Chapter 6 -
Broad River Subbasin 03-08-06
Includes North Carolina portion of North Pacolet River

6.1 Water Quality Overview

Subbasin 03-08-06 at a Glance

Land and Water

Total area:	72.8 mi^2
Stream miles:	64.5

Population Statistics

1990 Est. Pop.:	7,606 people
Pop. Density:	105 persons / mi^2

Land Cover (%)

Forest / Wetland:	78.6
Surface Water:	1.0
Urban:	1.2
Cultivated Crop:	0.3
Pasture / Managed Herbaceous:	18.8

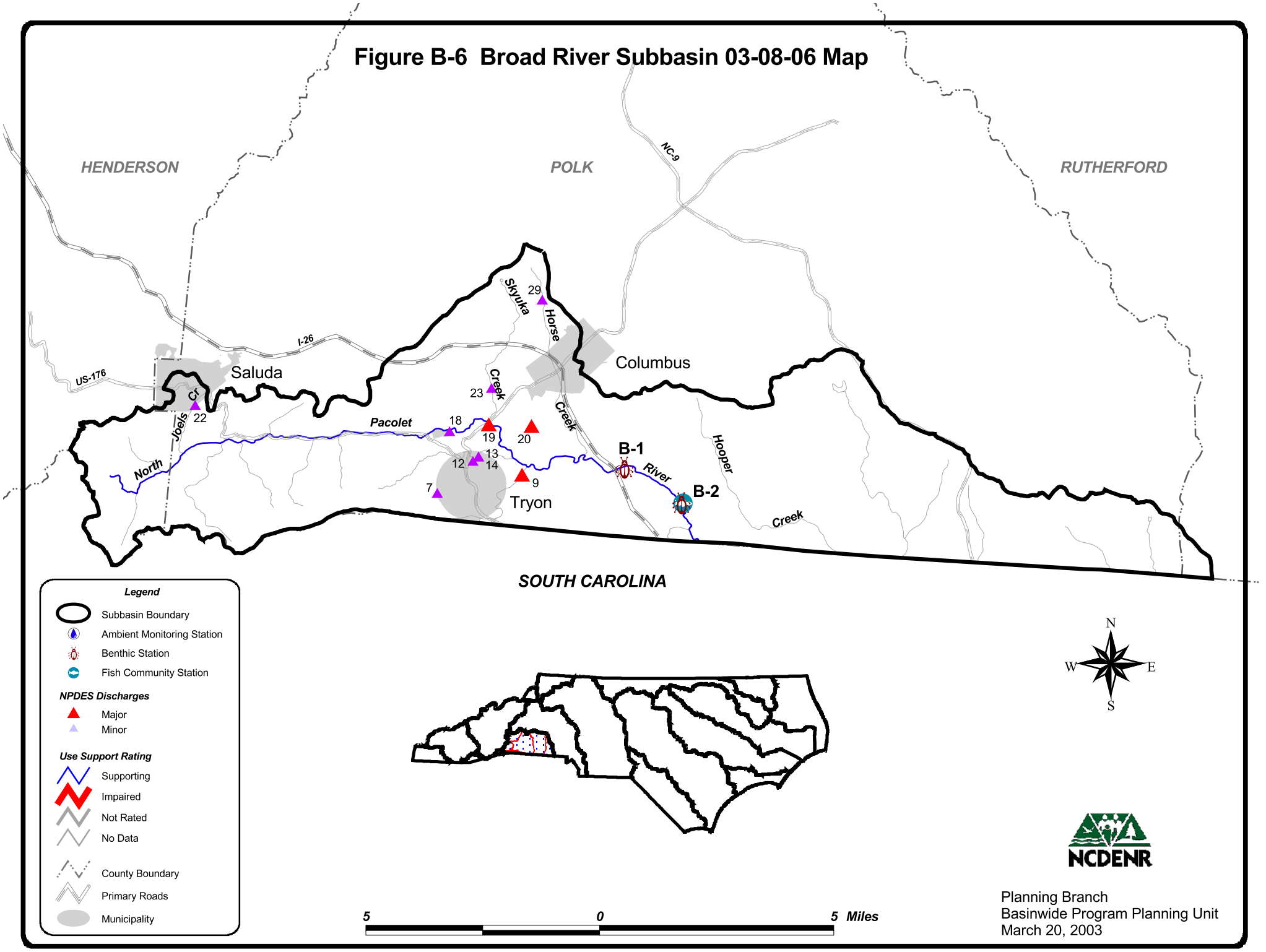
This subbasin contains approximately ten miles of the North Carolina section of the North Pacolet River, which flows into the Broad River in South Carolina. The word "Pacolet" means swiftly flowing, thus representing the swiftly flowing waters of the Pacolet River. Smaller streams include Joels, Horse and Skyuka Creeks. Saluda, Columbus and Tryon are the only municipal areas in this subbasin.

A map including the locations of NPDES discharges and water quality monitoring stations is presented in Figure B-6. Table B-11 contains a summary of monitoring data types, locations and results. Use support ratings for waters in this subbasin are summarized in Table B-12. Appendix I provides a key to discharge identification numbers. Refer to Appendix III for a complete listing of monitored waters and more information about use support ratings.

The land in this subbasin is located on the edge of the mountain and piedmont ecoregions. Seventy-nine percent of the land is forested. Row crops and pasture are the most prevalent agricultural land uses (19 percent). However, portions of the subbasin are being rapidly developed for second homes and vacation lodges. The population of Polk County is expected to increase 37 percent and 37 percent in Henderson County between 2000 and 2020.

There are eight NPDES permitted dischargers in this subbasin. The largest facilities are the Town of Tryon WWTP (1.5 MGD to an unnamed tributary to the North Pacolet River); Grover Industries (0.45 MDG to the North Pacolet River); and the Carolina Yarn Processors, Inc. (0.26 MGD to an unnamed tributary to the North Pacolet River). Only one facility, the Saluda WWTP, experienced significant problems meeting permitted limits during this review cycle. In 1998, the City of Saluda's WWTP conducted a routine cleaning, and for a couple of months following the cleaning, the facility experienced problems with its aeration basin. However, the facility quickly resolved the problems and is operating in full compliance. Two facilities, Grover Industries and the Tryon WWTP, in this subbasin are required to monitor their effluent's toxicity. In the two-year review period, only the Tryon WWTP failed its toxicity testing (in December 2000).

Figure B-6 Broad River Subbasin 03-08-06 Map



Planning Branch
Basinwide Program Planning Unit
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Table B-11 DWQ Monitoring Locations and Benthic Macroinvertebrate Bioclassifications (2000) for Broad River Subbasin 03-08-06

Site	Stream	County	Location	Bioclassification
Benthic Macroinvertebrate Monitoring				
B-1	North Pacolet River[1]	Polk	SR 1179	Good
B-2	North Pacolet River	Polk	SR 1501	Good-fair

[1] Historical data of this type are available for this waterbody; refer to Appendix II. Sites may vary.

Table B-12 Use Support Ratings Summary (2000) for Monitored and Evaluated Freshwater Streams (miles) and Lakes (acres) in Broad River Subbasin 03-08-06

Use Support Category	Units	Supporting	Impaired	Not Rated	No Data	Total
Aquatic Life/Secondary Recreation	miles	29.9	0.0	1.6	33.0	64.5
	acres	0.0	0.0	0.0	0.0	0.0
Fish Consumption	miles	64.5	0.0	0.0	0.0	64.5
	acres	0.0	0.0	0.0	0.0	0.0
Primary Recreation	miles	0.0	0.0	0.0	0.1	0.1
	acres	0.0	0.0	0.0	0.0	0.0
Water Supply	miles	6.7	0.0	0.0	0.0	6.7
	acres	0.0	0.0	0.0	0.0	0.0

Benthic macroinvertebrates in this subbasin were sampled during a three-year drought of a magnitude that local meteorologists compared to the Dust Bowl. Flows in all streams were well below normal, and the effects of nonpoint sources of pollution (nutrient runoff and in stream scour) were minimal.

Water quality seems to be stable in this subbasin. Based on macroinvertebrate collections in both 1995 and 2000, water quality in North Pacolet River is Good above the Town of Tryon and declines to Good-Fair below the town and the town's WWTP.

For more detailed information on sampling and assessment of streams in this subbasin, refer to the *Basinwide Assessment Report - Broad River Basin* (NCDENR-DWQ, December 2001), available from DWQ Environmental Sciences Branch at http://www.esb.enr.state.nc.us/bar.html or by calling (919) 733-9960.

6.2 Status and Recommendations for Previously Impaired Waters

The 1998 Broad River basin plan identified no impaired streams in this subbasin.

6.3 Status and Recommendations for Newly Impaired Waters

Although no new stream segments in this subbasin were rated as impaired based on recent DWQ monitoring (2000), impacts to the North Pacolet River from habitat degradation were observed. Part 6.5 below discusses these impacts.

6.4 Section 303(d) Listed Waters

There are no stream segments in this subbasin that are impaired and on the state's draft 2002 303(d) list. Refer to Appendix IV for more information on the state's 303(d) list and listing requirements.

6.5 Other Water Quality Concerns and Recommendations

The surface waters discussed in this section are supporting designated uses based on DWQ's use support assessment and are not considered to be impaired. However, notable water quality problems and concerns have been documented for some waters based on this assessment. While these waters are not considered impaired, attention and resources should be focused on these waters over the next basinwide planning cycle to prevent additional degradation or facilitate water quality improvement. A discussion of how impairment is determined can be found on page 47 and Appendix III.

Water quality problems in the Broad River basin are varied and complex. Inevitably, many of the water quality impacts noted are associated with human activities within the watershed. Solving these problems and protecting the surface water quality of the basin in the face of continued growth and development will be a major challenge. Voluntary implementation of BMPs is encouraged and continued monitoring is recommended. DWQ will notify local agencies and others of water quality concerns for the waters discussed below and work with them to conduct further monitoring and to locate sources of water quality protection funding. Additionally, education on local water quality issues is always a useful tool to prevent water quality problems and to promote restoration efforts. Nonpoint source program agency contacts are listed in Appendix VI.

6.5.1 North Pacolet River

The benthic macroinvertebrate community of the North Pacolet River just above the North Carolina/South Carolina state line was sampled in 2000. The site received a Good-Fair bioclassification, indicating some impacts to water quality were present, but the biological community was not considered impaired. However, habitat degradation, including sedimentation and lack of pools and riffles, was noted at the sampling site. Refer to Section A, Chapter 4 for more information regarding these problems.

The Volunteer Water Information Network (VWIN) also monitors three sites on the North Pacolet River. The site located at SR 1516 has been monitored since 1993, while the sites at Route 108 and at Melrose have only been monitored since 1998. VWIN sampling data indicate good water quality in the upper North Pacolet watershed and water quality impacts in the lower

portion of the watershed (Maas et al., June 2000). Sedimentation, especially during rain events, was noted at all three monitoring sites and was the most severe at the downstream site (SR 1516). BMPs should be put in place during construction and on agricultural operations to reduce sediment inputs in order to protect these streams and to prevent further water quality degradation. For more information of the VWIN program, refer to page 46 and page 137.

6.6 Additional Issues within this Subbasin

The previous section discussed water quality concerns for specific stream segments. This section discusses water quality issues that relate to multiple watersheds in subbasin 03-08-01. Increased growth was identified by participants at the public workshop as significant issues in this subbasin.

6.6.1 Population Growth

From 2000 to 2020, the estimated population growth for both Polk County and Henderson County is 37 percent. Growth management within the next five years will be imperative, especially in and around developing areas, in order to maintain good water quality in this subbasin. Growth management can be defined as the application of strategies and practices that help achieve sustainable development in harmony with the conservation of environmental qualities and features of an area. On a local level, growth management often involves planning and development review requirements that are designed to maintain or improve water quality. Refer to Section A, Chapter 4 for more information about urbanization and development and recommendations to minimize impacts to water quality.