

Chapter 12 -

Cape Fear River Subbasin 03-06-12

Includes Rocky River, Bear Creek, Tick Creek and Loves Creek

12.1 Water Quality Overview

Subbasin 03-06-12 at a Glance

Land and Water Area (sq. mi.)

Total area:	244
Land area:	243
Water area:	1

Population Statistics

1990 Est. Pop.:	16,015 people
Pop. Density:	66 persons/mi ²

Land Cover (%)

Forest/Wetland:	68.9
Surface Water:	0.6
Urban:	1.3
Cultivated Crop:	2.5
Pasture/ Managed Herbaceous:	26.8

Use Support Ratings

Freshwater Streams:

Fully Supporting:	99.6 mi.
Partially Supporting:	13.4 mi.
Not Supporting:	0.5 mi.
Not Rated:	52.3 mi.

Lakes:

Rocky River Reservoir - Fully Supporting

This subbasin contains the entire Rocky River watershed and is located mainly in Chatham County. Siler City is the largest community in the subbasin. Streams in this region are rocky streams characterized by very low base flows during summer months. Smaller tributaries often dry up completely during prolonged low flow periods. A map of the subbasin, including water quality sampling locations, is presented in Figure B-12.

Biological ratings for these sample locations are presented in Table B-12. The current sampling resulted in impaired ratings for two streams in this subbasin. Refer to Appendix III for a complete listing of monitored waters and use support ratings. See Section A, Chapter 3, Table A-31 for a summary of lakes and reservoirs use support data.

Land use within this subbasin is primarily forest, although pasture, cultivated crops, and urban and built-up land uses also are significant. Chatham County has the largest number of cattle operations of all counties within the Cape Fear River basin and is second only to Duplin County in the number of poultry operations.

There are 4 permitted NPDES dischargers in the subbasin, and only Siler City WWTP has a permitted flow of 1 MGD or greater.

Benthic macroinvertebrate samples have been collected from three mainstem Rocky River locations in this subbasin. Data collected during recent investigations (1998 and 1997) found Good-Fair bioclassifications at the two most upstream locations. An improvement in water quality was found in the Rocky River at US 64 (Fair in 1993 to Good-Fair in 1998). Long-term improvements were found at this site and at the Rocky River at SR 2170. No change in rating (Good bioclassification) was found at the US 15/501 location, which is near the confluence with the Deep River. Several freshwater mussel species, which are proposed for state protection, have been collected from the Rocky River. A fish community sample also was collected from a headwater reach of the Rocky River above the

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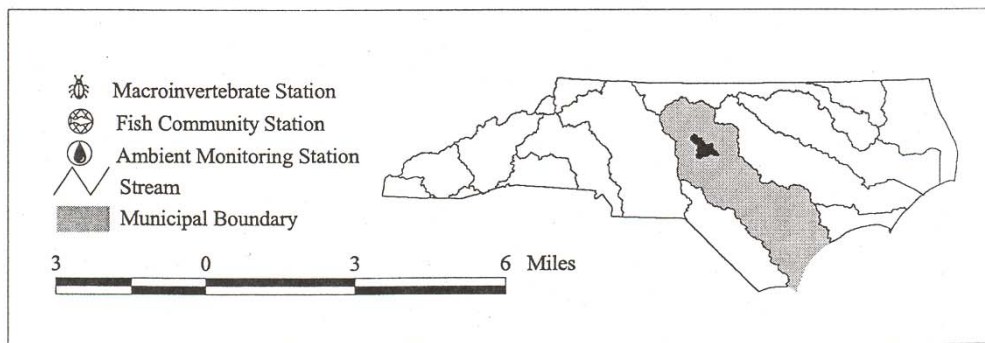


Figure B-12 Sampling Locations within Subbasin 03-06-12

Table B-12 Biological Assessment Sites in Cape Fear River Subbasin 03-06-12

<i>BENTHOS</i>				<i>Bioclassification</i>		
Site #	Stream	County	Location	1993	1998	
B-1	Rocky River	Chatham	US 64	Fair (s)	Good-Fair (s)	
B-2	Rocky River	Chatham	SR 2170	Good-Fair (s)	Good-Fair (s)	
B-4	Rocky River	Chatham	US 15/501	Good (s)	Good (s)	
B-8	Tick Creek	Chatham	SR 2120	no sample	Good-Fair (s)	
B-10	Harlands Creek	Chatham	NC 902	no sample	Good /Good-Fair	
<i>FISH</i>				<i>Bioclassification</i>		
Site #	Stream	County	Location	1994	1998	
F-1	Rocky River	Chatham	SR 1300	no sample	Fair	
F-2	Loves Creek	Chatham	SR 2229	no sample	Good-Fair	
F-3	Tick Creek	Chatham	US 421	Good-Fair	---	
F-4	Bear Creek	Chatham	SR 2187	no sample	Good	
<i>FISH TISSUE</i>				<i>No. Samples Exceeding Criteria</i>		
Station	Description	Year Sampled	Total Samples	Metals	Organics	Comments
FT-1	Rocky River at SR 1300	1998	9	0	0	No samples exceeded criteria

(w) Winter collection, (s) Summer collection

Rocky River Reservoir. A Fair score was given to this location, possibly reflecting the effects of nonpoint source runoff and enrichment.

Benthic macroinvertebrate samples were collected from two tributaries during basinwide surveys in this subbasin. Good-Fair ratings were found at two sites on Tick Creek (a winter survey at US 421 and a summer survey at SR 2120). Although a Poor bioclassification was given to the US 421 site in 1993, a 5-year trend in these data is difficult to determine. Field notes from the 1993 survey indicated that streamflow was reduced, likely affecting benthic macroinvertebrate community structure rather than water quality. An improvement in bioclassification was seen at Harlands Creek since 1990, although the difference between surveys was minimal. In addition to benthic macroinvertebrate data, fish community samples also were collected from two tributary locations in this subbasin.

For more detailed information on water quality in this subbasin, refer to *Basinwide Assessment Report – Cape Fear River Basin – June 1999*, available from DWQ Environmental Sciences Branch at (919) 733-9960.

12.2 Impaired Waters

Portions of Loves Creek, Rocky River and Bear Creek were identified as impaired in the 1996 Cape Fear River Basinwide Water Quality Plan. Portions of Loves Creek and Rocky River are currently rated as impaired according to recent DWQ monitoring. Current status of each of these

streams is discussed below. Prior recommendations, future recommendations and projects aimed at improving water quality for these waters are also discussed when applicable. 303(d) listed waters are summarized in Part 12.3 and waters with other issues, recommendations or projects are discussed in Part 12.4.

Loves Creek

1996 Recommendations

Loves Creek (6.4 miles from source to Rocky River) was rated partially supporting (PS) above the Siler City WWTP and not supporting (NS) below the WWTP. Continued monitoring of Loves Creek was recommended to assess upgrades to the Siler City WWTP.

Current Status

Loves Creek was monitored in 1997, but there were no changes in bioclassifications. Loves Creek (2.8 miles from US 421 to Siler City WWTP) is partially supporting (PS), and the 0.5-mile segment below the Siler City WWTP is not supporting (NS) according to recent DWQ monitoring because of an impaired biological community. The upper segment of Loves Creek is currently not rated (NR). Pollutants associated with Siler City urban nonpoint sources and the WWTP discharge are possible causes of impairment. There are also indications of nutrient enrichment in the lower segment. This stream is on the state's year 2000 303(d) list (not yet EPA approved).

2000 Recommendations

Local initiatives are needed to address urban runoff to Loves Creek. DWQ encourages Siler City to develop a stormwater program to reduce impacts to urban streams. Siler City WWTP is currently in compliance with permitted limits (6 mg/l BOD₅ and 2 mg/l NH₃-N). The 303(d) list approach for the lower portions of Loves Creek will be to resample for biological and chemical data to attempt to determine potential problem parameters. The 303(d) list approach for the upper portion will be to resample the stream to obtain updated use support information.

Rocky River

1996 Recommendations

Rocky River (4.2 miles from dam at Siler City water supply to US 64) was partially supporting (PS) in the 1996 plan. Follow-up studies were recommended to assess implementation of minimum releases from the Siler City water supply.

Current Status

Recent sampling indicated a slight improvement in water quality that may be attributed to increased flow permanence in this segment. (See Section A, Table A-19 for information on minimum flow studies on the Rocky River.) Also, upgrades in treatment and increased flow

from the Siler City WWTP (Loves Creek) contributed to improved water quality in downstream segments of the Rocky River. This Rocky River segment is currently fully supporting (FS).

The Rocky River (10.6 miles from source to Rocky River Reservoir) is partially supporting (PS) according to recent DWQ monitoring because of an impaired biological community. Instream habitat degradation associated with agricultural nonpoint sources is a possible cause of impairment. The Rocky River has a narrow riparian area, and cattle have access to the stream. There are also indications of nutrient enrichment in this stream. This stream is on the state's year 2000 303(d) list (not yet EPA approved).

2000 Recommendations

DWQ encourages the use of agricultural BMPs (including fencing cattle out of stream) to reduce nutrient delivery and streambank erosion. The 303(d) list approach for this portion of the Rocky River will be to resample for biological and chemical data to attempt to determine potential problem parameters.

Bear Creek

Current Status

Bear Creek (14.9 miles) was partially supporting (PS) in the 1996 plan. This stream is currently not rated (NR). Using new biological information, DWQ has determined that the previous rating was inappropriate because of the small size of the stream. This stream is no longer on the 303(d) list.

12.3 303(d) Listed Waters

There are two streams (17 stream miles) in the subbasin that are impaired and on the state's year 2000 303(d) list (not yet EPA approved). The Rocky River and Loves Creek are discussed above. For information on 303(d) listing requirements and approaches, refer to Appendix IV.

12.4 Other Issues, Recommendations and Projects

The following surface water segments are rated as fully supporting using recent DWQ monitoring data. However, these data revealed some impacts to water quality. Although no action is required for these surface waters, continued monitoring is recommended. Enforcement of sediment and erosion control laws will help to reduce impacts on these streams and lakes. DWQ encourages the use of voluntary measures to prevent water quality degradation. Education on local water quality issues is always a useful tool to prevent water quality problems and to promote restoration efforts. For information on water quality education programs, workshops and nonpoint source agency contacts, see Appendix V.

Approximately 1% of the waters in this subbasin are impaired by nonpoint source pollution (mostly urban). All the waters of the subbasin are affected by nonpoint sources. DENR, other state agencies and environmental groups have programs and initiatives underway to address

water quality problems associated with nonpoint sources. DWQ will notify local agencies of water quality concerns in this subbasin and work with these various agencies to conduct further monitoring, as well as assist agency personnel with locating sources of funding for water quality protection.

Tick Creek and Harlands Creek are in agricultural areas, and streams in these watersheds are subject to erosion and habit degradation from cattle entering streams. Implementation of agricultural BMPs would reduce potential adverse impacts to these streams.

The Rocky River receives water from agricultural watersheds as well as urban runoff and WWTP discharge water from Loves Creek. Addressing problems on Loves Creek and implementation of urban and agricultural BMPs should reduce the potential for adverse impacts in the Rocky River.

Upper Cape Fear River Basin Association

The Upper Cape Fear River Basin Association (UCFRBA) is starting to sample 45 sites in the upper Deep and Haw River watersheds. The data will be analyzed to support various studies and will be used with DWQ data to develop use support ratings for waters in the Cape Fear River basin during the upcoming basinwide cycle.

Regionalization Efforts

It was recommended that the Pittsboro and Siler City WWTPs encourage the many small single family discharges to connect to these facilities in order to reduce the number of discharges to zero flow streams in the subbasin.

The extent of regionalization of wastewater from small discharges is unknown. DWQ continues to encourage efforts to regionalize wastewater treatment, but because of insufficient staffing, more regionalization of wastewater treatment has not been pursued.