

FORESTRY & WATER QUALITY



FORESTRY AND WATER QUALITY IMPACTS OVERVIEW

Forests are an ideal land use for water quality protection because they stabilize soil and filter stormwater runoff from adjoining, non-forested areas. In order to sustain a forest's ability to protect water quality, some degree of management is often required. Timber harvesting is part of the forest renewal cycle and is usually the most intensive forest management activity that requires special attention to assure water quality is protected. Inappropriate management practices can impact water quality by destabilizing streambanks, reducing riparian vegetation and removing tree canopies. Any one of these impacts can alter the interface of the aquatic and terrestrial ecosystem, influence downstream flooding and change watershed functions. Sedimentation is the most common water pollution agent that may result from forestry activities. Potential sources of sedimentation include stream crossings, forest roads, skid trails and log decks. As a result, the majority of regulations and erosion control recommendations pertaining to forestry focus on these four main areas.

FORESTLAND OWNERSHIP*

Individuals privately own approximately 91 percent of the forestland in the basin. The remaining forestland ownership is split fairly evenly between forest industry and public agencies. Notable public forestland areas in the basin include:

- The 3,000-acre Rendezvous Mountain Educational State Forest in Wilkes County, managed by the N.C. Division of Forest Resources;
- A sizable portion of the Uwharrie National Forest, managed by the U.S. Forest Service;
- Stone Mountain, Pilot Mountain, and Morrow Mountain State Parks;
- Pee Dee National Wildlife Refuge, managed by the U.S. Fish & Wildlife Service.

* The ownership estimates come from the most recent data published by the USDA-Forest Service ("Forest Statistics for North Carolina, 2002." Brown, Mark J. Southern Research Station Resource Bulletin SRS-88. January 2004).

FOREST PRACTICES GUIDELINES RELATED TO WATER QUALITY (FPGs)

Forestry operations in North Carolina are subject to regulation under the Sedimentation Pollution Control Act of 1973 (GS Ch.113A Art.4 referred to as "SPCA"). However, forestry operations may be exempted from the permit and plan requirements of the SPCA, if the operations meet the compliance standards outlined in the Forest Practices Guidelines Related to Water Quality (15A NCAC 11 .0100 - .0209, referred to as "FPGs") and General Statutes regarding stream and ditch obstructions (GS 77-13 and GS 77-14).

The North Carolina Division of Forest Resources (DFR) is delegated the authority to monitor and evaluate forestry operations for compliance with these aforementioned laws and/or rules. In addition, the DFR works to resolve identified FPG compliance questions brought to its attention through citizen complaints. Violations of the FPG performance standards that cannot be resolved by the DFR are referred to the appropriate State agency for enforcement action.

During the period September 1, 2001 through August 31, 2006, the DFR conducted 3,572 FPG inspections of forestry-related activities in the basin; 95% of the sites inspected were in compliance.

OTHER WATER QUALITY REGULATIONS

In addition to the State regulations noted above, DFR monitors the implementation of the following Federal rules relating to water quality and forestry operations:

- The Section 404 silviculture exemption under the Clean Water Act
- The federally mandated 15 best management practices (BMPs) related to road construction in wetlands
- The federally mandated BMPs for mechanical site preparation activities for the establishment of pine plantations in wetlands of the southeastern U.S.

WATER QUALITY FORESTERS

In 2005, the DFR received three new Water Quality Forester positions; two of these positions are assigned to areas within the Yadkin/Pee-Dee basin, thereby completing full coverage of this basin by Water Quality Foresters. Statewide, the DFR currently has a Water Quality Forester position in ten of its thirteen Districts. Water Quality Foresters conduct FPG inspections, survey BMP implementation, develop pre-harvest plans, and provide training opportunities for landowners, loggers and the public regarding water quality issues related to forestry. These foresters also assist County Rangers on follow-up site inspections and provide enhanced technical assistance to local DFR staff.

FORESTRY BEST MANAGEMENT PRACTICES

Implementing forestry Best Management Practices (BMPs) is strongly encouraged to efficiently and effectively protect the water resources of North Carolina. In 2006, the first ever revision to the North Carolina forestry Best Management Practices (BMP) manual was completed. This comprehensive update to the forestry BMP manual is the result of nearly four years of effort by the DFR and a DENR-appointed Technical Advisory Committee consisting of multiple sector stakeholders, supported by two technical peer-reviews. The forestry BMP manual describes recommended techniques that may be used to help comply with the forestry regulations while protecting water quality. Copies of the new forestry BMP manual can be obtained at DFR's County Ranger or District Forester offices statewide. The new manual is also available at www.dfr.state.nc.us.

In the Yadkin Pee Dee River basin during this reporting period, the DFR assisted or observed over 5,800 forestry activities in which BMPs were either implemented or recommended over an area amounting to nearly 252,000 acres.

From March 2000 through March 2003, the DFR conducted a statewide BMP Implementation Survey on 565 active forest harvest operations to evaluate the usage of forestry BMPs. This survey evaluated 76 sites in the Yadkin/Pee-Dee basin, with a resulting BMP implementation rate of 83%. The problems most often cited in this survey across the state relate to stream crossings, skid trails and site rehabilitation. This survey, and subsequent surveys to be conducted, will serve as a basis for focused efforts in the forestry community to address water quality concerns through better and more effective BMP implementation and training.

CHRISTMAS TREE PRODUCTION & VINEYARDS

It should be noted that the DFR does not oversee regulations or activities relating to timber and land clearing for Christmas tree production or winery vineyards. These activities are not recognized as forestry ("silviculture") activities. Generally, these types of land-use practices are deemed to be an agricultural or horticultural activity. County Soil & Water Conservation District or USDA-Natural Resources Conservation Service (NRCS) staff can provide BMP assistance for these activities. Significant sedimentation problems can be reported to the N.C. Division of Land Resources' Complaint Hotline: 1-866-STOPMUD.

PROTECTING STREAM CROSSINGS WITH BRIDGEMATS

The DFR provides bridgemats on loan to loggers for establishing temporary stream crossings during harvest activities in an effort to educate loggers about the benefits of installing crossings in this manner. Temporary bridges can be a very effective solution for stream crossings, since the equipment and logs stay completely clear of the water channel. Starting in 2005, the DFR's District Offices across the entire Yadkin/Pee-Dee river basin have had bridgemats available for loan-out. Statewide, there have been over 200 loan-events between 2000 and 2006, which have protected 261 stream crossings.

FOREST MANAGEMENT

At least 75,000 acres of land were established or regenerated with forest trees across the basin from September 1, 2001 through August 31, 2006. Of these acres, approximately 75% were Loblolly Pine, 5% White Pine, and the remaining mostly in hardwoods or mixed pine/hardwood. During this same time period the DFR provided over 6,700 individual forest plans for landowners that encompassed nearly 375,000 acres in the basin.

FOREST PRODUCTS INDUSTRY

Forest industry manufacturing is a significant economic driver across North Carolina, contributing nearly \$18 billion annually to the state’s gross economic product. This is especially true within the Yadkin/Pee-Dee basin, with the associated demand for raw materials promoting the sustainability of managed forestlands across the basin area.

Forty-seven (47) different businesses in the basin are directly related to the manufacture of forest products, including several of the larger-scale facilities found in North Carolina. Some examples include mills that produce lumber, wood chips, veneer, structural panels, posts or pallets. In addition to the direct and in-direct economic benefits of employment from these facilities, these manufacturers pay an assessment to the state based upon the volume of timber they utilize. The payments from these assessments are combined with annual legislative budget appropriations to fund the “Forest Development Program” (FDP), which provides cost-shared forest management and regeneration assistance to forest landowners in North Carolina.

STREAM & WATERSHED RESTORATION

A multi-year stream and watershed restoration project got underway during 2005 on Purlear Creek in Wilkes County at Rendezvous Mountain Educational State Forest. Purlear Creek is within the watershed of the W. Kerr Scott Reservoir, which is the primary public water supply for the greater Wilkesboro area. By the fall of 2006, approximately 700 linear feet of a Priority-1 restoration had been completed on a tributary of Purlear Creek, resulting in a newly constructed perennial stream channel and establishment of a riparian forest corridor. In 2007, an additional 1,800 linear feet of Purlear Creek will be enhanced and restored. In addition, the DFR is utilizing a suite of tools called the Sand Wand® to remove embedded sediment from within the upper reaches of Purlear Creek in a low-impact manner that does not require the use of tractors or construction machinery. So far, DFR estimates that nearly 9 tons of sediment has been removed from Purlear Creek using this equipment. The N.C. Clean Water Management Trust Fund and the U.S. EPA Nonpoint Source Section 319 Grant jointly provide overall funding, with technical oversight provided by the NCSU Department of Biological & Agricultural Engineering. Progress of the work can be followed from the DFR Web site in the ‘Water Quality’ portion: www.dfr.state.nc.us.

TABLE 1: FORESTRY CONTACTS

OFFICE LOCATION	CONTACT PERSON	PHONE	ADDRESS
Lenoir District - D2	Water Quality Forester	(828) 757-5611	1543 Wilkesboro Blvd. NE Lenoir, NC 28645-8215
Lexington District - D10	Water Quality Forester	(336) 956-2111	304 Old Hargrave Road Lexington, NC 27295-7594
Mt. Holly District - D12	Water Quality Forester	(704) 827-7576	1933 Mountain Island Hwy Mt. Holly, NC 28120
Rockingham District - D3	Water Quality Forester	(910) 997-9220	1163 North US Hwy 1 Rockingham, NC 28379
Mountain Region - Reg.III	Asst. Regional Forester	(828) 251-6509	14 Gaston Mountain Road Asheville, NC 28806-9101
Piedmont Region - Reg.II	Asst. Regional Forester	(919) 542-1515	3490 Big Woods Road Chapel Hill, NC 27517-7652
Raleigh Central Office (Statewide)	Nonpoint Source Unit Forest Hydrologist	(919) 857-4856	1616 Mail Service Center Raleigh, NC 27699-1616
Griffiths Forestry Center (Statewide)	Water Quality & Wetlands Staff Forester	(919) 553-6178 ext. 230	2411 Old US Hwy 70-West Clayton, NC 27520