

Chapter 3 -

Chowan River Subbasin 03-01-03

Includes Catherine Creek to Rockyhock Creek

3.1 Water Quality Overview

Subbasin 03-01-03 at a Glance

Land and Water

Total area:	123 mi ²
Land area:	100 mi ²
Water area:	23 mi ²

Population Statistics

1990 Est. pop.:	4,731 people
Pop. density:	47 persons/mi ²

Land Cover (%)

Forest/Wetland:	40%
Surface Water:	19%
Urban:	<1%
Cultivated Crop:	40%
Pasture/ Managed Herbaceous:	<1%

This subbasin contains the middle section of the Chowan River, above Rockyhock Creek and below Bennett Creek, including the Indian Creek and Catherine Creek tributaries. A map including water quality sampling locations is presented as Figure B-3.

DWQ has not conducted biological sampling in this subbasin; however, DWQ does collect ambient sampling data. In addition, International Paper conducts fish tissue monitoring. Use support ratings are summarized in Table B-6. Refer to Appendix III for a complete listing of monitored waters and use support ratings.

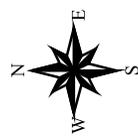
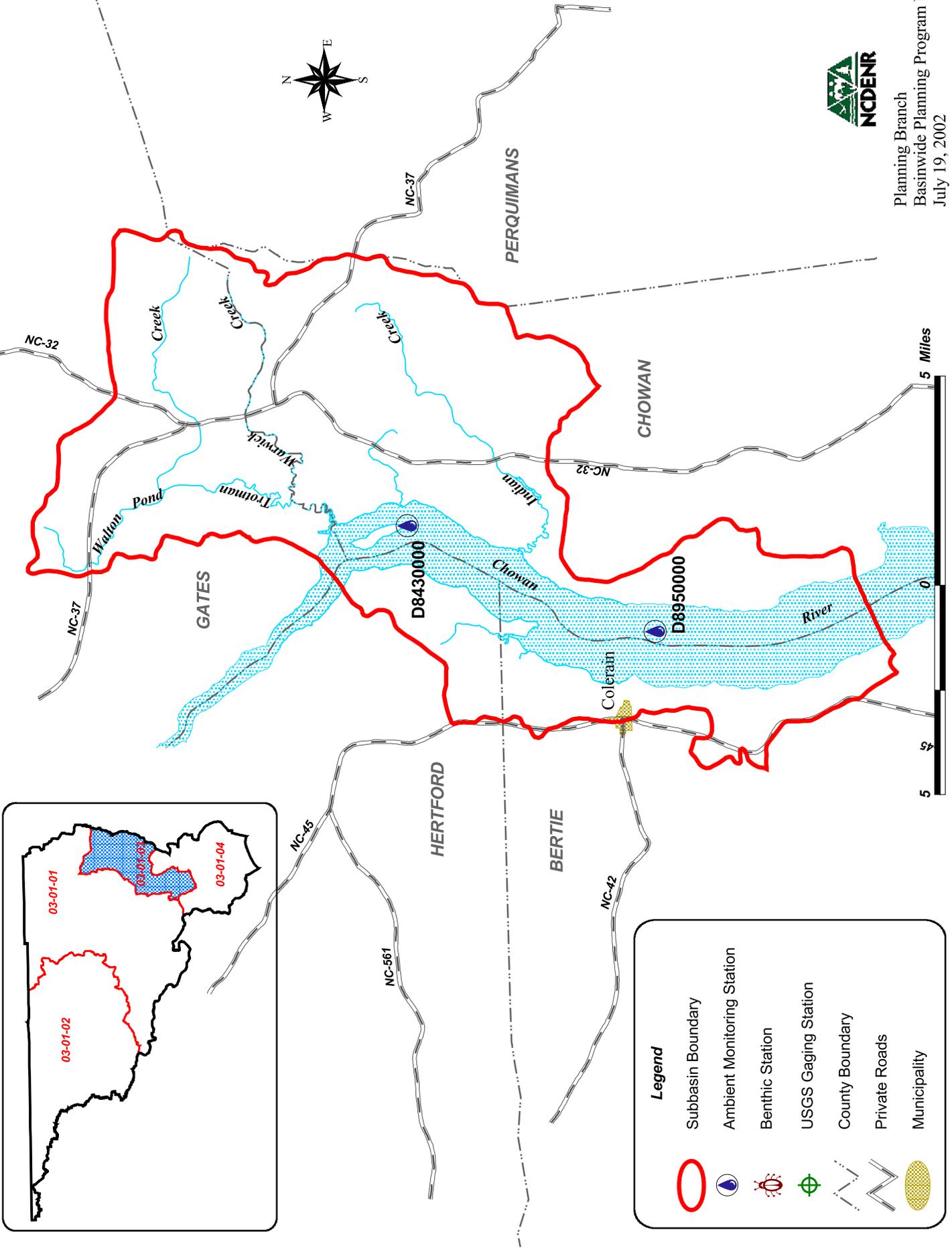
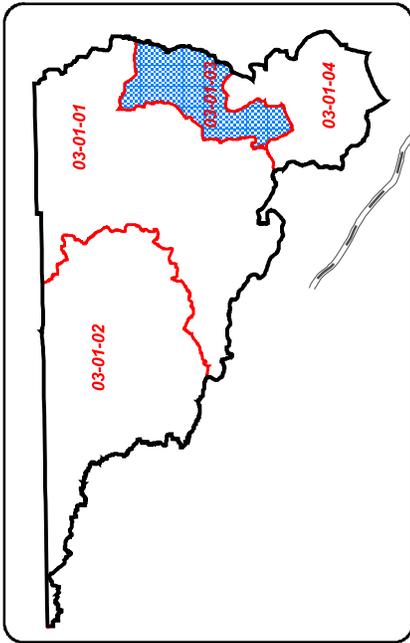
The entire subbasin is designated as Nutrient Sensitive Waters. This subbasin contains the Colerain/Cow Island Swamp and Slopes Natural Heritage Areas. Perhaps the most important wetland community in this Chowan River basin is Tidal Cypress-Gum Swamp, which is found

along much of the shoreline of the Chowan River.

The largest municipality in the subbasin is Colerain with a population of approximately 221 persons. Colerain experienced a net decrease in population of 8 percent between 1990 and 2000. According to 1990 census data, this is the least populated subbasin in the Chowan River basin with a population of 4,731. This subbasin closely compares to the basin population density average of 47 persons/square mile.

There are currently two NPDES permit holders in the basin, one minor and one major. In addition, there exist three facilities with individual stormwater permits. United Piece Dye Works is required to conduct whole effluent toxicity testing. The facility experienced failing chronic toxicity tests in the fall of 1998. Though no absolute cause-effect relationship was established, removal of algal growth in the wastewater treatment plant seemed to solve the toxicity problem. The facility has not failed a test since September 1998.

Figure B-3 Chowan River Subbasin 03-01-03



Legend

- Subbasin Boundary
- Ambient Monitoring Station
- Benthic Station
- USGS Gaging Station
- County Boundary
- Private Roads
- Municipality



Table B-5 DWQ Monitoring Locations (2000) for Chowan River Subbasin 03-01-03

Site	Stream	County	Location	Problem Parameter
<i>Ambient Monitoring</i>				
D8430000	Chowan River	Chowan	200 yards downstream Holiday Island	None observed
D8950000	Chowan River	Bertie	at Colerain	None observed

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

Table B-6 Use Support Ratings Summary (2000) for Monitored and Evaluated² Freshwater Streams (Miles) in Chowan River Subbasin 03-01-03

Use Support Category	FS	PS	NS	NR	Total ¹
Aquatic Life/ Secondary Recreation²	14.1 miles	0	0	16.8 miles	30.9 miles
Primary Recreation	14.1 miles	0	0	12.8 miles	26.9 miles

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.

International Paper, formerly Union Camp, conducts fish tissue monitoring. Historical samples indicated significant dioxin contamination, especially in catfish, but recent samples along the lower Chowan appear to be decreasing due to facility improvements. A fish consumption advisory was lifted in 2000 after dioxin in fish tissue concentrations were shown to be at safe levels for 1998-1999. Refer to Section A, Part 4.3 for more information on this issue.

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.

3.2 Status and Recommendations for Previously Impaired Waters

The 1997 Chowan River Basinwide Plan identified one segment of the Chowan River as impaired 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 this stream segment.

3.2.1 Chowan River (5.5 miles from below Holiday Island near Harrellsville to Marker 17 at Colerain)

1997 Recommendations

In the 1997 Chowan River Basin Plan, this portion of the Chowan River was noted to have continued problems with nuisance algal blooms related to excess nutrients and low pH levels. Although the NSW management strategy had been in place since 1982, DWQ recommended the need for continued implementation of the NSW management strategy, specifically focusing on reducing nutrient inputs from nonpoint sources of pollution.

The 1997 basin plan noted that Chowan River from the Virginia Border to the Albemarle Sound (at Highway 17 bridge) was under a fish consumption advisory since 1990 for all fish except herring, shellfish and shad (including roe). Refer to page 56 for more information on this issue.

Status of Progress

The Chowan River in this subbasin is currently fully supporting. Reduction in nutrient inputs has led to a steady decline in both the frequency and intensity of algal blooms. This trend is evident in comparing recent phytoplankton data from the Chowan River near Colerain (1995-2000) to data from 1990-1994 (NCDENR, 1997). Only a single bloom occurred in July 1998 during the last five years while two nuisance blooms were reported from 1990-1994.

2002 Recommendations

DWQ continues to issue permits for point sources using the NSW management strategy that involves nitrogen and phosphorus limit and land application requirements. DWQ scientists will conduct a 15-year status analysis on nutrient reduction efforts in the Chowan River basin, publishable in 2005. The DWQ Modelers and NPDES Permittees will review the information, reevaluate current permit limitations, and revise as necessary.

3.3 Status and Recommendations for Newly Impaired Waters

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