4.1 Subbasin Overview

Subbasin 03-04-04 at a Glance

Land and Water Area

Total area:	277 mi^2
Land area:	277 mi^2
Water area:	0 mi^2

Population Statistics

2000 Est. Pop.:	31,658 people
Pop. Density:	108 persons / mi^2

Land Cover (percent)

Forest / Wetland:	50.1
Surface Water:	1.1
Urban:	1.9
Cultivated Cropland:	45.9
Pasture / Managed Herbaceous:	0.2

Counties
Johnston and Wake

Municipalities
Benson and Four Oaks

Population growth in this subbasin is concentrated on the I-95 corridor between Benson and Smithfield. The northern part of the subbasin is in agriculture land use. There are 2,741 acres of managed public lands in this subbasin mostly associated with Howell Woods at Johnston Community College near the confluence with Hannah Creek and Mill Creek.

The Benson WWTP (1.5 MGD, map #87) is the only NPDES wastewater discharge permitted in this subbasin (Figure B-4). There are no individual NPDES stormwater permits in the subbasin. Refer to Appendix I for identification and more information on NPDES permit holders. Wake County will be required to develop a stormwater program under Phase II (page 76). Johnston and Wake counties have submitted model stormwater ordinances as required by the Neuse NSW strategy stormwater rules (page 64). There are also 39 registered animal operations in this subbasin.

There were two benthic macroinvertebrate community samples (Figure B-4 and Table B-9) collected in 2000 as part of basinwide monitoring. Both sites remained the same. Refer to *2001 Neuse River Basinwide Assessment Report* 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 4.2 below. Recommendations, current status and future recommendations for waters that were impaired in 1998 are discussed in Part 4.3 below. Current status and future recommendations for newly impaired waters are discussed in Part 4.4 below. Water quality issues related to the entire subbasin are discussed in Part 4.5. Unless otherwise noted, all discussions are for the aquatic life and secondary recreation use support category. Refer to Appendix III for a complete list of monitored waters by use support category and more information on supporting monitored waters.

Figure B-4 Neuse River Subbasin 03-04-04

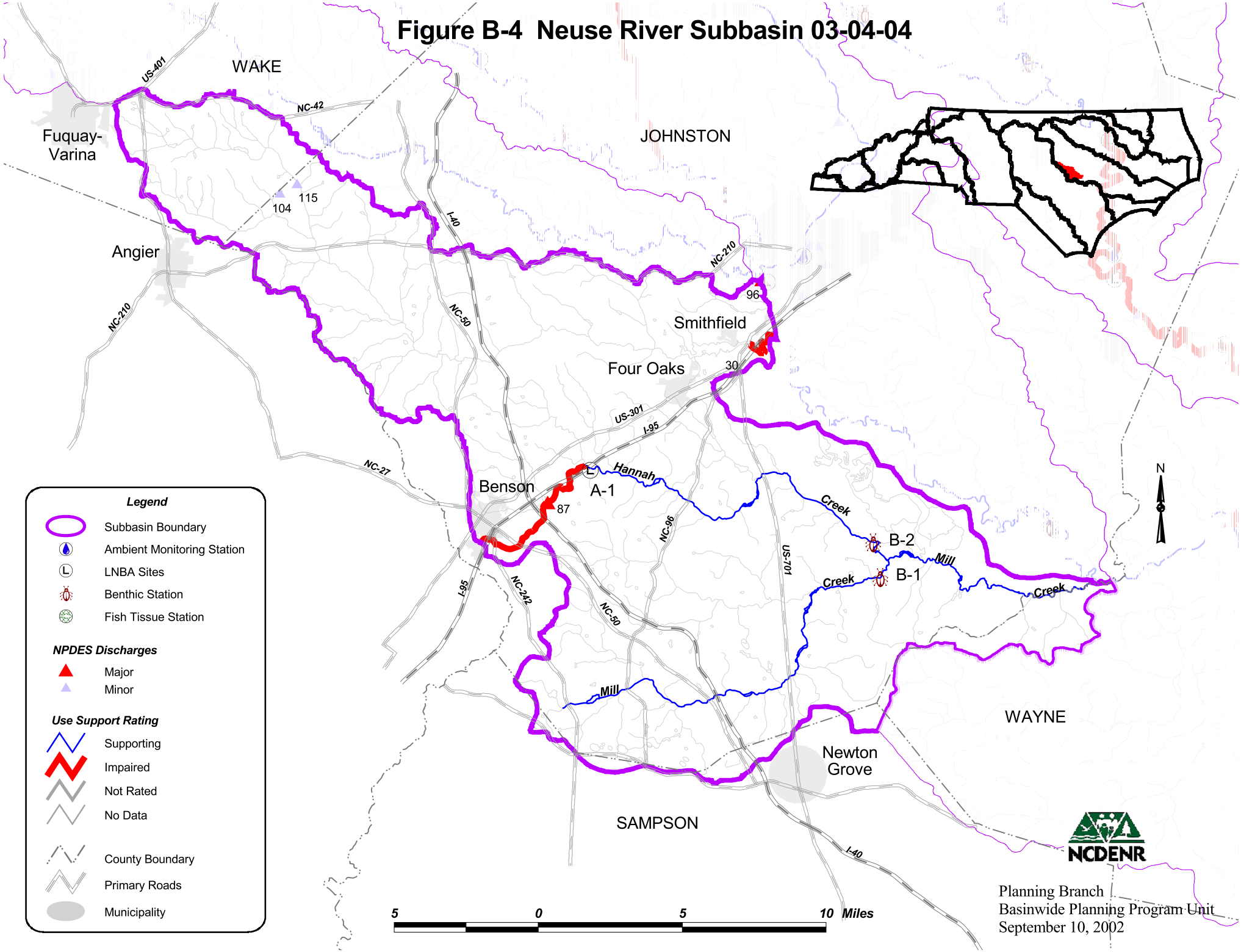

Table B-10 DWQ Monitoring Locations in Subbasin 03-04-04

Benthic Macroinvertebrate Community Monitoring Sites					
Map #[1]	**Waterbody**	**County**	**Location**	**1995**	**2000**
B-1	Mill Cr	Johnston	SR 1009	Good-Fair	Good-Fair
B-2	Hannah Cr[2]	Johnston	SR 1009	Good-Fair	Fair
B-2	Hannah Cr[2]	Johnston	SR 1009	Good-Fair	Fair
Ambient Monitoring Sites					
Map #[1]	**Waterbody**	**County**	**Location**	**Station #**	**Noted Parameters[3]**
A-1[4]	Hannah Cr	Johnston	I-95	J5400000	DO

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

[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.

[4] LNBA Sites (page 220). Only dissolved oxygen, chlorophyll *a* and fecal coliform were analyzed.

4.2 Use Support Summary

Use support ratings (page 54) in subbasin 03-04-04 were assigned for aquatic life and secondary recreation, fish consumption and water supply. All waters in the subbasin are considered impaired on an evaluated basis because of fish consumption advisories (page 93). All water supply waters are supporting on an evaluated basis based on reports from DEH regional water treatment consultants.

There were 28.6 stream miles (12.5 percent) monitored during this assessment period. Approximately 12 (43 percent) of the monitored stream miles are impaired. Refer to Table B-11 for a summary of use support ratings by use support category for waters in the subbasin. Use support ratings for waters that were monitored and impaired in at least one use support category or were impaired in 1998 are presented in Table B-12.

Table B-11 Summary of Use Support Ratings by Use Support Category in Subbasin 03-04-04

Use Support Rating	Basis	Aquatic Life and Secondary Recreation	Fish Consumption	Primary Recreation	Water Supply
Supporting	Monitored	16.4 mi	0	0	0
	All Waters	16.4 mi	0	0	4.7 mi
Impaired	Monitored	**12.3** mi	0	0	0
	All Waters	12.3 mi	227.1 mi	0	0
Not Rated	Monitored	0	0	0	0
No Data	N/A	198.5 mi	0	5.4 mi	0
Total	Monitored	28.6 mi	0	0	0
	All Waters	227.1 mi	227.1 mi	5.4 mi	4.7 mi
	Percent Monitored	12.5% mi	0%	0%	0%

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

Table B-12 Previously or Currently Impaired Waters in Subbasin 03-04-04

Name	1998 Status	2002 Status	Use Support Category	Miles
Black Creek	Supporting	Impaired	Aquatic Life/Secondary Recreation	2.0
Hannah Creek	Supporting	Impaired	Aquatic Life/Secondary Recreation	10.3
			Total 2002 Impaired Miles	**12.3**

4.3 Status and Recommendations of Previously Impaired Waters

There were no impaired streams identified in the 1998 basin plan in this subbasin.

4.4 Status and Recommendations of Waters Newly Impaired Waters

4.4.1 Black Creek

Current Status

Black Creek (2.0 miles) from the dam at Holts Lake to the Neuse River is currently impaired because dissolved oxygen was below 4 mg/l in 19 percent of samples.

2002 Recommendations
DWQ and LNBA (page 220) will continue to monitor the site to detect any water quality changes.

4.4.2 Hannah Creek

Current Status
Hannah Creek is currently supporting with a Good-Fair bioclassification at site B-2 from a 2001 resample. Low dissolved oxygen during summer months may be responsible for the bioclassifications dropping to Fair in the 2000 samples.

Upper Hannah Creek (10.3 miles) is currently impaired because dissolved oxygen (site A-1) was below 4 mg/l in 48 percent of samples. This segment includes the Benson WWTP discharge. The Benson WWTP (map #87) has had past aquatic toxicity failures. Instream habitat is sparse in the creek.

2002 Recommendations
DWQ and LNBA (page 220) will continue to monitor the site to detect any water quality changes. DWQ will work with Benson to remedy toxicity problems and to determine the source of low dissolved oxygen in Hannah Creek.

4.5 Status and Recommendations for Waters with Noted Impacts

The surface waters discussed in this section are supporting designated uses (unless otherwise noted) based on DWQ's use support assessment and are not considered to be impaired or were monitored but not rated. However, notable water quality problems and concerns have been documented for some waters based on this assessment. While these waters are not considered impaired, attention and resources should be focused on these waters to prevent additional degradation or facilitate water quality improvement.

4.5.1 Mill Creek

Current Status and 2002 Recommendations
Mill Creek is currently supporting with a Good-Fair bioclassification at site B-1. There is currently little development in this watershed and population density is 0-64 people/square mile. The NCWRP has a project in this watershed (page 215) and has targeted this local watershed (page 203).