

Section B - Chapter 5

Neuse River Subbasin 03-04-05

Neuse River, Stoney Creek, Bear Creek, Falling Creek and Mosley Creek

5.1 Subbasin Overview

Subbasin 03-04-05 at a Glance

Land and Water Area

Total area:	499 mi ²
Land area:	496 mi ²
Water area:	3 mi ²

Population Statistics

2000 Est. Pop.:	102,518 people
Pop. Density:	206 person/mi ²

Land Cover (percent)

Forest/Wetland:	51.6
Surface Water:	0.8
Urban:	8.2
Cultivated Crop:	36.5
Pasture/ Managed Herbaceous:	2.9

Counties

Craven, Greene, Jones, Lenoir and Wayne

Municipalities

Goldsboro and Kinston

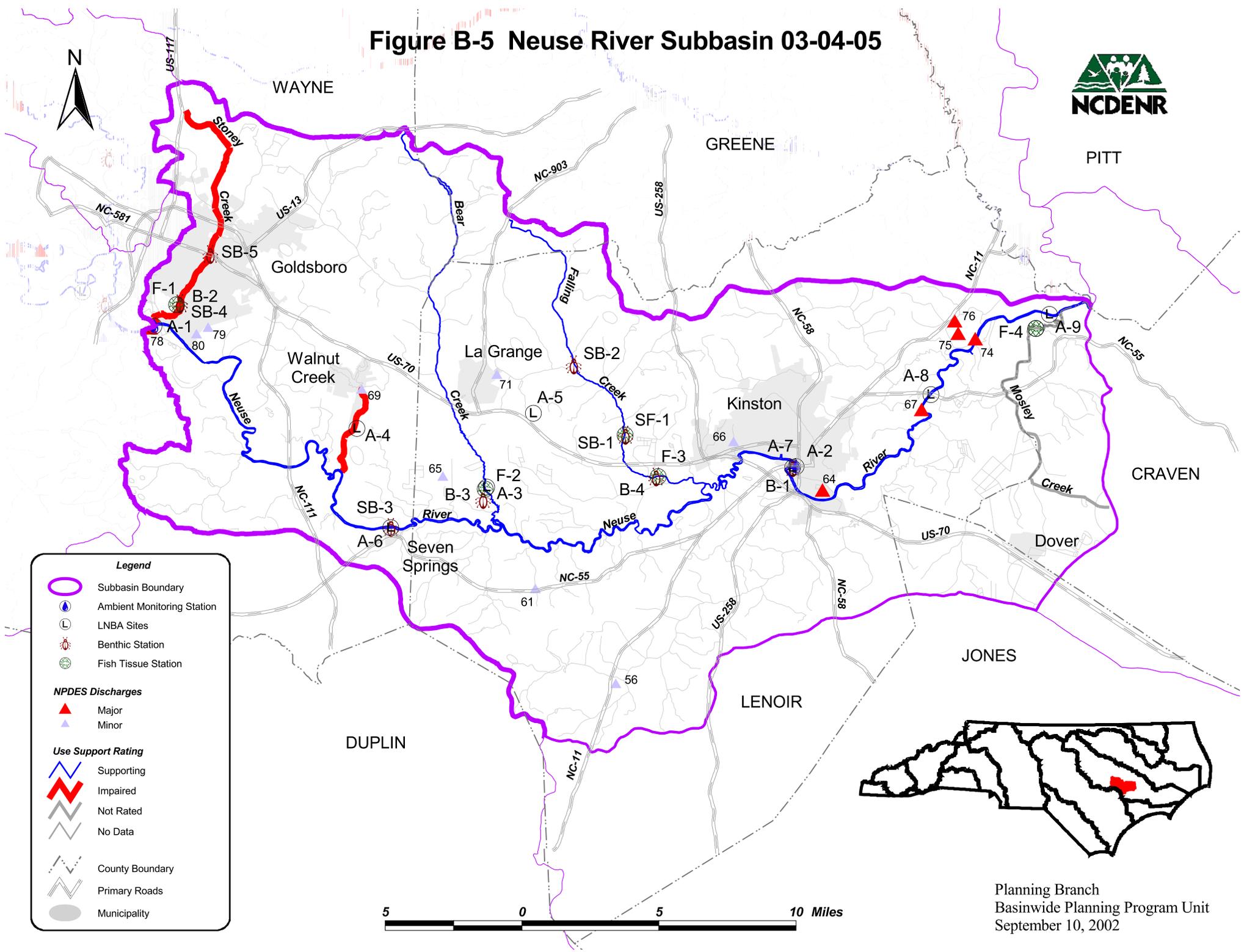
Population growth in this subbasin is near Goldsboro and Kinston. Population density is highest (320-1,600 persons/mi²) in the watersheds around Goldsboro. The most densely populated watershed in the basin is Stoney Creek near Seymour Johnson Air Force Base. The northern part of the subbasin is in agriculture land use.

There are 1,480 acres of managed public lands in this subbasin with the Cliffs of Neuse State Park and Caswell Farm Game Land near Kinston being the largest.

There are nine NPDES wastewater discharge permits in this subbasin with a total permitted flow of 15.6 MGD (Figure B-5). The largest are Kinston Northside WWTP (4.5 MGD, map #67) and Kinston Peachtree WWTP (6.7 MGD, map #64). There is also one individual NPDES stormwater permit in the subbasin. Refer to Appendix I for identification and more information on NPDES permit holders. Kinston, Goldsboro and Wayne County are to develop a stormwater program under Phase II (page 76) and have submitted model stormwater ordinances as required by the Neuse NSW strategy stormwater rules (page 64). There are also 96 registered animal operations in this subbasin.

There were four benthic macroinvertebrate community samples (Figure B-5 and Table B-13) collected in 2000 as part of basinwide monitoring. One site remained the same, and two sites had a lower bioclassification. The four fish community sites were not rated, as biocriteria are being developed (page 75) to assess these swampy streams. There were also five special study samples collected in the subbasin during the assessment period. Data were also collected from two ambient stations. Fish tissue samples were collected from the Neuse River at Kinston and Goldsboro. Refer to *2001 Neuse 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-5 Neuse River Subbasin 03-04-05



Legend

- Subbasin Boundary
- Ambient Monitoring Station
- LNBA Sites
- Benthic Station
- Fish Tissue Station

NPDES Discharges

- Major
- Minor

Use Support Rating

- Supporting
- Impaired
- Not Rated
- No Data

Other Features

- County Boundary
- Primary Roads
- Municipality

Table B-13 DWQ Monitoring Locations in Subbasin 03-04-05

Benthic Macroinvertebrate Community Monitoring Sites					
Map #¹	Waterbody	County	Location	1995	2000
B-1	Neuse R	Lenoir	NC 58	Good	Good
B-2	Stoney Cr	Wayne	SR 1920	Poor	Fair
B-3	Bear Cr	Lenoir	SR 1311	Fair	Good-Fair
B-4	Falling Cr	Lenoir	SR 1519	Good-Fair	Fair
SB-1	Falling Cr	Lenoir	SR 1546	---	Poor
SB-2	Falling Cr	Lenoir	SR 1001	---	Good-Fair
SB-3	Neuse R	Lenoir	SR 1731	---	Good
SB-4	Stoney Cr	Wayne	SR 1920	---	Fair
SB-5	Stoney Cr	Wayne	Ashton St. Park	---	Fair
Fish Community Monitoring Sites					
Map #¹	Waterbody	County	Location	1995	2000
F-1	Stoney Cr	Wayne	SR 1920	Not rated	Not rated
F-2	Bear Cr ²	Lenoir	SR 1311	Not rated	Not rated
F-3	Falling Cr	Lenoir	SR 1340	Not rated	Not rated
F-4	Moseley Cr ²	Craven	SR 1475	Not rated	Not rated
SF-1	Falling Cr	Lenoir	SR 1546	---	Not rated
Fish Tissue Monitoring Sites					
T-1	Neuse R	Lenoir	at Kinston	---	---
Ambient Monitoring Sites					
Map #¹	Waterbody	County	Location	Station #	Noted Parameters³
A-1	Neuse River	Wayne	SR 1915	J5970000	none
A-2	Neuse River	Lenoir	NC 11B	J6150000	none
A-3 ⁴	Bear Creek	Lenoir	SR 1311	J6044500	none
A-4 ⁴	Walnut Creek	Wayne	SR 1730	J6010950	DO
A-5 ⁴	Mosley Creek	Lenoir	SR 1327	J6055000	none
A-6 ⁴	Neuse River	Wayne	SR 1731	J6024000	none
A-7 ⁴	Neuse River	Lenoir	NC 11	J6150000	none
A-8 ⁴	Neuse River	Lenoir	NC 55	J6250000	none
A-9 ⁴	Neuse River	Lenoir	SR 1803	J6370000	none

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.

Use support ratings are summarized in Part 5.2 below. Recommendations, current status and future recommendations for waters that were impaired in 1998 are discussed in Part 5.3 below. Current status and future recommendations for newly impaired waters are discussed in Part 5.4 below. Water quality issues related to the entire subbasin are discussed in Part 5.5. Unless otherwise noted, all discussions are for the aquatic life and secondary recreation use support category.

5.2 Use Support Summary

Use support ratings (page 54) in subbasin 03-04-05 were assigned for aquatic life and secondary recreation, fish consumption and primary recreation. All waters in the subbasin are considered impaired on an evaluated basis because of fish consumption advisories (page 93).

There were 117 stream miles (32 percent) monitored during this assessment period. Approximately 18 (15 percent) of the monitored stream miles are impaired. Refer to Table B-14 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-15.

Table B-14 Summary of Use Support Ratings by Use Support Category in Subbasin 03-04-05

Use Support Rating	Basis	Aquatic Life and Secondary Recreation	Fish Consumption	Primary Recreation
Supporting	Monitored	81.1 mi	0	8.0 ac
	All Waters	81.1 mi	0	8.0 ac
Impaired	Monitored	17.6 mi	63.2 mi	0
	All Waters	17.6 mi	361.5 mi 8 ac	0
Not Rated	Monitored	17.9 mi	0	0
No Data	N/A	244.9 mi 8 ac	0	5.3 mi
Total	Monitored	116.6 mi	63.2 mi	8.0 ac
	All Waters	361.5 mi 8 ac	361.5 mi 8 ac	5.3 mi 8.0 ac
	Percent Monitored	32.3% mi 0% ac	18% mi 0%	0% mi 100% ac

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

Table B-15 Previously or Currently Impaired Waters in Subbasin 03-04-05

Name	1998 Status	2002 Status	Use Support Category	Miles
Bear Creek	Impaired	Supporting	Aquatic Life/Secondary Recreation	N/A
Stoney Creek	Impaired	Impaired	Aquatic Life/Secondary Recreation	10.7
Walnut Creek	Not Rated	Impaired	Aquatic Life/Secondary Recreation	6.9
Neuse River	Supporting	Impaired	Fish Consumption	63.2
			Total 2002 Impaired Miles	80.8

5.3 Status and Recommendations of Previously Impaired Waters

5.3.1 Bear Creek

1998 Recommendations

Bear Creek was partially supporting from the source to the Neuse River. It was recommended that a more detailed study of the watershed be undertaken to determine possible causes of impairment.

Current Status

Bear Creek from the source to the Neuse River is currently supporting with a Good-Fair bioclassification at site B-3. Good instream habitat was noted, and the area was mostly forested at the sample site. The upper watershed also has some agricultural land use. Changes in bioclassification between samples may be primarily related to low conditions.

2002 Recommendations

DWQ will continue to monitor Bear Creek to assess future impacts related to land use changes in the watershed.

5.3.2 Stoney Creek

1998 Recommendations

Stoney Creek was partially supporting from the source to the Neuse River. There were no specific recommendations made in the 1998 basin plan.

Current Status

Stoney Creek from the source to the Neuse River (10.7 miles) is currently impaired because of three Fair bioclassifications at sites B-2, SB-4 and SB-5. Good instream habitat was noted, although there are some breaks in the riparian zone near Seymour Johnson Air Force Base. The stream drains a large and very densely populated area of Goldsboro, but water quality appears to be improving slightly.

2002 Recommendations

DWQ will continue to monitor Stoney Creek to evaluate impacts of development in the Goldsboro area. As part of the 303(d) list approach, DWQ will begin the process of identifying

problem parameters that may be causing biological impairment in Stoney Creek. The Watershed Assessment and Restoration Project is currently doing a detailed assessment of Stoney Creek to define the extent of water quality problems and narrow the possible causes. Because of the water quality impairment noted above and the current assessment project, Stoney Creek is a NCWRP targeted local watershed (page 203).

Goldsboro and Seymour Johnson should consider water quality impacts to Stoney Creek and prevent potential water quality problems by installing and maintaining BMPs during and after development. Refer to (page 81) for a description of urban stream problems and recommendations for reducing impacts and restoring water quality.

5.4 Status and Recommendations of Waters Newly Impaired Waters

5.4.1 Neuse River

Current Status

The Neuse River (63.2 miles) from the City of Goldsboro water supply intake to the subbasin boundary of 03-04-05 and 03-04-08 is currently impaired in the fish consumption use support category. Fish tissue samples were collected near Goldsboro and Kinston, and there is statewide fish consumption advisory for bowfin. One large-mouth bass exceeded the FDA action level. Refer to page 93 for more information on this issue.

The Neuse River (63 miles) in subbasin 03-04-05 is currently supporting aquatic life and secondary recreation based on a Good bioclassifications at sites B-1 and SB-3. Massive bank erosion was noted, and there was little riparian vegetation at the B-1 sample site. Many tributary watersheds in the subbasin are in agricultural land use, and development and urban runoff may be impacting the river near Goldsboro and Kinston. Low dissolved oxygen detected at ambient monitoring stations near Goldsboro and Kinston may be the result of the large volume of discharges in this segment of the river and swamp drainage.

2002 Recommendations

DWQ will continue to monitor fish tissue in the Neuse River basin to assess changes in levels and to evaluate levels of other contaminants in fish tissue. Refer to page 93 for more information on this issue.

In order to maintain the historically Good bioclassification in this segment of the Neuse River, DWQ recommends continued improvements to the WWTPs and consideration of water quality impacts during development and other intensive land uses. Refer to (page 81) for a description of urban stream problems and recommendations for reducing impacts and restoring water quality. Continued implementation of the Neuse NSW strategy (page 64) should help to minimize water quality impacts to this segment of the Neuse River.

The Neuse River and tributaries (Falling Creek and Briery Run) near Kinston have indications of nonpoint source pollution impacts. NCWRP has a stream restoration project in Falling Creek, and the six local watersheds in this area are targeted for restoration (page 203).

5.4.2 Walnut Creek

Current Status

Walnut Creek (3.6 miles) is currently impaired because dissolved oxygen (site A-4) was below 4 mg/l in 32.5 percent of samples. This segment includes the Village WWTP (map #69). There could also be some influence of swamp waters in this watershed

2002 Recommendations

DWQ and LNBA (page 220) will continue to monitor the site to detect any water quality changes. DWQ will work with the Village WWTP to determine the source of low dissolved oxygen in Walnut Creek.

5.5 Additional Water Quality Issues Within Subbasin 03-04-05

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.

5.5.1 Impacts of Post-Hurricane De-Snagging on Instream Habitats

Many streams in the subbasin have noted impacts from the recent hurricanes. The biological community in the streams can recover rapidly if instream habitat is maintained. De-snagging operations should carefully remove debris from stream channels to restore natural flow and leave enough instream habitats so the biological community can recover. Refer to page 86 for more information on this issue.