

Chapter 9 -

Cape Fear River Subbasin 03-06-09

Includes the Deep River, Polecat Creek and Sandy Creek

9.1 Water Quality Overview

Subbasin 03-06-09 at a Glance

Land and Water Area (sq. mi.)

Total area:	446
Land area:	445
Water area:	1

Population Statistics

1990 Est. Pop.:	55,755 people
Pop. Density:	125 persons/mi ²

Land Cover (%)

Forest/Wetland:	68.7
Surface Water:	0.6
Urban:	1.1
Cultivated Crop:	2.8
Pasture/ Managed Herbaceous:	26.9

Use Support Ratings

Freshwater Streams:

Fully Supporting:	266.2 mi.
Partially Supporting:	0.0 mi.
Not Supporting:	7.2 mi.
Not Rated:	37.1 mi.

Lakes:

Sandy Creek Reservoir -	Fully Supporting
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This subbasin contains approximately 25 miles of the Deep River from Randleman to the Randolph/Moore County line. A map of the subbasin, including water quality sampling locations, is presented in Figure B-9.

Biological ratings for these sample locations are presented in Table B-9. The current sampling resulted in impaired ratings for one stream 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.

Much of the land use within this subbasin is forest, although pasture, cultivated crops, and urban and built-up land uses also account for significant portions of the subbasin. Randolph County has large numbers of registered livestock and animal operations, particularly cattle and poultry operations.

There are 14 permitted discharge facilities in the subbasin. Asheboro WWTP is the largest; the remaining discharges have permitted flows less than 1 MGD.

Water quality data from the Deep River ambient monitoring stations generally suggest water quality problems. For example, median conductivity concentrations are in excess of 200 $\mu\text{mhos/cm}$ at each location in this subbasin. Higher median nutrient concentrations and fecal coliform levels are typically

found at the Worthville location. These values decline progressively downstream, suggesting recovery at downstream locations.

Benthic macroinvertebrate data from the Deep River near Ramseur show long-term improvements in water quality (since 1985 and 1986 surveys), although no 5-year change in bioclassification was seen during basinwide surveys between 1993 and 1998. Four other Deep River locations were sampled in this subbasin as part of intensive investigations of this river. The results of these investigations have generally indicated long-term improvements in water quality. Benthic macroinvertebrate data from the most downstream location in Moore County

Cape Fear River 030609

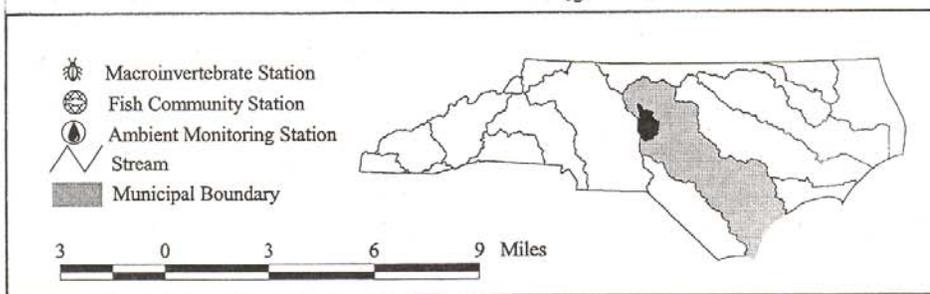
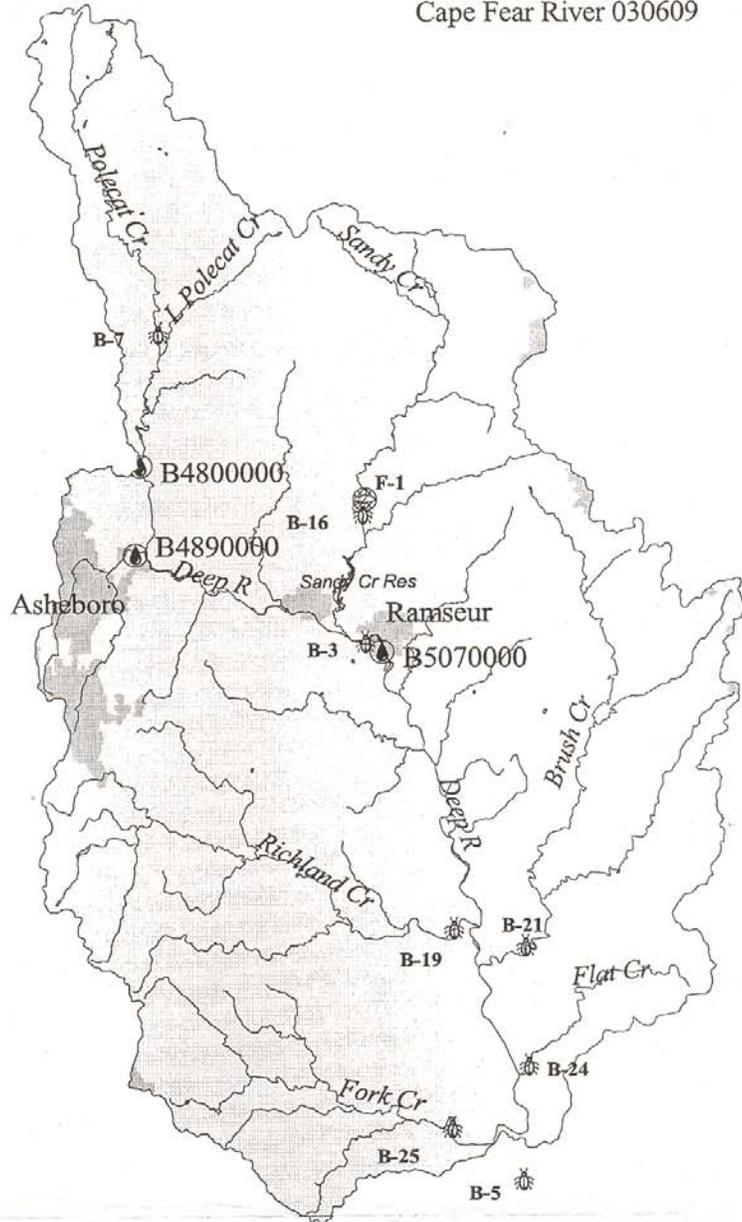


Figure B-9 Sampling Locations within Subbasin 03-06-09

Table B-9 Biological Assessment Sites in Cape Fear River Subbasin 03-06-09

BENTHOS				Bioclassification	
Site #	Stream	County	Location	1993	1998
B-3	Deep River	Randolph	SR 2615	Good-Fair (s)	Good-Fair (s)
B-5	Deep River	Moore	SR 1461	Excellent (s)	Excellent (s)
B-7	Polecat Creek	Randolph	SR 2113	Good (w)	Good (w)
B-10	L. Polecat Creek	Randolph	SR 2108	Not Rated	Not Rated
B-16	Sandy Creek	Randolph	SR 2481	Good (w & s)	Excellent (s)
B-19	Richland Creek	Randolph	SR 2873	Good (s)	Excellent (s)
B-21	Brush Creek	Randolph	NC 22	Good (w)	Good (s)
B-24	Flat Creek	Randolph	SR 2886	Fair (w)	Good-Fair (w)
B-25	Fork Creek	Randolph	SR 2873	Good (w)	Good (w)

FISH				Bioclassification	
Site #	Stream	County	Location	1994	1998
F-1	Sandy Creek	Randolph	SR 2481	Good-Fair	Good-Fair

FISH TISSUE				No. Samples Exceeding Criteria		
Station	Description	Year Sampled	Total Samples	Metals	Organics	Comments
FT-1	Deep River at Franklinville	1998	15	0	0	EPA mercury limit exceeded in 1 bass sample

have consistently indicated an Excellent bioclassification, suggesting that the Deep River at this point has recovered from upstream impacts.

Benthic macroinvertebrate data from tributary streams in this subbasin found improvements at 3 of the 6 sites sampled during 1998. Two of these locations improved from Good to Excellent (Sandy and Richland Creeks).

Fish tissue samples were collected from the Deep River at Franklinville in 1998 above the WWTP. Franklinville is located above the Ramseur ambient monitoring location. Fifteen specimens were analyzed for metal contamination and, in addition, two largemouth bass were analyzed for chlorinated pesticides and PCBs. These data found that no FDA or EPA criteria were exceeded.

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.

9.2 Impaired Waters

Portions of Flat Creek, Hasketts Creek and an unnamed tributary to Polecat Creek were identified as impaired in the 1996 Cape Fear River Basinwide Water Quality Plan. Portions of Hasketts Creek 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 9.3 and waters with other issues, recommendations or projects are discussed in Part 9.4.

Flat Creek

Current Status

Flat Creek (9.5 miles) was partially supporting (PS) in the 1996 plan. Flat Creek (9.5 miles) is currently fully supporting (FS) according to recent DWQ monitoring. However, this stream is in a watershed with primarily agricultural land uses and may be subject to further degradation. The land in this watershed is subject to erosion that can cause instream habitat degradation. Implementation of agricultural BMPs is encouraged to reduce potential impacts. This stream is no longer on the 303(d) list.

Hasketts Creek

Current Status

Hasketts Creek (7.2 miles source to Deep River) was partially supporting (PS) in the 1996 plan. This stream is currently not supporting (NS) according to recent DWQ monitoring because of an impaired biological community. Runoff associated with the Town of Asheboro is a possible cause of impairment. Hasketts Creek is on the state's year 2000 303(d) list (not yet EPA approved).

2000 Recommendations

The Town of Asheboro will be required to address stormwater issues as part of Phase II of the NPDES stormwater program. NPDES stormwater permit applications must be received by DWQ by March 1, 2003 (see Section A, Chapter 4, Part 4.7.1). The 303(d) list approach will be to resample for biological and chemical data to attempt to determine potential problem parameters.

UT to Polecat Creek (Unnamed tributary at Cone Mills Club)

UT to Polecat Creek (1.4 miles) was not supporting (NS) in the 1996 plan. The stream had very low flow during recent monitoring and could not be sampled. New biological information 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.

9.3 303(d) listed Waters

Hasketts Creek (7.2 stream miles) is on the state's year 2000 303(d) list (not yet EPA approved) and is discussed above. For information on 303(d) listing requirements and approaches, refer to Appendix IV.

9.4 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 3% 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.

The Deep River in this subbasin is downstream of impaired segments and may be affected by urban runoff that has the potential to degrade water quality and instream habitat. Fecal coliform bacteria, turbidity and nutrients are also noted as potential problem parameters. Addressing problems upstream would benefit water quality in this segment of the Deep River.

Sandy Creek Reservoir is the water supply for the Town of Ramseur. The watershed is moderately developed, and land use is mostly characterized by forested and agricultural areas as well as urban development. There is frequently a problem with taste and odor associated with water drawn from Sandy Creek Reservoir. Algae and manganese are believed to be the source of these problems.

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.

General Recommendations for the Deep River Point Source Discharges

1996 Recommendations

This segment of the Deep River was not identified as impaired in the 1996 plan. Because of low dissolved oxygen (DO) behind dams downstream of High Point in the Deep River, the following limits were recommended for facilities between High Point Lake and the Carbondon dam:

New and expanding discharges ≥ 1 MGD: BOD₅ = 5 mg/l, NH₃-N = 2mg/l, TP = 1mg/l

New and expanding discharges < 1 MGD: BOD₅ = 15 mg/l, NH₃-N = 4 mg/l

New and expanding discharges < 1 MGD and ≥ 0.5 MGD: TP = 2mg/l

For smaller (< 1 MGD) new and expanding discharges, regionalization of wastewater treatment was encouraged. If connection to a regional WWTP was not possible, an alternatives analysis was to be completed to determine if alternatives other than surface discharge were feasible.

Current Status

The Asheboro WWTP has expanded capacity (6 MGD to 9 MGD) and is currently in compliance. There are ongoing efforts to regionalize wastewater treatment in this subbasin. There are four small dams on the Deep River in this subbasin. The dams slow flow in the river and increase the potential for algal blooms to occur.

2000 Recommendations

Efforts to regionalize wastewater treatment in this subbasin should continue. Water quality behind the dams will continue to be monitored to assess impacts from upstream point and nonpoint sources. Increases in discharges of nutrients from point sources and increases in nutrients associated with development and agriculture should be carefully considered in light of past algal blooms in impoundments on the Deep River. Limits from the 1996 plan will continue to be recommended with the exception that new and expanding discharges ≥ 1 MGD will be given limits of BOD₅ = 5 mg/l and NH₃-N = 1mg/l. This is now considered BAT in North Carolina for this discharge category. Recommended limits for other facilities are as follows:

New and expanding discharges ≥ 1 MGD: BOD₅ = 5 mg/l, NH₃-N = 1mg/l, TP = 1mg/l

New and expanding discharges < 1 MGD: BOD₅ = 15 mg/l, NH₃-N = 4 mg/l

New and expanding discharges < 1 MGD and ≥ 0.5 MGD: TP = 2mg/l

Sandy Creek

Ramseur is purchasing conservation easements on riparian corridors of Sandy Creek Reservoir to protect water quality. The town also received grant money to rehabilitate an existing sewer line. Refer to Section C, Chapter 1, Part 1.5.2 for more information on these projects.