2.1 Subbasin Overview

Subbasin 03-07-51 at a Glance

Land and Water Area

Total area:	476 mi^2
Land area:	470 mi^2
Water area:	6 mi^2

Population Statistics

2000 Est. Pop.: 48,514 people

Land Cover (percent)

Forest / Wetland:	57
Surface Water:	1
Urban:	1
Agriculture:	41

Counties

Columbus, Hoke, Robeson and Scotland

Municipalities

Boardman, Cerro Gordo, Chadbourn, Fair Bluff, Lumberton, Maxton, Orrum, Pembroke and Wagram

The Lumber River mainstem and its tributaries are located in this subbasin. Although the headwaters are within the Sandhills ecoregion, the Lumber River below Lumberton lies in the Coastal Plain ecoregion. Here the Lumber River is typical of a coastal plain system, wider and deeper, although a fast flow is maintained. The tributaries are swamp streams and usually have very little flow during the summer months.

There are 7,937 acres of managed public lands in this subbasin as the Lumber River State Park. A total of 115 miles of the Lumber River is of State Natural and Scenic Water designation and 81 miles have also been designated as a National Wild and Scenic Water.

The Lumber River mainstem flows through the largest urbanized area, Lumberton, in the middle portion of the subbasin (population: 20,795).

There are 14 NPDES wastewater discharge permits in this subbasin with a permitted flow of 46 MGD. The largest is Lumberton WWTP discharging to the Lumber River at 10 MGD. There is also one individual NPDES stormwater permit in the subbasin. Refer to Appendix I for identification and more information on individual NPDES permit holders. Hoke County will be required to develop a stormwater program under Phase II (page 69). Hoke County's estimated population change is 24,245 for the 2000-2020 year projection (see Table A-5 in Section A for more details). There are also 16 registered swine operations in this subbasin (see page 23 for more information regarding animal operations).

There were 11 benthic macroinvertebrate community sites sampled in 2001 as part of the basinwide monitoring. One of the benthic sites improved and eight sites remained at the same bioclassification. Two benthic sites were monitored for the first time. The six fish community sites were Not Rated, as biocriteria are being developed (page 57). Four of the fish community sites were part of a special study. Fish tissue samples were collected from a site on the Lumber River mainstem near Boardman. Data were collected from seven ambient monitoring stations as well (Figure B-2 and Table B-3). 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.

Figure B-2 Lumber River Subbasin 03-07-51

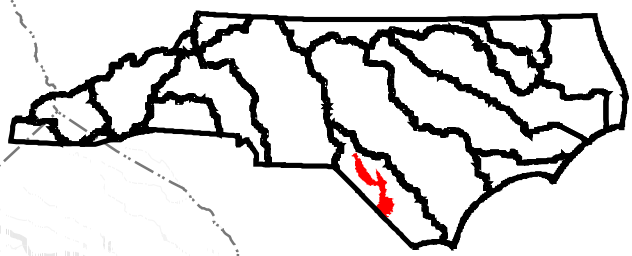

Table B-3 DWQ Monitoring Locations, Bioclassifications and Notable Chemical Parameters (1996-2001) for Subbasin 03-07-51

Benthic Macroinvertebrate Community Monitoring Sites					
Site[1]	**Waterbody**	**County**	**Location**	**1996**	**2001**
B-1	Lumber River[2]	Scotland	SR 1404	Excellent	Excellent
B-2	Lumber River[2]	Robeson	NC 71	Excellent	Excellent
B-3	Gum Swamp	Robeson	SR 1312	--	Not Impaired
B-4	Lumber River[2]	Robeson	SR 1003	Excellent	Excellent
B-5	Back Swamp	Robeson	SR 1003	--	Not Rated
B-6	Bear Swamp[2]	Robeson	SR 1339	Not Rated	Not Rated
B-7	Lumber River[2]	Robeson	NC 41/72	Excellent	Excellent
B-8	Lumber River[2]	Robeson	NC 72	Good-Fair	Good-Fair
B-9	Lumber River[2]	Robeson	US 74	Good	Excellent
B-10	Porter Swamp[2]	Columbus	SR 1503	Not Rated	Not Rated
B-11	Gapway Swamp[2]	Columbus	SR 1356	Not Rated	Not Rated
Fish Community Monitoring Sites					
Site[1]	**Waterbody**	**County**	**Location**	**1996**	**2001**
F-1	Back Swamp[2]	Robeson	SR 1003	Not Rated	Not Rated
F-2	Gapway Swamp	Columbus	SR 1356	--	Not Rated
SF-1	Lumber River	Robeson	NC 73	--	Not Rated
SF-2	Lumber River	Robeson	SR 2246	--	Not Rated
SF-3	Lumber River	Robeson	SR 2246	--	Not Rated
SF-4	Lumber River	Robeson	SR 2246	--	Not Rated
Fish Tissue Monitoring Sites					
Site[1]	**Waterbody**	**County**	**Location**	**1996**	**2001**
T-1	Lumber River	Columbus	US 74	--	--
Ambient Monitoring Sites					
Site[1]	**Waterbody**	**County**	**Location**	**Station #**	**Noted Parameters[3]**
A-1	Lumber River	Scotland	US 401	I2610000	None
A-2	Lumber River	Robeson	NC 71	I2810000	None
A-3	Lumber River	Robeson	SR 1303	I2750000	None
A-4	Lumber River	Robeson	SR 1003	I3050000	None
A-5	Lumber River	Robeson	SR 2121	I4650000	None
A-6	Lumber River	Robeson	US 74	I5690000	None
A-7	Lumber River	Robeson	NC 904	I6410000	None

[1] B = benthic macroinvertebrates; F = fish community; SF = fish community special study site; T = fish tissue; and A = ambient monitoring station.

[2] Historical data available at this site. Refer to Appendix II.

[3] Parameters are noted if in excess of state standards in greater than 10 percent of all samples.

Use support ratings are summarized in Part 2.2 below. Recommendations, current status and future recommendations for waters that were Impaired in 1999 are discussed in Part 2.3 below. Current status and future recommendations for newly Impaired waters are discussed in Part 2.4 below. Supporting waters with noted water quality impacts are discussed in Part 2.5 below. Water quality issues related to the entire subbasin are discussed in Part 2.6. Refer to Appendix III for use support methods and more information on all monitored waters.

2.2 Use Support Summary

Use support ratings (page 47) in subbasin 03-07-51 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 consultants. Refer to Table B-4 for a summary of use support ratings by category for waters in the subbasin.

Table B-4 Summary of Use Support Ratings by Use Support Category in Subbasin 03-07-51

Use Support Rating	Basis	Aquatic Life	Fish Consumption	Recreation	Water Supply
Supporting	Monitored	136.7 mi	0	75.5 mi	0
	All Waters	136.7 mi	0	75.5 mi	83.7 mi
Impaired	Monitored	0	21.5 mi	0	0
	All Waters	0	406.0 mi	0	0
Not Rated	Monitored	45.2 mi	0	0	0
	All Waters		0	0	0
No Data	N/A (No Data)	224.0 mi	0	330.5 mi	0
Total	Monitored	181.9 mi	21.5 mi	75.5 mi	0
	All Waters	406.0 mi	406.0 mi	406.0 mi	83.7 mi
	Percent Monitored	44.8%	5.3%	18.6%	0%

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

2.3 Status and Recommendations of Previously Impaired Waters

There were no Impaired streams identified in the 1999 Lumber River Basinwide Water Quality Plan in this subbasin.

2.4 Status and Recommendations for Newly Impaired Waters

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.

2.4.1 Lumber River [AU# 14-(13)e]

Current Status
All waters in the subbasin are considered Impaired on an evaluated basis because of fish consumption advice (page 59). However, 21.5 miles of the Lumber River, from below the Fairbluff WWTP at SR 1620/72 in Robeson County to NC 74 in Robeson County, are Impaired on a monitored basis in the fish consumption category. Of the 22 fish samples collected from this section of the Lumber River, 20 samples contained levels that exceeded the state's recommended criterion for methylmercury.

2003 Recommendations
DWQ will monitor for fish tissue in the Lumber River downstream of Fair Bluff for organics and metals including mercury in 2003. This assessment will be for the purpose of evaluating changes in levels of methylmercury and other contaminants. Refer to page 59 for more information on this issue.

2.5 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.

2.5.1 Lumber River [AU# 14-(13)a]

Current Status and 2003 Recommendations
This section of the Lumber River from US Hwy 301 bypass to SR 2289 is currently Supporting based on an Excellent bioclassification at site B-7. The watershed drains the urbanized portions of Lumberton. In this downtown area, the riparian zone, in many places, has been completely removed. In addition, the Lumberton WWTP continues to experience inflow and infiltration

problems after rainfall events. DWQ will continue to work with the facility regarding this issue. Refer to page 73 for a description of urban stream problems and recommendations for reducing impacts and restoring water quality.

Also, during this assessment period a private developer was assessed a civil penalty for land disturbance of filling wetlands and excavation of the floodplain on the Lumber River. DWQ has required the developer to implement a restoration plan as well as retrofit the development to meet state stormwater requirements.

Current Water Quality Initiatives
As of December 2002, the NC Division of Parks and Recreation received $950,000 in grants from the CWMTF to acquire over 3,520 acres for permanent conservation easements along the Lumber River. Lumberton also received $69,000 in grants from the CWMTF to acquire 24 acres for permanent conservation easements along the Lumber River. In addition, Lumberton received a total of $1,692,000 in grants from the CWMTF, a $1,000,000 State Revolving Grant, and a $1,566,350 State Revolving Loan for wastewater facility upgrades. Also, the towns of Wagram and Pembroke received CWMTF grants for wastewater facility upgrades. See page 152 for project descriptions.

2.5.2 Bear Swamp at SR 1339 [AU# 14-9-(1.5)]

Current Status and 2003 Recommendations
Bear Swamp is currently Not Rated. Site B-6 did not meet the necessary criteria to assign bioclassifications (page 57). Most of the Bear Swamp catchment above site B-6 has a heavy agricultural land use (page 76). Trees along the riparian zone have been clear-cut, degrading the habitat (page 62).

Current Water Quality Initiatives
Bear Swamp watershed comprises one of 20 watersheds in the Lumber River basin that has been identified by the NC Wetlands Restoration Program (NCWRP) as an area with the greatest need and opportunity for stream and wetland restoration efforts. This watershed will be given higher priority than nontargeted watersheds for the implementation of NCWRP restoration projects. Refer to page 147 in Section C for more information.

2.5.3 Long Branch [AU# 14-18-3]

Current Status and 2003 Recommendations
An unnamed tributary of Long Branch was impacted by discharge of animal wastewater from a sprayfield operation. The owner was assessed a civil penalty. DWQ will continue to inspect this operation.

2.5.4 Porter Swamp [AU# 14-27]

Current Status and Water Quality Initiatives
Porter Swamp is currently Not Rated. Cape Fear RC&D received a $20,150 grant from the CWMTF for a no-till drill. See page 152 for project description.

2.5.5 Cow Branch, Ivey Branch, Gum Swamp and Mill Branch

Current Water Quality Initiatives
Cow Branch, Ivey Branch, Gum Swamp and Mill Branch watersheds comprise four of 20 watersheds in the Lumber River basin that have been identified by the NC Wetlands Restoration Program (NCWRP) as an area with the greatest need and opportunity for stream and wetland restoration efforts. This watershed will be given higher priority than nontargeted watersheds for the implementation of NCWRP restoration projects. Refer to page 147 in Section C for more information.

2.6 Additional Water Quality Issues within Subbasin 03-07-51

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.

2.6.1 Water Quality Threats to Streams in Urbanizing Watersheds

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

2.6.2 Water Supply Watersheds (Back Swamp, Lumber River, Bear Swamp, Jacks Branch)

A total of 83.7 total stream miles (20.6 percent) in this subbasin are classified as water supply watersheds (WS-IV and WS-V). The water supply classifications on the Lumber River are also designated as HWQ. 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 water supply classifications. This will continue further protection for the water supply watersheds. See page 39 for more information regarding this issue.

2.6.3 Timber Harvesting (Lumber River Mainstem)

Clear-cutting was observed in areas near the banks of the Lumber River. These activities were most commonly observed during drought conditions. During harvesting activities, the implementation of Forestry Best Management Practices (BMPs) and meeting compliance standards outlined in the Forest Practices Guidelines is encouraged by the Divisions of Forest Resources and Water Quality to avoid stormwater runoff to the adjacent streams and rivers (see page 33 for more information).