

Chapter 6

French Broad River Subbasin 04-03-06

Including the: Nolichucky River, North and South Toe River, Big Rock Creek, Jacks Creek and Right Fork Cane Creek

6.1 Subbasin Overview

Subbasin 04-03-06 at a Glance

Land and Water Area

Total area:	466 mi ²
Land area:	465 mi ²
Water area:	1 mi ²

Population Statistics

2000 Est. Pop.:	31,122 people
Pop. Density:	66 persons/mi ²

Land Cover (percent)

Forest/Wetland:	87%
Surface Water:	<1%
Urban:	<1%
Cultivated Crop:	<1%
Pasture/ Managed Herbaceous:	11%

Counties

Avery, Mitchell and Yancey

Municipalities

Bakersville, Burnsville, Newland, Spruce Pine, and Sugar Mountain

Much of the land in this subbasin is within the Pisgah National Forest, although there are scattered agricultural and industrial lands throughout the subbasin. The largest community is the Town of Spruce Pine, near the Blue Ridge Parkway. There has been little population growth in this subbasin, and the subbasin is expected to remain mostly rural with only a slight increase in population by the year 2020. Population increases of 14.1, 9.4 and 16.7 percent are projected for Avery, Mitchell and Yancey counties, respectively. For more information regarding population growth and trends, refer to Appendix I.

There are seven NPDES discharge permits in this subbasin with a total permitted flow of 14.5 MGD. The largest are Unimin Corporation/Quartz Operation (3.6 MGD), Feldspar Corporation (3.5 MGD), Unimin Corporation/Schoolhouse Quartz Facility (2.16 MGD), and K-T Feldspar Corporation (1.73 MGD). There are two individual NPDES stormwater permits in the subbasin. Refer to Appendix VI for identification and more information on individual NPDES permit holders. Significant issues related to compliance with NPDES permit conditions are discussed below. There are no registered animal operations in this subbasin.

A map including the locations of NPDES discharges and water quality monitoring stations is presented in Figure 10. Table 14 contains a summary of assessment units and lengths, streams monitored, monitoring data types, locations and results, along with use support ratings for waters in this subbasin. Refer to Appendix X for a complete listing of monitored waters and more information about use support ratings.

There were 10 benthic macroinvertebrate community samples and five fish community samples (Figure 10 and Table 14) collected during this assessment period. Data were collected from four ambient monitoring stations as well. Refer to the *2003 French Broad River Basinwide Assessment Report* at <http://www.esb.enr.state.nc.us/bar.html> and Appendix IV for more information on monitoring.

Figure 10 French Broad River Subbasin 04-03-06

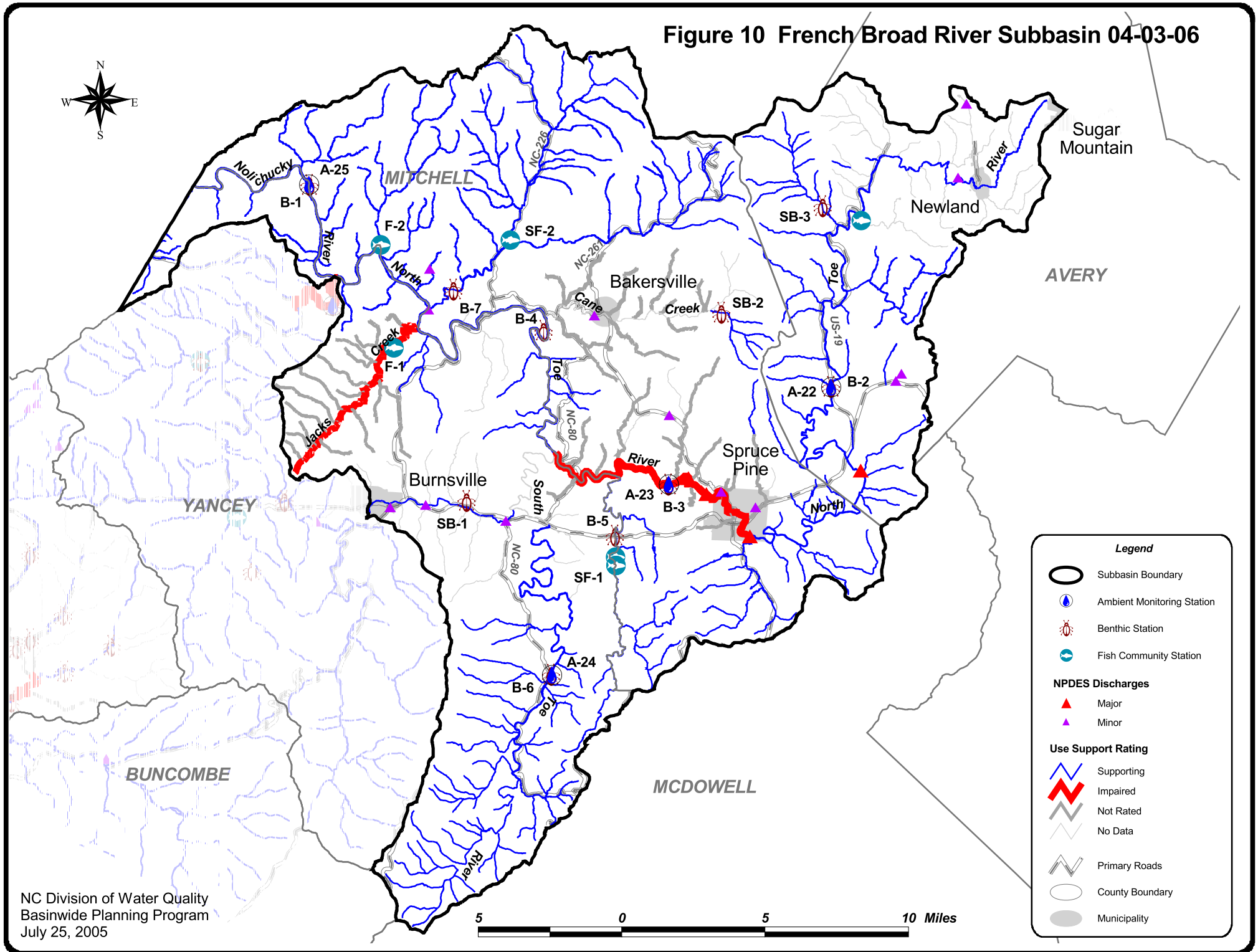


Table 14 DWQ Assessment and Use Support Ratings Summary for Monitored Waters in Subbasin 040306

Assessment Unit #	Name	Length/Area		AL	REC	Benthic Community			Fish Community			Ambient Data	
7	NOLICHUCKY RIVER	10.0	Miles	S	S	B-1	G	2002				A-25	nce
7-2-(0.5)	North Toe River	22.0	Miles	S	S	B-2	G	2002				A-22	nce
7-2-(21.5)	North Toe River	9.4	Miles	S	S	B-2	G	2002				A-22	nce
7-2-(27.7)b	North Toe River	11.3	Miles	I	S	B-3	F	2002				A-23	turbidity 14%
7-2-(27.7)c	North Toe River	24.8	Miles	S	ND	B-4	G	2002					
7-2-15	Roaring Creek	4.9	Miles	S	ND	SB-3	E	2002					
7-2-48	Big Crabtree Creek (Crabtree Creek)	14.6	Miles	S	ND	B-5	E	2002	SF-1	E	1999		
7-2-52-(1)	South Toe River	25.9	Miles	S	S	B-6	E	2002				A-24	nce
7-2-52-33	Little Crabtree Creek	6.3	Miles	S	ND	SB-1	GF	2002					
7-2-59-1	Right Fork Cane Creek	1.2	Miles	S	ND	SB-2	E	2002					
7-2-63	Jacks Creek	8.5	Miles	I	ND				F-1	F	2002		
7-2-64	Big Rock Creek	13.9	Miles	S	ND	B-7	E	2002	SF-2	G	1998		
7-2-69	Pigeonroost Creek	7.1	Miles	S	ND				F-2	E	2002		

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

Use Categories:

AL - Aquatic Life
REC - Recreation

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

Bioclassifications:

E - Excellent
G - Good
GF - Good-Fair
F - Fair
P - Poor
NI - Not Impaired

Use Support Ratings 2004:

S - Supporting
I - Impaired
NR - Not Rated
ND - No Data

Ambient Data

nce - no criteria
ce - criteria exce

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.

Use support rating for all waters in subbasin 04-03-06 are summarized in Section 6.2. Recommendations, current status and future recommendations for previously and newly Impaired waters are discussed in Section 6.3. Waters with noted water quality impacts are discussed in Section 6.4. Water quality issues related to the entire subbasin are discussed in Section 6.5. Refer to Appendix X for a complete list of monitored waters and more information on use support ratings.

6.2 Use Support Assessment Summary

Use support ratings were assigned for waters in subbasin 04-03-06 in the aquatic life, recreation and fish consumption categories. There are no fish consumption advisories in this subbasin; therefore, all waters are No Data in the fish consumption category. 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 159.8 stream miles (23.2 percent) monitored during this assessment period in the aquatic life category. Of these, 19.8 stream miles (3.0 percent) are Impaired. Refer to Table 15 for a summary of use support ratings by category for waters in the subbasin 04-03-06.

6.3 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#). Information regarding 303(d) listing and reporting methodology is presented in Appendix VII.

6.3.1 Right Fork Cane Creek (AU#7-2-59-1)

2000 Recommendations

Right Fork Cane Creek (1.1 miles) was previously Impaired and placed on the 303(d) list based on evaluated information. Use support methodology has been improved, and only monitored data are now used in use support determinations (see Appendix X). However, this stream was required to remain on the 303(d) list until sampling was conducted to assess current water quality conditions. Refer to Appendix VII for more information on the state's 303(d) methodology and listing requirements.

Table 15 Summary of Use Support Ratings by Category in Subbasin 04-03-06

Use Support Rating	Aquatic Life	Fish Consumption	Recreation	Water Supply
Monitored Waters				
Supporting	140.0 mi	0.0	78.5 mi	0.0
Impaired	19.8 mi	0.0	0.0	0.0
Not Rated	0.0	0.0	0.0	0.0
Total	159.8 mi 0.0 ac	0.0	78.5 mi 0.0 ac	0.0
Unmonitored Waters				
Supporting	354.5 mi	0.0	0.0	25.4 mi
Impaired	0.0	0.0	0.0	0.0
Not Rated	75.3 mi	0.0	0.0	0.0
No Data	100.0 mi	689.6 mi	611.1 mi	0.0
Total	529.8 mi 0.0 ac	689.6 mi 0.0 ac	611.1 mi 0.0 ac	25.4 mi 0.0 ac
Totals				
All Waters*	689.6 mi 0.0 ac	689.6 mi 0.0 ac	689.6 mi 0.0 ac	25.4 mi 0.0 ac

* Total Monitored + Total Unmonitored = Total All Waters.

Current Status and 2005 Recommendations

Right Fork Cane Creek, from the source to Cane Creek (1.2 miles), is currently Supporting based on an Excellent bioclassification at site SB-2. The benthic community was diverse and reflected no water quality problems. There were a few habitat concerns noted, such as bank erosion and riparian zone width, that should be addressed to protect this excellent water quality. It is recommended that local agencies work with landowners to install best management practices (BMPs) to improve the riparian zones and restore streambanks. Based on this sampling data, DWQ recommends that Right Fork Cane Creek be removed from the 2006 303(d) list.

6.3.2 Jacks Creek [AU# 7-2-63]

Current Status and 2005 Recommendations

Jacks Creek, from the source to the North Toe River (8.5 miles), is currently Impaired based on a Fair bioclassification at site F-1. The fish community species diversity was low and conductivity values were elevated. The stream had a narrow riparian zone and abundant instream algal growth. DWQ will continue to monitor this site, and a more in-depth study should be conducted to identify the source of high conductivity. It is recommended that local agencies work with landowners to install BMPs to improve riparian zones and the overall water quality in this stream.

Water Quality Initiatives

Because of the water quality impairment noted above, Jacks Creek has been identified by the NC Ecosystem Enhancement Program (EEP) as one of 28 local watersheds in the basin 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 NCEEP restoration projects.

6.3.3 North Toe River [AU#7-2-(27.7)b]

2000 Recommendations

Habitat degradation and turbidity were noted problems in a 32.5-mile segment of the river from Grassy Creek to the South Toe River. DWQ will continue to monitor the river to assess possible impacts from mine processors and the WWTP located in the Town of Spruce Pine. The implementation of BMPs is recommended to protect the river from future impacts from urban runoff. DWQ will notify local agencies of water quality concerns for this creek and work with these various agencies to conduct further monitoring and assist agency personnel with locating sources of water quality protection funding.

Current Status and 2005 Recommendations

The North Toe River, from Grassy Creek to the South Toe River (11.3 miles), is currently Impaired based on a Fair bioclassification at site B-3. This same segment is also Impaired due to a turbidity water quality standards violation at site A-23. The ambient monitoring station (A-23) exceeded the state standard for turbidity in 14% of the samples collected during this assessment period. This site receives runoff from the Town of Spruce Pine and several dischargers in the watershed, which may have impacted the benthic community. The North Toe River may also be impacted by road construction activities associated with the expansion of NC 19 from Burnsville to Spruce Pine. Narrow riparian zones were also noted.

Several days before DWQ monitoring, a 1,500-gallon spill of #2 fuel oil in the river was reported to local authorities. The U.S. Environmental Protection Agency (EPA) was the primary responder and coordinated clean up efforts. Prior to the spill, the North Toe River water quality was improving (Good-Fair in 1992 and Good in 1997). DWQ will continue to monitor the water quality at this site and work with local agencies to find the source of turbidity. It is recommended that local agencies work with landowners to install BMPs to improve riparian zones and the overall water quality in the river.

Water Quality Initiatives

Because of the water quality impairment noted above, the North Toe River has been identified by the NC Ecosystem Enhancement Program (EEP) as one of 28 local watersheds in the basin 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 NCEEP restoration projects.

6.4 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 were documented for these waters during this assessment. Attention and resources should be focused on these waters to prevent additional degradation and facilitate water quality improvements. DWQ will notify local agencies of these water quality concerns and work with them to conduct further assessments and to locate sources of water quality protection funding. Additionally, education on local water quality issues and voluntary actions are useful tools to prevent water quality problems and to promote restoration efforts. Nonpoint source program agency contacts are listed in Appendix VIII.

6.4.1 Big Rock Creek [AU#7-2-64]

Current Status and 2005 Recommendations

Big Rock Creek, from source to the North Toe River (13.9 miles), is currently Supporting based on an Excellent bioclassification at site B-7 and a Good fish community at site SF-2. Like many other streams throughout the basin, drought conditions likely affected this stream. In 1997, the stream was 20 meters (66 feet) wide, but in 2002, it was reduced to 9 meters (30 feet). Big Rock drains primarily agriculture and forestland. Narrow riparian zones and eroding streambanks were noted during sampling. It is recommended that local agencies work with landowners to install BMPs to improve riparian zones and the overall water quality in Big Rock.

Water Quality Initiatives

Because of the poor riparian zones noted above, Big Rock Creek has been identified by NCEEP as one of 28 local watersheds in the basin 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 NCEEP restoration projects.

6.5 Additional Water Quality Issues within Subbasin 04-03-06

This section identifies those surface waters given an Excellent bioclassification, and therefore, may be eligible for reclassification to a High Quality Water (HQW) or an Outstanding Resource Water (ORW). It should be noted that these are streams that were sampled by DWQ during this basinwide cycle. There may be other tributaries eligible for reclassification in addition to the ones listed below. For more information regarding water quality standards and classifications, refer to Chapter 8.

6.5.1 Surface Waters Identified for Potential Reclassification

Roaring Creek (AU# 7-2-15)

Roaring Creek, from source to the North Toe River (4.9 miles), is Supporting due to an Excellent bioclassification at site SB-3. The current DWQ classification is WS-IV, Tr.

Big Crabtree Creek (Crabtree Creek) (AU# 7-2-48)

Big Crabtree Creek (Crabtree Creek), from source to the North Toe River (14.6 miles), is Supporting due to an Excellent bioclassification at site B-5 and SF-1. The current DWQ classification is C Tr.

Right Fork Cane River (AU# 7-2-59-1)

Right Fork Cane Creek, from the source to Cane Creek (1.2 miles), is currently Supporting based on an Excellent bioclassification at site SB-2. The current DWQ classification is C Tr. DWQ is recommending that the Right Fork Cane Creek be removed from the 2006 state's 303(d) list. Refer to Section 6.3.1 for more information.

Big Rock Creek (AU#7-2-64)

Big Rock Creek, from source to the North Toe River (13.9 miles), is currently Supporting based on an Excellent bioclassification at site B-7. The current DWQ classification is C Tr. Refer to Section 6.4.1 for more information.

Pigeonroost Creek (AU# 7-2-69)

Pigeonroost Creek, from source to the North Toe River (7.1 miles), is Supporting due to an Excellent bioclassification at site F-2. The current DWQ classification is C Tr.