

# Section B - Chapter 1

## Lumber River Subbasin 03-07-50

### Drowning Creek and Naked Creek

## 1.1 Subbasin Overview

<b><i>Subbasin 03-07-50 at a Glance</i></b>	
<b><u>Land and Water Area</u></b>	
Total area:	325 mi <sup>2</sup>
Land area:	324 mi <sup>2</sup>
Water area:	1 mi <sup>2</sup>
<b><u>Population</u></b>	
2000 Est. Pop.:	31,681 people
<b><u>Land Cover (percent)</u></b>	
Forest/Wetland:	80
Surface Water:	1
Urban:	1
Agriculture:	18
<b><u>Counties</u></b>	
Hoke, Montgomery, Moore, Richmond and Scotland	
<b><u>Municipalities</u></b>	
Aberdeen, Candor, Foxfire Village, Hoffman, Norman, Pinebluff, Pinehurst and Southern Pines	

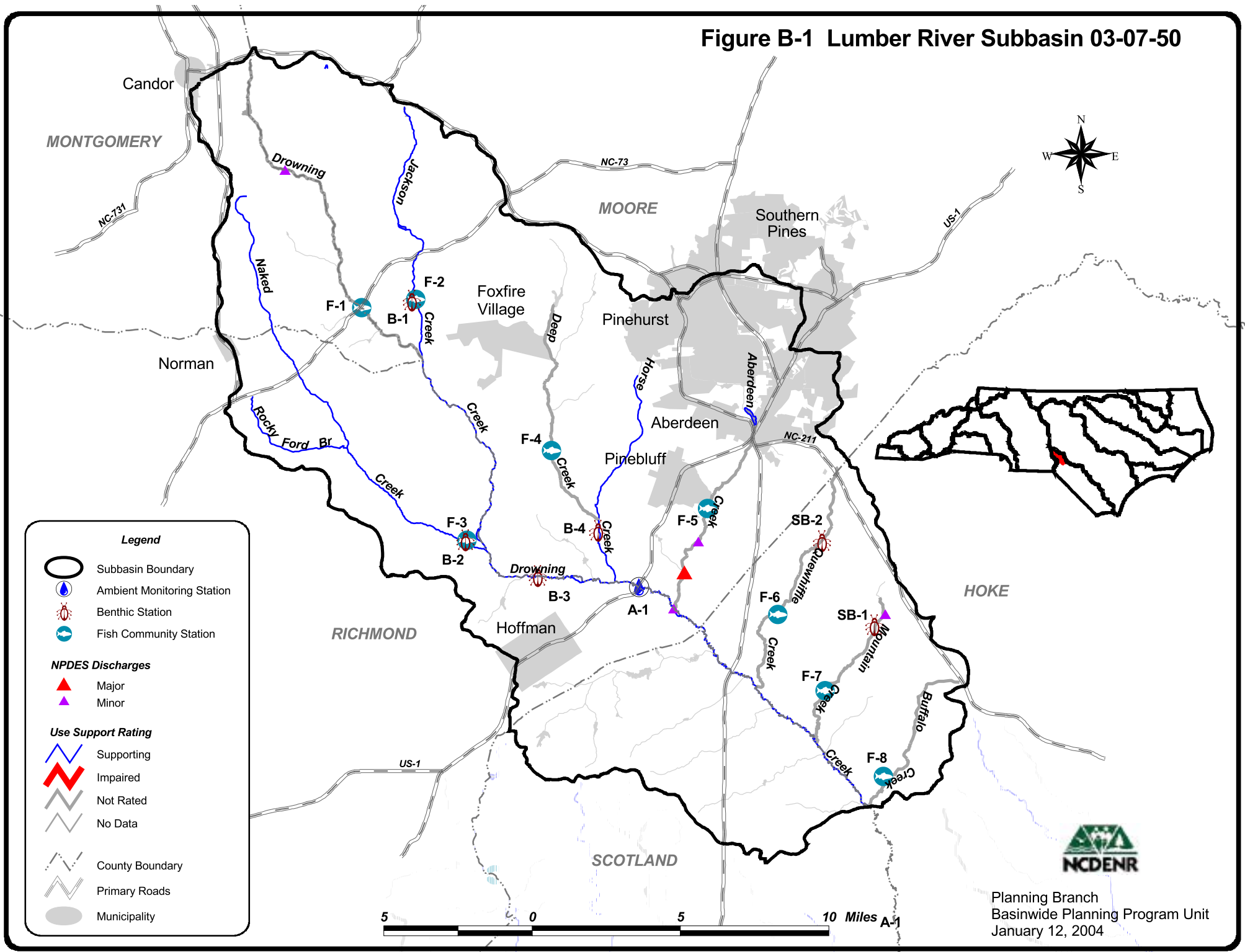
The headwaters of the Lumber River are located in this subbasin and contain the drainage of Drowning and Naked Creeks and their tributaries. Since this subbasin lies entirely in the Sandhills ecoregion, it reflects high water quality from both sandy soil characteristics (which promote groundwater infiltration) and undisturbed forested land use. Additionally, Naked Creek (from source to Drowning Creek) and Rocky Ford Branch (from source to Naked Creek) are designated ORW (page 36).

Population growth in this subbasin is concentrated around Southern Pines, Pinehurst and Aberdeen. Pinehurst is the most rapidly growing municipality in the basin (population: 9,706). Hoke County will be required to develop a stormwater program under Phase II (see page 69 for more information on state stormwater programs). Hoke and Moore counties have rapid growth increases projected for 2020 (refer to Table A-5 in Section A). There are four NPDES wastewater discharge permits in this subbasin. The largest is Moore County WWTP which discharges 6.7 MGD to Aberdeen Creek. Refer to Appendix I for identification and more information on NPDES permit holders. There are also 10 registered

swine operations in this subbasin (see page 23 for more information regarding animal operations).

Benthic macroinvertebrate community data were collected from four sites. Two of the sites remained at the same Excellent bioclassification while the other two lowered to a Good bioclassification. Two additional benthic macroinvertebrate sites were also sampled as part of a special study investigation. There were eight fish community sites sampled as part of basinwide monitoring in 2001. Six sites were monitored for the first time. All of the fish community sites were Not Rated, as biocriteria are being developed (page 57). Four of the fish community sites were part of a special studies collection. Lakes assessment was conducted on Pages Lake and was determined to be mesotrophic from the 2001 basinwide sampling. The only ambient monitoring station is located on Drowning Creek near Hoffman. Monitoring data from this location reflect conditions in the upper reaches of Drowning Creek, including the entire Naked and Horse Creeks. There were no parameter exceedances observed from this station during the assessment period (1996-2001). Figure B-1 shows locations of all biological/chemical monitoring sites and use support ratings.

Figure B-1 Lumber River Subbasin 03-07-50



**Legend**

- Subbasin Boundary
- Ambient Monitoring Station
- Benthic Station
- Fish Community Station

**NPDES Discharges**

- Major
- Minor

**Use Support Rating**

- Supporting
- Impaired
- Not Rated
- No Data

- County Boundary
- Primary Roads
- Municipality

Table B-1 DWQ Monitoring Locations, Bioclassifications and Notable Chemical Parameters (1996-2001) for Subbasin 03-07-50

<b>Benthic Macroinvertebrate Community Monitoring Sites</b>					
<b>Site<sup>1</sup></b>	<b>Waterbody</b>	<b>County</b>	<b>Location</b>	<b>1996</b>	<b>2001</b>
B-1	Jackson Creek <sup>2</sup>	Moore	SR 1122	Excellent	Good
B-2	Naked Creek <sup>2</sup>	Richmond	SR1003	Excellent	Excellent
B-3	Drowning Creek <sup>2</sup>	Richmond	SR 1004	Excellent	Excellent
B-4	Horse Creek <sup>2</sup>	Moore	SR 1102	Excellent	Good
SB-1	Mountain Creek <sup>2</sup>	Hoke	SR 1215	--	Not Rated (1998)
SB-2	Quewhiffle Creek <sup>2</sup>	Hoke	SR 1214	--	Not Rated
<b>Fish Community Monitoring Sites</b>					
<b>Site<sup>1</sup></b>	<b>Waterbody</b>	<b>County</b>	<b>Location</b>	<b>1996</b>	<b>2001</b>
F-1	Drowning Creek <sup>2</sup>	Moore	NC 73	Not Rated	Not Rated
F-2	Jackson Creek	Moore	SR 1122	--	Not Rated
F-3	Naked Creek <sup>2</sup>	Richmond	SR 1003	Not Rated	Not Rated
F-4	Deep Creek	Moore	SR 1113	--	Not Rated
F-5	Aberdeen Creek	Moore	SR 1105	--	Not Rated
F-6	Quewhiffle Creek	Hoke	SR 1225	--	Not Rated
F-7	Mountain Creek	Hoke	SR 1215	--	Not Rated
F-8	Buffalo Creek	Hoke	SR 1203	--	Not Rated
<b>Ambient Monitoring Sites</b>					
<b>Site<sup>1</sup></b>	<b>Waterbody</b>	<b>County</b>	<b>Location</b>	<b>Station #</b>	<b>Noted Parameters<sup>3</sup></b>
A-1	Drowning Creek	Richmond	US 1	I2090000	None

<sup>1</sup> B = benthic macroinvertebrates; F = fish community; A = ambient monitoring station; and SB = benthic macroinvertebrates special study site.

<sup>2</sup> Historical data available at this site. Refer to Appendix II.

<sup>3</sup> Parameters are noted if in excess of state standards in greater than 10 percent of all samples.

Table B-1 contains a summary of monitoring data types, locations and results. Refer to the 2002 *Lumber River Basinwide Assessment Report* at <http://www.esb.enr.state.nc.us/bar.html> and Section A, Chapter 3 for more information on monitoring.

Use support ratings are summarized in Part 1.2 below. Recommendations, current status and future recommendations for waters that were Impaired in 1999 and newly Impaired waters are discussed in Part 1.3 below. Supporting waters with noted water quality impacts are discussed in Part 1.4 below. Water quality issues related to the entire subbasin are discussed in Part 1.5. Refer to Appendix III for use support methods and more information on all monitored waters.

## 1.2 Use Support Summary

Use support ratings (page 47) in subbasin 03-07-50 were assigned for aquatic life, fish consumption, recreation and water supply categories. All waters in the subbasin are considered Impaired on an evaluated basis because of a fish consumption advice (page 59). All water supply waters are Supporting on an evaluated basis based on reports from DEH regional water treatment plant consultants. Refer to Table B-2 for a summary of use support ratings by category for waters in the subbasin.

Table B-2 Summary of Use Support Ratings by Use Support Category in Subbasin 03-07-50

Use Support Rating	Basis	Aquatic Life	Fish Consumption	Recreation	Water Supply
Supporting	Monitored	62.0 mi 35.2 ac	0	15.7 mi	0 mi 0 ac
	All Waters	66.2 mi 35.2 ac	0	15.7 mi	93.6 mi 0 ac
Impaired	Monitored	0	0	0	0
	All Waters	0	180.7 mi 114.0 ac	0	0
Not Rated	Monitored	50.9 mi	0	0	0
No Data	N/A (No Data)	63.6 mi 78.8 ac	0	165.0 mi 114.0 ac	0
Total	Monitored	112.8 mi 35.2 ac		15.7 mi 0 ac	0
	All Waters	180.7 mi 114.0 ac	180.7 mi 114.0 ac	180.7 mi 114.0 ac	93.6 mi 0 ac
	Percent Monitored	62.4% mi 30.9% ac	0%	8.7% mi 0% ac	0%

Note: All waters include monitored, evaluated and waters that were not assessed.

## 1.3 Status and Recommendations of Previously and Newly Impaired Waters

There were no Impaired streams identified in the 1999 Lumber River Basinwide Water Quality Plan in this subbasin. All waters in the subbasin are considered Impaired on an evaluated basis because of a fish consumption advice (page 59). There are no other newly Impaired waters in subbasin 03-07-50. Refer to Part 1.4 below for information on waters with noted water quality impacts.

## 1.4 Status and Recommendations for Waters with Noted Impacts

The surface waters discussed in this section are not Impaired. However, notable water quality problems and concerns have been documented for some waters based on this assessment.

Attention and resources should be focused on these waters to prevent additional degradation or facilitate water quality improvement.

Waters in the following section are identified by assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database and the 303(d) Impaired waters list. The assessment unit number is a subset of the DWQ index number (classification identification number). A letter attached to the end of the AU# indicates that the assessment is smaller than the DWQ index segment. No letter indicates that the assessment unit and the DWQ index segment are the same.

#### **1.4.1 Drowning Creek, SR 1004 [AU# 14-2-(6.5)]**

##### Current Status

Drowning Creek at SR 1004 is currently Supporting based on an Excellent bioclassification at site B-3 with very diverse instream habitat. However, notable bank erosion was observed during the 1996 and 2001 investigations. Refer to page 62 for more information regarding habitat degradation.

##### Current Water Quality Initiatives

In 2000, Sandhills Area Land Trust prepared a riparian corridor conservation design for the Conservation Trust for North Carolina and the Clean Water Management Trust Fund (CWMTF). The goal of the design is to protect existing riparian buffers as wide as the wetlands associated with Drowning Creek and its tributaries, plus an additional 100-300 feet depending on the topography and other local conditions.

As of December 2002, the Sandhills Area Land Trust received \$600,250 in grants from the CWMTF to acquire over 671 acres for permanent conservation easements along Drowning, Naked and Deep Creeks and other tributaries. See page 152 for project descriptions.

### **1.5 Additional Water Quality Issues within Subbasin 03-07-50**

This section discusses issues that may threaten water quality in the subbasin that are not specific to particular streams, lakes or reservoirs. The issues discussed may be related to waters near certain land use activities or within proximity to different pollution sources.

#### **1.5.1 Water Quality Threats to Streams in Urbanizing Watersheds**

Even though the streams in this subbasin are not already Impaired from urban stormwater runoff, they are threatened throughout by development pressure. In order to prevent aquatic habitat degradation and impaired biological communities, protection measures should be put in place immediately. Refer to page 73 for a description of urban stream water quality problems and recommendations for reducing impacts and restoring water quality.

### **1.5.2 Water Supply Watersheds (Drowning Creek, Horse Creek, Deep Creek, Jackson Creek)**

Over half of the total stream miles (51.8 percent) in this subbasin are classified as water supply watersheds (WS-II). By definition, these waters are also classified as HQW because requirements for this level of water supply protection are at least as stringent as those for HQWs. In addition, Naked Creek and Rocky Ford Branch are designated ORWs. See page 36 for more information regarding surface water classifications. Local governments having jurisdiction within the water supply watersheds are encouraged to implement a more protective local water supply watershed ordinance than the state's minimal requirements. For example, a more protective land use ordinance could require a wider natural, undisturbed riparian buffer. Local governments are also encouraged to retain these WS-II classifications. This will continue further protection for the water supply watersheds. See page 39 for more information regarding this issue.

### **1.5.3 Golf Courses**

The number of golf courses in this subbasin is significant, making many of the small towns centers of golfing activity. Utilizing best management practices during and after construction of the courses can greatly reduce nonpoint source pollution to adjacent streams. It is critical to implement and maintain these management practices throughout the life of the golf course. See page 78 for more information.