Chapter 3 -
Cape Fear River Subbasin 03-06-03
Includes Big and Little Alamance Creeks

3.1 Water Quality Overview

Subbasin 03-06-03 at a Glance

Land and Water Area (sq. mi.)

Total area:	262
Land area:	1
Water area:	263

Population Statistics

1990 Est. Pop.:	66,593 people
Pop. Density:	255 persons / mi^2

Land Cover (%)

Forest / Wetland:	59.4
Surface Water:	0.2
Urban:	5.8
Cultivated Crop:	2.2
Pasture / Managed Herbaceous:	32.4

Use Support Summary

Freshwater Streams:

Fully Supporting:	176.0 mi.
Partially Supporting:	0.0 mi.
Not Supporting:	12.3 mi.
Not Rated:	5.2 mi.

Lakes:

Lake Mackintosh - Fully Supporting

This subbasin is located in the piedmont and contains few urban areas except along the I-40/85 corridor between Burlington and Greensboro. A map of the subbasin, including water quality sampling locations, is presented in Figure B-3.

Biological ratings for these sample locations are presented in Table B-3. The current sampling resulted in impaired ratings for one stream in this subbasin. Refer to Appendix III for a complete listing of monitored waters and use support ratings. See Section A, Chapter 3, Table A-31 for a summary of lakes and reservoirs use support data.

The primary land use in this subbasin is a mixture of agriculture and forest. There are no discharges in this subbasin with a permitted flow greater than 0.05 MGD. Most water quality problems are associated with nonpoint sources.

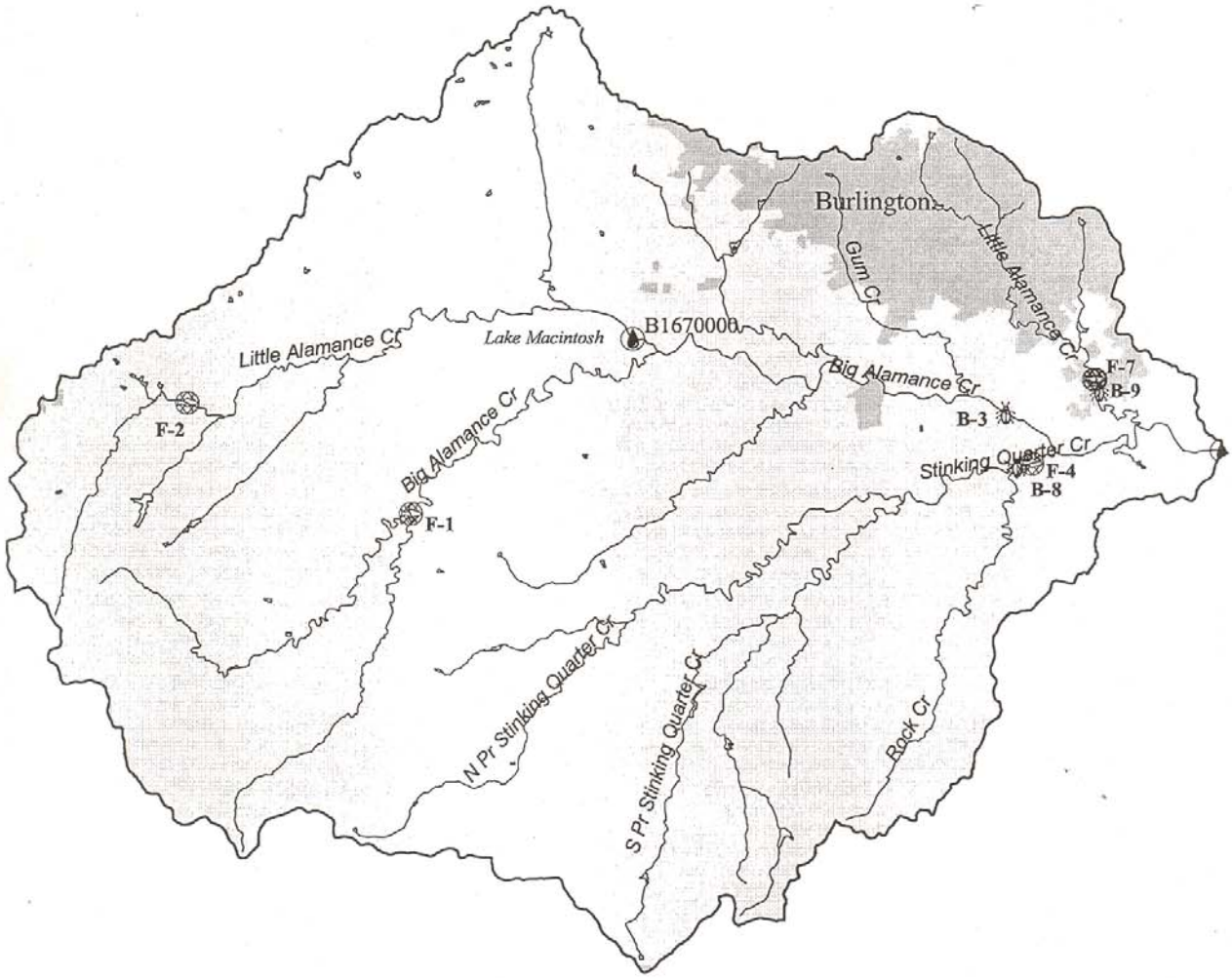
Erosion from agricultural land may cause large sediment inputs into streams within this subbasin. The worst water quality in the subbasin was observed in Little Alamance Creek (Burlington). Urban runoff is the most likely cause of this low rating.

For more detailed information on water quality in this subbasin, refer to *Basinwide Assessment Report – Cape Fear River Basin – June 1999*, available from DWQ Environmental Sciences Branch at (919) 733-9960.

3.2 Impaired Waters

There were no impaired waters in this subbasin in the 1996 Cape Fear River Basinwide Water Quality Plan. Little Alamance Creek (Burlington) is currently rated impaired according to recent DWQ monitoring. Current status and future recommendations for improving water quality in this stream are discussed below. 303(d) listed waters are summarized in Part 3.3 and waters with other issues, recommendations or projects are discussed in Part 3.4.

Cape Fear River 030603



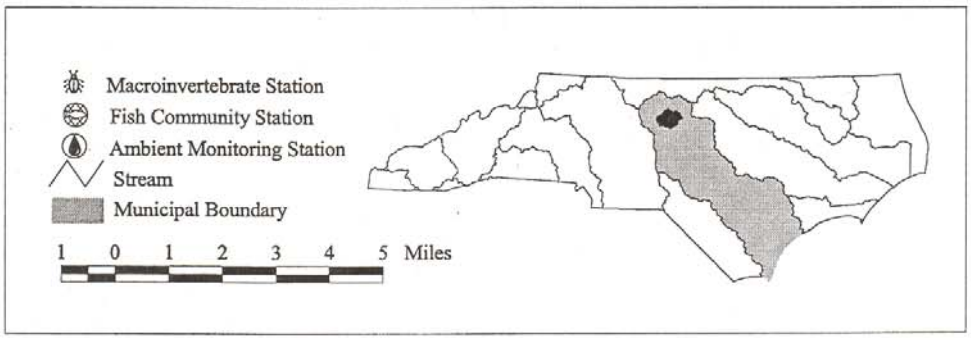


Figure B-3 Sampling Locations within Subbasin 03-06-03

Table B-3 Biological Assessment Sites in Cape Fear River Subbasin 03-06-03

BENTHOS				***Bioclassification***	
Site #	**Stream**	**County**	**Location**	**1993**	**1998**
B-3	Big Alamance Creek	Alamance	NC 49	Good-Fair	Good-Fair
B-8	Stinking Quarter Creek	Alamance	SR 1136	Good-Fair	Good
B-9	Little Alamance Creek	Alamance	SR 2309	Not Sampled	Poor
FISH				***Bioclassification***	
Site #	**Stream**	**County**	**Location**	**1993/1994**	**1998**
F-1	Big Alamance Creek	Guilford	SR 3088	no sample	Good
F-2	Little Alamance Creek	Guilford	SR 3039	no sample	Fair
F-4	Stinking Quarter Creek	Alamance	SR 1136	Good-Fair	Fair
F-7	Little Alamance Creek	Alamance	SR 2309	Fair	Poor

Little Alamance Creek (Burlington*)* (12.3 miles from source to Big Alamance Creek)

Current Status

Little Alamance Creek (Burlington) (12.3 miles from source to Big Alamance Creek) is currently not supporting (NS) based on recent DWQ monitoring data because of an impaired biological community. Streambank erosion associated with stormwater surges from the City of Burlington and indications of nutrient enrichment from urban nonpoint sources are potential causes of impairment. This stream is on the state's year 2000 303(d) list (not yet EPA approved).

2000 Recommendations

The City of Burlington will be required to address stormwater issues as part of Phase II of the NPDES stormwater program. NPDES stormwater permit applications must be received by DWQ by March 1, 2003. It is recommended that the City of Burlington focus stormwater program activities on Little Alamance Creek. The 303(d) list approach will be to resample for biological and chemical data to attempt to determine potential problem parameters.

3.3 303(d) Listed Waters

Little Alamance Creek is the only stream (12.3 stream miles) in this subbasin that is impaired and on the state's year 2000 303(d) list (not EPA approved). This stream is discussed above. For information on 303(d) listing requirements and approaches, refer to Appendix IV.

3.4 Other Issues, Recommendations and Projects

The following surface water segments are rated as fully supporting using recent DWQ monitoring data. However, these data revealed some impacts to water quality. Although no action is required for these surface waters, continued monitoring is recommended. Enforcement

of sediment and erosion control laws will help to reduce impacts on these streams and lakes. DWQ encourages the use of voluntary measures to prevent water quality degradation. Education on local water quality issues is always a useful tool to prevent water quality problems and to promote restoration efforts. For information on water quality education programs, workshops and nonpoint source agency contacts, see Appendix V.

Little Alamance Creek (Guilford County) drains an agricultural area, and Big Alamance Creek also drains an agricultural area as well as urban areas near Burlington. High levels of fecal coliform bacteria have been detected in Big Alamance Creek, and both creeks show instream habitat degradation. Implementation of agricultural BMPs would reduce potential adverse impacts to these streams.

Lake Mackintosh is a water supply reservoir for the City of Burlington. The lake is also used for recreational purposes (fishing and boating only). The surrounding land is comprised of pastures and farmland with a few houses. Blue-green algal blooms were confirmed by samples in January and May 1994, June and July 1996, and June 1998. These algal blooms have been associated with continuing taste and odor problems for the City of Burlington.

Approximately 7% of the waters in this subbasin are impaired by nonpoint source pollution (mostly urban). All the waters of the subbasin are affected by nonpoint sources. DENR, other state agencies and environmental groups have programs and initiatives underway to address water quality problems associated with nonpoint sources. DWQ will notify local agencies of water quality concerns in this subbasin and work with these various agencies to conduct further monitoring, as well as assist agency personnel with locating sources of funding for water quality protection.

The 1996 basinwide plan recommended that the 11 small discharges (0.154 MGD) in this subbasin should explore and implement alternatives to surface discharge or connect to one of the regional WWTPs. Many of the discharges were discharging into zero flow streams. There are currently seven minor discharges in this subbasin. Regionalization of small wastewater discharges will continue to be encouraged and monitored.

Upper Cape Fear River Basin Association

The Upper Cape Fear River Basin Association (UCFRBA) is starting to sample 45 sites in the upper Deep and Haw River watersheds. The data will be analyzed to support various studies and will be used with DWQ data to develop use support ratings for waters in the Cape Fear River basin during the upcoming basinwide cycle.