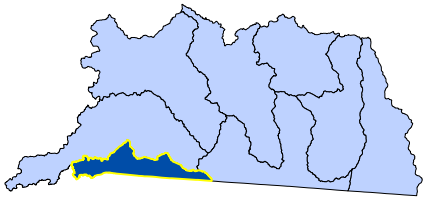
North Pacolet River Watershed



HUC's 0305010512 & 0305010515

Includes Buck Creek, Upper, Middle & Lower North Pacolet River

General Watershed Description

The North Pacolet River begins in the far most southeast corner of Henderson County, flows east-southeast towards the southern most portion of Polk County and then into South Carolina where it eventually joins the Pacolet River and the Broad River. The river flows through portions of the Southern Crystalline ridges and mountains and the southern inner and outer piedmont ecoregions. Nearly 80 percent of the land is forested, while the remaining 20 percent is mostly pasture with scattered residential and urban areas (Figure 8-1). The only urbanized areas are located in the Towns of Saluda, Tryon and Columbus (Figure 8-2).

Watershed at a Glance

Counties

Henderson, Polk

Municipalities

Saluda, Tryon, Columbus

Permitted Facilities

NPDES WWTP:	8
NPDES Nondischarge:	0
NPDES Stormwater:	2
Animal Operations:	0

Monitored Stream Miles (AL)

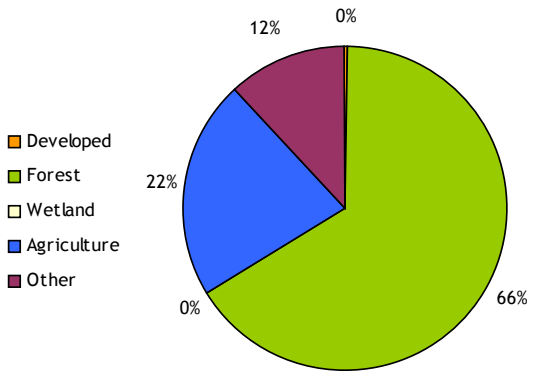
Total Streams:	17.9 mi
Total Supporting:	17.9 mi
Total Impaired:	0 mi
Total Not Rated:	0 mi

Water Quality Overview

Of the 69 stream miles in the North Pacolet River watershed, 18 miles were monitored by DWQ. Of these waters 100 percent are Supporting for aquatic life. Major stressors in this watershed are habitat degradation and nutrient impacts from stormwater runoff and wastewater treatment plants.

Biological monitoring was conducted at three basinwide sites; one was sampled for the first time in 2005. One additional benthic site was sampled as part of a special study in the North Pacolet River to establish reference conditions.

Figure 8-1: North Pacolet River Watershed Land Cover



NRI: National Land Cover Data, 2001

Overall, water quality in the North Pacolet River watershed has remained unchanged and even improved in some cases. No Impaired waterbodies were identified; however, impacts were noted at the fish monitoring site in the North Pacolet River.

There are six minor and two major NPDES discharge permits within this watershed. The Saluda Wastewater Treatment Plant was approved for construction upgrades in 2006. The Tryon Middle School Wastewater Treatment Plant closed in 2005 and was sold to the Town of Tryon. This facility has produced little to no discharge since that time. The Carolina Yarn Processors facility has had no discharge during the last two compliance evaluations. All other facilities were in compliance. There are two stormwater permits in this watershed located on the out skirts of the Town of Tryon.

Figure 8-2: North Pacolet River HUC's 0305010512 & 0305010515

Legend

- Watershed Boundaries
- County boundaries
- Municipalities

Non-Discharger Permit

- Major
- Minor

NPDES Dischargers

- Major
- Minor

Monitoring Sites

- Ambient
- Fish Community
- Benthos

Aquatic Life Rating

- Impaired
- Not Rated
- Supporting

0 1.25 2.5 5 7.5 10 Miles

Planning Section
Basinwide Planning Unit
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How to Read this Document

This document was written to correspond with our new ***Online Geographic Document Distribution (OGDD)*** tool using Google Earth™. If you are unable to use Google Earth™, this document provides maps and associated water quality information and a discussion of water quality trends occurring in the watershed. Google Earth™ is an independent software program which can be downloaded to a personal, business, and most local and state government computers; the program allows you to view satellite imagery of the earth's surface along with location identifiers. DWQ's Basinwide Planning Unit created a "transparency" add on layer to Google Earth™ with basinwide water quality data, which allows a user to locate their watershed, pinpoint a waterbody and use support ratings, find a location of a permit and provides links to PDF watershed reports. For more information on how to download Google Earth™ and DWQ's data visit ***DWQ's Basinwide Planning's OGDD*** website. Please contact Melanie Williams for more information at melanie.williams@ncmail.net or 919-807-6447.

Impaired streams are those streams not meeting their associated water quality standards in more than 10 percent of the samples taken within the assessment period (January 1, 2002 through December 31, 2006) and impacted streams are those not meeting water quality standards in 7 to 10 percent of the samples. The ***Use Support*** report provides information on how and why water quality ratings are determined and DWQ's "***Redbook***" describes in detail water quality standards for each waterbody ***classification***. For a general discussion of water quality parameters, potential issues, and rules please see "***Supplemental Guide to North Carolina's Basinwide Planning: Support Document for Basinwide Water Quality Plans***".

Appendix 8-A provides descriptions of Use Support ratings for all monitored waterbodies in the subbasin.
Appendix 8-B provides a summary of each ambient data monitoring station (THERE ARE NO AMBIENT STATIONS IN THIS WATERSHED).
Appendix 8-C provides summaries of biological and fish assessment monitoring sites.

Table 8-1: Monitored Stream Segments In The North Pacolet River Watershed

AU Number	Stream Name	Length (miles)	Class.	2008 IR Category	Impaired	Impacted	Potential Stressors (Potential Sources)	DWQ Subbasin
9-55-1-(1)	North Pacolet River	10.5	C;Tr	2	-	-	**Habitat Degradation, Nutrient Impact** (Stormwater Runoff, WWTP NPDES)	03-08-06
9-55-1-(10)	North Pacolet River	7.4	C	2	-	-		03-08-06

*The 2008 IR Categories definitions can be found on the first page of Appendix 6-A

Current Status of Impaired & Impacted Waters

North Pacolet River AU#: 9-55-1-(1), 9-55-1-(10)

Three benthic sites (AB38, AB39 and AB40) and one fish site (AF33) were sampled on the North Pacolet River. Site AB38 was part of a special study and was sampled well upstream of the previous sampling sites in order to establish a reference point for future water quality studies in the watershed. Site AB38 rated Excellent and can be used as a habitat reference site for the North Pacolet River.

Site AB39 also rated Excellent, an improved from the Good rating the site received in 1995 and 2000. Despite the Excellent rating, however, DWQ biologists noted severe streambank erosion, poor riparian areas on both sides and a lack of instream habitat. DWQ biologists note that the improved rating may be the result of increased stream flow measured in 2005 versus the previous assessment in 2000. In protected watersheds, increased stream flow often results in more favorable stream conditions such as increased availability of wetted habitat and increased dissolved oxygen levels, both of which improve macroinvertebrate colonization.

Site AF33 on the North Pacolet River was sampled for the first time in 2005. The site is located just west of the Town of Tryon and habitat characteristics were of moderate to high quality. Residential properties along both sides of the streambanks were altered resulting in a fairly open canopy, grassy lawns cut down to the streambank and bank altering. Streambank erosion was also evident. Even though more fish were collected from this site than from any other site in the basin (962 fish collected), site AF33 rated Good-Fair. Nearly 60 percent of the fish collected were bluehead chub, an indication of nutrient enrichment.

DWQ biologists also documented a reproducing population of naturalized, rainbow trout in this segment of the North Pacolet River. Here the river has the supplemental classification of trout and is also stocked periodically by the NC Wildlife Resources Commission (WRC) with three trout species. DWQ biologists collected all three species during the time of sampling.

Site AB40 rated Good, a slight improvement from the Good-Fair the site received in 2000. The most notable habitat concerns included instream habitat (i.e., infrequent pools and small riffle substrate) and poor riparian vegetation on the right streambank. A few pollution intolerant species were collected for the first time. Since the last assessment period, Grover Industries (Permit NC0004391) has substantially reduced it's yarn dying operation. As a result, the discharge is currently reduced in overall volume and is now 100 percent domestic and non-process wastewater. This change in discharge volume and type may have contributed to the improved rating.

Significant Non-Compliance Issues

No significant non-compliance issues were identified for the permitted NPDES WWTP facilities in these watersheds.

Local Initiatives

NC Agriculture Coast Share Program

The NC Agriculture Cost Share Program (NCACSP) was established in 1984 to help reduce agricultural nonpoint runoff into waters of the state. The program helps owners and renters of established agricultural operations improve their on-farm management by using approved agricultural BMPs. BMPs include vegetative, structural or management systems that can improve the efficiency of farming operations while reducing the potential for surface and groundwater contamination.

The NCACSP is implemented by the Division of Soil and Water (DSWC), which divides the approved BMPs into five main purposes or categories:

- Erosion Reduction/Nutrient Loss Reduction in Fields;
- Sediment/Nutrient Delivery Reduction from Fields;
- Stream Protection from Animals;
- Proper Animal Waste Management; and
- Agricultural Chemical (agrichemical) Pollution Prevention.

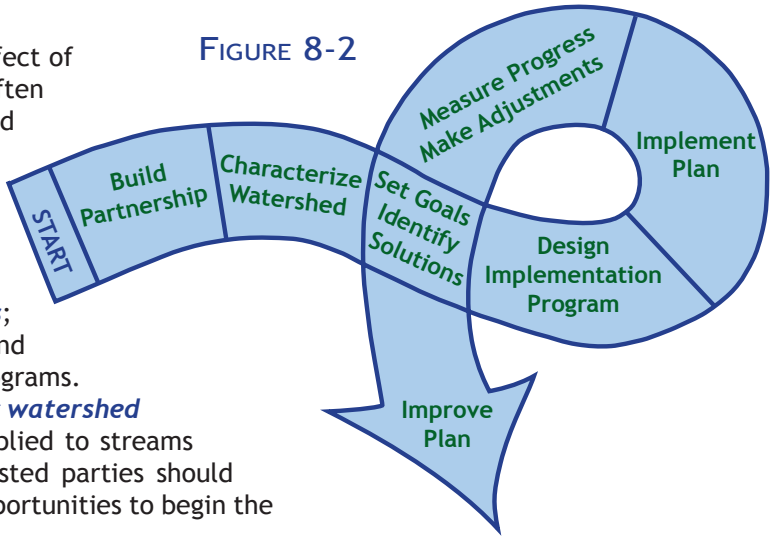
The NCACSP is a voluntary program that reimburses farmers up to 75 percent of the cost of installing an approved BMP. The cost share funds are paid to the farmer once the planned BMP is completed, inspected and certified to be in accordance with NCACSP standards. The annual statewide budget for BMP cost sharing is approximately $6.9 million. During this assessment period, $9,000 was allocated for BMPs in the North Pacolet River watershed for the development and implementation of proper animal waste management.

Recommendations

Habitat Degradation

In most cases habitat is degraded be the cumulative effect of several stressors acting in concert. These stressors often originate in the upland portions of the watershed and may include impervious surfaces, sedimentation and erosion from construction, general agriculter, and other land disturbing activities.

Figure 8-2



Many tools are available to address habitat degradation including: ***urban stormwater BMPs***; ***agricultural BMPs***; ordinance and/or rule changes at the local, state, and federal level; volunteer activism; and education programs. Figure 8-2 illustrates the general process for ***developing watershed restoration plans***. This process can and should be applied to streams impaired or impacted by habitat degradation. Interested parties should contact the ***Basinwide Planning Program*** to discuss opportunities to begin the

planning and restoration process in their chosen watershed.

Nutrient Impact

Nutrients refer to phosphorus (P) and nitrogen (N), which are common components of fertilizers, animal and human waste, vegetation, aquaculture and some industrial processes. Nutrients in surface waters come from both point and nonpoint sources including agriculture and urban runoff, wastewater treatment plants, forestry activities and atmospheric deposition. While nutrients are beneficial to aquatic life in small amounts, excessive levels can stimulate algal blooms and plant growth, depleting dissolved oxygen in the water column.

Nutrient impacts in this watershed are mainly from agriculture, commercial and residential property stormwater runoff. Riparian buffers are needed along streams to filter excess nutrients and other contaminates before the runoff reaches the stream. Excessive fertilizing of residential lawns and golf courses also significantly impacts water quality. Education, along with encouraging the use of riparian buffers, can reduce the amount of phosphorus and nitrogen entering surface waters.

References and Supporting Documentation

NCDENR Division of Water Quality. April 2006. *Basinwide Assessment Report - Broad River Basin*. ***http://h2o.enr.state.nc.us/esb/Basinwide/Broad2006FinalAll.pdf***.

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