



## BMP Newsletter

Best Management Practices for Water Quality & Soil Conservation



### The new WOTUS rule: What does it mean for forestry?

A new federal rule went into effect August 28, 2015 defining streams, wetlands, and other bodies of water that are deemed to be “waters of the United States” (abbreviated as WOTUS), all of which are thereby protected from illegal discharges of pollution. This rule was highlighted in the previous edition of this newsletter. The USEPA has a website explaining the background of this new rule:

***Nationwide Hold on WOTUS***  
*On October 9, 2015 a federal judge issued a nationwide hold in WOTUS implementation to allow time for the courts to review the multiple lawsuits that have been filed, regarding the extent and scope of the new rule. It is presumed that until further notice, the previous Clean Water Act's definitions of “waters of the US” are valid once again.*

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**National Forest Products Week:  
October 19 - 23.**

**North Carolina State Fair @ Raleigh:  
October 15 - 25.  
[www.ncstatefair.org](http://www.ncstatefair.org)**

By reading this definition exactly as written, it could be interpreted that a “tributary” now may include some ephemeral streams and even some ditches, along with intermittent or perennial streams that have always been protected waters.

This is even more of a reason to make sure that BMPs are being used to protect water quality, whenever bodies of water or wetlands are on your forestry job, or nearby downstream.

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## *The new WOTUS rule:* (continued)

No changes to the SMZ rule in the Forest Practices Guidelines (FPGs) are being made at this time. And no changes to our BMP recommendations are being made. We are not requiring you to put a SMZ on ephemeral streams or ditches. But with this new federal rule, it is more important than ever to make sure that you implement BMPs to minimize impacts to protected bodies of water.

As a reminder, the Clean Water Act Section 404 exemptions remain intact, to discharge dredged or fill material (such as soil or sediment) during normal, ongoing and established silviculture. But there are certain conditions that must be met when conducting your forestry/silvicultural activity, in order to remain exempt under Section 404. The catch is, with this WOTUS rule potentially including more lands and waters than previously, these Section 404 conditions may apply in more places now, than before this new rule. Refer to Chapter 6 of the [Forestry BMP Manual](#) for the Section 404 conditions related to roads and site prep.

The new WOTUS rule includes “adjacent” to tributaries. However, *Waters being used for establish*

The exact implication or interpretation of “adjacent” is still unclear. However, it is anticipated that timber harvesting practices can continue to operate as normal, not going to be automatically converted to a WOTUS tributary.

### **Nationwide Hold on WOTUS**

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## **BMP TOPIC: BACK TO BASICS**

What’s the purpose of a BMP in forestry?

It depends on who you ask, and which rule definition you reference. Ultimately, a BMP is anything that you can do on a forestry site to manage, control, prevent or minimize the amount of pollution or polluted runoff from entering a stream, wetland, pond or other “water of the US”.

We can get caught up in a frenzy over the new WOTUS rule and what it could mean. But the bottom line is that if you fully implement BMPs, and are conducting your activity for the purposes of silviculture, then you are making a good faith effort to minimize the amount of pollution that may occur as a result of your forestry work. Comply with the FPG standards, and get back to the basics with your BMPs:

- ◆ Do not cross a stream with logging tractors unless you have no other alternative.
- ◆ Leave an appropriate SMZ.
- ◆ Do not build roads, skid trails, or log decks in a place where sediment can easily wash downhill and into a body of water.
- ◆ Apply and pack down leftover logging slash and laps atop of main skid trails and log decks to cover the exposed soil.
- ◆ Establish groundcover promptly to reduce the amount of time that soil lays exposed and prone to erosion.

*Manage your risks by using BMPs: environmental, operational, and financial risk.*

## Western Region Focus

### Funding Received to Restore Linville River

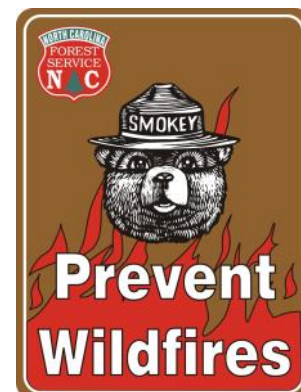
Over the summer the North Carolina Forest Service was awarded a grant from the N.C. [Clean Water Management Trust Fund](#) to begin a multi-phased effort to restore the Linville River at Gill State Forest near Crossnore, in Avery County. This project will bring back the natural design structure of the river, improve trout habitat, and enhance the riparian forest along both sides. Additional funds are being sought to extend restoration along more length of the river to maximize the improvement opportunities. As this project unfolds, we will provide updates in this newsletter. Also look for stream restoration workshops to be hosted on-site at the NCFS [Mountain Training Facility](#) during the next 3 to 5 years.



*The Linville River looking south. As part of the restoration, the low-water bridges and island will be removed, and fish habitat structures will be installed in the river.*

### After the Leaves Fall... Be Careful With Fire!

Despite lots of rainfall in late September and early October, the leaves will dry out after they come off of the trees. Think twice before burning them. Hardwood leaves are an excellent mulch and compost. Escaped fires from debris burning is the #1 cause of wildfires in North Carolina. The fall season is historically the driest time of the year in our state. Learn more about protecting your home from wildfires at: [www.ncfirewise.org](http://www.ncfirewise.org).



#### UPCOMING EVENTS

OCT.1 @ Mills River: [Erosion & Sediment Control and Stormwater Inspector / Installer - Level 1](#).

Contact NCSU Soil Science Dept: 919-513-1678.

OCT. 8 & 9 @ Asheville: [RiverCourse RC401, Construction Practices for Stream Restoration](#). Contact NCSU Stream Restoration Program: 919-513-2192.

OCT.17 @ Statesville: [NC Tree Farm Program Annual Meeting](#). Contact Leslie McCormick: 919-917-8646.

OCT. 27 @ Otto, USFS [Coweeta Hydrologic Lab](#): Riparian Forest Restoration After the Loss of Eastern Hemlock Workshop. Registration deadline is Oct. 9th. Contact Randy Fowler, USFS: 828-524-2128, ext.111.

NOV.10 @ Hickory: [Erosion & Sediment Control Planning and Design](#). Contact NC WRR: 919-515-2815.

Visit the *Hot Topics* at the NCFS website for other events.

## Piedmont Region Focus

### Results Published from a 6-Year Watershed Study on Timber Harvesting

The U.S. Forest Service published its report on a joint study with the N.C. Forest Service that assessed the water quality in two pairs of watersheds in central North Carolina before, during, and after a clearcut timber harvest. The final report is available from the USFS online research library, at this link: [www.treesearch.fs.fed.us/pubs/49155](http://www.treesearch.fs.fed.us/pubs/49155). The study sites were located in Durham and Granville counties, and samples were taken after each major rain storm between 2008 and 2012. Two pairs of adjoining watersheds were studied, with one watershed of each pair clearcut harvested in 2010. In each harvest, a riparian buffer was retained and selectively cut, in accordance with the Neuse River Basin Riparian Buffer Rule. A summary of the findings are provided below.

Streamflow discharge increased within the harvested watersheds significantly above the preharvest conditions. This increase was especially notable in the watersheds that have clay soils, which naturally limit downward water infiltration and create more surface runoff. After three years of new vegetative growth after harvest, the stream discharge began to return to preharvest levels.

Preharvest monitoring indicated that the Total Suspended Sediment (TSS) loads were within normal background levels for forests in the Piedmont region, ranging from 74 to 93 kg/ha/yr. After the harvest, the actual measured TSS loading rates were higher than the preharvest levels in one of the three harvested watersheds. In that one watershed, the increase was about 27% above the preharvest level. The increased TSS is likely a result of the increased stream discharge dislodging and mobilizing old sediment that had been deposited from historical land-use practices, and had built-up inside of the stream channel. No evidence of sedimentation into the streams, such as erosion gullies or sediment trails from the harvest areas, were observed in any of the three watersheds.

Preharvest monitoring indicated that nutrient (nitrogen and phosphorus) levels in the streams were within normal background levels for forests in the Piedmont region. Stormflow nitrate concentrations peaked in the harvested watersheds approximately 1.5 years postharvest. By two years after harvest, the regrowth of vegetation reduced the stormflow peak nitrate concentration to preharvest levels in both of the harvested watersheds. The mean annual measured nitrate concentrations ranged from 0.19 to 1.14 mg/L within the harvested watersheds, and these results were higher than both the preharvest measured concentrations, and the modeled estimates that were calculated as if the harvests had not taken place. Despite short-duration spikes, none of the nitrate concentrations from water quality samples collected from any of the harvested or reference watersheds in this study exceeded State of North Carolina water quality standards for nitrate concentrations.

Mean annual measured Total Nitrogen loads were observed to be higher after the harvest than before, in two of the three harvested watersheds. Loading rates, after harvest, ranged from approximately 1.19 to 1.56 kg/ha/yr. Mean annual measured Total Phosphorus loads were slightly higher after the harvest than before. However none of the measured results were statistically different. Total Phosphorus loads after harvest ranged from approximately 0.21 to 0.31 kg/ha/yr. In total, the nutrient loading rates from the clearcut areas were very low when compared with other land use practices.

Throughout the entire study period, stream temperature readings did not exceed the 29°C threshold as defined by State of North Carolina water quality standards to maintain healthy stream habitat for aquatic life. Bioclassification of benthic macroinvertebrate (aquatic insects) samples indicated stream quality remained Good/Fair to Excellent in the harvested watersheds. After the harvest, changes were observed in the abundance and types of aquatic insects that were sampled. Overall there was no functional degradation in the sampled aquatic life after the timber harvests in either watershed.

Significant blowdown of many residual trees retained within the riparian buffer zone occurred after the harvest. However, no measurable increase in mean daily stormflow TSS concentration was detected after blowdown, suggesting that the blowdown did not produce a significant amount of additional sediment into the stream, despite multiple large uprooted trees that tore out sections of the streambank.

#### UPCOMING EVENTS

OCT.7 @ Charlotte: [Wet Pond & Wetland Design Update Workshop](#). Contact NCSU Stormwater Engineering Group: 919-515-6780.

OCT.22 @ Raleigh: [Erosion & Sediment Control and Stormwater Inspector / Installer - Level 1](#). Contact NCSU Soil Science Dept: 919-513-1678.

NOV. 2 @ Raleigh: [Water for a Growing World - Stewards of the Future](#). Contact NCSU College of Agriculture: 919-513-7988.

NOV. 5 & 6 @ Kannapolis: [Stormwater BMP Inspection and Maintenance Certification](#). Contact NCSU Stormwater Engineering Group: 919-515-6780.

DEC.10 @ Raleigh: [Erosion & Sediment Control Planning and Design](#). Contact NC WRRI: 919-515-2815.

Visit the *Hot Topics* at the NCFS website for other events.

## Eastern Region Focus

### To Build, or Not To Build (a road in a wetland)

If you own timberland, you need road access. And if you own timber in a swamp or wetland, building that road can get complicated and expensive in a hurry. In the last few years, the NCFS has been asked by regulatory agencies and landowners for advice on the need to build a road through wetlands, for the purposes of managing their timber. The NC forestry BMP manual has information about roads ([Ch.5, Part 4](#)). And in 2004, the NCFS and U.S. Army Corps of Engineers developed a guidance document for building and maintaining forest roads in wetlands. This guide is available in [Appendix 1 of the BMP Manual](#), and should be closely referenced if you wish to build a new road through a wetland/swamp area.

**Take Note:** There are 15 federally-required BMPs if you build a road through a “waters of the US”, which includes wetlands. These 15 BMP conditions allow you to remain exempt under Section 404 of the Clean Water Act from having to obtain a federal permit. Also, to remain exempt under Section 404, that road you build must be for the purpose of silviculture. While other beneficial uses of that road may be recognized and allowed, the intent and primary reason for building that road must be for managing and harvesting timber, in order to qualify for the Section 404 exemption.

#### So, how much is that new wetland road going to cost?

This summer, the NCFS was asked by a landowner for advice on building about 600 feet of new logging road, about 16 feet wide, through a wetland in a coastal zone county. We inquired with an engineer who works for a geotextile company about possibly using some of their products to create a firm road bed in the mucky soil. Some estimated costs that we arrived at:

\$18,000: geotextile fabric; and 6” high expandable honeycomb geoweb

\$ 5,000: sand fill material for roadbed base

\$10,000: stone aggregate

\$ 3,500: machine time

\$36,500 total cost estimate. That equals \$60 per linear foot of road.

And, this estimate does not include the cost of a new bridge that is needed to cross a 20-foot wide creek, just to get to the new road from the high ground. Before you start pushing dirt, make sure you do the math and recognize where your costs will come from. Nobody said using BMPs was always going to be cheap. But investing in the ‘right way’ at the start can prevent water quality problems and recurring ‘right of way’ maintenance costs in the long run.

#### UPCOMING EVENTS

OCT.1 @ New Bern. [Stormwater Wet Pond & Wetland Design Update Workshop](#). Contact NCSU Stormwater Engineering Group: 919-515-6780.

OCT. 26 to 30 @ Wilmington: Forestry & Environmental Camp for Teachers. Contact Chris Brown, NCSU: 1-800-231-7723.

NOV. 17 @ Fayetteville. [Green Streets for Stormwater Treatment](#). Contact NCSU Stormwater Engineering Group: 919-515-6780.

DEC. 4 @ Elizabethtown: [Longleaf Pine 101 Workshop](#). Contact NCSU FEOP: 919-515-5065

Visit the *Hot Topics* at the NCFS website for other events.



NCFS foresters looking over a wetland area where a landowner inquired about building a permanent forest access road.

# North Carolina Forest Service

WATER RESOURCES BRANCH

1616 Mail Service Center, Raleigh, NC. 27699-1600



Protect, Manage and Grow Your Forest

[www.ncforestservice.gov](http://www.ncforestservice.gov)

Purchase NCFS Forest Tree Seedlings

[www.buynctrees.com](http://www.buynctrees.com)

NCDA&CS Agricultural Services

[www.ncagr.gov](http://www.ncagr.gov)

Keep Your Home Safe From Wildfire

[www.ncfirewise.org](http://www.ncfirewise.org)

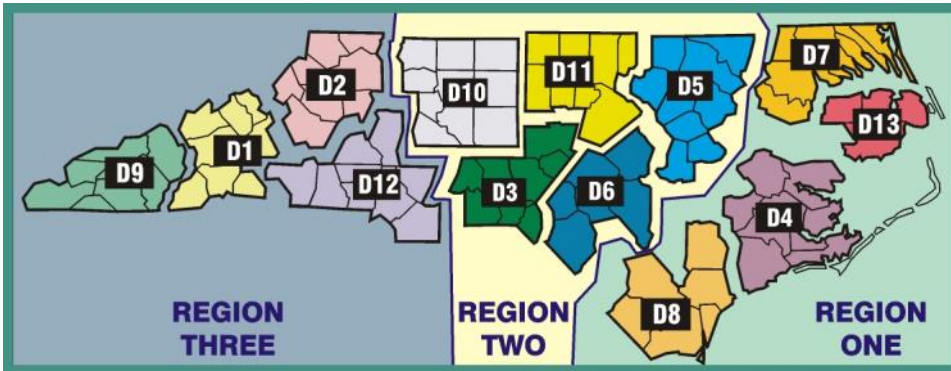
Go Out and Learn in the Forest

[www.ncsf.org](http://www.ncsf.org)

Locate North Carolina Farm Products

[www.ncfarmfresh.com](http://www.ncfarmfresh.com)

[www.gottobenc.com](http://www.gottobenc.com)



## Western Region

### Water Quality Foresters

**Western Mountains (D9, D1):**

[ vacant ]

Office: 828-665-8688 (interim)

**Foothills (D2, D12):**

Beth Plummer: 828-438-3793

## Piedmont Region

### Water Quality Foresters

**Hillsborough District (D11)**

Laura Hendrick: 919-698-2457

**Rockingham District (D3)**

Matt Vincett: 910-334-0025

**Rocky Mount District (D5)**

Aaron Levine: 252-442-1626

## Eastern Region

### Water Quality Foresters

**Northern Coastal Plain (D7, D13):**

[ vacant ]

Office: 252-520-2402 (interim)

**Southern Coastal Plain (D4, D8):**

[ vacant ]

Office: 252-520-2402 (interim)

In August 2015, the N.C. Forest Service reorganized its water quality field staff. In the future, there will be six Water Quality Foresters (WQF), with two per region. Requests for riparian buffer rule stream determination, preharvest planning, questions on FPG noncompliance tracts, and wetland silviculture should be directed to the WQF. However, until vacancies can be filled and other staffing changes occur, some locations may have extra personnel, or a lack of personnel. Local NCFS rangers and foresters are still available to assist you with day-to-day water quality, FPG, or BMP topics; and for borrowing bridgemats.

Also, the NCFS state-office water resources technical services staff in Raleigh were re-organized effective October 1, 2015. Each staff person's name, job title and topics of specialty are listed below for your reference:

Bill Swartley - Forest Hydrologist & Supervisor, Water Resources Branch. 919-857-4856.

Branch supervisor; hydrology; stream restoration; special projects; forestry nonpoint source program management

Susan Gale - Forest Water Quality Senior Specialist. 919-857-4855.

BMP Implementation Survey; water quality research; stream restoration; stream ID training; FPG database and reporting

Tom Gerow, Jr. - Water Resources Staff Forester. 919-857-4824.

technical/field assistance on FPGs, BMPs, wetlands silviculture and riparian buffers; water quality rule & policy analysis

[ vacant ] - Watershed & Conservation Staff Forester.

bridgemats, ProLogger, forests for watersheds, forest preharvest planning tool, BMP training, publications and outreach



It's tree planting season. If you need to purchase seedlings or native understory grasses, contact the North Carolina Forest Service nursery program toll-free, at 1-888-NCTREES, or visit their new website: [www.buynctrees.com](http://www.buynctrees.com)

Hardwood seedlings at Claridge State Forest Nursery, ready to be planted on your land!

