

Chapter 1 -

French Broad River Subbasin 04-03-01

Includes North and West Fork French Broad Headwaters

1.1 Water Quality Overview

Subbasin 04-03-01 at a Glance

Land and Water Area (sq. mi.)

Total area:	215
Land Area:	214
Water Area:	1

Population Statistics

1990 Est. Pop.:	17,853 people
Pop. Density:	83 persons/mi ²

Land Cover (%)

Forest/Wetland:	89%
Water:	<1%
Urban:	2%
Cultivated Crop:	3%
Pasture/ Managed Herbaceous:	6%

Use Support Summary

Freshwater Streams:

Fully Supporting:	338.2 miles
Partially Supporting:	1.6 miles
Not Supporting:	0.0 miles
Not Rated:	103.7 miles

The French Broad River originates at the confluence of the West and North Forks of the French Broad River near the Town of Rosman. The East Fork of the French Broad River also flows into the French Broad River near Rosman. These three large headwater tributaries of the upper French Broad River are generally high gradient streams capable of supporting viable trout populations. A map of this subbasin, including water quality sampling locations, is presented in Figure B-1. Biological ratings for these sample locations are presented in Table B-1.

Approximately one half of the land within this subbasin is within the Pisgah National Forest and Pisgah Game Lands, and therefore, protected from most land-disturbing activities. Below Rosman, the French Broad River is a much wider, lower gradient river, which meanders through a relatively undeveloped watershed to the Town of Brevard. Some agriculture and construction activities are present in this stretch of the river. Brevard is the largest urban area in the subbasin. Construction and development are becoming more intense along the upper French Broad River corridor in this subbasin.

Good to Excellent water quality conditions have been found at most locations in this subbasin, particularly mainstem reaches of the French Broad River and its large headwater tributaries. Water quality conditions have not changed significantly at these locations since the 1992 basinwide assessment.

Ambient water quality data are being collected at the French Broad River at Rosman and the Little River near High Falls. These data indicated good water quality, with few exceedences of water quality standards during this review period and no significant negative long-term trends in water quality data.

Benthic macroinvertebrate samples have been collected from 29 locations in this subbasin since 1983. These investigations have historically found Excellent or Good water quality conditions in the French Broad River near Rosman and large headwater tributary locations (West, North and East Forks of the French Broad River). These three tributaries and Catheys Creek are designated as High Quality Waters.

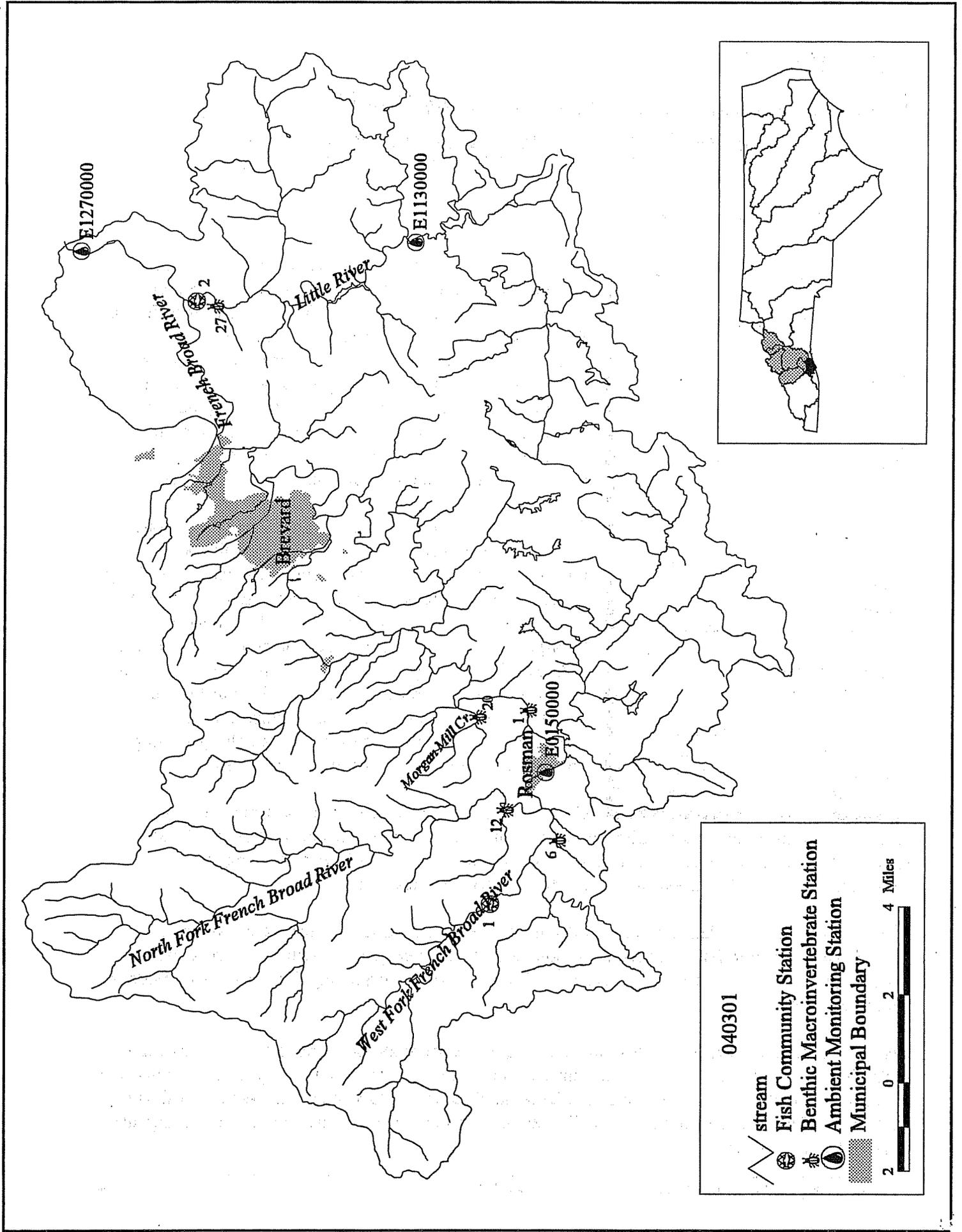


Figure B-1 Sampling Locations within Subbasin 04-03-01

Table B-1 Basinwide Biological Sites in French Broad River Subbasin 04-03-01 (1997)^o

Site	Stream	County	Road	1997 Rating
<i>Benthic Macroinvertebrates</i>				
B-1	French Broad River	Transylvania	SR 1129	Excellent
B-6	West Fork French Broad River	Transylvania	US 64	Excellent
B-12	North Fork French Broad River	Transylvania	SR 1322	Excellent
B-27	Little River	Transylvania	SR 1533	Good-Fair
<i>Fish Community</i>				
F-1	West Fork French Broad River	Transylvania	SR 1309	Not Rated*
F-2	Little River	Transylvania	SR 1533	Not Rated*

* Refer to Section A, Chapter 3 for more information on fish community ratings

^o Locations of ambient monitoring stations can be found in Section A, Table A-25

There are 14 point source discharges in this subbasin, but only three have permitted discharge greater than 0.5 MGD. There are six wastewater treatment facilities in this subbasin currently monitoring effluent toxicity as part of their NPDES permit. All of these facilities are currently meeting permit limits. There are many permitted discharges from trout farms in this subbasin. Studies in 1990 showed these discharges had a moderate to severe impact on the macroinvertebrate community below the trout farms, but downstream recovery was noted.

The VWIN program, coordinated by UNCA, maintains ten water quality monitoring locations in Transylvania County (Maas et al., 1997). These data show that streams in Transylvania County are more acidic and have a low buffering capacity making them more vulnerable to acid deposition. Data from West Fork of the French Broad River resulted in elevated metal concentrations downstream of an industrial area. Nutrient values were high in the North Fork French Broad River, relative to other VWIN monitoring sites. The nutrient inputs appear to be primarily due to trout farm effluent and these effects will continue to be monitored.

For more detailed information on water quality in this subbasin, refer to the *Basinwide Assessment Report – French Broad River Basin – November 1998*, available from the DWQ Environmental Sciences Branch at (919) 733-9960.

1.2 Prior Basinwide Plan Recommendations (1995) and Achievements

1.2.1 Impaired Waters

The 1995 French Broad River Basinwide Plan identified two stream segments in this subbasin as impaired: West Fork of French Broad and French Broad. Each of these is presented and discussed below.

West Fork of French Broad (0.5 miles below trout farms at SR 1306)

The 1995 basinwide plan identified one-half mile of the West Fork of French Broad below the Whitewater trout farm as partially supporting. The plan recommended that a special study of

trout farms should be conducted to determine if current permit conditions are adequate to protect water quality.

Status of Progress

This particular site was not resampled during this basin cycle; therefore, this one-half mile stream length will remain on the 303(d) list until further sampling is conducted (see Part 1.3.2 and Appendix IV). Monitoring conducted downstream at NC 64 indicated Excellent water quality at this lower site, and the stream is fully supporting at this lower location.

DWQ will conduct more intensive water quality sampling in the creek to determine if the stream is still impacted by trout farming activities. If the sampling indicates there is a need for more data, DWQ will work with the farmer to reduce impacts from trout farming or require the farm to obtain an individual NPDES permit, rather than the general permit that is currently required of most trout farms. The additional data will be used to develop a water quality model and will be used as the basis for developing a management strategy (see Part 1.3.2 below).

French Broad River (26.9 miles above SR 1503 at Blantyre)

This section of the French Broad River was listed in the 1995 basinwide plan as partially supporting due to fecal coliform bacteria from nonpoint sources. No specific point source strategies were developed. General recommendations were presented to address fecal coliform bacteria from nonpoint sources.

Status of Progress

No additional strategies were implemented. Based on more recent sampling, this section of the river is not currently impaired. Trout farms remain a concern during low flows, and DWQ will continue to work with the trout farmers to reduce impacts to water quality. Residential development also remains a concern, and efforts should be made to reduce the impact of construction activities on the river.

1.3 Current Priority Issues and Recommendations

1.3.1 Monitored Impaired Waters

Peter Weaver Creek (0.8 miles from Morgan Mill Creek to French Broad River) and Morgan Mill Creek (0.3 miles from trout farm (US 64) to Peter Weaver Creek)

Both of these creeks are partially supporting their uses and are on the state's year 2000 (not yet EPA approved) 303(d) list (see Part 1.3.2). Benthic macroinvertebrate samples were collected from Peter Weaver Creek at the junction of Morgan Mill Creek in 1997 at the request of the Asheville Regional Office because of potential problems with runoff from construction and discharge from a trout farm on Morgan Mill Creek. Much of the land use in the watershed is residential and pasture; however, the Morgan Mill trout farm discharges to the stream approximately 3/4 mile above the collection location. The sampling resulted in a Fair

bioclassification. The benthic sample composition suggested periods of low dissolved oxygen and high concentrations of fine particulate organic matter.

2000 Recommendation(s)

The first action that must be taken in both watersheds is to perform benthic macroinvertebrate surveys. The surveys would allow DWQ to determine if the water quality problems persist, and if the impacts are from the trout farm or other sources. If impairment is confirmed, DWQ proposes to implement a water quality monitoring program in the watershed to identify which pollutants are causing the problems. Such a program will strive to be comprehensive so that all sources may be addressed.

The program would include weekly or biweekly monitoring of several locations in the watershed for the following parameters: dissolved oxygen, ammonia, temperature, pH, turbidity, biological oxygen demand and total suspended solids. A time of travel study to identify sags in dissolved oxygen along the stream length may also be conducted. Additionally, a sediment oxygen demand study may be used to determine where the oxygen-consuming waste is located (in the sediment or water column). A toxic substance assessment may be warranted, as there are numerous potential sources of these substances in the watershed. Finally, the benthic community may be impacted by hydromodification (channelization and increased paved surfaces) and subsequent habitat degradation. These impacts may be assessed using a geomorphologic assessment.

Depending on the results of initial sampling, existing individual NPDES permit holders may be required to conduct upstream/downstream monitoring and general NPDES permit holders may be required to obtain individual NPDES permits.

1.3.2 303(d) Listed Waters

Segments of three streams are on the state's year 2000 (not yet EPA approved) 303(d) list for this subbasin. Refer to Appendix IV for more information on the state's 303(d) methodology and listing requirements. Management strategies for Morgan Mill and Peter Weaver Creeks are presented in Part 1.3.1 above. A one-half mile section of the West Fork of the French Broad River is on the 303(d) list for 2000 for resampling to assess its current water quality status (see Part 1.2.1 above).

1.3.3 Other Issues and Recommendations

The following surface water segments are rated as fully supporting using recent DWQ monitoring data. However, these data revealed some impacts to water quality. Although no action is required for these surface waters, continued monitoring is recommended. Enforcement of sediment and erosion control laws will help to reduce impacts on these streams. DWQ encourages the use of voluntary measures to prevent water quality degradation. Education on local water quality issues is always a useful tool to prevent water quality problems and to promote restoration efforts. For information on water quality education programs and nonpoint source agency contacts, see Appendix VI.

The Little River from the Cascade Lake dam to the French Broad River (4.8 miles) was monitored by DWQ in both 1992 and 1997 for benthic macroinvertebrates. Both sample years showed some habitat degradation and effects of turbidity. The Little River watershed may be impacted by agricultural activities that accelerate erosion and instream habitat degradation. Agricultural BMPs are encouraged to reduce potential impacts. DWQ will notify local agencies of water quality concerns for this river and work with these various agencies to conduct further monitoring and assist agency personnel to locate sources of water quality protection funding sources.