

## BMP and Water Quality Monitoring Studies

### BMP Effectiveness Monitoring Watershed Study: Durham and Granville counties

Harvest treatment was completed on one of two long-term forest watershed sites that will evaluate stream buffers and BMPs. The remaining harvest will occur in late-2010 / early-2011. Notable accomplishments include:

- Identified two sites for studying stream crossings during timber harvesting operations.
- Co-authored three conference papers summarizing baseline pre-harvest watershed conditions.
- Coordinated sampling of benthic macroinvertebrates (aquatic insects) to determine stream habitat conditions prior to harvesting.

### The Canal at Claridge Nursery: Wayne county

The Division is undertaking a multi-year water monitoring project in preparation for a stream restoration that is expected to occur in the 2014-2016 timeframe. Notable accomplishments include:

- Constructed and installed flumes to measure streamflow (see photo below).
- Installed and set-up automated water sampling equipment.
- Obtained grant funding from the Albemarle-Pamlico National Estuary Program and the N.C. Department of Transportation to begin preliminary water sampling.



*This plywood flume will allow for more precise measurement of the streamflow. Water samples will be collected automatically after storm events and the samples will be analyzed in a laboratory*

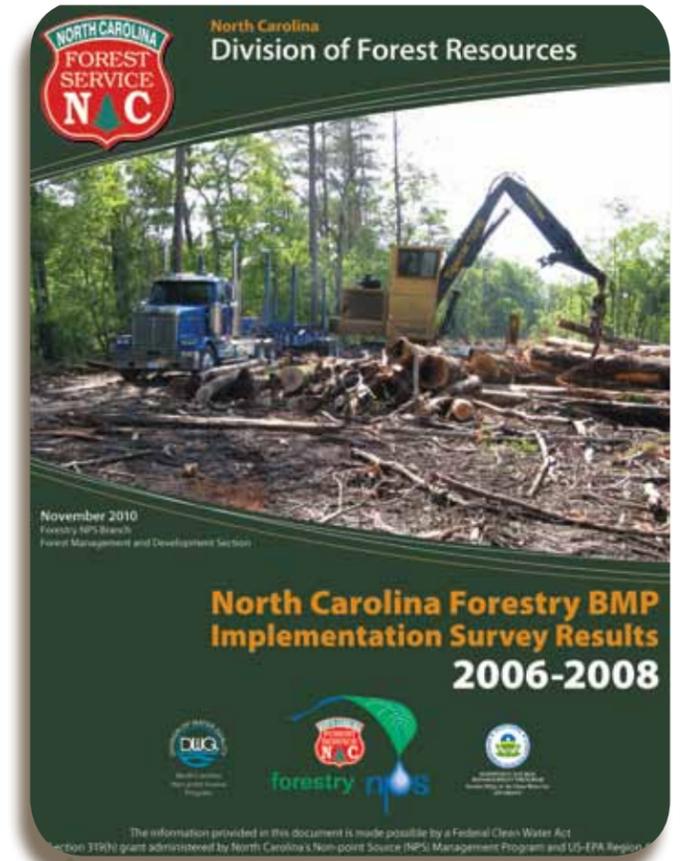


## Best Management Practices Implementation Report

This much anticipated report of the findings from a series of detailed site survey inspections of logging jobs between 2006 and 2008 was produced and made available for distribution.

### Some key findings include:

- 85% overall statewide implementation of voluntary forestry best management practices (BMPs), with regional breakdown:
  - 66% implementation of BMPs in the mountains
  - 88% implementation of BMPs in the piedmont
  - 91% implementation of BMPs in the coastal plain
- When forestry BMPs were implemented, there was no observed risk to water quality nearly 100% of the time.
- When forestry BMPs were not implemented, there was a risk to water quality 58% of the time.
- When BMPs were implemented, there was an appreciable increase in compliance with the state Forest Practice Guidelines (FPG) regulations.



This report outlines the findings of the second cycle of BMP implementation surveys conducted by the N.C. Division of Forest Resources, and includes results from 212 logging sites. The Division will begin the third cycle of these periodic recurring site surveys in 2011, and will for the first time use hand-held electronic data equipment to expedite data collection, analysis and reporting. The upcoming third cycle of BMP surveys will also attempt to identify and capture information related to the use of woody (tree) biomass material for the production of energy. Learn more about about all of these BMP surveys on the Division's website.

## Additional Partners and Cooperators



The North Carolina Division of Forest Resources is an equal opportunity / affirmative action employer. Its programs, activities and employment practices are available to all people regardless of race, color, religion, sex, age, national origin, handicap or political affiliation.

1000 copies of this public document were printed at a cost of \$701.74 or 0.701 per copy. The cost of printing was paid for with grant funds allocated via the USEPA 319-Grant Program. WQ-03-10



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We are committed to protecting the state's forest resources so they can continue to produce the best quality water for the benefit of our health, environment and economy. The Division of Forest Resources Water Quality and Nonpoint Source programs and our partners work together to protect and restore water resources and educate people about how we can meet society's needs for healthy forests.

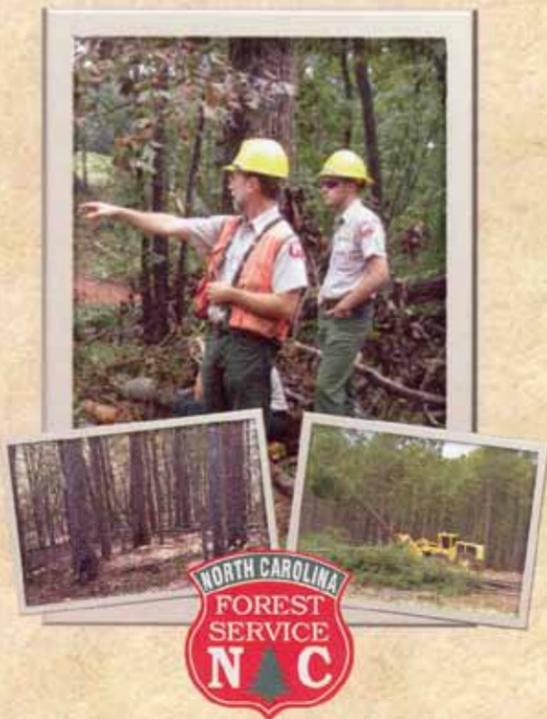
## Technical Assistance, Training, Education & Outreach

### Preharvest Planning Brochure

The brochure was revised, updated and reprinted for the first time since its introduction in 2004, with 7,000 copies printed and distributed statewide. The brochure is also available on the Division's website.

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A Timber Harvesting Guide  
for North Carolina  
Forestland Owners



### Logger Training

Trained 115 loggers at ProLogger Base Course workshops in Canton, Troy, and Whiteville. We also exhibited at the annual meeting of the North Carolina Association of Professional Loggers in Spring Hope, with an estimated 250 attendees.

### BMP Training for College Students

Instructed 18 students enrolled in the Forest Management curriculum at North Carolina State University on the basics of best management practices (BMPs) and pre-harvest planning. Class was held at Jordan Lake Educational State Forest in Chatham County and used interpretive BMP demonstration exhibits installed at the forest.

### WATERS Assistance

Provided technical assistance via our *WATERS* process (*Water Resources Assessment and Technical Response Support*) to Clemmons Educational State Forest near Clayton. We identified nonpoint source runoff concerns from an adjoining agricultural field located off of the forest and offered possible solutions. We also examined and offered advice on stream crossings along a proposed new hiking trail.

Additional *WATERS* assistance was provided to the Southern Group of State Foresters by conducting a survey of 13 southern state forestry agencies and reporting on the source and stability of funding for their respective state's water quality program personnel. Collectively, the report indicates a need to increase the number of water quality personnel in the south by at least 50%, while 8 of the 13 states reported that the amount and stability of funding for water quality personnel is believed to be declining.

## More.....

## Technical Assistance, Training, Education & Outreach

### New Forestry Best Management Practices (BMP) Video

Produced a new 30-minute video demonstrating how to properly install silt fence and erosion control matting for sediment and erosion control. This is the fourth BMP training video by the Division of Forest Resources, the most recent since 2006. More information about the BMP video series is available on the Division's website: <http://dfr.nc.gov>. This video is included as part of the 2010-2011 ProLogger Annual Training Module, which reaches an estimated 1,400 loggers.



Two screen-shots from the video, showing silt fence installation (left) and erosion control matting (right).

### Outreach Events

During the year, the Division's water quality and non-point source staff assisted with or attended the following special events:

- American Water Resources Association Spring Specialty Conference, including a conference paper and presentation
- Elon University Fall Environmental Forum
- North Carolina State Fair
- Southeastern Stream Restoration Conference
- Southern Farm Show
- Southern Group of State Foresters Water Resources Committee bi-annual meetings

### Water Quality Compliance Inspections

Division field personnel inspect logging and other forestry-related activities for compliance with the Forest Practices Guidelines Related to Water Quality (FPGs) regulations. During state fiscal year 2009-2010:

- 3,202 forestry sites were inspected, in addition to 1,870 follow-up re-inspections of those sites.
- 95% of the sites achieved compliance with FPGs.
- 140 sites were cited for non-compliance with FPGs.
- 99 complaints were received on forestry operations, with approximately one-third of those complaints resulting in a FPG non-compliance citation.

### Bridgemats

During fiscal year 2009-2010, the Division's bridgemats were used on 52 logging jobs to protect or establish 64 stream crossings.

During the year, the Division purchased a set of three engineered lumber Emtek™ bridgemats (one panel shown in photo) for a demonstration stream crossing at Rendezvous Mountain Educational State Forest in Wilkes County.

