Chapter 2 -
Chowan River Subbasin 03-01-02
Includes the Meherrin River and Potecasi Creek Watershed

2.1 Water Quality Overview

Subbasin 03-01-02 at a Glance

Land and Water

Total area:	494 mi^2
Land area:	491 mi^2
Water area:	3 mi^2

Population Statistics

1990 Est. pop.:	22,713 people
Pop. density:	46 persons / mi^2

Land Cover (%)

Forest / Wetland:	65%
Surface Water:	<1%
Urban:	<1%
Cultivated Crop:	32%
Pasture / Managed Herbaceous:	1%

This subbasin includes the Meherrin River and its tributary streams, the largest of which is Potecasi Creek. The Meherrin flows into North Carolina from Greensville County, Virginia. A map of this subbasin including water quality sampling locations is presented as Figure B-2.

DWQ collected ambient, benthic macroinvertebrate and fish community sampling in this subbasin. Bioclassifications for these sample locations are presented in Table B-3. Table B-4 summarizes use support ratings in subbasin 03-01-02. Refer to Appendix III for a complete listing of monitored waters and use support ratings. The entire subbasin is designated as Nutrient Sensitive Waters.

Significant natural heritage areas are located within the watershed, including the Meherrin River Swamp and Meherrin River Slopes and Swamp.

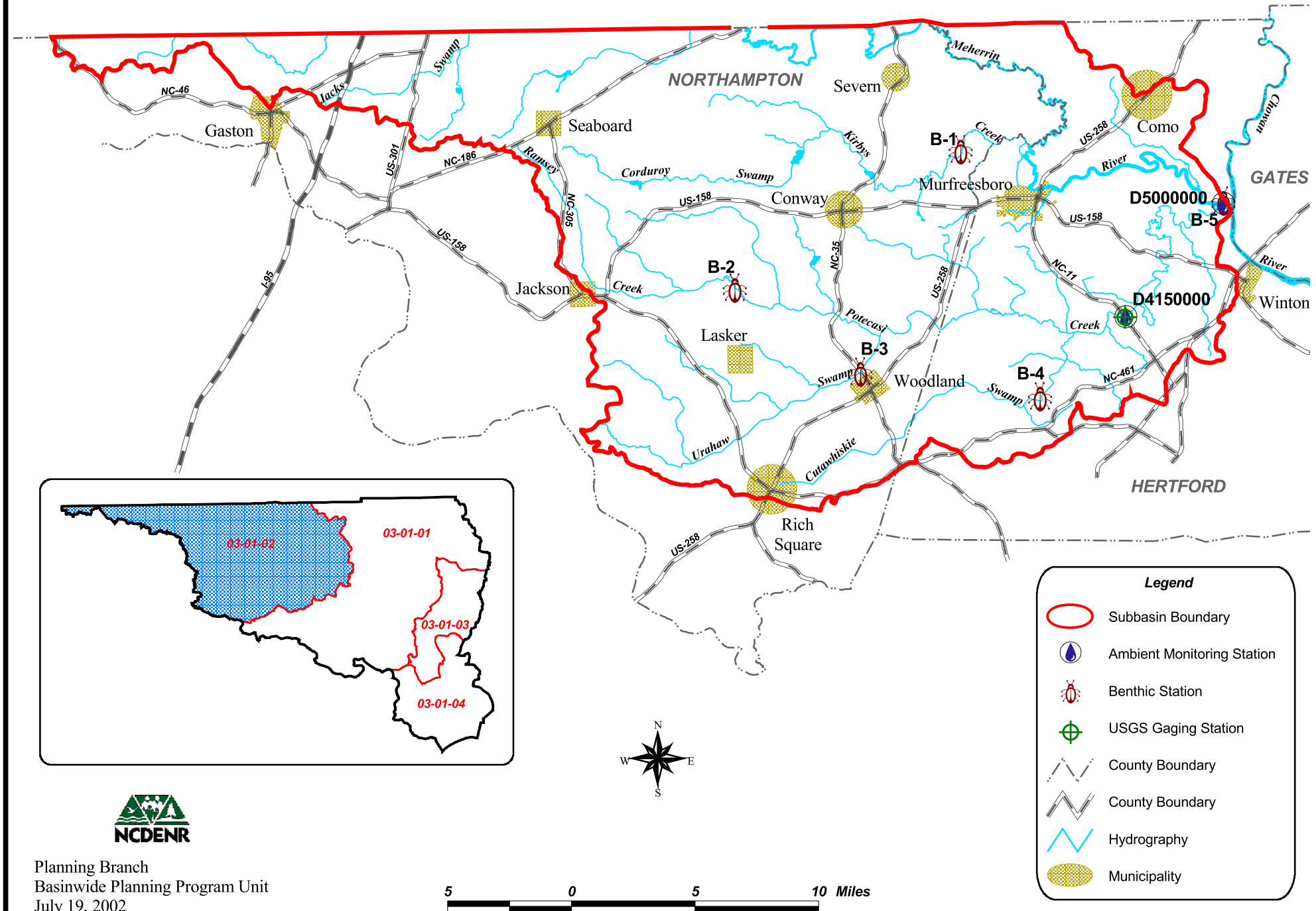
The largest municipalities in this subbasin include Murfreesboro, Gaston and Rich Square. Each of these municipalities experienced a net decline in population over the 1990 to 2000 time period. This subbasin is the second most populated subbasin in the Chowan River basin, and it has a population density at 46 persons/square mile.

There are no NPDES facilities in this subbasin. However, there is one individual stormwater permit issued to Georgia-Pacific Resins, Inc. and seven general permits in the area.

Benthic macroinvertebrate field sampling indicated Good water quality in the Meherrin River. Kirbys Creek, Potecasi Creek, Urahaw Swamp and Cutawhiskie Creek were sampled but not rated.

Although bioclassifications were not given to several streams in the subbasin, habitat degradation was noted during field visits. Severe stress was noted at both the Potecasi Creek and Urahaw Swamp sites. Cutawhiskie Swamp had moderate to severe bank erosion, little canopy and a narrow riparian zone on one bank.

Figure B-2 Chowan River Subbasin 03-01-02



NCDENR

Planning Branch
Basinwide Planning Program Unit
July 19, 2002

Table B-3 DWQ Monitoring Locations and Benthic Macroinvertebrate Bioclassifications (2000) for Chowan River Subbasin 03-01-02

Site	Stream	County	Location	Bioclassification
Benthic Macroinvertebrates				
B-1	Kirbys Creek	Northampton	SR 1362	Not Rated
B-2	Potecasi Creek	Northampton	SR 1504	Not Rated
B-3	Urahaw Swamp	Northampton	NC 35	Not Rated
B-4	Cutawhiskie Swamp	Hertford	SR 1141	Not Rated
B-5	Meherrin River	Hertford	SR 1175	Good
Fish Community*				
F-1	Cutawhiskie Swamp	Hertford	SR 1141	Not Rated
Ambient Monitoring				***Problem Parameters***
D4150000	Potecasi Creek	Hertford	near Union	DO
D5000000	Meherrin River	Hertford	at SR 1175 near Como	DO

* Refer to Section A, Part 3.3 for more information on fish community and benthic macroinvertebrate bioclassifications.

Table B-4 Use Support Ratings Summary (2000) for Monitored and Evaluated[2] Freshwater Streams (Miles) in Chowan River Subbasin 03-01-02

Use Support Category	FS	PS	NS	NR	Total[1]
Aquatic Life/ Secondary Recreation[2]	45.5	0	0	241.0	286.5
Primary Recreation	11.7	0	0	1.9	13.6

[1] Total stream miles/acres assigned to each use support category in this subbasin. Column is not additive because some stream miles are assigned to more than one category.

[2] These waters are impaired because of a regional fish consumption advisory. Refer to Section A, Part 4.3 for further information.

For more detailed information on sampling and assessment of streams in this subbasin, refer to the *Basinwide Assessment Report-Chowan River Basin* (NCDENR-DWQ, January 2002), available from DWQ Environmental Sciences Branch at http://www.esb.enr.state.ncu.us/bar.html or by calling (919) 733-9960.

2.2 Status and Recommendations for Previously Impaired Waters

The 1997 Chowan River Basinwide Plan identified two impaired stream segments in this subbasin. This section reviews use support and recommendations detailed in the 1997 basinwide plan, reports status of progress, gives recommendations for the next five-year cycle, and outlines current projects aimed at improving water quality for these streams.

2.2.1 **Potecasi Creek** (45.6 miles from source to NC 11 near Union)

1997 Recommendations
Potecasi Creek had Fair water quality as described in the 1997 plan. The impairment source was thought to be nonpoint source runoff from agriculture (especially increasing numbers of animal operations) and channelization. The 1997 basin plan also noted that the low pH values and DO concentrations found in the creek could be due to natural conditions. Due to the nonpoint source pollution issues, the 1997 basin plan recommended that the Nonpoint Source Team help clarify and characterize agricultural activities in the area and consider them for targeting of the team's remediation efforts.

Status of Progress
Potecasi Creek is currently not rated. The Nonpoint Source Team chose against focusing on Potecasi Creek and instead focused on broader issues that could impact the entire basin.

2002 Recommendations
DWQ will conduct field evaluations to determine if DO and pH characteristics are associated with naturally occurring swamp conditions. In addition, DWQ will provide a compilation of specific criteria that may help in identifying streams that should be recognized as having swamp characteristics (NCDENR-DWQ, 2000). Potecasi Creek is one of two waterbodies selected in the Chowan River basin to undergo the Swamp Waters Study Plan.

For more information on the Swamp Waters Study Plan, contact the DWQ Planning Branch Modeling/TMDL Unit at (919) 733-5083 or visit the program's website at http://h2o.enr.state.nc.us/tmdl/.

A progressive program to implement nonpoint source pollution controls is recommended to reduce the nutrient and sediment loading. Such a program will need to be developed and implemented at the local level. DWQ will provide technical assistance and funding information to local communities to assist in this effort. DWQ will notify local agencies of water quality concerns regarding these waters and work with them to conduct further monitoring and to locate sources of water quality protection funding.

2.2.2 **Cutawhiskie Creek** (17.8 miles from source to SR1141, Hertford)

1997 Recommendations
Cutawhiskie Creek had Fair water quality associated with nonpoint source runoff from agriculture (especially increasing numbers of animal operations) and channelization. The 1997 basin plan recommended that the Nonpoint Source Team help clarify and characterize agricultural activities in the Cutawhiskie Creek area and consider them for targeting of the team's remediation efforts.

Status of Progress
Cutawhiskie Creek is currently not rated. The Nonpoint Source Team chose against focusing on Cutawhiskie Creek and instead focused on broader issues that could impact the entire basin.

2002 Recommendations

A progressive program to implement nonpoint source pollution controls is recommended to reduce the nutrient and sediment loading. DWQ scientists noted that Cutawhiskie Creek had several habitat degradation issues including channelization, riparian zone impacts and erosion.

DWQ will continue to work with the Division of Soil and Water Conservation as well as local governments to minimize channelization impacts on local water quality. In addition, DWQ will provide educational materials upon request to the public regarding riparian zone maintenance. Such a program will need to be developed and implemented at the local level. DWQ will provide technical assistance and funding information to local communities to assist in this effort. In addition, DWQ will notify local agencies of water quality concerns regarding these waters and work with them to conduct further monitoring and to locate sources of water quality protection funding.

2.3 Status and Recommendations for Newly Impaired Waters

No additional stream segments were rated as impaired based on recent DWQ monitoring (1995-2000).