

FORESTRY & WATER QUALITY

North Carolina Department of Environment and Natural Resources



Division of Forest Resources

Forestland Ownership

Approximately 73% of the forestland in the basin is privately-owned, with forest industry owning an estimated 15% and the remaining 12% in public ownership (Brown, 2004). However, since the most recent forest inventory was completed, significant shifts have taken place regarding the ownership of forestland across much of eastern North Carolina. Forest products companies have largely sold their forestlands to timberland investment management organizations (TIMO's), private investors/buyers, and conservation groups.

Forest Water Quality Regulations

Forestry operations in North Carolina are subject to regulation under the Sedimentation Pollution Control Act of 1973 (Article 4-GS113A, referred to as "SPCA"). However, forestry operations may be exempted from specific requirements of the SPCA if the operations meet the compliance performance standards outlined in the Forest Practices Guidelines Related to Water Quality (15A NCAC 1I .0100-.0209, referred to as "FPGs") and General Statutes regarding stream and ditch obstructions (GS 77-13 and GS 77-14).

The FPG performance standard rule-codes and topics include:

- .0201 Streamside Management Zone (SMZ)
- .0202 Prohibition of Debris Entering Streams and Waterbodies
- .0203 Access Road and Skid Trail Stream Crossings
- .0204 Access Road Entrances
- .0205 Prohibition of Waste Entering Streams, Waterbodies, and Groundwater
- .0206 Pesticide Application
- .0207 Fertilizer Application
- .0208 Stream Temperature
- .0209 Rehabilitation of Project Site

The NC-DFR is delegated the authority to monitor and evaluate forestry operations for compliance with these aforementioned laws and/or rules. In addition, the NC-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 NC-DFR are referred to the appropriate State agency for enforcement action. During the period January 1, 2004 through December 31, 2008 there were 2,276 FPG inspections conducted on forestry-related sites in the basin; 97% of the sites were in compliance upon the initial site inspection.

Tar-Pamlico River Basin Riparian Buffer Rule

The Tar-Pamlico River Basin is subject to riparian buffer protection rule 15A NCAC 02B .0259. Forestry activities must comply with this buffer rule in addition to the requirements for SMZ establishment as defined within the FPG rules. The NC-DFR monitors forestry activities for compliance with the buffer rule and notifies the NC-DWQ if violations are observed. During the last five year period, there were 10 referrals for enforcement related to buffer rule violations on forestry sites across the Tar-Pamlico basin. To assist loggers, landowners and foresters with the implementation of the buffer rule, the NC-DFR has developed a 2-page Forestry Leaflet that

is available at local NC-DFR offices and can be downloaded from the website <http://dfr.nc.gov/publications/Forestry%20Leaflets/WQ11.pdf>.

Other Water Quality Regulations

In addition to the multiple State regulations noted above, NC-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 for activities in wetlands;
- 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

Nearly the entire river basin falls within the coverage area of a Water Quality Forester. Statewide, there is a Water Quality Forester position in nine of NC-DFR's 13 operating 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 agency staff. Water Quality Foresters are the primary point of contact in their districts for responding to water quality or timber harvesting questions or concerns that are suspected to be related to forestry activities.

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 BMP manual was completed. This comprehensive update to the forestry BMP manual is the result of nearly four years of effort by the NC-DFR and a DENR-appointed Technical Advisory Committee consisting of multiple sector stakeholders, supported by two technical peer-reviews. The forestry BMP manual describes measures that may be implemented to help comply with the forestry regulations while protecting water quality. Copies of the forestry BMP manual can be obtained at a County Ranger or District Forester office, or online: http://dfr.nc.gov/water_quality/bmp_manual.htm.

In the basin during this period, the NC-DFR assisted with or observed 2,875 forestry activities in which BMPs were either implemented or recommended, encompassing a total area of over 148,250 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 59 sites in this river basin, with a resulting BMP implementation rate of 90%. The problems most often cited in this survey across the state relate to stream crossings, skid trails and site rehabilitation. A copy of this report is available from the DFR Raleigh Central Office or can be downloaded from the Web site http://dfr.nc.gov/water_quality/water_quality.htm. A subsequent second round of BMP Implementation Surveys was conducted on additional logging sites statewide from 2006 to 2008; at this time, the data is being compiled and a report of the findings is expected to be available by end of 2010. These periodic, recurring BMP surveys serve as a basis for focused efforts in the forestry community to address water quality concerns through better and more effective BMP development, implementation and training.

Protecting Stream Crossings with Bridgemats

The NC-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. Since 2005 all District Offices in the basin have had bridgemats available for loan-out. Periodic status reports, a list of bridgemat suppliers, and additional information are available at: http://dfr.nc.gov/water_quality/bridgemats.htm.

Forest Management

Forest management is a valued and prevalent land-use across much of the river basin. This area of North Carolina consistently ranks high in the number of acres in which sustainable forestry is being practiced. As a testament to this, over 62,000 acres of land were established or regenerated with forest trees across the basin from January 1, 2004 through December 31, 2008. During this same time period the NC-DFR produced 3,930 individual forest plans for landowners that encompassed nearly 209,000 acres of forestland in the basin.

Bottomland Hardwood/Cypress Swamps

Across the river basin, (and elsewhere in North Carolina) there are prime examples of high-quality and highly productive bottomland hardwood/cypress swamps. These swamps have provided a sustainable source of wood fiber for well over 200 years, and served as the foundation for the creation of the forest products industry in eastern North Carolina. Since the settlement of North Carolina in colonial times, our forests have been harvested multiple times, including these hard-to-access swamps. Practically-speaking, it is inconceivable that any “old growth” or “virgin” timber remain in this region.

A diversity of forest tree species are adapted to grow in these bottomland swamps, some regenerating by seed and others primarily by sprouting from severed stumps. Nearly all swamp-adapted tree species require full sunlight to adequately regenerate, thus necessitating a removal of the shading overstory. The planting of trees to regenerate a swamp after a timber harvest is not commonly observed as a suitable or viable silviculture practice due to the cyclic nature of the hydrology in a specific swamp, fluctuations in the water table, and the obvious difficulty of site access for tree planting.

Management of a swamp forest is relatively passive when compared with pine or upland hardwood forest areas. Once the new stand of trees has successfully regenerated, there is usually little need to conduct intermediate stand treatments that might otherwise be suitable on pine or upland hardwood forests. Implementing a silviculturally-sound swamp timber harvest in a manner that minimizes soil and water impacts has shown to be the practical and viable prescription for forest management in swamps.

Education & Outreach

Each year since 2004 the NC-DFR summarizes its BMP, water quality, and nonpoint source accomplishments in a color brochure entitled “Year In Review”. This report is available on the Web: http://dfr.nc.gov/water_quality/year_in_review.htm.

The North Carolina Forestry Association, in cooperation with forest industry, NC-DFR, and NCSU, conducts educational programs annually at different locations in the North Carolina. The first program is called the Forestry and Environmental Camp, and is for middle and high school aged children. These 3-day long camps introduce children to the basic science and math skills needed when practicing forestry. The second program is the Sustainable Forestry Teachers Academy/Tour, and educates school teachers about forestry practices and how forest products are manufactured. For more information about these programs visit www.ncforestry.org.

North Carolina Forest Service (NC-DFR) Contacts for the Tar-Pamlico River Basin:

OFFICE LOCATION	CONTACT PERSON	PHONE	ADDRESS
Hillsborough District: D11 (Person, Granville, Vance)	Water Quality Forester	(919) 732-8105	3314 NC Highway 86 South Hillsborough, NC 27278
Rocky Mount District: D5 (Franklin, Warren, Nash, Edgecombe, Halifax, Wilson)	Water Quality Forester	(252) 442-1626	737 Smokey Road Rocky Mount, NC 27804
Elizabeth City District: D7 (Martin)	Water Quality Forester	(252) 331-4781	861 Berea Church Road Elizabeth City, NC 27909
New Bern District: D4 (Pitt, Beaufort)	Water Quality Forester	(252) 514-4764	3810 M. L. King Jr. Blvd. New Bern, NC 28562
Fairfield District: D13 (Washington, Hyde)	District Forester	(252) 926-3041	9291 Piney Woods Rd Fairfield, NC 27826
Regional Office: Region I (eastern region)	Asst. Regional Forester-FM	(252) 520-2402	2958 Rouse Road Extension Kinston, NC 28504
Raleigh Central Office (statewide, BMPs)	Nonpoint Source Branch - Forest Hydrologist	(919) 857-4856	1616 Mail Service Center Raleigh, NC 27699
Griffiths Forestry Center (statewide, regulations & wetlands)	Water Quality & Wetlands Staff Forester	(919) 553-6178 Ext. 230	2411 Old US Hwy 70-West Clayton, NC 27520

References

Brown, Mark J. 2004. USDA-Forest Service "Forest Statistics for North Carolina, 2002." Southern Research Station Resource Bulletin SRS-88. January 2004).