

French Broad River Subbasin 04-03-03

Including the: Davidson River, Boylston Creek, Mills River and North Fork Mills River

3.1 Subbasin Overview

Subbasin 04-03-03 at a Glance

Land and Water Area

Total area:	141 mi ²
Land area:	141 mi ²
Water area:	0 mi ²

Population Statistics

2000 Est. Pop.:	20,009 people
Pop. Density:	145 persons/mi ²

Land Cover (percent)

Forest/Wetland:	89%
Surface Water:	<1%
Urban:	<1%
Cultivated Crop:	2%
Pasture/ Managed Herbaceous:	8%

Counties

Henderson and Transylvania

Municipalities

Brevard and Mills River

Much of the land in this subbasin lies within the Pisgah National Forest or Pisgah Game Lands. Much of the subbasin outside the national forest is agricultural, consisting primarily of dairy farms and row crops. There are no large urban areas within this subbasin, although some development exists along the major highway corridors (NC 280 and NC 191). By the year 2020, overall county population is expected to increase by 28.7 and 14.7 percent in Henderson and Transylvania counties, respectively.

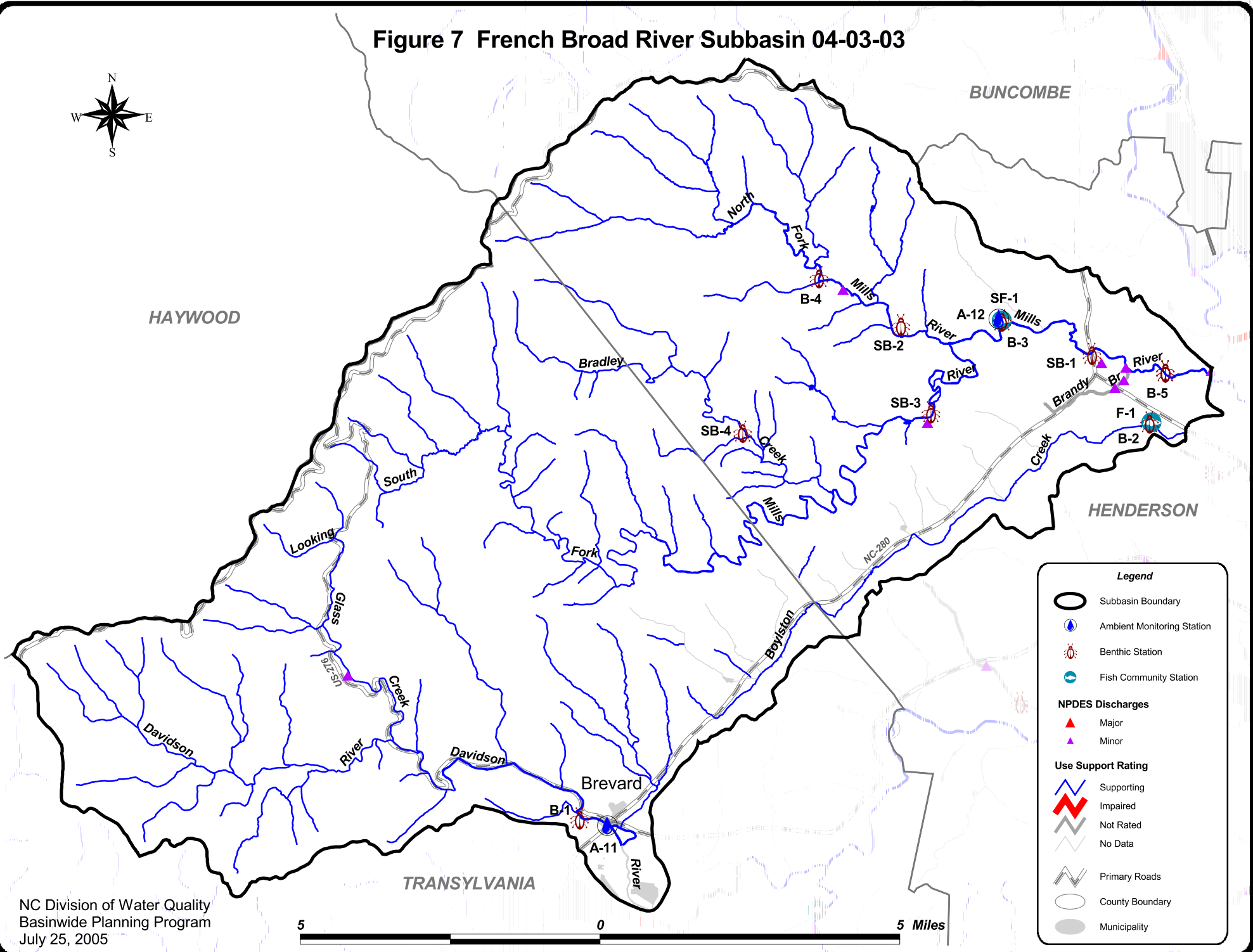
Since the previous plan, the Town of Mills River has incorporated several areas and new sewer lines were installed along sections of Mills River. This extension will likely spur development throughout the area; therefore, special care should be given to site design to minimize the impacts of sedimentation and erosion on water quality. Managing growth is particularly important because most of the South Fork Mills River watershed is classified as outstanding resource waters (ORW), and most of the Davidson River watershed is classified as high quality waters (HQW). Refer to Appendix I for more information regarding population growth and trends and to Chapter 8 for water classifications and standards.

There are eight NPDES wastewater discharge permits in this subbasin; none are major dischargers. Refer to Appendix VI for identification and more information on individual NPDES permit holders. There are two registered animal operations in this subbasin.

A map including the locations of NPDES discharges and water quality monitoring stations is presented in Figure 7. Table 8 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 nine benthic macroinvertebrate community samples and two fish community samples (Figure 7 and Table 8) collected during this assessment period. Data were also collected from two ambient monitoring stations. 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 7 French Broad River Subbasin 04-03-03



Legend

- Subbasin Boundary
- Ambient Monitoring Station
- Benthic Station
- Fish Community Station

NPDES Discharges

- Major
- Minor

Use Support Rating

- Supporting
- Impaired
- Not Rated
- No Data

- Primary Roads
- County Boundary
- Municipality



Table 8 DWQ Assessment and Use Support Ratings Summary for Monitored Waters in Subbasin 040303

Assessment Unit #	Name	Length/Area		AL	REC	Benthic Community			Fish Community			Ambient Data	
6-34-(1)	Davidson River	5.4	Miles	S	ND	B-1	E	2002					
6-34-(15.5)	Davidson River	0.2	Miles	S	ND	B-1	E	2002					
6-34-(17)	Davidson River	3.3	Miles	S	S	B-1	E	2002				A-11	nce
6-52-(6.5)	Boylston Creek	6.1	Miles	S	ND	B-2	GF	2002	F-1	G	2002		
6-54-(1)a	Mills River	1.0	Miles	S	ND	B-3	G	2002					
6-54-(1)b	Mills River	1.8	Miles	S	S	B-3	G	2002	SF-1	E	1997	A-12	nce
6-54-(4.5)	Mills River	0.7	Miles	S	ND	SB-1	GF	2002					
6-54-(5)	Mills River	1.8	Miles	S	ND	B-5	GF	2002					
6-54-(6.5)	Mills River	0.7	Miles	S	ND	B-5	GF	2002					
6-54-2-(4)	North Fork Mills River	2.9	Miles	S	ND	B-4	E	2002					
6-54-2-(9)	North Fork Mills River	2.5	Miles	S	ND	SB-2	G	2002					
6-54-3-(17.5)	South Fork Mills River	4.2	Miles	S	ND	SB-3	G	2002					
6-54-3-17-(4.5)	Bradley Creek	2.5	Miles	S	ND	SB-4	E	1997					

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 ratings for all waters in subbasin 04-03-03 are summarized in Section 3.2. Recommendations, current status and future recommendations for previously or newly Impaired waters are discussed in Section 3.3. Waters with noted water quality impacts are discussed in Section 3.4. Water quality issues related to the entire subbasin are discussed in Section 3.5. Refer to Appendix X for a complete list of monitored waters and more information on use support ratings.

3.2 Use Support Assessment Summary

Use support ratings were assigned for waters in subbasin 04-03-03 in the aquatic life, recreation, fish consumption and water supply 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 30.6 stream miles (13.7 percent) monitored during this assessment period in the aquatic life category; none of which are Impaired. Refer to Table 9 for a summary of use support ratings by use category for waters in subbasin 04-03-03.

3.3 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.

3.3.1 Mills River [AU# 6-54-(1)a and b, 6-54-(4.5), 6-54-(5) and 6-54-(6.5)]

2000 Recommendations

Mills River, from SR 1337 to the French Broad River (4.6 miles), was Impaired due to a noted impact to benthic macroinvertebrates. The impact was likely associated with agricultural nonpoint sources of pollution, particularly those associated with pesticides applied on tomato farms. DWQ will rely on local initiatives to address pesticide and nonpoint source pollution.

Table 9 Summary of Use Support Ratings by Category in Subbasin 04-03-03

Use Support Rating	Aquatic Life	Fish Consumption	Recreation	Water Supply
Monitored Waters				
Supporting	30.6 mi	0.0	5.1 mi	0.0
Impaired	0.0	0.0	0.0	0.0
Not Rated	0.0	0.0	0.0	0.0
Total	30.6 mi 0.0 ac	0.0	5.1 mi 0.0 ac	0.0
Unmonitored Waters				
Supporting	172.3 mi	0.0	0.0	160.4 mi
Impaired	0.0	0.0	0.0	0.0
Not Rated	1.8 mi	0.0	0.0	0.0
No Data	18.4 mi	223.1 mi	218.0 mi	0.0
Total	192.5 mi 0.0 ac	223.1 mi 0.0 ac	218.0 mi 0.0 ac	160.4 mi 0.0 ac
Totals				
All Waters*	223.1 mi 0.0 ac	223.1 mi 0.0 ac	223.1 mi 0.0 ac	160.4 mi 0.0 ac

* Total Monitored + Total Unmonitored = Total All Waters.

Current Status

The entire Mills River (6.0 miles) is currently Supporting for its designated uses due to Good and Good-Fair bioclassification ratings at sites B-3, SB-1 and B-5. Site SF-1 received an Excellent bioclassification. Despite the overall Good and Good-Fair bioclassification, however, DWQ noted an increase in sedimentation during a special study in 2002. Increases in sediment can lead to degraded instream habitats. Probable sources for this sediment increase include development and agricultural activities along NC 280 and NC 191 (NCDENR-DWQ, April 2003).

In addition to DWQ data, a ten-year report by VWIN concludes that the Mills River watershed exhibits the most consistent water quality (Good bioclassification and VWIN monitored sites) (Section 3.3.2). VWIN notes, however, that past biological monitoring by DWQ has shown significant degradation in the lower section and that this degradation was most likely associated with pesticide use (Maas et al., April 2003). One agrichemical handling facility was constructed in a central location along the river through a Clean Water Management Trust Fund (CWMTF) grant. The use of these buildings can reduce the amount of pesticides reaching the river, and this may account for the observed water quality improvements in Mills River during 2002. Refer to *Water Quality Initiatives* below for more information.

Due to the current bioclassification and continual efforts by local initiatives to improve water quality in the Mills River watershed, DWQ will recommend to the U.S. Environmental

Protection Agency (EPA) that the Mills River be removed from the next 303(d) Impaired waters list for 2006.

2005 Recommendations

DWQ will continue to monitor water quality in the Mills River watershed and work with the Mills River Partnership Planning Committee and Land-of-Sky Regional Council of Governments to implement the following recommendations and achieve the water quality goals listed below. It is recommended that an Integrated Pollution Source Index (IPSI) be developed through the Tennessee Valley Authority (TVA) for this watershed. This watershed assessment tool is a geographical information database that utilizes a number of physical factors to aid in identifying and prioritizing issues affecting water quality. An IPSI will help prioritize the following recommendations, which are included in the Mills River Watershed Management Strategy (2002).

(1) *Land Conversion*: Implement appropriate measures to encourage and assist landowners to retain forestland, farmland, riparian areas, wetlands, and other open spaces in the watershed.

- Strengthen Henderson County's Farmland Preservation Program.
- Enhance state and federal forest management programs to help retain private forestland.
- Market available farmland and forestland to farmers and foresters.
- Find new markets or tourism niches for farmers.
- Allow and encourage agricultural uses within all zoning districts.
- Coordinate planning efforts to redirect activities to outside of the water supply watershed.
- Adopt sustainable development policies.
- Identify targeted areas for land conversion and focus protection efforts on these areas.
- Encourage conservation easements through a coordinated conservation plan.
- Limit impervious surface to 10% of the watershed (4,695 acres).
- Recommendations to protect water quality should be part of the development design and approval process.

(2) *Hazardous Material Spill Control*: Enhance programs to prevent and/or respond effectively to hazardous material incidents and prevent the shutdown of water supplies and services to thousands of customers.

- Develop a detailed inventory of hazardous materials in the watershed.
- Use the inventory to update the county's emergency response plan. Provide necessary training and equipment.
- Ask NC Department of Transportation (NCDOT) to consider constructing an effective spill containment catch basins along NC 191/280.
- Ask Duke Power Company to consider alternatives for controlling vegetation within transmission line right-of-ways.
- Educate landowners and business operators about hazardous materials, spill prevention, and proper application and disposal techniques.
- Establish programs for the collection of hazardous materials.

- Develop educational material and brochures for homeowners on the proper handling and containment of hazardous household materials (i.e., propane, gasoline, heating oil tanks, etc.).

(3) *Erosion and Sedimentation Control*: Implement a variety of programs to reduce sediment loading to watershed streams from all sources.

- Develop a joint project with NCDOT to pave eroding dirt and gravel roads, stabilize eroding road banks and drainage ditches, and install sediment catch basins at the end of drainage ditches.
- Provide technical and financial assistance to landowners to address erosion problems on their land.
- Use a checklist for permitting development projects to enhance compliance with state regulations and distribute educational materials.
- Educate homeowners about their responsibilities under the sediment control rules and develop educational materials.
- Host Clear Water Contractor trainings in Henderson County.
- Conduct an environmental education training for elected officials.
- Work with Henderson County to consider hiring a full-time sedimentation control specialist.
- Complete all necessary erosion control projects on US Forest Service lands.
- Conduct sediment monitoring.
- Develop a countywide sediment and erosion control plan.

(4) *Stormwater Quality and Quantity Control*: Implement appropriate measures to prevent or mitigate the water quantity and quality impacts of stormwater runoff in the watershed.

- Conduct training sessions for developers, design professionals, and local government officials on stormwater management principles and practices.
- Work with NCDOT to improve stormwater management on existing and new roads. Fund demonstration projects and encourage additional training for staff and contractors.
- Use calcium chloride for road and driveway de-icing.
- Secure funding for stormwater BMP demonstration projects.
- Educate landowners and residents regarding stormwater impacts and BMPs.

(5) *Riparian Buffer Preservation and Restoration*: Work with willing landowners to restore and preserve effective riparian buffers along all waterbodies in the watershed.

- Buffers should be at least 50 feet wide on the mainstem of the Mills River and North/South Forks and should be 20 to 50 feet in width on the tributaries.
- Continue landowner outreach program.
- Offer free or low cost trees and recruit volunteers to plant them.

(6) *Agricultural Nonpoint Source Control*: Expand existing programs to address agricultural NPS pollution, especially programs to eliminate problems associated with pesticide use.

- (7) *Wastewater Management*: Manage existing and future wastewaters to prevent or mitigate impacts on water quality and public health.
- (8) *Groundwater*: Expand the current level of knowledge of groundwater resources and contamination in the watershed and take appropriate protective measures.
- (9) *Landowner Education and Participation*: Inform landowners of watershed protection issues, best management practices and seek their assistance in protecting water quality.

For more detailed information regarding the above recommendations, refer to the Mills River Watershed Management Strategy (Mills River Partnership Planning Committee and Land-of-Sky Regional Council of Governments, 2002).

Water Quality Initiatives

The mission of the Mills River Watershed Protection Project is to improve the water quality in the Mills River in a way that also benefits landowners. The project began with two grants that were approved by the CWMTF in 1999 to protect land adjacent to the mainstem and two forks of the Mills River. The first grant, awarded to the Carolina Mountain Land Conservancy, covered the acquisition of conservation easements. The second grant was for buffer plantings, streambank stabilization, and agrichemical handling facilities. In this project, over 13,000 feet of stream were protected with buffers and easements; five streambank reaches were stabilized, and one agrochemical handling facility was built. The agrochemical facility is located in a central location for easy access and old “spray” areas are no longer in use. Additional money not used for the agrichemical handling facilities was used to stabilize over 10 miles of logging roads, as well as build two feed-waste barns, four watering tanks, two stock trails, and 4,000 feet of fencing for cattle. Representatives from the Natural Resources Conservation Service (NRCS) and the Henderson County Soil and Water Conservation District (SWCD) continually provide additional agricultural cost share assistance to landowners in the Mills River watershed.

During the end of 2002, an EPA Source Water Protection grant was acquired by the Land-of-Sky Regional Council of Governments to implement workshops, meetings and inventories related to the following issues: land conversion, hazardous spills, erosion, stormwater and general watershed education in the Mills River area. In 2003, a Section 319 grant was approved for Henderson County to do additional work in the watershed. A stormwater monitoring program was implemented with 16 suspended sediment sampling stations. Two are located on Brandy Branch and four on Foster Creek with the remaining stations strategically placed in Mills River. In addition, two stormwater wetlands have been built and four riparian buffers have been planted.

Many other best management practices (BMPs) are in various stages of development including additional wetlands, a rain garden, water supply road signs, streambank stabilization, and stormwater brochures. For more information on the Mills River Watershed Protection Project, visit <http://www.hendersoncountync.org/soil/millsriverweb1.html>.

3.3.2 Brandy Branch [AU # 6-54-6]

2000 Recommendations

Brandy Branch was listed as Impaired due to nonpoint sources of pollution likely associated with agricultural and residential land use. 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. A more in-depth water quality study is needed to identify land use activities or streambank problems causing degradation.

Current Status and 2005 Recommendations

Brandy Branch was included in the Mills River TMDL study but could not be monitored due to lack of flow due to drought conditions during the time of sampling. DWQ will monitor this stream during the next basinwide cycle. Brandy Branch will remain on the 303(d) of Impaired waters.

Water Quality Initiatives

Brandy Branch is part of the Mills River watershed and is being addressed through the Mills River Partnership. Refer to Mills River *2005 Recommendations* and *Water Quality Initiatives* listed above.

3.4 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.

3.4.1 Davidson River [AU # 6-34-(1), 6-34-(15.5), 6-34-(17), 6-34-(21)]

2000 Recommendations

Processing from the lower Davidson River, RFS Ecusta, a division of P.H. Glatfelter Inc., was withdrawing 20.5 MGD. The river, under 7Q10 conditions, could be impacted from this withdrawal. Ecusta initiated a recycling effort to significantly reduce water withdrawals during the last planning cycle. DWQ will continue to monitor the Davidson River for improvements.

Current Status

The Davidson River, from source to the Olin Corporation Water Supply Dam (11.5 miles), received a bioclassification of Excellent at site B-1. The lower segment, from the Water Supply Dam to the French Broad River (1.4 miles), was not monitored. The river has historically received Excellent bioclassification ratings; however, there was a slight decline in the aquatic community during the last sampling period due to reduced flow likely associated with drought

conditions during the time of sampling. Davidson River drains Pisgah National Forest, as well as areas known for their heavy recreational use.

During this planning cycle, the Ecusta paper mill closed (2002), and the property was sold to New Tech Environmental Incorporated (2003). There was a concern over the continuance of environmental systems (i.e., wastewater and landfill leachate treatment) during the ownership lapse, but all systems are in good condition and running. The facility is now operated by the Ecusta Development Business Corporation (EDBC) and includes an industrial park. EDBC produces raw pulp material, and the company is in the process of securing permits for operation and sludge disposal. During operation, EDBC withdraws approximately 3 to 7 MGD from the Davidson River, and they do not anticipate the need to significantly increase water use at this time. EDBC will have a minimal impact on the Davidson River, as their wastewater is discharged to the French Broad River.

VWIN data collected along Davidson River corroborates DWQ ratings with an upstream rating of Excellent and a downstream rating of Good. Conductivity levels were higher downstream and the highest of all sampling sites in Transylvania County, but levels did not exceed the regional average (Maas et al., June 2003).

2005 Recommendations

DWQ will continue to monitor water quality in the Davidson River watershed and work with EDBC to ensure that they are operating according to their permit. It is recommended that local planning efforts be undertaken to manage growth and protect water quality in this watershed, particularly adjacent to the national forest. It is recommended that Transylvania County and/or Brevard develop local stormwater and sediment and erosion control programs to address concerns generated due to changing land use. It is recommended that a public request be made so DWQ can pursue a reclassification of the Davidson River [AU# 6-34-(17)] to HQW based on the Excellent bioclassification.

3.4.2 Boylston Creek [AU#6-52-(6.5)]

Current Status and 2005 Recommendations

Boylston Creek, from 0.3 miles upstream of Murray Branch to the French Broad River (6.1 miles), received a bioclassification of Good-Fair at site B-2 and a Good at site F-1. Land use in the surrounding watershed is predominantly agricultural and includes row crops and feedlots. This site has historically received a Good-Fair bioclassification (1992, 1997 and 2002) and impacts are likely associated with nonpoint source runoff. Drought conditions during the time of sampling likely reduced the effects of nonpoint source pollution, but severely eroded streambanks were observed and the substrate consists mostly of sand and gravel (both of which affect aquatic habitats). It is recommended that local agencies work with landowners to assess the need for and prioritize the installation of BMPs to improve the riparian zones and restore the streambanks along Boylston Creek.

3.5 Additional Water Quality Issues within Subbasin 04-03-03

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.

3.5.1 Surface Waters Identified for Potential Reclassification

Davidson River [AU# 6-34-(15.5) and 6-34-(17)]

The current DWQ classification for AU# 6-34-(15.5) and 6-34-(17) is WS-V, B Tr. This is a 2.7-mile stretch from Avery Creek to the Olin Corporation water supply dam. The headwaters of the Davison River flow through the Pisgah National Forest and sampling in 1997 and 2002 indicate excellent water quality. The upstream segment [AU # 6-34-(1)] is classified as WS-V, B Tr HQW. Refer to section 3.41 for more information.