

**W**hen those sudden summer storms blow in from the north, everyone can easily see the destructive after-effects the next day, especially from high winds. But what about the streams or lakes? People tend to forget that the storm probably had a significant impact on streambeds and lakebottoms, too. Let's take a look at what happens in a typical stream after a storm.

With the storm over, soil particles begin to wash into the streams and water tributaries, eventually to settle on the streambed. Larger gravel particles usually settle first, leaving spaces for the finer silt to settle down later.

Sedimentation also changes the way water flows, normally slowing the water velocity so that more sediment settles down instead of moving along with the stream flow. This is the basic dynamic principle behind streambed formation after an especially active storm with higher water levels. What does it mean for the aquatic life?

Since many species of fish (trout, some minnows) spawn in gravel, it is important to keep unnatural loads of sediment from changing the structure of streambeds. The fish deposit eggs in the empty spaces between gravel. The eggs require fresh, moving water in order to survive and grow and then an escape route after they are hatched. When the fish deposit their eggs, they create an area free of fine silt material by using their bodies to wash the gravel. These areas are called redds.

Because of the indentation the fish make in the bed, the water eddies and actually flows upstream over and through the redd, providing fresh water to flow over the

redd. The water flows slower over the eggs than in the main channel flow, helping to protect the eggs. Thus, under these ideal conditions, new fish are born.

However, if an unusual amount of sediment delivery distorts these ideal conditions, problems occur throughout the aquatic habitat. Too much sediment fills up streambeds, creating a shallower and wider channel and triggering flooding problems. The shallow water also is heated up more quickly by the sun, making the temperature too warm for cold-water fish varieties such as trout.

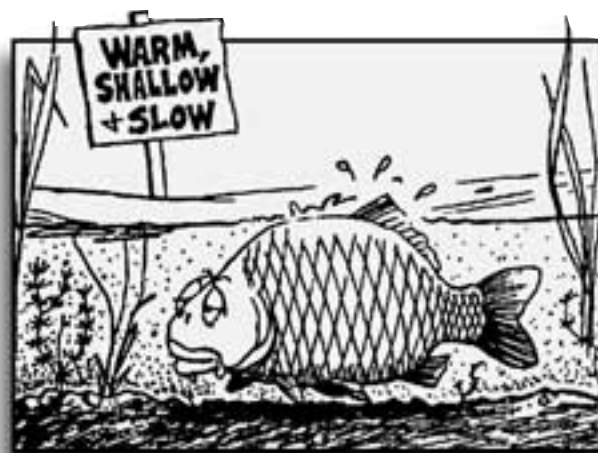
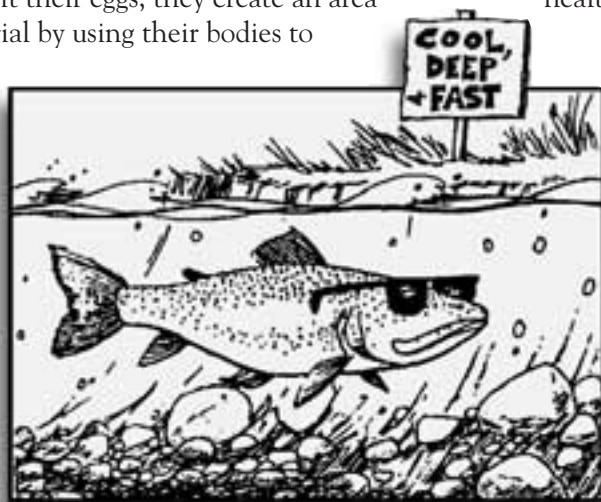
Murky waters also make it hard for fish to see their food. Sediment can damage fish gills and harm insects – further reducing the fish's food supply.

In time, more desirable fish are replaced by warm water fish such as carp. Further down the food chain, plants are negatively affected by too much sedimentation as well. Cloudy water reduces sunlight penetration

and the process of photosynthesis, which supplies food to the plants. Dead plants, in turn, increase the amount of nutrients in the water and cut off necessary food supplies for many species besides fish. Sediment also carries with it harmful toxic pollutants and nutrients from the land.

Effective land management can reduce the amount of sediment delivered to a stream channel. Do you have a favorite lake or stream that is not what it used to be? Talk to your county Land Conservation Dept. There are practices that can help return your local waterways to a healthy condition that benefits fish and us!

**Shallow water is heated up more quickly by the sun, making the temperature too warm for cold-water fish such as trout. In time, these more desirable fish are replaced by warm-water fish such as carp.**



– Adapted from “Effects of Sediment on the Aquatic Environment: Potential NRCS Actions to Improve Aquatic Habitat” 8-’95, RCA Working Paper #6, US Department of Agriculture Natural Resources Conservation Service.