

Chapter 14

Cape Fear River Subbasin 03-06-14

Including: Lower Little River, Nicks Creek, Juniper Creek, Anderson Creek and Crane Creek

14.1 Subbasin Overview

Subbasin 03-06-14 at a Glance

Land and Water Area

Total area:	484 mi ²
Land area:	478 mi ²
Water area:	6 mi ²

Population Statistics

2000 Est. Pop.:	80,611 people
Pop. Density:	166 persons/mi ²

Land Cover (percent)

Forest/Wetland:	78.8%
Surface Water:	2.2%
Urban:	2.4%
Cultivated Crop:	8.2%
Pasture/ Managed Herbaceous:	8.4%

Counties

Cumberland, Harnett, Hoke, Lee and Moore

Municipalities

Carthage, Linden, Pinhurst, Spring Lake, Southern Pines and Taylortown

Subbasin 03-06-14 drains the Sandhills region. Most of the watershed is forested. Development is occurring in the western portion of the subbasin. Population is expected to grow by 150,000 people in counties with portions or all of their areas in this subbasin by 2020.

There are nine individual NPDES wastewater discharge permits in this subbasin with a permitted flow of 10.5 MGD (Figure 17). The largest are Fort Bragg WWTP and WTP (8 MGD) and Spring Lake WWTP (1.5 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 14.3 for Impaired waters.

There is one registered dairy and five registered swine operations in this subbasin.

There were 13 benthic community samples and 14 fish community samples (Figure 17 and Table 17) collected during this assessment period. Data were also collected from three ambient monitoring stations including one MCFRBA (Appendix V) station, one DWQ ambient station and one shared station. One reservoir was also monitored. 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.

Figure 17 Cape Fear River Subbasin 03-06-14

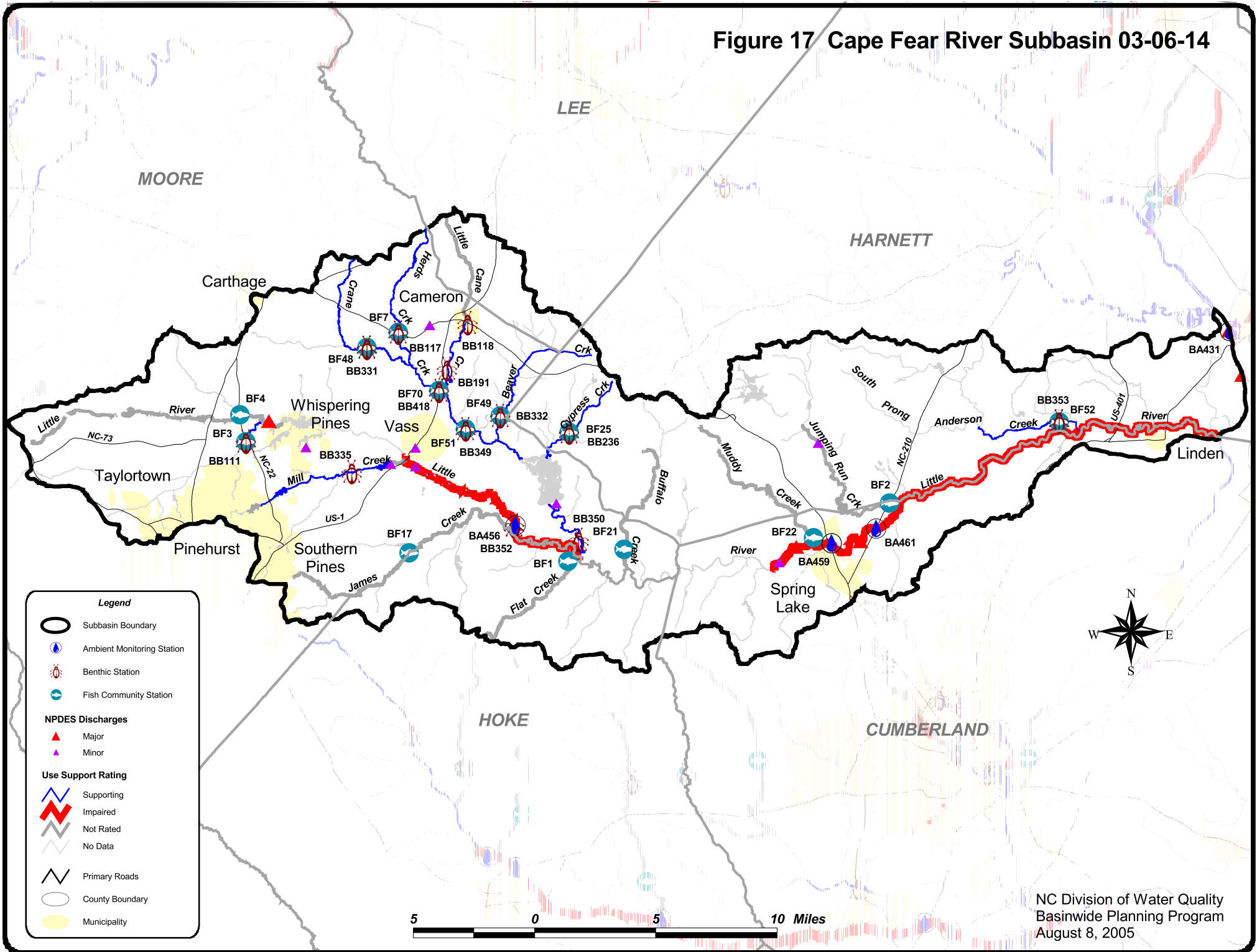


Table 17 CAPE FEAR Subbasin 03-06-14

AU Number	Classification	Length/Area	Aquatic Life Assessment				Recreation Assessment			
			AL Rating	Station	Result	Year/ Parameter % Exc	REC Rating	Station	Result	Stressors
Anderson Creek										
18-23-32	C	5.4 FW Miles	S					ND		
From source to Little River				BB353	G	2000			Habitat Degradation	Impervious Surface
				BB353	G	2003				
				BF52	NR	2003				
Beaver Creek										
18-23-16-8	WS-III	7.2 FW Miles	S					ND		
From source to Cane Creek				BB332	GF	2002				
				BF49	NR	2002				
Buffalo Creek										
18-23-18	WS-III	7.6 FW Miles	NR					ND		
From source to Little River				BF21	NR	2003				
Crane Creek (Craine Creek)										
18-23-16a	WS-III	16.3 FW Miles	S					ND		
From source to Lake Surf				BB331	GF	2003				
				BB331	G	2002				
				BB349	GF	2002				
				BB418	G	2002				
				BF48	NR	2002				
				BF51	NR	2002				
				BF70	NR	2002				
18-23-16b2	WS-III	6.3 FW Miles	S					ND		
From Lake Surf to Little River				BB350	G	2002				
Cypress Creek										
18-23-16-10	WS-III	5.4 FW Miles	S					ND		
From source to Lake Surf, Cane Creek				BB236	NI	2002				
				BF25	NR	2002				
Flat Creek										
18-23-15	WS-III	6.2 FW Miles	NR					ND		
From source to Little River				BF1	NR	2003				

Table 17 CAPE FEAR Subbasin 03-06-14

AU Number	Classification	Length/Area		Aquatic Life Assessment					Recreation Assessment				
				AL Rating	Station	Result	Year/ Parameter	% Exc	REC Rating	Station	Result	Stressors	Sources
Herds Creek													
18-23-16-3	WS-III	8.1	FW Miles	S									
From source to Cane Creek					BB117	NI	2002						
					BF7	NR	2002						
James Creek													
18-23-13	WS-III	14.4	FW Miles	NR									
From source to Little River					BF17	NR	2003						
Jumping Run Creek													
18-23-29	C	10.0	FW Miles	NR									
From source to Little River					BF2	NR	2003						
Little Cane Creek (White Oak Creek)													
18-23-16-4a	WS-III	5.0	FW Miles	NR									
From source to SR 24 and 27					BB118	NR	2003						
18-23-16-4b	WS-III	4.4	FW Miles	S									
From SR 24 and 27 to Cane Creek					BB191	GF	2003						
Little River (Lower Little River)													
18-23-(1)	WS-III HQ	14.9	FW Miles	NR									
From source to backwaters of Thagards Lake					BF4	NR	2003						
18-23-(10.7)	WS-III HQ	12.6	FW Miles	I	BA456	CE	Low pH	67.9	S	BA456	NCE	Low pH	Unknown
From Vass water supply intake to Crane Creek					BB352	GF	2002						
					BB352	GF	2003						
18-23-(24)	C	25.6	FW Miles	I	BA459	CE	Low pH	31.6	S	BA459	NCE	Low pH	Unknown
From Fort Bragg lower water supply intake to Cape Fear River					BA461	CE	Low pH	26.6		BA461	NCE		
Mill Creek													
18-23-11-(1)	WS-III HQ	58.1	FW Acres	NR	BL25	NCE	Low pH	66	ND			Low pH	Unknown
From source to dam at old Southern Pines Water Supply													
Mill Creek (Warrior Lake, Crystal Lake)													
18-23-11-(2)	WS-III&B	8.6	FW Miles	S									
From dam at old Southern Pines water supply to dam at Crystal Lake					BB335	E	2000						

Table 17 CAPE FEAR Subbasin 03-06-14

AU Number	Classification	Length/Area	Aquatic Life Assessment				Recreation Assessment			
			AL Rating	Station	Result	Year/ Parameter % Exc	REC Rating	Station	Result	Stressors
Muddy Creek (Overhills Lake)										
18-23-26	C	9.4 FW Miles	NR							
From source to Little River				BF22	NR	2003				
Nicks Creek										
18-23-3(3)	WS-III	2.0 FW Miles	S						Habitat Degradation	Impoundment
From Carthage water supply intake to Little River				BB111	GF	2003				
				BF3	NR	2003				

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	
		NI - Not Impaired	CE-Criteria Exceeded > 10% and more than 10 samples	
	Miles/Acres	S- Severe Stress	NCE-No Criteria Exceeded	
	FW- Fresh Water	M-Moderate Stress		
	S- Salt Water	N- Natural		

Aquatic Life Rating Summary

S	m	63.6	FW Miles
NR	m	67.5	FW Miles
I	m	38.2	FW Miles
NR	m	58.1	FW Acres
ND		256.1	FW Miles
ND		1,274.3	FW Acres

Recreation Rating Summary

S	m	38.2	FW Miles
ND		387.2	FW Miles
ND		1,332.4	FW Acres

Fish Consumption Rating Summary

I	e	425.4	FW Miles
I	e	1,332.4	FW Acres

14.2 Use Support Assessment Summary

Use support ratings were assigned for waters in subbasin 03-06-14 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 WS classified waters (1,332.4 acres and 279.3 miles) are Supporting on an evaluated basis based on 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 169.3 stream miles (39.7 percent) and 58.1 freshwater acres (4.4 percent) monitored during this assessment period in the aquatic life category. There are 38.2 stream miles (9 percent) identified as Impaired in this same category.

14.3 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.

14.3.1 Crane Creek [AU#18-23-16a and 16b2]

2000 Recommendations

The 2000 basinwide plan recommended that Crane Creek be resampled using the 303(d) approach, and that local initiatives were needed to address agricultural impacts.

Current Status

Crane Creek [18-23-16a] from source to Lake Surf (16.3 miles) is Supporting aquatic life because of Good-Fair benthic community ratings at sites BB331 and BB349 and Good at site BB418. Crane Creek was intensively studied in 2002 at the request of NCEEP (Chapter 34) to support development of a Local Watershed Plan. No Impaired drainages were identified during the study. The Plan identified 28 stream restoration sites representing 27,000 linear feet of stream and 111 acres of wetland sites. See the website for more information http://www.nceep.net/services/lwps/Cranes_Creek/cranes_creek_lwp.pdf.

Crane Creek [18-23-16b2] from Lake Surf to the Lower Little River (6.3 miles) is Supporting aquatic life because of a Good benthic community rating at site BB350.

2005 Recommendations

DWQ will continue to monitor the Crane Creek watershed. DWQ will also work with NCEEP and other agencies to implement projects identified in the Local Watershed Plan. Crane Creek will be recommended for removal from the 303(d) list.

14.3.2 Lower Little River [AU#18-23-(10.7) and (24)]

Current Status

Lower Little River was Fully Supporting in the 2000 plan; however, Lower Little River [18-23-(10.7)] from Vass water supply intake to Crane Creek (12.6 miles) is currently Impaired for aquatic life because pH was below standard in 68 percent of samples collected at site BA456. The low pH levels may be from natural sources. The benthic community at site BB352 was Good-Fair. Riparian areas were intact and streambanks and instream habitat were stable and plentiful. This site has been rated Excellent in past sampling and the lower rating is likely related to drought impacts.

Lower Little River [18-23-(24)] from Fort Bragg water supply to the Cape Fear River (25.6 miles) is Impaired for aquatic life because pH was below the standard in 32 and 27 percent of samples collected at sites BA459 and BA461. The low pH levels may be from natural sources. Fort Bragg WTP and WWTP (NC0003964) had significant violations of ammonia permit limits during the last two years of the assessment period that may have negatively impacted aquatic life. Fort Bragg has made repairs and modifications to the WWTP to address this issue. Spring Lake WWTP (NC0030970) also had significant violations of total suspended solids permit limits and is under a special order of consent (SOC# S03006) that expires in December 2005. The SOC includes requirements to submit plans for collection system repairs. Spring Lake is actively constructing additional treatment units to address noncompliance. The town is also addressing infiltration and inflow problems that will help NPDES compliance.

2005 Recommendations

DWQ will continue to monitor the Lower Little River watershed to determine if low pH levels are natural or related to drought conditions.

Both segments will be added to the 303(d) list of Impaired waters. TMDLs (Chapter 35) will be developed for identified stressors within 8-13 years of listing.

Water Quality Initiatives

The NCEEP completed 1,100 linear feet of stream restoration in this watershed (Chapter 34).

14.4 Status and Recommendations for Waters with Noted Impacts

The surface waters discussed in this section are not Impaired. However, notable water quality problems and concerns have been documented for some waters based on this assessment. While these waters are not Impaired, attention and resources should be focused on these waters to prevent additional degradation or facilitate water quality improvement. Waters in the following section are identified by assessment unit number (AU#). See overview for more information on AU#s.

14.4.1 Buffalo Creek [18-23-18]

Current Status and 2005 Recommendations

Buffalo Creek from source to the Little River (7.6 miles) is Not Rated for aquatic life because a fish community rating could not be assigned at site BF21. The site had the lowest diversity of any sand hills site, and only 14 fish were collected in 2003, compared to 28 in 1998. DWQ will continue to monitor Buffalo Creek and work to develop fish community criteria for sand hills streams so that community ratings can be assigned and use support determinations can be made.

14.4.2 Mill Creek [18-23-18]

Current Status and 2005 Recommendations

Old Town Reservoir (58.1-acre impoundment of Mill Creek) is Not Rated for aquatic life because pH was below the water quality standards in 66 percent of samples collected during lake monitoring in 2003. However, not enough samples were collected to assign a use support rating. Water quality is considered good in the reservoir and the low pH may be related to natural conditions. Activities on adjacent lands should use BMPs during land-disturbing activities in order to maintain good water quality in Old Town Reservoir. DWQ will determine if increased monitoring efforts in this lake are warranted to better assess water quality.

14.4.3 Nicks Creek [18-23-3-(3)]

Current Status and 2005 Recommendations

Nicks Creek from Carthage water supply intake to the Little River (2 miles) is Supporting aquatic life because of a Good-Fair benthic community rating at site BB111. Above site BB111, there is a newly constructed dam and rip-rap channel. It appears that the benthic and fish community sites may have been negatively impacted by construction and maintenance of the dam. The stream appears to be channelized around the dam structure. Site BB111 has been rated Good in the past. Refer to Chapter 32 for more information on dam operation.