

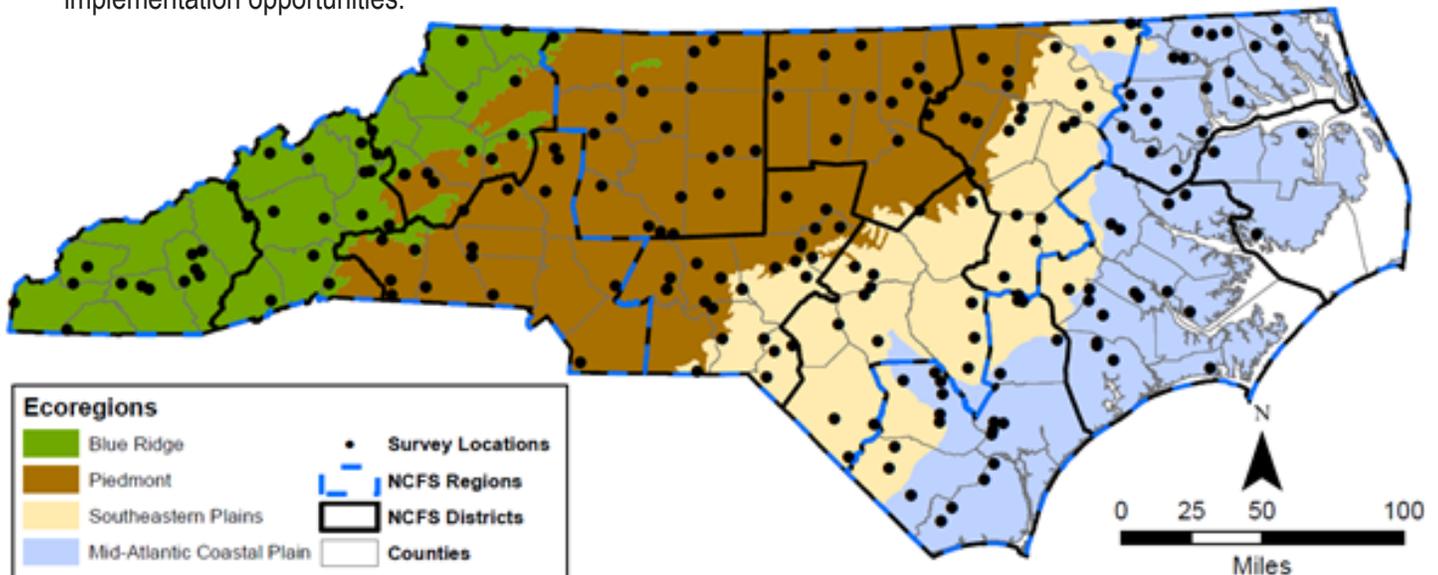


Snapshot: An Assessment of Forestry Best Management Practices (BMPs) in North Carolina from 2012-2016



Notable Results

- Overall BMP implementation was **84 percent statewide**. Divided up by ecoregion, BMP implementation was 82 percent in the Blue Ridge (or Mountains), 87 percent in the Piedmont, 79 percent in the Southeastern Plains, and 84 percent in the Mid-Atlantic Coastal Plain. When BMPs were properly implemented, risks to water quality were very rare, only occurring **36 out of the 23,907 times we observed properly implemented BMPs**.
- In total, evaluators assessed **28,491 BMP implementation opportunities statewide**, including 9,671 in the Blue Ridge (or Mountains), 11,206 in the Piedmont, 3,230 in the Southeastern Plains, and 4,384 in the Mid-Atlantic Coastal Plain.
- Risks to water quality occurred **1,370 out of the 4,584 times we observed improperly implemented or missing BMPs**, or 30 percent of those observations. These situations made up **less than 5 percent** of all BMP implementation opportunities.



Methods

- This survey took place between **December 2012 and November 2016**. It is the first comprehensive assessment of North Carolina's forestry BMPs since their revision in 2006.
- We collected data from **210 unique surveys on 204 sites** in 94 of North Carolina's 100 counties. Our initial survey design called for 204 surveys, stratified according to the size of each ecoregion within the state.
- Potential sites were **identified using satellite imagery available from the SouthFACT tool**. When this tool was not available, we assessed sites that we happened to notice while traveling through a county, or by randomly selecting from recent NCFS records. On rare occasions, when all other options were unavailable, we inquired about recent harvests from local NCFS staff.
- We focused this BMP assessment on **active, or recently-completed, timber harvests**. Our method varies somewhat from similar BMP monitoring surveys done by other states, where they may only assess sites that have been completed.
- When we encountered a BMP implementation opportunity, we assessed whether the BMP had been properly implemented, and then whether the situation presented a risk to water quality. Unlike in previous surveys, we assessed **each part of multi-part harvest features**. For example, we assessed each skid trail individually, rather than assessing all skid trails as a single unit for the entire harvest, as was done in prior BMP surveys.

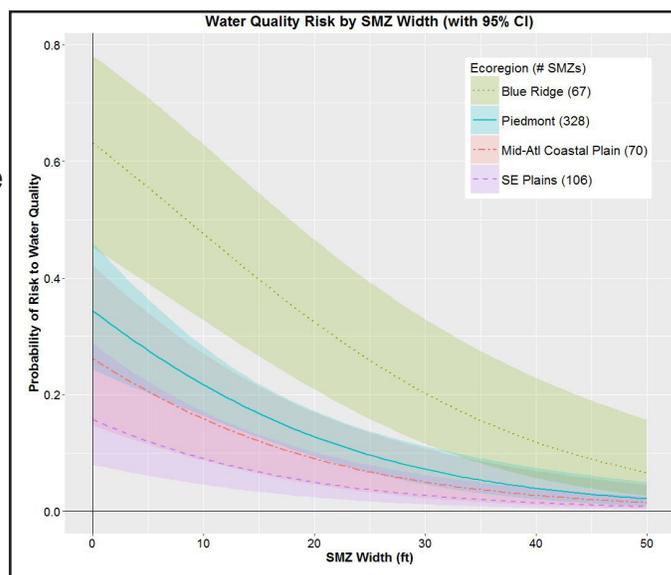
FPGs vs. BMPs

In North Carolina, the Forest Practice Guidelines Related to Water Quality (FPGs) are nine mandatory, statewide requirements. All forestry-related, land-disturbing activities must comply with the FPGs to meet the provisions of the N.C. Sedimentation Pollution Control Act. The N.C. Forest Service conducts thousands of FPG compliance inspections annually.

Forestry BMPs are effective, economical and practical treatments, methods or practices that can be implemented to help prevent pollution from getting into water and thereby protect water quality. All forestry work must comply with the FPGs, as well as other regulations that are related to water quality protection. To prevent a problem from happening, or to fix a problem, you can select a series of BMPs that are your “tools” to protect water quality. Sometimes you need more tools (BMPs) than others, and likewise, there are some BMPs (tools) that should be used for all situations.

Detailed Results

- ◆ **Bridgemats** proved to be the stream crossing type that best protected water quality, as well as the most commonly used stream crossing type. **More than 75 percent of ford and pole type crossings** were associated with a risk to water quality.
- ◆ Our results indicate that risks to **water quality decreased as SMZ width increased**. To reduce the likelihood of a risk to water quality, SMZs may need to be wider in the mountains than they normally would be in other parts of the state.
- ◆ Statewide, when BMPs were not properly implemented, risks to water quality were more likely in the categories of **Rehabilitation of the Project Site** (at 54%), **Streamside Management Zones** (64%), and **Stream Crossings** (49%). This indicates that the BMPs in these categories are of greater importance for their value of protecting water quality. Specifically, BMPs related to stabilizing stream crossing approaches, removal of logging debris from streams, and overall site stabilization were noted as areas for improvement.
- ◆ Direct comparisons of the overall BMP implementation rate with previous surveys cannot be evaluated due to evolving methods and forestry BMPs recommendations.



Probability of a risk to water quality across a range of SMZ widths, calculated using SMZs found on survey sites

Moving Forward

- ◆ The N.C. Forest Service can apply these findings as they relate to:
 - Encouraging and facilitating the use of bridgemats.
 - Emphasizing timely and effective rehabilitation and stabilization of project sites.
 - Educating forest operators and landowners on the importance of preharvest planning.
- ◆ The BMP implementation survey is a recurring project, and we'll soon begin planning for the next round. Repeated surveying with consistent methodology will allow us to track progress over time.

Alan Coats, North Carolina Forest Service
(919) 857-4855 · alan.coats@ncagr.gov
BMP Implementation Survey Story Map: <http://arcg.is/1PLvj5>
Forest Preharvest Planning Tool: <https://www.ncforestatlas.com/>
SouthFACT: <http://www.southfact.com/>