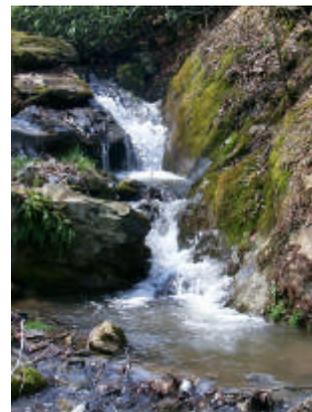




# The Water Bar



Water Quality Update  
for Loggers and other Forestry Professionals

April 2004

Serving Northwest North Carolina

## FPG Highlights: Stream Temperature

Performance standard .0208 of the Forest Practices Guidelines (FPG) pertains to stream temperature. It states that, "Adequate shade within SMZs associated with natural perennial streams shall be retained to protect those streams from adverse temperature fluctuations which result in a violation of an adopted water quality standard of the Environmental Management Commission (EMC) as contained in rule 15 NCAC 2B .0211-Fresh Surface Water Classifications and Standards".

This FPG refers to a rule that requires temperature "not to exceed 2.8 degrees C (5.04 degrees F) above the natural water temperature, and in no case to exceed 29 degrees C (84.2 degrees F) for mountain and upper piedmont waters and 32 degrees C (89.6 degrees F) for lower piedmont and coastal plain waters. The temperature for trout waters shall not be increased by more than 0.5 degrees C (0.9 degrees F) due to the discharge of heated liquids, but in no case to exceed 20 degrees C (68 degrees F)".



This logger left adequate shade and was still able to remove sawtimber.

Best Management Practices recommend leaving 75% of pre-harvest shade along streams to maintain compliance with the

standards. The temperature of small streams is more easily effected by the removal of shade than large streams. The slow moving streams of the piedmont and coastal plain are also more easily effected by shade removal. In many cases, understory vegetation and pulpwood-sized trees can be left standing within 50 feet of a stream to provide 75% pre-harvest shade.

There are no practical, on-the-ground BMP's that we can recommend after the shade has been removed from a stream. That's why its so important to follow current BMP's, making sure to leave enough shade along streams whenever logging occurs nearby.

Some research suggests that the heating of groundwater under a harvested site may effect stream temperature more than the removal of shade from the stream itself. The heating of the ground surface after timber harvesting could significantly effect groundwater temperature on some sites. The correlation between ground temperature and stream water temperature after a harvest is still not clearly known and is, therefore, not addressed in the BMP manual.

When the Division of Forest Resources inspects a site where we believe there may be a violation of the stream temperature standard our policy is to refer the project to the NC Division of Water Quality. They will then determine if a violation does exist and what enforcement action is needed.

## Sediment's Effect on Water Quality

Years ago, early in my career as a forester, I happened upon a land clearing operation in the upper piedmont of North

Carolina during a routine timber examination. On the bare soil slopes of the land, gullies had formed that you could park a pickup in. Later when I saw the landowner I felt compelled to mention that I had seen "significant soil movement" on the site. His response was, "Oh, that soil may not be where it was but its out there somewhere".



Land clearing, whether for Christmas trees or development can cause major sedimentation.

That was the sentiment of the time. And of course he was right. That soil *was* out there somewhere; likely in the stream at the base of the slope. And I imagine that now, over 20 years later, its still out there slowly migrating down the Roanoke River system or accumulated in a reservoir downstream along with countless tons of other sediment that came from similar land disturbing activities. All that sediment, for most of us, is out of sight and out of mind. But it is still "out there somewhere" and has a significant impact on water quality in our state's river systems.

According to the NC Division of Water Quality, sedimentation (deposition of soil into streams) is the biggest threat to our mountain streams. They cite development, steep slopes, and fragile soils as being the main causes of sedimentation in the mountains. Experts

agree that, overall, forestry causes less sedimentation than development or even agriculture. However, individual forestry operations can cause significant sedimentation.

So, why is all this sediment bad for our stream? There are several reasons to be concerned about sedimentation. First, sediment has a profound effect on the type of animals that can survive and reproduce in a stream. An undisturbed mountain or upper piedmont stream will have a streambed composed of cobble (small to medium-sized stones with many voids between the stones). If sediment is introduced into a stream, the voids between the cobble are quickly filled, leaving no space for organisms such as stoneflies and mayflies; both of which provide food for fish species such as trout. Trout also need those voids between the cobble to deposit and hatch their eggs.



Sediment like this will take years to flush out of a stream.

Layers of sediment deposited on a streambed will raise the level of the stream above its previous, undisturbed level. Therefore, the stream can come out of its banks to cause flooding more often. A stream laden with sediment will also tend to erode its banks more during a high-water event.

As sediment fills reservoirs the water storage capacity of the reservoir is reduced. Reduced storage capacity means that a reservoir is less effective at controlling floods. Reduced storage capacity in reservoirs also means that there is less water available to municipal water systems who draw water from the reservoir.

From an economic standpoint, sediment and turbidity (very small suspended soil particles in water) must be removed from municipal water systems thus increasing the cost of treating municipal water supplies. Indirectly, sedimentation may also have an adverse effect on North

Carolina's \$12 billion tourism industry since pristine mountain streams are a major part of the aesthetic appeal of our western region.

## ProLogger Re-certification Courses

Chances are, you're one of many loggers who will be looking for ProLogger re-certification credit hours in the next year. Most who have been through the course need 15 hours of continuing education credits before July 1, 2005. The time to start planning to get those hours is now. Don't wait till the last minute because courses may be full.

Currently, a free BMP Workshop is scheduled for Nov. 6, 2004 in Wilkes County. We will keep you advised in these pages of other workshops scheduled in the northwest area.

If you hear of courses being given that you think would qualify you can submit the course agenda to NC Forestry Assoc. (800-231-7723) for approval of re-certification hours. You can also check with the NCFCA to see how many re-certification credit hours you have now.

## On-Site BMP Training

The Forest Service is available to provide an on-site "Tailgate BMP Training for Logging Crews". We can come to your logging job and give a 1-2 hour customized program for your entire crew to help you avoid, identify and correct water quality problems. The training qualifies for ProLogger re-certification credits. There is no charge for this service. Contact Roger Miller (828)757-5611 to set up an appointment.

## Steel Bridges Available

The Forest Service has a set of steel portable bridges that are available for loggers to borrow. The 3-piece bridges are 24 feet long and will make a 12 foot wide bridge suitable for a skid trail or truck road. Since we purchased the bridges last summer, they have been used on 4 different logging operations. Contact Water Quality Forester, Roger Miller (828-757-5611) about borrowing the bridges.



Steel bridges available for loan.

**Your comments are appreciated.**

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Congratulations to the 20 loggers who completed ProLogger training in Wilkes County March 19.