

Chapter 3 -

Pasquotank River Subbasin 03-01-52

Includes Perquimans River, Little River and Tributaries

3.1 Water Quality Overview

Subbasin 03-01-52 at a Glance

Land and Water

Total area:	541 mi ²
Land area:	399 mi ²
Water area:	142 mi ²

Population Statistics

1990 Est. pop.:	18,399 people
Pop. density:	46 persons / mi ²

Land Cover (%)

Forest / Wetland:	32
Surface Water:	28
Urban:	<1
Cultivated Crop:	39
Pasture / Managed Herbaceous:	1

This Pasquotank River subbasin consists of the northwestern edge of Albemarle Sound and the rivers that empty to it. The largest of these rivers are the Little River and the Perquimans River. The Perquimans River originates in the Great Dismal Swamp and flows south before emptying into Albemarle Sound. A map including water quality sampling locations is presented as Figure B-4. The largest town in this subbasin is Hertford.

DWQ conducted benthic macroinvertebrate and ambient water quality sampling in this subbasin. Biological ratings for these sample locations are presented in Table B-5. Use support ratings are summarized in Table B-6. Refer to Appendix II for a complete listing of monitored waters and Appendix III for use support ratings. There are few indications of water quality problems in the subbasin.

A small portion of the land area near the mouths of the Yeopim, Perquimans and Little River is designated as Significant Natural Heritage Areas.

There are five permitted dischargers in the subbasin; none of which are major permit holders. Four general permits are currently issued in the basin. No facilities are required under permit to perform whole effluent toxicity testing in the subbasin. There is only one facility with a NPDES individual stormwater permit issued in the subbasin, South Atlantic Wood Preserving, discharging into the Little River.

Benthic macroinvertebrates have been collected at four freshwater sites within this subbasin; however, these data are not rated; and therefore, they currently offer little indication of the water quality status of the Pasquotank River basin.

For more detailed information on sampling and assessment of streams in this subbasin, refer to the *Basinwide Assessment Report-Pasquotank River Basin* (NCDENR-DWQ, January 2002), available from DWQ Environmental Sciences Branch at <http://www.esb.enr.state.ncu.us/bar.html> or by calling (919) 733-9960.

Figure B-4 Pasquotank River Subbasin 03-01-52

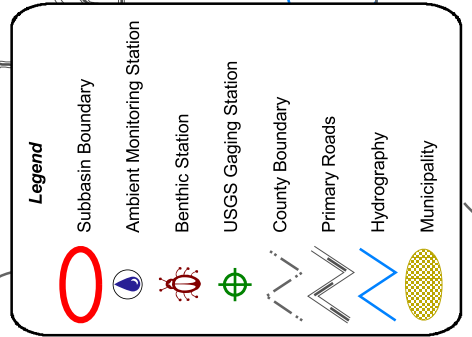
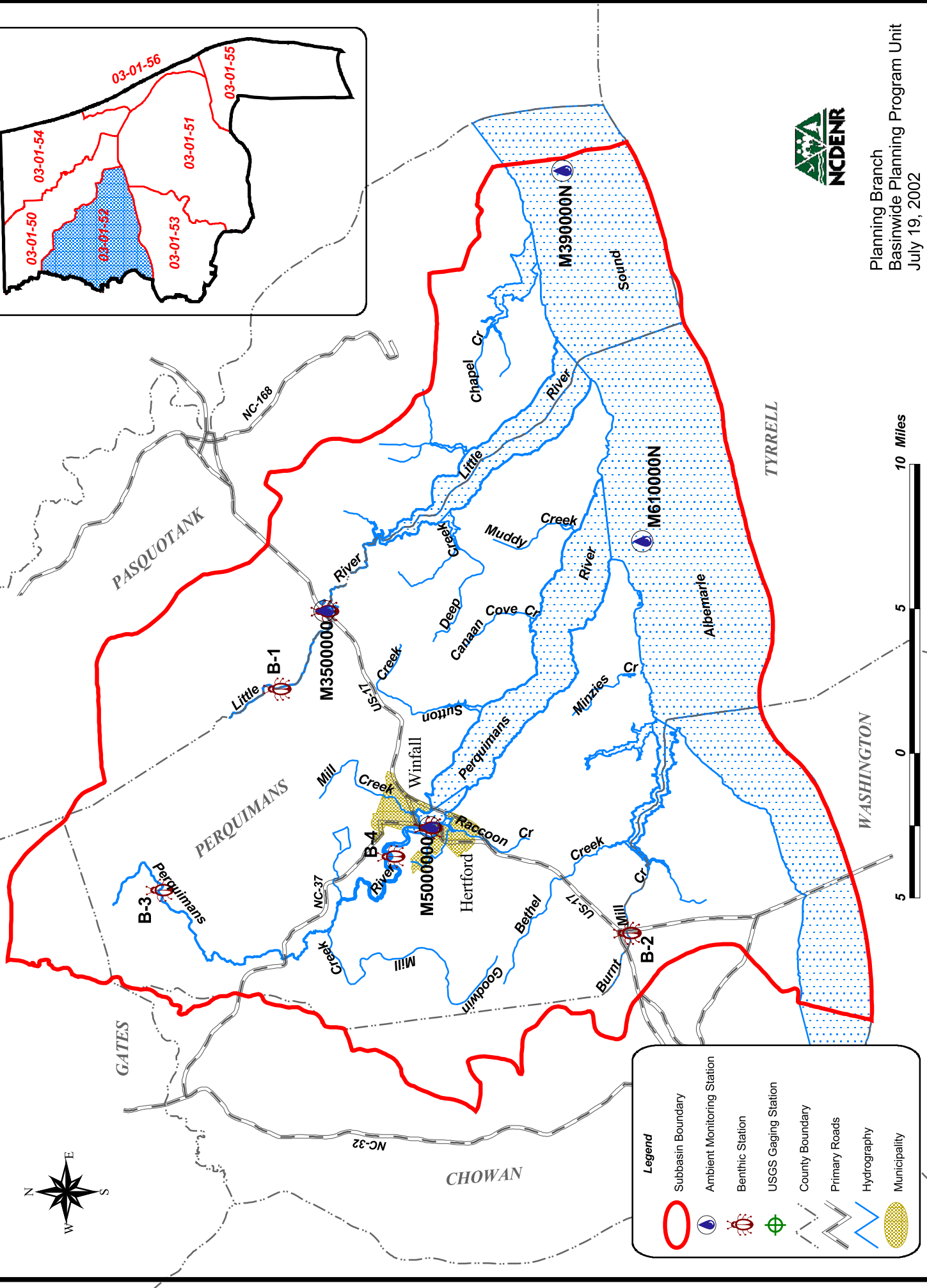
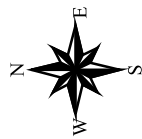
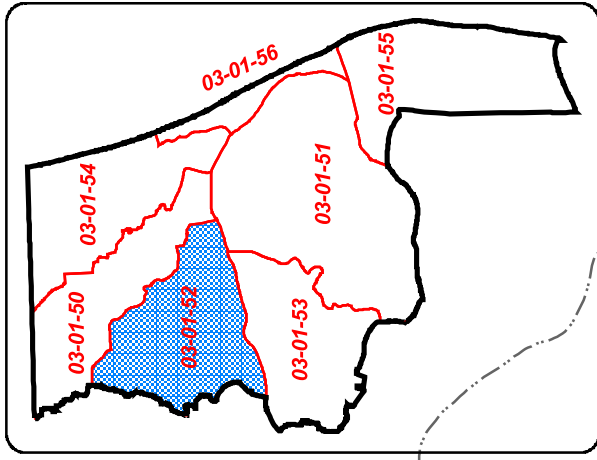


Table B-5 DWQ Monitoring Locations and Benthic Macroinvertebrate Bioclassifications (2000) for Pasquotank River Subbasin 03-01-52

Site	Stream	County	Location	Bioclassification
<i>Benthic Macroinvertebrates</i>				
Freshwater				
B-1	Little River	Perquimans	SR 1221	Not Rated
B-2	Burnt Mill Creek	Chowan & Perquimans	NC 37	Not Rated
B-3	Perquimans River	Perquimans	SR 1111	Not Rated
B-4	Perquimans River	Perquimans	2 miles above Hertford	Not Rated
<i>Ambient Monitoring</i>				<i>Problem Parameters</i>
M3500000	Little River at US 17	Perquimans	at Woodville	DO and pH
M390000N	Albemarle Sound	Pasquotank	near Frog Island north shore	None observed
M5000000	Perquimans River	Perquimans	at SR 1336 at Hertford	pH
M610000N	Albemarle Sound	Perquimans	between Harvey Point and Mill Point north shore	None observed

* Refer to Section A, Part 3.3 for more information on fish community and benthic macroinvertebrate bioclassifications.

Table B-6 Use Support Ratings Summary (2000) for Monitored and Evaluated² Freshwater Streams (Miles) in Pasquotank River Subbasin 03-01-52

Use Support Category	FS	PS	NS	NR	Total ¹
Aquatic Life/ Secondary Recreation²	72,795.5 estuarine ac	0	0	88.6 mi 18,924.6 estuarine ac	88.6 mi 91,720.1 estuarine ac
Primary Recreation	72,795.5 estuarine ac	0	0	9,840.3 estuarine ac	82,635.8 estuarine ac

¹ Total stream miles/acres assigned to each use support category in this subbasin. Column is not additive because some stream miles are assigned to more than one category.

² These waters are impaired because of a regional fish consumption advisory. Refer to Section A, Part 4.3 for further information.

3.2 Status and Recommendations for Previously Impaired Waters

The 1997 Pasquotank River Basinwide Plan identified two segments as impaired in this subbasin (Little River and Burnt Mill Creek). This section reviews use support and recommendations detailed in the 1997 basinwide plan, reports status of progress, gives recommendations for the next five-year cycle, and outlines current projects aimed at improving water quality for these stream segments.

3.2.1 Little River (11.8 miles from source to mouth of Halls Creek)

1997 Recommendations

This segment of the Little River was partially supporting because of low dissolved oxygen (DO) levels. Potential sources included land development, nonirrigated crop production, off-farm animal holding/management area and on-site wastewater systems (septic systems). Swamp conditions combined with agricultural runoff were thought to be contributing to the low dissolved oxygen.

Status of Progress

The Nonpoint Source Team chose against focusing on Little River and instead focused on broader issues that could impact the entire basin.

The Little River is currently not rated, but there are indications that agricultural land uses may be contributing to observed algal growths and low dissolved oxygen.

2002 Recommendations

DWQ will determine if the low dissolved oxygen in the Little River is due to natural conditions or other inputs. DWQ will continue to develop biocriteria to better assess use support in waters with swamp characteristics. Land adjacent to Little River is expected to undergo development in the near future. Special attention should be placed on development impacts to local primary nursery areas. Growth management within the next five years will be imperative in order to maintain good water quality in this subbasin. Refer to Section 4.11 for more information about minimizing impacts to water quality from development.

3.2.2 Burnt Mill Creek (3.5 miles from source to Yeopim River)

1997 Recommendations

Burnt Mill Creek was not supporting from its source to Yeopim River. DWQ recommended monitoring the waterbody.

Status of Progress

The creek is currently not rated and is no longer considered impaired. DWQ collected new biological information suggesting the previous bioclassification was inappropriate.

2002 Recommendations

DWQ will continue to develop biocriteria to better assess use support in waters with swamp characteristics.

3.3 Status and Recommendations for Newly Impaired Waters

The four benthic monitoring sites in this subbasin are currently not rated because criteria for assigning bioclassifications to swamp streams are still in draft (page 67). No additional stream segments were rated as impaired in this subbasin based on recent DWQ monitoring (1995-2000).

3.4 Other Issues and Recommendations

The surface waters discussed in this section are fully supporting designated uses or are not rated based on recent DWQ monitoring; however, these data revealed some impacts to water quality. Although no action is required for these streams, voluntary implementation of BMPs is encouraged and continued monitoring is recommended. DWQ will notify local agencies of water quality concerns regarding these waters and work with them to conduct further monitoring and to locate sources of water quality protection funding.

3.4.1 Mill Creek

Current Status

Mill Creek is currently not rated. The Perquimans County Water Treatment Plant #2 discharges effluent into an unnamed tributary to Mill Creek that leads to the Pasquotank River. The facility exceeded its permit limits by greater than 40 percent for total suspended solids over the course of two or more months during quarterly review periods in 1999 and 2000.

2002 Recommendations

The Perquimans County Water Treatment Plant #2 has been under a Special Order of Consent and has constructed a treatment facility to treat the total suspended solids problem. DWQ will continue to monitor the treatment facility.

Current Status

The Town of Winfall's Water Treatment Plant discharges to Mill Creek. The facility exceeded its permit limits by greater than 40 percent for total suspended solids over the course of two or more months during quarter review periods in 1998 and 1999.

2002 Recommendations

The Town of Winfall is under a Special Order of Consent (SOC) which requires them to meet the required permit limits by November 2003. DWQ will continue to work with Winfall to make the requirements of the SOC.

3.4.2 Bethel Creek

Current Status

Bethel Creek is currently not rated. Perquimans County exceeded its permit limits at its Water Treatment Plant (#1/Bethel) that discharges to Bethel Creek. The facility exceeded its permit limits by greater than 40 percent for total suspended solids over the course of two or more months during quarterly review periods in 1999.

2002 Recommendations

The Perquimans County Water Treatment Plant #1 has been under a Special Order of Consent and has constructed a treatment facility to treat the total suspended solids problem. DWQ will continue to monitor the treatment facility.

3.4.3 Perquimans River

Current Status

Perquimans River is currently not rated. The Town of Hertford has been experiencing some problems with their wastewater treatment plant. DWQ's Washington Regional Office has met with Hertford to discuss the current situation and to identify some solutions.

2002 Recommendations

DWQ will continue to provide technical assistance to the facilities to ensure that the facilities do not exceed their effluent permit limits. Because of the multiple number of facility violations in the subbasin, DWQ's Environmental Sciences Branch will determine whether or not a biological survey is appropriate.