

Chapter 21

Cape Fear River Subbasin 03-06-21

Including: Northeast Cape Fear River and Matthews Creek

21.1 Subbasin Overview

Subbasin 03-06-21 at a Glance

Land and Water Area

Total area:	119 mi ²
Land area:	119 mi ²
Water area:	0 mi ²

Population Statistics

2000 Est. Pop.:	13,472 people
Pop. Density:	113 persons/mi ²

Land Cover (percent)

Forest/Wetland:	46.5%
Surface Water:	0.2%
Urban:	0.8%
Cultivated Crop:	45.2%
Pasture/Managed Herbaceous:	7.3%

Counties

Duplin, Lenoir and Wayne

Municipalities

Mount Olive

Subbasin 03-06-21 is in the coastal plain and contains the headwaters of the Northeast Cape Fear River. Most of the watershed is forested and in agriculture. Population is expected to grow by 32,000 people in counties with portions or all of their areas in this subbasin by 2020.

There are six individual NPDES wastewater discharge permits in this subbasin with a permitted flow of 1.4 MGD (Figure 24). The largest is Mount Olive WWTP (1 MGD). Refer to Appendix VI and Chapter 30 for more information on NPDES permit holders. Issues related to compliance with NPDES permit conditions are discussed below in Section 21.3 for Impaired waters.

There are 75 registered swine operation in this subbasin.

Data were collected from four ambient monitoring stations including two DWQ ambient stations, one LCFRP (Appendix V) station and one shared station (Figure 24 and Table 24). Refer to the *2003 Cape Fear River Basinwide Assessment Report* at <http://www.esb.enr.state.nc.us/bar.html> and Appendix IV for more information on monitoring.

Waters in the following sections are identified by assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, 303(d) Impaired waters list and the various tables in this basin plan. The assessment unit number is a subset of the DWQ index number (classification identification number). A letter attached to the end of the AU# indicates that the assessment is smaller than the DWQ index segment. No letter indicates that the assessment unit and the DWQ index segment are the same.

21.2 Use Support Assessment Summary

Use support ratings were assigned for waters in subbasin 03-06-21 in the aquatic life, recreation, fish consumption and water supply categories. All waters are Impaired on an evaluated basis in the fish consumption category because of fish consumption advice that applies to the entire basin. In the water supply category, all waters are Supporting on an evaluated basis based on

Figure 24 Cape Fear River Subbasin 03-06-21

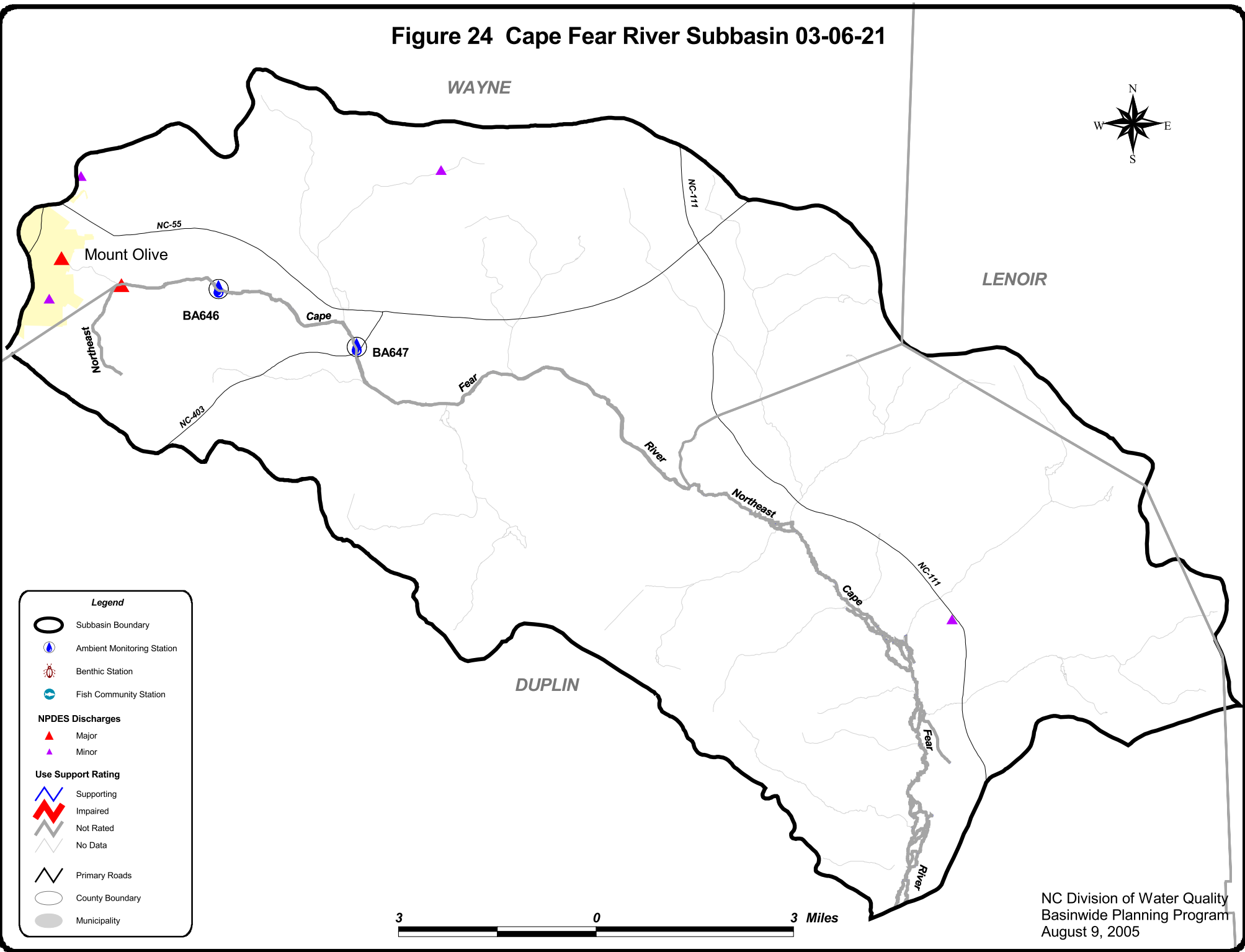


Table 24 CAPE FEAR Subbasin 03-06-21

AU Number	Classification	Length/Area		Aquatic Life Assessment					Recreation Assessment						
				AL Rating	Station	Result	Year/ Parameter	% Exc	REC Rating	Station	Result	Stressors	Sources		
Northeast Cape Fear River															
18-74-(1)a	C Sw	3.4	FW Miles	NR	BA646	NCE	Chloride	51.4	ND			Chloride	WWTP NPDES		
					BA646	NCE	Low DO	44.9						Low Dissolved Oxygen	Unknown
From source to SR 1558															
18-74-(1)b	C Sw	2.7	FW Miles	NR	BA646	NCE	Chloride	51.4	S			Chloride	WWTP NPDES		
					BA646	NCE	Low DO	44.9						Low Dissolved Oxygen	Unknown
					BA647	NCE	Low DO	57.3							
From SR 1558 to NC 403															
18-74-(1)c1	C Sw	32.9	FW Miles	NR	BA658	NCE	Low DO	12.5	S	BA658	NCE	Low Dissolved Oxygen	Unknown		
From NC 403 to Subbasin 03-06-21 and 03-06-22 boundary															
18-74-(1)c3	C Sw	21.7	FW Miles	S	BA661	NCE			S						
From Persimmon Branch to Muddy Creek															

AL - Aquatic Life	BF - Fish Community Survey	E - Excellent	S - Supporting	I - Impaired
REC - Recreation	BB - Benthic Community Survey	G - Good	NR - Not Rated	
	BA - Ambient Monitoring Site	GF - Good-Fair	NR* - Not Rated for Recreation (screening criteria exceeded)	
	BL - Lake Monitoring	F - Fair	ND - No Data Collected to make assessment	
	S - DEH RECMON	P - Poor	Results	
	Miles/Acres	NI - Not Impaired	CE - Criteria Exceeded > 10% and more than 10 samples	
	FW - Fresh Water	S - Severe Stress	NCE - No Criteria Exceeded	
	S - Salt Water	M - Moderate Stress		
		N - Natural		

Aquatic Life Rating Summary

S	m	21.7	FW Miles
NR	m	38.9	FW Miles
ND		84.7	FW Miles

Recreation Rating Summary

S	m	57.3	FW Miles
ND		88.1	FW Miles

Fish Consumption Rating Summary

I	e	145.4	FW Miles
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reports from DEH regional water treatment plant consultants. Refer to Appendix X for a complete list of monitored waters and more information on Supporting monitored waters.

There were 60.6 stream miles (41.7 percent) monitored during this assessment period in the aquatic life category. There were no Impaired stream miles identified as Impaired in this category.

21.3 Status and Recommendations of Previously and Newly Impaired Waters

The following waters were either identified as Impaired in the previous basin plan (2000) or are newly Impaired based on recent data. If previously identified as Impaired, the water will either remain on the state's 303(d) list or will be delisted based on recent data showing water quality improvements. If the water is newly Impaired, it will likely be placed on the 2006 303(d) list. The current status and recommendations for addressing these waters are presented below, and each is identified by an assessment unit number (AU#). Refer to the overview for more information on AUs. Information regarding 303(d) listing and reporting methodology is presented in Appendix VII.

21.3.1 Northeast Cape Fear River [AU# 18-74-(1)a, b and c1]

2000 Recommendations

The 2000 basinwide plan recommended that the Northeast Cape Fear River ambient monitoring station be relocated at SR 1937 to better evaluate impacts of the Mount Olive Pickle Company discharge into Barlow Branch as efforts to reduce chloride levels continue.

Current Status

Northeast Cape Fear River [18-74-(1)a and b] from source to NC 403 (6.1 miles) is Not Rated for aquatic life because dissolved oxygen was below 4 mg/l in 45 and 57 percent of samples collected at sites BA646 and BA647. Northeast Cape Fear River is classified as C Sw, which acknowledges natural characteristics of swamps such as low dissolved oxygen. Chlorides also exceeded the action level in 51 percent of samples at site BA646 (at SR 1937). This site was established to better monitor the Mount Olive Pickle Company discharge. This is similar to chloride exceedances measured from 1993 to 1996. Mount Olive Pickle Company has had a variance to discharge chlorides above permitted levels since 1996. No data were collected in Barlow Branch that could be assessed to assign a use support rating.

The Town of Mount Olive received \$3 million to rehabilitate the collection system and WWTP, which discharges into an unnamed tributary to Northeast Cape Fear River.

2005 Recommendations

DWQ will continue to monitor the Northeast Cape Fear River watershed. Mount Olive Pickle will be required to continue efforts to reduce the discharge of chlorides and to monitor instream chloride levels.