Section B - Chapter 1
Tar-Pamlico River Subbasin 03-03-01
Tar River, Fishing Creek, Cedar Creek, Coon Creek and Tabbs Creek

1.1 Subbasin Overview

Subbasin 03-03-01 at a Glance

Land and Water Area

Total area:	642 mi²
Land area:	635 mi²
Water area:	7 mi²

Population

2000 Est. Pop.: 65,205 people
Pop. Density: 101 persons/mi²

Land Cover (percent)

Forest/Wetland:	76
Water:	1
Urban:	2
Cultivated Crop:	12
Pasture/ Managed Herbaceous:	9

Counties

Franklin, Granville, Person and Vance

Municipalities

Bunn, Franklinton, Henderson, Kittrell, Louisburg and Oxford

Population growth in this subbasin is occurring between Franklinton and Louisburg on the border with the Neuse River basin and along the I-85 corridor near Oxford and Henderson. Population growth from 1990 to 2000 in the four counties with land area in this subbasin ranges from 10 percent in Vance County to nearly 30 percent in Franklin County. The population in these four counties is expected to increase by 60,000 people (34%) by 2020.

There are 10 individual NPDES wastewater discharge permits in this subbasin with a total permitted flow of 6.8 MGD (Figure B-1). The largest are Franklin County WWTP (3 MGD), Louisburg WWTP (1.37 MGD) and City of Oxford WWTP (2.7 MGD). There are also ten general NPDES wastewater discharge permits, five individual NPDES stormwater permits, and 30 general NPDES stormwater permits issued in this subbasin. Refer to Appendix I for more information on NPDES permit holders.

The Town of Henderson and Nash County will be required to develop stormwater programs under Phase II (page 75). Henderson and Oxford, and Franklin and Nash counties will also have to submit model stormwater ordinances as required by the Tar-Pamlico NSW strategy stormwater rules (page 61). Issues related to compliance with NPDES permit conditions are discussed below in Part 1.3 or Part 1.4 for Impaired waters and in Part 1.5 for other waters. There is also one registered animal operation in this subbasin.

There were seven benthic macroinvertebrate community samples and 12 fish community samples (Figure B-1 and Table B-1) collected during this assessment period. Four sites improved, 11 sites remained the same, one site had a lower bioclassification, and three sites were sampled for the first time during this assessment period. Data were also collected from four ambient monitoring stations 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-1 Tar-Pamlico River Subbasin 03-03-01

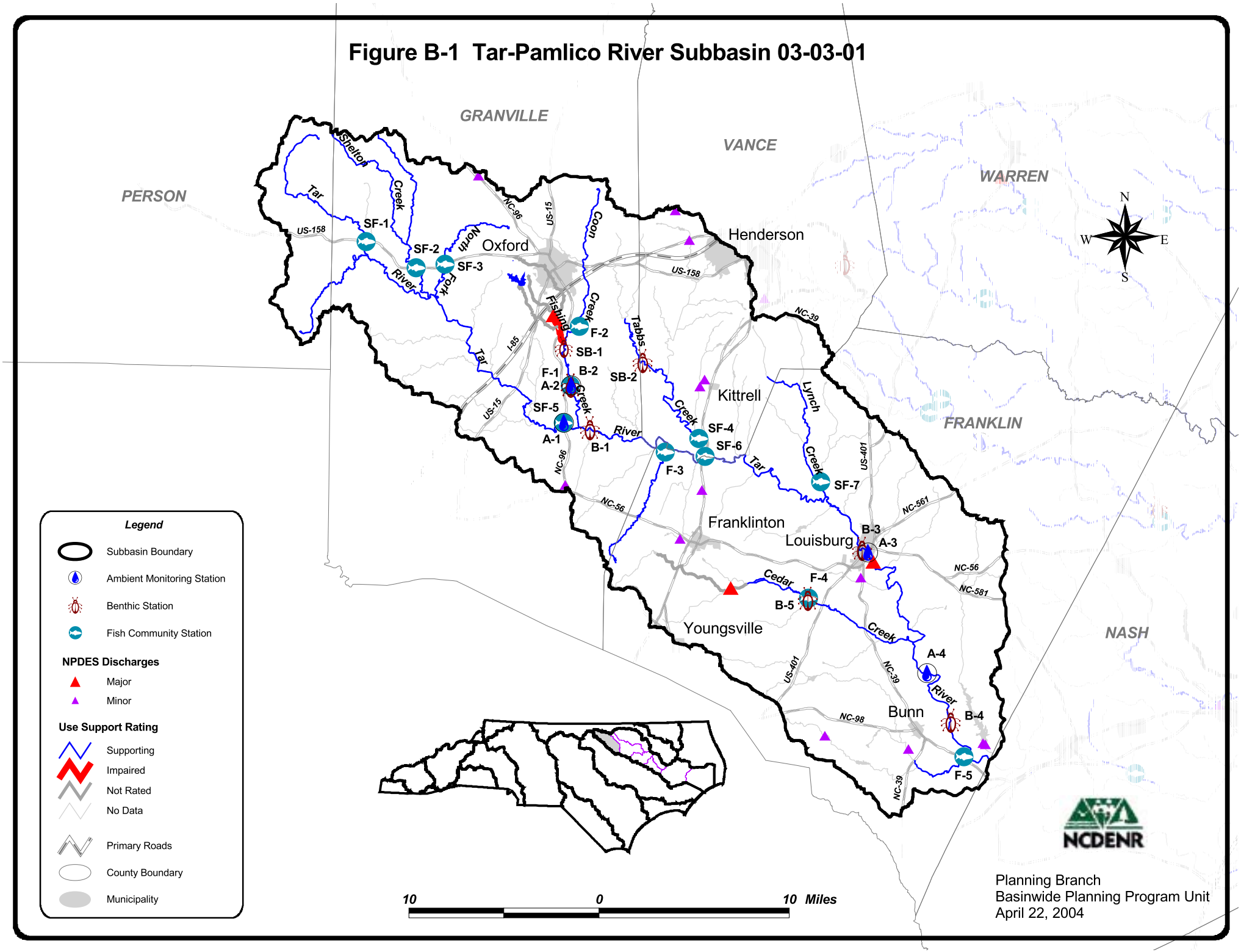

Table B-1 DWQ Assessment and Use Support Ratings Summary for Monitored Waters in Subbasin 03-03-01

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-(1)	WS-IV NSW	20.1 mi	AL	SF-1 E--99			S	ST
Shelton Creek	28-4	WS-IV NSW	13.9 mi	AL	SF-2 E--99			S	FS
North Fork Tar River	28-5	WS-IV NSW	8.8 mi	AL	SF-3 G--99			S	ST
TAR RIVER	28-(5.3)	WS-IV NSW CA	0.5 mi	AL	SF-5 E--97	A-1 nce		S	FS
TAR RIVER	28-(5.7)	WS-V NSW	20.5 mi	AL	SF-5 E--97 B-1 G--02	A-1 nce		S	FS
Fishing Creek	28-11e	C NSW	6.1 mi	AL	F-1 G--02			S	PS
Fishing Creek	28-11c	C NSW	0.9 mi	AL	SB-1 P--99			I	NS
Fishing Creek	28-11d	C NSW	1.0 mi	AL	SB-1 P--99			I	PS
Hachers Run (Devin Lake)	28-11-3-(1)	WS-II NSW CA	98.9 ac	AL			L-1 nce	S	FS
Coon Creek	28-11-5	C NSW	10.1 mi.	AL	F-2 E--02			S	NR
Middle Creek	28-15	C NSW	8.4 mi.	AL	F-3 G--02			S	FS
TAR RIVER	28-(15.5)	WS-IV NSW	14.8 mi.	AL	SF-6 G--97			S	FS
Tabbs Creek	28-17-(0.5)b	C NSW	12.0 mi.	AL	SF-4 G--99 SB-2 GF--99			S	ST
Lynch Creek	28-21-(0.7)	WS-IV NSW	9.2 mi.	AL	SF-7 G--99			S	FS
TAR RIVER	28-(24.3)	WS-IV NSW CA	0.6 mi.	AL	B-3 GF--02	A-3 nce		S	ST
TAR RIVER	28-(24.7)a	WS-V NSW	20.3 mi.	AL	B-3 GF--02 B-4 G--02	A-4 nce		S	ST
TAR RIVER	28-(24.7)a	WS-V NSW	20.3 mi.	REC		A-3 nce A-4 nce		S	N/A
Cedar Creek	28-29-(2)b	C NSW	12.1 mi.	AL	F-4 E--02 B-5 GF--02			S	ST
Crooked Creek	28-30b	C NSW	5.4 mi.	AL	F-5 GF--02			S	ST
TAR RIVER	28-(5.7)	WS-V NSW	20.5 mi.	REC		A-1 nce		S	N/A
Fishing Creek	28-11e	C NSW	6.1 mi.	REC		A-2 nce		S	N/A

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

Use Categories:
AL - Aquatic Life
REC - Recreation
FC - Fish Consumption

Monitoring data type:
F - Fish Community Survey
B - Benthic Community Survey
SF - Special Fish Community Study
SB - Special Benthic Community Study
A - Ambient Monitoring Site
L - Lakes Assessment
FT - Fish Tissue Site

Bioclassifcations:
E - Excellent
G - Good
GF - Good-Fair
F - Fair
P - Poor
N - Natural
MS - Moderate Stress
SS - Severe Stress

Ambient Data
nce - no criteria exceeded
ce - criteria exceeded

Use Support Ratings 2004:
S - Supporting, I - Impaired, NR - Not Rated

Use Support Ratings 1998:
FS - fully supporting, ST - supporting but threatened,
PS - partially supporting, NS - not supporting,
NR - not rated, N/A - not applicable

Use support ratings for all waters in subbasin 03-03-01 are summarized in Part 1.2 below. Recommendations, current status and future recommendations for waters that were Impaired in 1999 are discussed in Part 1.3 below. Current status and future recommendations for newly Impaired waters are discussed in Part 1.4 below. Waters with noted water quality impacts are discussed in Part 1.5 below. Water quality issues related to the entire subbasin are discussed in Part 1.6. Refer to Appendix III for a complete list of monitored waters and for more information on Supporting monitored waters.

1.2 Use Support Assessment Summary

Use support ratings were assigned for waters in subbasin 03-03-01 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 statewide fish consumption advice for mercury that is applied in this category to basins east and south of I-85 (page 90). 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 469.3 stream miles (35 percent) and 98.9 freshwater acres (100 percent) monitored during this assessment period in the aquatic life category. Approximately 1.9 stream miles (1.1 percent) are Impaired. Refer to Table B-2 for a summary of use support ratings for waters in subbasin 03-03-01.

Table B-2 Summary of Use Support Ratings by Category in Subbasin 03-03-01

Use Support Rating	Aquatic Life	Fish Consumption	Recreation	Water Supply
Monitored Waters				
Supporting	162.8 mi 98.9 ac	0	46.9 mi	0
Impaired	1.9 mi	0	0	0
Not Rated	0	0	0	0
Total	**164.8 mi 98.9 ac**	**0**	**46.9 mi**	**0**
Unmonitored Waters				
Supporting	15.2 mi	0	0	182.7 mi 98.9 ac
Impaired	0	469.3 mi 98.9 ac	0	0
Not Rated	18.5 mi	0	0	0
No Data	270.7 mi	0	422.4 mi 98.9 ac	0
Total	**304.5 mi**	**469.3 mi 98.9 ac**	**422.4 mi 98.9 ac**	**182.7 mi 98.9 ac**
Totals				
All Waters*	**469.3 mi 98.9 ac**	**469.3 mi 98.9 ac**	**469.3 mi 98.9 ac**	**182.7 mi 98.9 ac**

* Total Monitored + Total Unmonitored = Total All Waters.

1.3 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.

1.3.1 Fishing Creek [AU# 28-11a through 28-11e]

1999 Recommendations

It was recommended that no new or expanding wastewater dischargers be connected to the Oxford wastewater treatment plant.

Current Status

Fishing Creek (1.9 miles) is currently Impaired from the Oxford WWTP outfall #1 to Coon Creek [AU# 28-11c] because of a Poor bioclassification at site SB-1 in 1999. SB-1 was also

Poor in 1990. The entire length (11 miles) of Fishing Creek was Impaired in 1999. In 1997, the Oxford WWTP was upgraded and water quality improvements were observed downstream. Site F-1 improved from Good-Fair in 1997 to Good in 1999 and 2002. Site B-1 also improved from Fair in 1999 to Good-Fair in 2002. Above the WWTP, Fishing Creek and Foundry Branch are impacted by urban runoff from the City of Oxford. Oxford WWTP was placed under a moratorium after the Poor bioclassification in 1999. The requirements of a prior Special Order by Consent (SOC) have been met and the associated moratorium has been lifted. Overflows from the collection system have been reduced due to pipe replacement/rehabilitation work. However, Oxford WWTP has continued to have problems with overflows, specifically at the headworks of the WWTP. For approximately 11 months of the assessment period, Oxford WWTP exceeded permit limits for selenium. An industrial user was determined to be the source of selenium. Oxford also modified a pretreatment permit of a significant industrial user to address selenium violations. The industrial user is now using a chemical that does not contain selenium.

2004 Recommendations

DWQ will continue to monitor water quality in the Fishing Creek watershed. DWQ Raleigh Regional Office staff will continue to work with Oxford WWTP to remedy plant problems that may be adversely impacting water quality in Fishing Creek including influent overflows and infiltration and inflow in the Foundry Branch watershed. Oxford WWTP is expanding from 2.17 MGD to 3.5 MGD and will receive permit limits of 5 mg/l BOD_5 and 1 mg/l NH_3-N down from 15 mg/l BOD_5 and 4 mg/l NH_3-N, representing a decrease in loading of these two parameters. The new limits as well as those improvements being implemented by Oxford (see below) should further reduce impacts to Fishing Creek.

Oxford is also required to address nutrients in stormwater as part of the Tar-Pamlico NSW strategy (page 73) and should take the opportunity to address the more acute impacts to Fishing Creek when developing a stormwater program.

Current Water Quality Initiatives

Oxford WWTP received a state-revolving loan of $813,514 in January 2001 to rehabilitate the outfall to Fishing Creek and is awaiting a loan of $10,000,000 to upgrade and expand the plant. The proposed upgrade will include biological nutrient removal as well as upgrades to the Coon Creek lift station.

1.4 Status and Recommendations of Newly Impaired Waters

There are no newly Impaired waters in subbasin 03-03-01. Refer to Part 1.5 below for information on waters with noted water quality impacts.

1.5 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 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#). 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.

1.5.1 Cedar Creek [AU# 28-29-(2)b]

Current Status and 2004 Recommendations

The benthic bioclassification of lower Cedar Creek (12.15 miles) has been Good-Fair at site B-5 since 1990. The fish community bioclassification at site F-4 improved to Excellent in 2002. The upper segment of Cedar Creek [AU# 28-29-(2)a] receives a discharge from the Franklin WWTP which had three WET test failures during the assessment period. This segment (6.18 miles) is currently Not Rated. A pretreatment audit was performed in 2002 by DWQ staff to determine if the one significant industrial user was the source of toxicity. There has not been a WET test fail since 2002. DWQ will continue to work with the Franklin WWTP. Cedar Creek also crosses the rapidly growing area of NC 401 between Raleigh and Louisburg. Water quality should be considered during planning and development activities in this watershed.

1.5.2 Hatchers Run (Devin Lake) [AU# 28-11-3-(1)]

Current Status and 2004 Recommendations

Hatchers Run (Devin Lake) is a 98.9-acre impoundment west of Oxford that was a water supply until 1993. During lake monitoring in 2002, the reservoir was stratified with hypoxic conditions three meters from the surface. Chemical monitoring and observed green water color suggested that algal blooms were occurring although the chlorophyll *a* criterion was not exceeded. Nutrient levels were greater than observed in 1997, and copper was higher than the action level. Water quality in Hatchers Run should be considered during land development activities, and BMPs should be implemented on all land use activities to reduce the potential for algal blooms.

1.5.3 Tar River [AU# 28-(24.7)a]

Current Status and 2004 Recommendations

This 20.3-mile segment of the Tar River is currently Supporting because of Good-Fair and Good bioclassifications at sites B-3 and B-4, respectively. The change in bioclassification at site B-3 (from Good in 1997) is likely related to the drought of 1998 to 2002 and does not indicate any real changes in water quality. Water quality standards were not exceeded at sites A-3 and A-4.

DWQ will continue to monitor this segment of the Tar River. This area is experiencing growth from the Neuse River basin to the south. Louisburg received a $252,000 CWMTF grant to acquire 50 acres to add to the existing greenway system at Joyner Town Park. Louisburg has also been offered a $2,295,500 grant through DWQ Construction Grants and Loans for rehabilitation of the existing WWTP and a wastewater reuse project.

1.5.4 Billys Creek [AU# 28-20]

Current Status and 2004 Recommendations
The current use support rating of Billys Creek is No Data. Billys Creek 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.

1.5.5 Bear Swamp Creek [AU# 28-23]

Current Status and 2004 Recommendations
The current use support rating of Bear Swamp Creek is No Data. Bear Swamp Creek 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.

1.5.6 Wolfpen Creek [AU# 28-27]

Current Status and 2004 Recommendations
The current use support rating of Wolfpen Creek is No Data. Wolfpen Creek 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.