

Chapter 22 -

Cape Fear River Subbasin 03-06-22

Includes the Northeast Cape Fear River and Rockfish Creek

22.1 Water Quality Overview

Subbasin 03-06-22 at a Glance

Land and Water Area (sq. mi.)

Total area:	829
Land area:	828
Water area:	1

Population Statistics

1990 Est. Pop.:	39,144 people
Pop. Density:	47 persons/mi ²

Land Cover (%)

Forest/Wetland:	58.6
Surface Water:	0.3
Urban:	1.3
Cultivated Crop:	30.3
Pasture/ Managed Herbaceous:	9.6

Use Support Ratings

Freshwater Streams:

Fully Supporting:	283.3 mi.
Partially Supporting:	22.7 mi.
Not Supporting:	0.0 mi.
Not Rated:	208.2 mi.

This subbasin contains a large portion of the Northeast Cape Fear River and its tributaries in Duplin County. Most of the watershed is agricultural, including both row crops and a dense concentration of animal operations (poultry and swine). The towns of Beulaville, Kenansville, Rose Hill and Wallace are within this subbasin. The largest discharger is Stevecoknit Fabrics. Other large dischargers include Guilford Mills, Swift-Eckrich/Butterball and the Town of Wallace. The last two facilities discharge to Rockfish Creek. A map of the subbasin, including water quality sampling locations, is presented in Figure B-22.

Biological ratings for these sample locations are presented in Table B-22. 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.

Analysis of the sample data was complicated by the de-snagging of streams after Hurricane Fran as part of the Emergency Watershed Protection Program. Many streams were totally de-snagged, removing nearly all of the valuable snag habitat available for macroinvertebrate colonization. This makes it difficult to determine whether

any changes that may have occurred in the macroinvertebrate community were due to changes in water quality or lack of suitable habitat (see Section A, Chapter 4, Part 4.11).

Benthos data indicated Good to Good-Fair water quality in the Northeast Cape Fear River. The section of the river between Muddy Creek and Rockfish Creek has been classified as High Quality Waters. The site at NC 41 was sampled after Hurricane Bonnie in September 1998. Sampling showed the hurricane had measurable impacts on the river. Water quality in the uppermost reach of the Northeast Cape Fear River has decreased from Excellent to Good-Fair since 1993. Most of the tributaries (Limestone Creek, Stockinghead Creek and Rockfish Creek) are rated Fair or Good-Fair, usually due to nonpoint sources of pollution.

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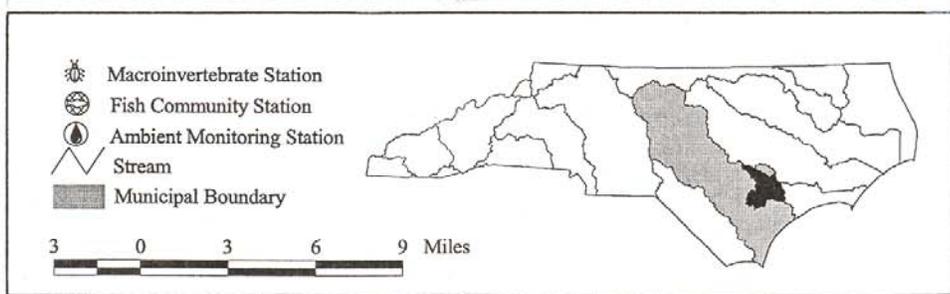
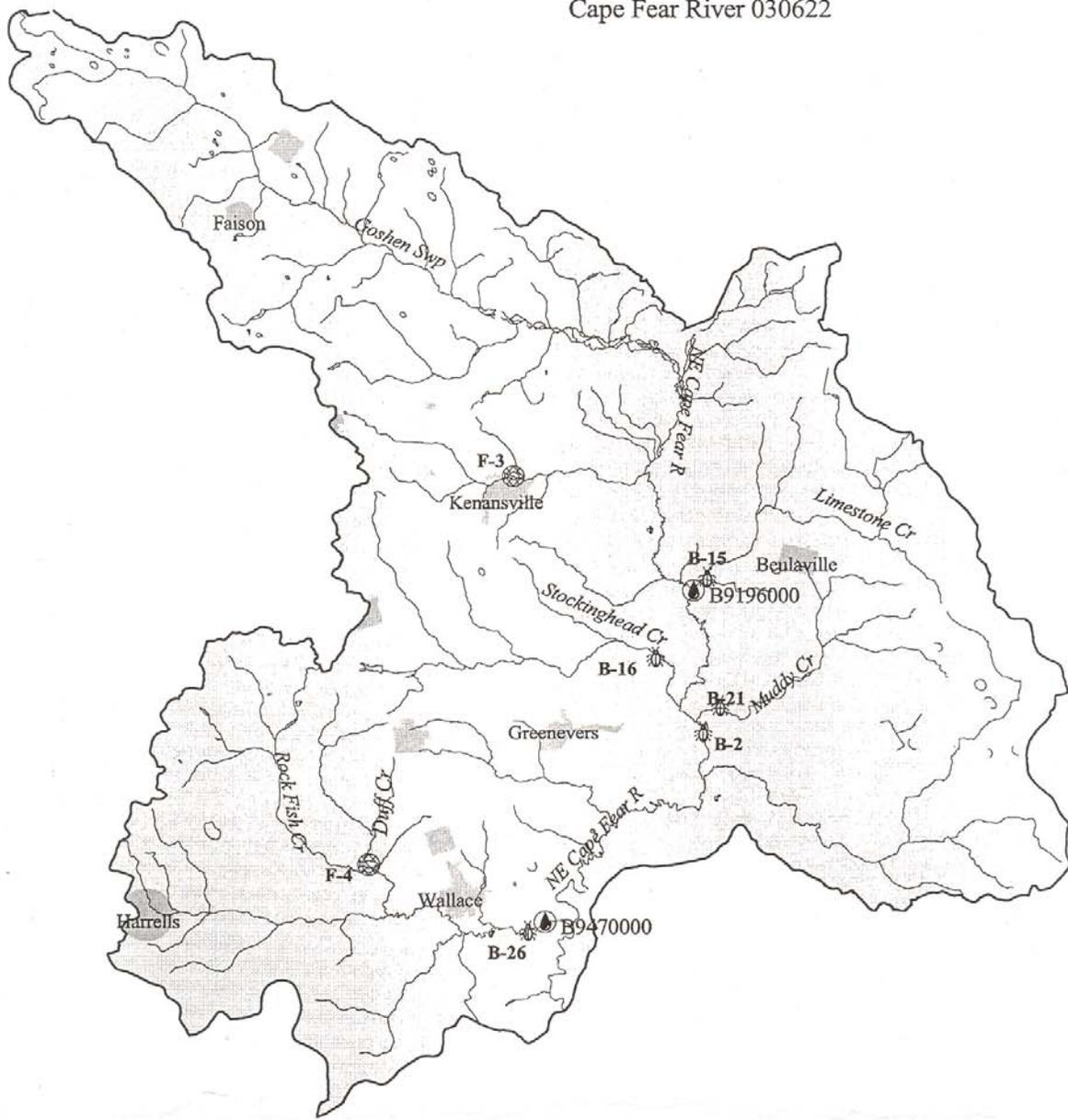


Figure B-22 Sampling Locations within Subbasin 03-06-22

Table B-22 Biological Assessment Sites in Cape Fear River Subbasin 03-06-22

BENTHOS				Bioclassification		
Site #	Stream	County	Location	1993	1998	
B-1	NE Cape Fear River	Duplin	NC 11/903	Excellent	Good-Fair	
B-2	NE Cape Fear River	Duplin	NC 41	Good	Good	
B-15	Limestone Creek	Duplin	SR 1702	Excellent	Good-Fair	
B-16	Stockinghead Creek	Duplin	SR 1953	Good-Fair	Good-Fair	
B-21	Muddy Creek	Duplin	NC 41	Not Rated	Fair	
B-25	Rockfish Creek	Duplin	SR 1165	Good-Fair	Fair	
B-26	Rockfish Creek	Duplin	I-40	Fair	Good-Fair	
FISH				Bioclassification		
Site #	Stream	County	Location	1993/1994	1998	
F-3	Grove Creek	Duplin	NC 11/903	Good	Good-Fair	
F-4	Duff Creek	Duplin	SR 1170	---	Good	
FISH TISSUE				No. Samples Exceeding Criteria		
Station	Description	Year Sampled	Total Samples	Metals	Organics	Comments
FT-1	Northeast Cape Fear River at NC 24	1994	26	9	0	EPA mercury limit exceeded in 9 samples; FDA/NC mercury limit exceeded in 3 samples

The fish community was evaluated at Grove Creek and Duff Creek. Fish tissue samples were collected from the Northeast Cape Fear River at NC 24. Nine of the 26 samples analyzed contained mercury at a level exceeding EPA limits. Three samples also contained mercury exceeding the FDA/NC limit.

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.

22.2 Impaired Waters

Portions of Goshen Swamp, Panther Creek, Herrings Marsh Run, Limestone Creek, Persimmon Branch and Rock Fish Creek were identified as impaired in the 1996 Cape Fear River Basinwide Water Quality Plan. Portions of Rock Fish Creek and Muddy 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 22.3 and waters with other issues, recommendations or projects are discussed in Part 22.4.

Goshen Swamp and Panther Creek

Current Status

Goshen Swamp and Panther Creek were not supporting (NS) in the 1996 plan because of a high chloride discharge from Dean Pickle and Specialty Products, which discharges into an unnamed low flow (zero 7Q10) tributary of Panther Creek before flowing into Goshen Swamp. Dean Pickle and Specialty Products was given a variance from the state surface water quality standard for chloride (230 mg/l) in 1996. The company has met the requirements of the variance to date. Goshen Swamp and Panther Creek were not sampled during recent DWQ monitoring because of low flow conditions. These two streams are currently not rated (NR). Because Dean Pickle and Specialty Products has a variance from the chloride standard and is working toward reducing the impacts of the discharge, Goshen Swamp and Panther Branch will not be on the state's year 2000 303(d) list (not yet EPA approved). For more information on the variance, refer to the EMC *Report of Proceedings on the Proposed Changes to the Surface Water Quality Standards and Classifications Rules for the Triennial Review- December 9, 1999*.

2000 Recommendations

DWQ will continue to monitor the discharge to further assess the extent and severity of the impacts to water quality in the receiving stream.

Herrings Marsh Run

Current Status

Herrings Marsh Run (1.8 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.

Limestone Creek

Current Status

Limestone Creek (7.5 miles) was partially supporting (PS) in the 1996 plan. Using new biological information, DWQ has determined that the previous rating was inappropriate. This stream is currently fully supporting (FS) according to recent DWQ monitoring and is no longer on the 303(d) list.

Persimmon Branch

Current Status

Persimmon Branch (2.3 miles) was not supporting (NS) and partially supporting (PS) in the lower segment in the 1996 plan. This stream is currently not rated (NR). Using new biological

information, DWQ has determined that the previous rating was inappropriate. This stream is no longer on the 303(d) list.

Rock Fish Creek

Current Status

Rock Fish Creek (7.2 miles from SR 1165 to Northeast Cape Fear River) was partially supporting (PS) in the 1996 plan. Currently, 8.7 miles (from Swift-Eckrich to Little Rockfish Creek) are partially supporting (PS) according to recent DWQ monitoring because of instream habitat degradation. The 3.8-mile segment from Little Rock Fish Creek to the Northeast Cape Fear River is currently fully supporting (FS). De-snagging operations after Hurricane Fran removed important habitat for macroinvertebrates and fish in these waters. Discharges from Swift-Eckrich may also contribute to the habitat degradation. These waters are on the state's year 2000 303(d) list (not yet EPA approved).

2000 Recommendations

It is recommended that monitoring of Rock Fish Creek be continued to assess recovery from hurricane impacts. For recommendations regarding de-snagging operations, see Section A, Chapter 4, Part 4.11. The 303(d) list approach will be to resample for biological and chemical data to attempt to determine potential problem parameters.

Muddy Creek

Current Status

Muddy Creek (14.0 miles from source to Northeast Cape Fear River) was not rated in 1993 because of its small size. The stream is significantly larger due to changes associated with Hurricane Fran in 1996. The stream is partially supporting (PS) according to recent DWQ monitoring due to nonpoint sources. The watershed contains many hog operations. This stream is on the state's year 2000 303(d) list (not yet EPA approved).

2000 Recommendations

Further monitoring is recommended to determine the nature of the nonpoint source pollution. The 303(d) list approach will be to resample for biological and chemical data to attempt to determine potential problem parameters.

22.3 303(d) Listed Waters

There are two streams (22.7 stream miles) in the subbasin that are impaired and on the state's year 2000 303(d) list (not yet EPA approved). Muddy Creek and Rock Fish Creek are discussed above. For information on 303(d) listing requirements and approaches, refer to Appendix IV.

22.4 Other Issues, Recommendations and Projects

The following surface waters are 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.

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.

Portions of the Northeast Cape Fear River, Limestone Creek and Rock Fish Creek were impacted during Hurricane Fran in 1996. These streams were also subject to massive de-snagging operations after the storm (see Section A, Chapter 4, Part 4.11). Because this region is regularly impacted by hurricanes and tropical storms, it is recommended that further monitoring be conducted to evaluate the post-hurricane recovery of macroinvertebrates. Monitoring is needed to determine the impacts of de-snagging operations that remove the most important habitat in these systems.

The Lower Cape Fear River Program

The Lower Cape Fear River Program maintains six sampling stations in this subbasin that are used along with DWQ ambient data to make use support determinations in this subbasin. Refer to Section C, Part 1.4.5 for more information on the program and the UNCW Center for Marine Sciences.

Mercury Advisories

DWQ sampling in 1994 and 1998 noted mercury in fish tissue at levels greater than EPA limits and FDA/NC limits. Mercury in fish tissue is not exclusive to the Cape Fear River basin. In recent years, elevated levels of mercury in some fish species have been noted in other coastal areas. This issue is discussed further in Section A, Chapter 4, Part 4.8.4.

1999 Hurricanes

In September and October 1999, three hurricanes made landfall near the mouth of the Cape Fear River. Although streams throughout the basin were impacted, the streams in the lower Cape Fear River subbasins were severely impacted. The extent of water quality problems and recovery of ecosystems in this subbasin will not be known for some time. Refer to Section A, Chapter 4, Part 4.11 for more information.

Northeast Cape Fear River Riparian Buffer Protection

The Wildlife Resource Commission was awarded funding to establish 46,000 linear feet of buffers along the Northeast Cape Fear River. Refer to Section C, Chapter 1, Part 1.5.6 for information on this project.