

## Section B - Chapter 5

### Tar-Pamlico River Subbasin 03-03-05

Tar River, Chicod Creek, Grindle Creek and Tranters Creek

#### 5.1 Subbasin Overview

##### *Subbasin 03-03-05 at a Glance*

###### **Land and Water Area**

Total area:	297.4 mi <sup>2</sup>
Land area:	293.4 mi <sup>2</sup>
Water area:	4 mi <sup>2</sup>

###### **Population Statistics**

2000 Est. Pop.:	57,247 people
Pop. Density:	192 person/mi <sup>2</sup>

###### **Land Cover (percent)**

Forest/Wetland:	60.6
Surface Water:	1.1
Urban:	2.3
Cultivated Crop:	33
Pasture/ Managed Herbaceous:	3.0

###### **Counties**

Beaufort, Edgecombe, Martin and Pitt

###### **Municipalities**

Greenville, Winterville and Grimesland

Population growth in the subbasin is concentrated around Greenville and Pitt County. The population of Pitt County is expected to grow from around 133,000 to over 187,000 by 2020. Although the largest urban area in the basin is centered in this subbasin, the predominant land cover is forest and wetland with extensive cultivated cropland as well.

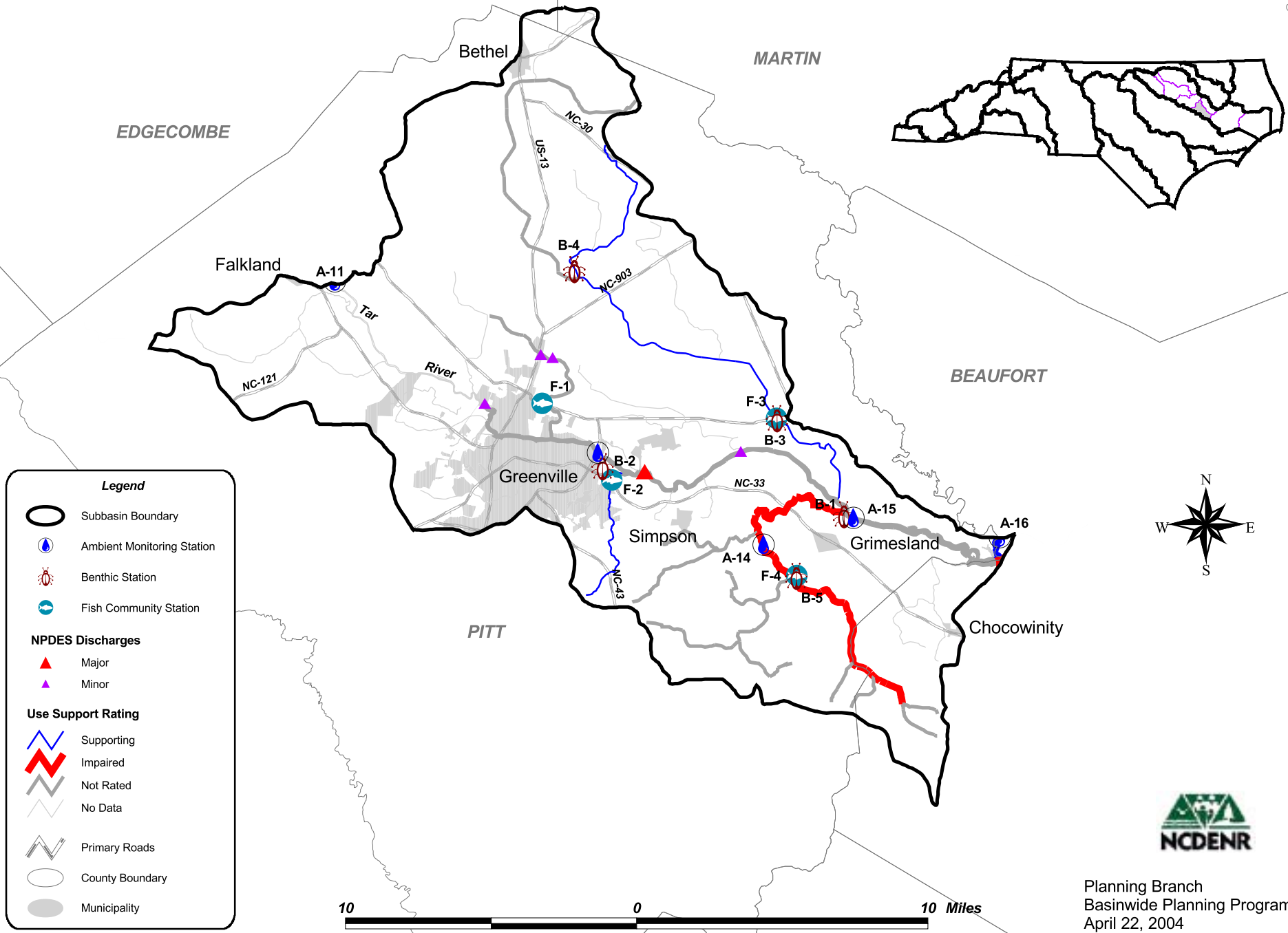
There are three NPDES wastewater discharge permits in this subbasin with a total permitted flow of 17.5 MGD (Figure B-5). The largest is Greenville WWTP. There are also three general NPDES wastewater permits, one individual NPDES stormwater permit, and 20 general NPDES stormwater permits in the subbasin. Refer to Appendix I for identification and more information on individual NPDES permit holders.

Greenville and Winterville, as well as Pitt County, will be required to develop stormwater programs under Phase II (page 75) and will also have to submit model stormwater ordinances as required by the Tar-Pamlico NSW strategy (page 61) stormwater rules. Significant issues related to compliance with NPDES permit conditions are discussed below. There are also 16 registered animal operations in this subbasin.

There were four benthic macroinvertebrate community samples and four fish community samples (Figure B-5 and Table B-9) collected in 2002 as part of basinwide monitoring. Six sites maintained the same bioclassifications. Two sites were monitored for the first time during the assessment period. Data were collected from two ambient monitoring stations and one fish tissue site was sampled as well.

Refer to *2003 Tar-Pamlico River Basinwide Assessment Report* at <http://www.esb.enr.state.nc.us/bar.html> and Section A, Chapter 3 for more information on monitoring.

Figure B-5 Tar-Pamlico River Subbasin 03-03-05



Planning Branch  
 Basinwide Planning Program Unit  
 April 22, 2004

Table B-9 DWQ Assessment and Use Support Ratings Summary for Monitored Waters in Subbasin 03-03-05

Waterbody	Assessment Unit Number	DWQ Classification	Length/Area	Category	Data Type with Map Number and Data Results			Use Support Rating	
					Biological	Ambient	Other	2004	1998
TAR RIVER	28-(94)	C NSW	13.1 mi.	FC	FT-3 ce			I	N/A
Parker Creek	28-95	C NSW	7.3 mi	AL	F-1 NR--02			NR	
Hardee Creek	28-97	C NSW	5.6 mi	AL	B-2 N--02 F-2 NR--02			S	
TAR RIVER	28-(99.5)	B NSW	10.3 mi	AL	B-1 NR--02	A-15 nce		NR	
TAR RIVER	28-(99.5)	B NSW	10.3 mi	REC		A-15 nce		S	N/A
Grindle Creek	28-100b	C NSW	14.2 mi	AL	B-3 GF--02 F-3 NR--02			S	
Whichard Branch	28-100-2	C NSW	6.6 mi	AL	B-4 MS--02			S	
Chicod Creek	28-101	C NSW	14.1 mi	AL	B-5 SS--02 F-4 NR--02	A-14 nce		I	
Chicod Creek	28-101	C NSW	14.1 ac	REC		A-14 nce		S	N/A

**Assessment Unit Number** - Portion of DWQ Classified Index where monitoring is applied to assign a use support rating.

<p><b>Use Categories:</b>                  AL - Aquatic Life                  REC - Recreation                  FC - Fish Consumption</p>	<p><b>Monitoring data type:</b>                  F - Fish Community Survey                  B - Benthic Community Survey                  SF - Special Fish Community Study                  SB - Special Benthic Community Study                  A - Ambient Monitoring Site                  FT - Fish Tissue Site</p>	<p><b>Bioclassifications:</b>                  E - Excellent      N - Natural                  G - Good            MS - Moderate Stress                  GF - Good-Fair    SS - Severe Stress                  F - Fair                  P - Poor</p>	<p><b>Use Support Ratings 2004:</b>                  S - Supporting, I - Impaired, NR - Not Rated</p> <p><b>Use Support Ratings 1998:</b>                  FS - fully supporting, ST - supporting but threatened,                  PS - partially supporting, NS - not supporting,                  NR - not rated, N/A - not applicable</p>
		<p><b>Ambient Data</b>                  nce - no criteria exceeded                  ce - criteria exceeded</p>	

Use support ratings for all waters in subbasin 03-03-05 are summarized in Part 5.2 below. Recommendations, current status and future recommendations for waters that were Impaired in 1999 are discussed in Part 5.3 below. Current status and future recommendations for newly Impaired waters are discussed in Part 5.4 below. Waters with noted water quality impacts are discussed in Part 5.5 below. Water quality issues related to the entire subbasin are discussed in Part 5.6. Refer to Appendix III for a complete list of monitored waters and more information on Supporting monitored waters.

## 5.2 Use Support Assessment Summary

Use support ratings were assigned for waters in subbasin 03-03-05 in the aquatic life, recreation, fish consumption and water supply categories. All waters are Impaired on an evaluated basis in the fish consumption use category because of statewide fish consumption advice for mercury that is applied in this category to basins east and south of I-85 (page 90). Also, 13.1 miles of the Tar River are Impaired in the fish consumption category based on fish tissue monitoring data. In the water supply category, all waters are Supporting on an evaluated basis based on reports from DEH regional water treatment plant consultants.

There were 71.1 stream miles (35 percent) monitored during this assessment period in the aquatic life use category. There were 14.1 (6.8 percent) Impaired stream miles in this category. Refer to Table B-10 for a summary of use support ratings for waters in subbasin 03-03-05.

Table B-10 Summary of Use Support Ratings by Category in Subbasin 03-03-05

Use Support Rating	Aquatic Life	Fish Consumption	Recreation	Water Supply
<b>Monitored Waters</b>				
Supporting	26.4 mi	0	24.3 mi	0
Impaired	14.1 mi	13.1 mi	0	0
Not Rated	30.6 mi	0	0	0
<b>Total</b>	<b>71.1 mi</b>	<b>13.1 mi</b>	<b>24.3 mi</b>	<b>0</b>
<b>Unmonitored Waters</b>				
Supporting	0	0	0	31.8 mi
Impaired	0	191.9 mi	0	0
Not Rated	40.4 mi	0	0	0
No Data	93.5 mi	0	180.7 mi	0
<b>Total</b>	<b>134.0 mi</b>	<b>191.9 mi</b>	<b>180.7 mi</b>	<b>31.8 mi</b>
<b>Totals</b>				
<b>All Waters</b>	<b>205.0 mi</b>	<b>205.0 mi</b>	<b>205.0 mi</b>	<b>31.8 mi</b>

## **5.3 Status and Recommendations of Previously Impaired Waters**

Waters in the following section 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.

### **5.3.1 Chicod Creek [AU# 28-101]**

#### 1999 Recommendations

Chicod Creek was partially supporting from the source to the Tar River. It was recommended that a more detailed study of the watershed be undertaken to determine possible causes of impairment.

#### Current Status

Chicod Creek (14.1 miles) from the source to the Tar River is currently Impaired in the aquatic life category because of a Severe Stress bioclassification at site B-5 in 2002. Instream habitats are of high quality at sites B-5 and F-4. High turbidity was noted at site B-5, and total phosphorus was elevated and dissolved oxygen was below 4 mg/l in 48 percent of samples collected during the assessment period at site A-14. The watershed is extensively ditched. There are areas where drain tiles under spray fields are connected directly to mainstream channels.

#### 2004 Recommendations

DWQ will continue to monitor Chicod Creek to assess future impacts related to land use changes in the watershed. BMPs to minimize or prevent future impacts to water quality in the Chicod Creek watershed.

EEP has also started development of local watershed plan that will include the Chicod Creek watershed. These plans will seek to identify sources of water quality impacts and make recommendations to address these impacts. For more information, refer to page 170.

## **5.4 Status and Recommendations of Newly Impaired Waters**

Waters in the following section 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.

### **5.4.1 Tar River [AU# 28-(94)]**

The Tar River (13.1 miles) from Greenville to the mouth of Broad Run is currently Impaired in the fish consumption category because fish tissue (site FT-3) collected in this segment exceeded the state criterion of 0.4 µg of methylmercury per gram of fish tissue. All seven large mouth bass collected in this segment exceeded this criterion. There is also statewide consumption advice for mercury in fish tissue that is applied to waters east and south of I-85.

#### 2004 Recommendations

Contamination of fish tissue with mercury is a regional issue. Refer to page 90 for more information on plans to address mercury.

## **5.5 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 these 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#). 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.

### **5.5.1 Grindle Creek [AU# 28-100]**

#### Current Status and 2004 Recommendations

Grindle Creek (14.2 miles) is currently Supporting because of a Good-Fair bioclassification at site B-3 in 2002. Grindle Creek was channelized and habitat quality was poor at sites F-3 and B-3. The watershed upstream of Whichard Branch has large areas with extensive agricultural ditching. There was noted high diversity in the fish community at site F-3 though the site was Not Rated.

DWQ will continue to monitor water quality in Grindle Creek. Land-disturbing activities should implement BMPs to minimize or prevent future impacts to water quality in the Grindle Creek watershed. DWQ will continue to develop criteria to assign bioclassifications for coastal plain fish communities.

### **5.5.2 Whichard Branch [AU# 28-100-2]**

#### Current Status and 2004 Recommendations

Whichard Branch (6.6 miles) is currently Supporting because of a Moderate Stress bioclassification at site B-4 in 2002. Whichard Creek had sparse instream habitat and no pools. Streambank erosion was also noted at site B-4. Whichard Branch watershed has some areas with extensive agricultural ditching, though not as much as the Grindle Creek watershed.

DWQ will continue to monitor water quality in Whichard Branch. Land-disturbing activities should implement BMPs to minimize or prevent future impacts to water quality in the Whichard Branch watershed.

### **5.5.3 Parker Creek [AU# 28-95]**

#### Current Status and 2004 Recommendations

Parker Creek (7.3 miles) is Not Rated because site F-1 could not be rated, as criteria for assigning bioclassifications to fish community samples have not been fully developed for coastal plain streams (page 73). Parker Creek drains parts of northern Greenville and had a low habitat score with high conductivity noted at site F-1. There were also elevated numbers of tolerant macroinvertebrate species, indicating water quality impacts.

DWQ will continue to monitor water quality in Parker Creek. Land-disturbing activities should implement BMPs to minimize or prevent future impacts to water quality in the Parker Creek watershed. DWQ will continue to develop criteria to assign bioclassifications for coastal plain fish communities.

### **5.5.4 Green Mill Run [AU# 28-96]**

#### Current Status and 2004 Recommendations

The current use support rating of Green Mill Run is No Data. Green Mill Run has never been monitored by DWQ; however, EEP (page 168) has a planned project in this local watershed. This is one of 27 local watersheds in the Tar-Pamlico River basin that has been identified by EEP as an area with the greatest need and opportunity for stream and wetland restoration efforts. This watershed will be given higher priority than nontargeted watersheds for implementation of EEP restoration projects.

## **5.6 Additional Water Quality Issues within Subbasin 03-03-05**

This section discusses issues that may threaten water quality in the subbasin that are not specific to particular streams, lakes or reservoirs. The issues discussed may be related to waters near certain land use activities or within proximity to different pollution sources.

### **5.6.1 Impacts of Post-Hurricane De-Snagging on Instream Habitats**

Many streams in the subbasin have noted impacts from recent hurricanes. The biological community in the streams can recover rapidly if instream habitat is maintained. De-s snagging operations should carefully remove debris from stream channels to restore natural flow and leave enough instream habitats so the biological community can recover. Refer to page 81 for more information on this issue.