

Executive Summary

North Carolina's Basinwide Approach to Water Quality Management

Basinwide water quality planning is a nonregulatory watershed-based approach to restoring and protecting the quality of North Carolina's surface waters. Basinwide water quality plans are prepared by the NC Division of Water Quality (DWQ) for each of the seventeen major river basins in the state. Each basinwide plan is revised at five-year intervals. While these plans are prepared by the DWQ, their implementation and the protection of water quality entails the coordinated efforts of many agencies, local governments and stakeholders in the state. The first basinwide plan for the Chowan River basin was completed in 1997.

This draft document is the first five-year update of the *Chowan River Basinwide Water Quality Plan*. The format of this plan was revised in response to comments received during the first planning cycle. DWQ replaced much of the general information in the first plan with more detailed information specific to the Chowan River basin. A greater emphasis was placed on identifying causes and sources of pollution for individual streams in order to facilitate local restoration efforts.

DWQ considered comments from two public workshops held in the basin and subsequent discussions with local resource agency staff and citizens during draft plan development. This input will help guide continuing DWQ activities in the basin.

Goals of the Basinwide Approach

The goals of DWQ's basinwide program are to:

- identify water quality problems and restore full use to impaired waters;
- identify and protect high value resource waters;
- protect unimpaired waters while allowing for reasonable economic growth;
- develop appropriate management strategies to protect and restore water quality;
- assure equitable distribution of waste assimilative capacity for dischargers; and
- improve public awareness and involvement in the management of the state's surface waters.

Chowan River Basin Overview

The Chowan River basin is located in the northeastern coastal plain of North Carolina and southeastern Virginia. The North Carolina portion includes all or part of Northampton, Hertford, Gates, Bertie and Chowan counties. The Chowan River is formed at the border of Virginia and North Carolina by the confluence of the Nottoway and Blackwater Rivers, and its streams flow southeastward towards the Albemarle Sound.

The majority of the river's watershed (approximately 75 percent) lies within the Virginia border. This Virginia portion of the basin is managed as the Chowan River and Dismal Swamp basin.

This Virginia portion covers 4,061 square miles of the Chowan River and Chowan River basin's headwaters (Virginia, 2000).

The Chowan River basin in North Carolina is composed of two major drainages: Chowan River and Meherrin River. There is very little information available regarding water quality in the basin. However, the data available indicate that water quality is generally good. All of the waters in the basin are designated as Nutrient Sensitive Waters.

Population of the basin, based on 1990 census data, was estimated to be 62,474. The 2000 population was estimated to be 61,034. This change in population over the ten-year period resulted in a 2.3 percent decrease in population. The overall population density of the basin is 48 persons per square mile compared to an estimated statewide average of 139 persons per square mile.

The Chowan River basin is part of the Albemarle-Pamlico Estuarine system, the second largest estuarine system in the United States. In 1987, this estuarine system became part of the Environmental Protection Agency National Estuary Program and was the subject of a major study known as the Albemarle-Pamlico Estuarine Study.

Forest and agriculture dominate the Chowan River basin. Over half of the land in the basin is forested with another 32.6 percent devoted to cultivated crops. Important natural resources in the basin include wetlands, anadromous fish spawning areas and Merchant's Millpond State Park. Most of the water used in the basin comes from groundwater sources.

Assessment of Water Quality in the Chowan River Basin

Surface waters are classified according to their best intended uses. Determining how well a water supports its designated uses (use support status) is an important method of interpreting water quality data and assessing water quality. Waters are rated fully supporting (FS), partially supporting (PS) or not supporting (NS). The terms refer to whether the classified uses of the water (i.e., aquatic life protection, recreation and water supply) are being met. For example, waters classified for aquatic life protection and secondary recreation (Class C for freshwater and SC for saltwater) are rated FS if data used to determine use support did not exceed specific criteria. However, if these criteria were exceeded, then the waters would be rated as PS or NS, depending on the degree of degradation. Waters rated PS or NS are considered to be impaired. Waters lacking data, or having inconclusive data, are listed as not rated (NR).

Beginning in 2000 with the Roanoke River basin, an approach to assess ecosystem health and human health risk is being initiated via the development of use support ratings for each of six use support categories: aquatic life and secondary recreation, fish consumption, shellfish harvesting, primary recreation, water supply and "other" uses. Each of these categories relates to the primary classifications applied to NC rivers and streams. A single water could have more than one use support rating corresponding to one or more of the multiple use categories. For many waters, a use category will not be applicable (NA) to the best use classification of that water (e.g., drinking water supply is not the best use of a Class C water). This method of determining use support differs from that done prior to 2000; in that, there is no longer an *overall* use support rating for a water.

Aquatic Life/Secondary Recreation

The aquatic life/secondary recreation use support category is applied to all waters in North Carolina. Therefore, this category is applied to the total number of stream miles (802.6 miles) in the Chowan River basin. A basinwide summary of current aquatic life/secondary recreation use support ratings is presented in Table 1.

Approximately 36 percent of stream miles (288.2) were monitored for the protection of aquatic life and secondary recreation by DWQ during this basinwide planning cycle. Impaired waters account for 2.8 percent of the total stream miles and 7.8 percent of monitored stream miles.

Table 1 Aquatic Life/Secondary Recreation Use Support Summary Information for Waters in the Chowan River Basin (2000)

Aquatic Life/Secondary Recreation Use Support Ratings	Monitored, Evaluated and Not Rated Streams*		Monitored Streams Only**	
	Miles	%	Miles	%
Fully Supporting	107.2	13.3%	107.2	37.2%
Impaired	22.5	2.8%	22.5	7.8%
<i>Partially Supporting</i>	22.5	2.8%	22.5	7.8%
<i>Not Supporting</i>	0	0%	0	0%
Not Rated	672.9	84.0%	158.5	55.0%
Total	802.6		288.2	

* = Percent based on total of all waters, both monitored and evaluated.

** = Percent based on total of all monitored waters.

Fish Consumption

Like the aquatic life/secondary recreation use support category, the fish consumption use support category is also applied to all waters in the state. Approximately five percent of stream miles in the Chowan River basin were monitored for the fish consumption use support category during this basinwide cycle. Fish consumption use support ratings are based on fish consumption advisories issued by the NC Department of Health and Human Services (NCDHHS). Currently, there is a regional advisory limiting consumption of shark, swordfish, king mackerel, tilefish as well as largemouth bass, bowfin (or blackfish) and chain pickerel (or jack), due to elevated methylmercury levels. Because of this advisory, all waters south and east of Interstate 85 are considered partially supporting the fish consumption use on an evaluated basis. Only 39.8 miles of the basin were monitored during the 1995-2000 basinwide planning cycle. A basinwide summary of current fish consumption use support ratings is presented in Table 2.

Table 2 Fish Consumption Use Support Summary Information for Waters in the Chowan River Basin (2000)

Fish Consumption Use Support Ratings	Monitored, Evaluated and Not Rated Streams*		Monitored Streams Only**	
	Miles or Acres	%	Miles or Acres	%
Fully Supporting	0.0		0.0	0%
Impaired	802.6	100%	39.8	100%
<i>Partially Supporting</i>	802.6	<i>100%</i>	<i>39.8 miles</i>	<i>100%</i>
<i>Not Supporting</i>	<i>0</i>		<i>0</i>	<i>0</i>
Not Rated	0.0		0.0	0
TOTAL	802.6		39.8	

* = Percent based on total of all streams, both monitored and evaluated. ** = Percent based on total of all monitored streams.

Primary Recreation

There are 105.4 miles currently classified for primary recreation in the Chowan River basin. A basinwide summary of current primary recreation use support ratings is presented in Table 3.

Table 3 Primary Recreation Use Support Summary Information for Waters in the Chowan River Basin (2000)

Primary Recreation Use Support Ratings	Monitored, Evaluated and Not Rated Streams*		Monitored Streams Only**	
	Miles	%	Miles	%
Fully Supporting	73.4	69.6	73.4	100.0%
Impaired	0	0	0	0
<i>Partially Supporting</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Not Supporting</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
Not Rated	32.0	30.4%	0	0%
TOTAL	105.4	---	73.4	-----

* = Percent based on total of all streams, both monitored and evaluated. ** = Percent based on total of all monitored streams.

Use Support Summary

There are 22.5 impaired stream miles in the aquatic life/secondary recreation use support category and no impaired waters in the primary recreation use support category. All waters are considered impaired for the fish consumption use support category due to a regional fish consumption advisory for shark, swordfish, king mackerel, tilefish as well as largemouth bass, bowfin (or blackfish) and chain pickerel (or jack), although only one stream was monitored to

assess this category. There were no waters impaired in the primary recreation use support category. The water supply use support category was not assessed in this basin because there are no surface water drinking water supplies. Descriptions of impaired segments, as well as problem parameters, are outlined in Appendix III. Management strategies for each waterbody are discussed in detail in the appropriate subbasin chapter.