Chapter 4 -
Roanoke River Subbasin 03-02-04
Includes a portion of the Dan River and Country Line Creek

4.1 Water Quality Overview

Subbasin 03-02-04 at a Glance

Land and Water Area

Total area:	239 mi^2
Land area:	236 mi^2
Water area:	3 mi^2

Population Statistics

1990 Est. Pop.:	27, 208 people
Pop. Density:	115 persons / mi^2

Land Cover (%)

Forest / Wetland:	75.9
Surface Water:	1.0
Urban:	0.5
Cultivated Cropland:	2.3
Pasture / Managed Herbaceous:	20.4

This subbasin contains a short reach of the Dan River (approximately 8 river miles) and three larger tributaries: Country Line, Moon and Rattlesnake Creeks. The Dan River flows into North Carolina, after passing through Danville, Virginia, and then back out of North Carolina for a final time before merging with the Roanoke River to form the headwaters of the John H. Kerr Reservoir. Yanceyville and Milton are the only towns within the subbasin. A map including water quality sampling locations is presented as Figure B-4.

Bioclassifications for sample locations are presented in Table B-8. Use support ratings for each applicable category in this subbasin are summarized in Tables B-9 and B-10. Refer to Appendix III for a complete listing of monitored waters and further information about use support ratings.

Land within this subbasin is mostly low rolling hills, characteristic of the piedmont. Land use is dominated by forest and agricultural activities, although residential development is increasing. The estimated subbasin population, based on the 1990 census, is 27,208. The population of Caswell County is expected to increase six percent from 1998 to 2018. Yanceyville's population has more than doubled over the past ten years and is expected to continue growing.

This subbasin contains three permitted dischargers. The largest facility is Yanceyville's WWTP, which discharges to Country Line Creek. This is also the only facility required to monitor its effluent's toxicity. No significant compliance or toxicity problems were noted during the most recent review period.

Farmer Lake is the only lake routinely monitored in this subbasin. It is a 368-acre water supply reservoir built in 1983 by the Town of Yanceyville and located in the Country Line Creek watershed. All designated uses are currently fully supported in the lake.

During the dry summer of 1999, many streams in this subbasin had little or no visible flow. Country Line Creek was one such stream where no benthic sample could be collected. However, the low flow conditions did make it possible to collect benthic samples for the first time from the Dan River near Milton.

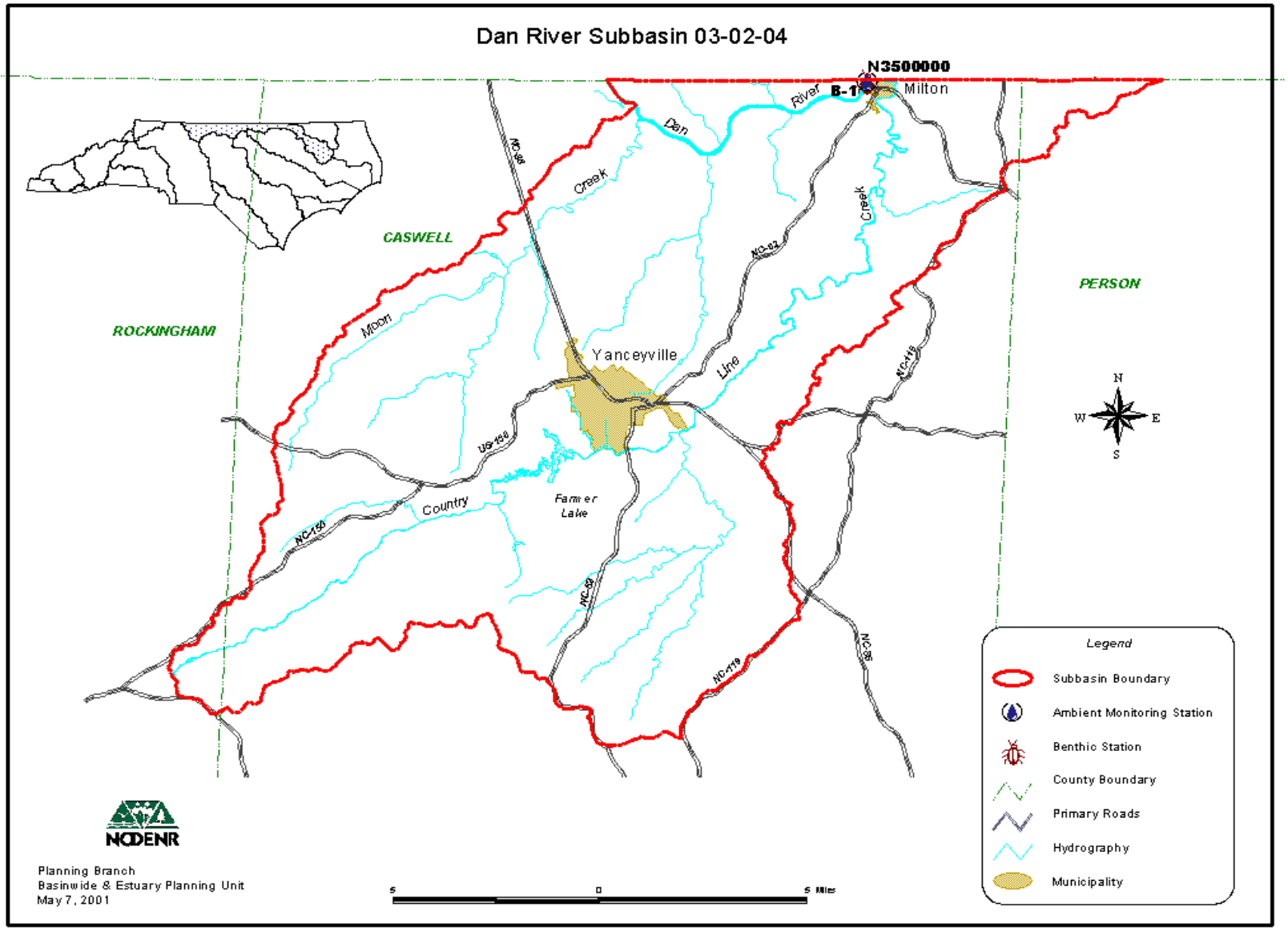

Figure B-4 Sampling Locations within Subbasin 03-02-04

Table B-8 DWQ Monitoring Locations and Benthic Macroinvertebrate Bioclassifications (1999) for Roanoke River Subbasin 03-02-04

Site	Stream	County	Location	Bioclassification
Benthic Macroinvertebrates				
B-1	Dan River	Caswell	NC 57	Good
Ambient Monitoring				
N3500000	Dan River	Caswell	NC/VA state line	N/A

Benthic macroinvertebrate collections in 1999 from the Dan River at Milton produced a Good bioclassification, with few differences between the community observed here and the upstream site near Mayfield (subbasin 03-02-03). Water chemistry is recorded monthly from the Dan River at Milton as well. Good water quality conditions have been recorded at this site with very few violations of water quality standards.

For more detailed information on sampling and assessment of streams in this subbasin, refer to the *Basinwide Assessment Report - Roanoke River Basin* (DENR-DWQ, May 2000), available from DWQ Environmental Sciences Branch at http://www.esb.enr.state.nc.us/bar.html or by calling (919) 733-9960.

Table B-9 Use Support Ratings Summary (1999) for Monitored Lakes (acres) in Roanoke River Subbasin 03-02-04

Use Support Category	FS	PS	NS	NR	Total[1]
Aquatic Life/ Secondary Recreation	368	0	0	0	368
Fish Consumption[3]	0	368	0	0	0
Primary Recreation	0	0	0	0	0
Water Supply	368	0	0	0	368

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

[3] These waters are impaired because of a statewide fish consumption advisory for bowfin. Refer to Section A, Part 4.8.4 for further information. Fish tissue monitoring in the Dan River in Chapter 3 of this section.

Table B-10 Use Support Ratings Summary (1999) for Monitored and Evaluated[2] Freshwater Streams (miles) in Roanoke River Subbasin 03-02-04

Use Support Category	FS	PS	NS	NR	Total[1]
Aquatic Life/ Secondary Recreation	112.0	0	0	39.6	151.6
Fish Consumption[3]	0	7.5	0	0	7.5
Primary Recreation	0	0	0	17.2	17.2
Water Supply	24.5	0	0	0	24.5

[1] Total stream miles 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] For the fish consumption use support category, only monitored stream miles are presented.

[3] These waters are impaired because of a statewide fish consumption advisory for bowfin. Refer to Section A, Part 4.8.4 for further information. Fish tissue monitoring in the Dan River in Chapter 3 of this section.

4.2 Status and Recommendations for Previously Impaired Waters

This section reviews use support and recommendations detailed in the 1996 basinwide plan, reports status of progress, gives recommendations for the next five-year cycle, and outlines current projects aimed at improving water quality for each water. The 1996 Roanoke River Basinwide Plan did not identify any impaired stream segments in this subbasin. However, the plan did mention habitat degradation in the Country Line Creek watershed. Please refer to Part 4.5.1 of this chapter for more detailed information.

4.3 Status and Recommendations for Newly Impaired Waters

No stream segments are rated impaired based on recent DWQ monitoring (1995-1999); however, as mentioned previously, some impacts to water quality were observed. Refer to Part 4.5 of this chapter for further discussion of potential water quality problems.

4.4 Section 303(d) Listed Waters

No waters in this subbasin are listed on the state's year 2000 §303(d) list. Refer to Appendix IV for more information on the state's §303(d) list and listing requirements.

4.5 Other Issues and Recommendations

The surface waters discussed in this section are fully supporting designated uses (or not rated) based on recent DWQ monitoring; however, data revealed some impacts to water quality. Although no action is required for these streams, voluntary implementation of BMPs is encouraged and continued monitoring is recommended. 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. Additionally, education on local water quality

issues is always a useful tool to prevent water quality problems and to promote restoration efforts. Nonpoint source program agency contacts are listed in Appendix VI.

4.5.1 Country Line Creek

The benthic macroinvertebrate community of Country Line Creek was sampled at Milton near the NC/VA state line in 1994. The stream received a bioclassification of Good-Fair, indicating some impacts to water quality were present, but the biological community was not considered impaired. As was mentioned previously in this chapter, the flow was too low in the stream for it to be sampled in 1999; and therefore, the stream is currently not rated. The 1996 basin plan mentioned higher turbidity and nutrient levels in the upstream arm of Farmer Lake near Yanceyville. Additionally, moderate sedimentation and elevated levels of turbidity have been observed by DWQ staff in the stream both above and below Farmer Lake.

Many new homes and subdivisions are being built throughout the upper portion of the watershed, northeast of Greensboro. However, there is still a substantial amount of pastureland in the watershed as well. BMPs should be carefully installed and maintained in this area during construction because of the moderate slopes and high erosion potential of soils in this area. Agricultural BMPs for controlling sediment should also be installed to protect aquatic life in the Country Line Creek watershed. Section A, Chapter 4 discusses habitat degradation, including sedimentation, and provides general recommendations.

Some requirements have been put into place recently by Caswell County, as part of a Water Supply Watershed Ordinance, that will reduce sediment and nutrient inputs and protect the upper portion of Country Line Creek, Hostler Branch and Farmer Lake from further water quality degradation. These measures include: 1) an increase in minimum residential lot sizes within the watershed's Critical Area from one acre to three acres per lot; and 2) a requirement, as a condition to development along Country Line Creek and Hostler Branch, of an 80-foot vegetated buffer.

4.5.2 Dan River

The Virginia Department of Environmental Quality (DEQ) recently issued a health advisory for fish consumption for a 42-mile stretch of the Dan River from Kerr Reservoir at Staunton River State Park to southwestern Halifax County where the river crosses into North Carolina, north of Virginia Route 62. Polychlorinated biphenyls (PCBs) have been detected in seven fish species collected in the South Boston, Virginia area. Flathead and channel catfish were the only species determined to have levels of PCBs in the tissue above 60 parts per billion, the DEQ level of concern. The advisory cautions people to eat no more than two eight-ounce meals a month of flathead and channel catfish taken from the advisory area. Pregnant women and children are advised not to eat any of these fish (VADEQ, March 2001).

DWQ has not analyzed the PCB content of fish tissue in the Dan River in North Carolina. Although data do not indicate a problem in the North Carolina portion of river upstream of Danville, Virginia (refer to Chapter 3 of this section for details), it is likely that the portion of the Dan River contained within this subbasin does contain fish with elevated PCB concentrations.

DWQ is expanding laboratory facilities in order to conduct additional fish tissue analyses in the future.

4.5.3 Projected Population Growth

The population of Caswell County is expected to increase six percent over the next fifteen years. Yanceyville's population has more than doubled over the past ten years and is expected to continue growing. Growth management within the next five years will be imperative in order to maintain good water quality in this subbasin. Growth management can be defined as the application of strategies and practices that help achieve sustainable development in harmony with the conservation of environmental qualities and features of an area. On a local level, growth management often involves planning and development review requirements that are designed to maintain or improve water quality. Refer to Section A, Chapter 4 for more information about urbanization and development and recommendations to minimize impacts to water quality.