

# APPENDIX VIII

## List of 303(d) Waters in the Chowan River Basin

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#### What is the 303(d) list?

Section 303(d) of the Clean Water Act (CWA) requires states to develop a list of waters not meeting water quality standards or which have impaired uses. Waters may be excluded from the list if existing control strategies for point and nonpoint source pollution will achieve the standards or uses. Waterbodies which are listed must be prioritized, and a management strategy or total maximum daily load (TMDL) must subsequently be developed for all listed waters.

#### 303(d) List Development

The 305(b) report was used as a basis for developing the 303(d) list. Section 305(b) of the CWA requires states to report biennially to the U.S. Environmental Protection Agency (EPA) on the quality of waters in their state. In general, the report describes the quality of the state's surface waters, groundwaters, and wetlands, and existing programs to protect water quality. Information on use support, likely causes (e.g., sediment, nutrients, etc.) and sources (point sources, agriculture, etc.) of impairment are also presented in the report.

Many types of information were used to make use support assessments and to determine causes and sources of use support impairment. Chemical, physical, and biological data were the primary sources of information used to make use support assessments. North Carolina has an extensive ambient and biological monitoring network throughout the state. Benthic macroinvertebrate data which indicate taxa richness of pollution intolerant groups are an important data source. North Carolina also collects fish tissue and fish community structure data and phytoplankton bloom data that are used in the assessments. In addition, shell fish closure data, information from other agencies, workshops, and reports, predictive modeling results, toxicity data, and self monitoring data is considered when making final use support determinations. Data from all readily available sources are used when the Division's standard operating procedures are followed when collecting and analyzing data. Where the list has no problem parameter listed, the use support rating was based on biological data, and available chemical data showed no impairment. It should be noted that where a problem parameter has been identified, the water quality standard for that parameter was exceeded. This parameter is a potential cause of the impairment, but there may be other unidentified causes contributing to the impairment as well.

Only those waterbodies whose use support rating were not supporting (NS) or partially supporting (PS) in the 305(b) report were considered as candidates for the 303(d) list. Of those waterbodies that showed impairment (PS or NS rating) only those waterbodies that had a use support rating based on monitoring data collected in the last five years were included on the 303(d) list. Since many changes can occur within a watershed in a five year period, conclusive information about a waterbody's use support cannot be made with older data. However, North Carolina will be collecting information on as many of these evaluated waterbodies as staffing and time permit for subsequent updates of the basin plans and 303(d) list. As more conclusive information on streams rated using older data or best professional judgment is obtained, evaluated waterbodies will be added to the list if the data indicate impairment. Finally, those waterbodies which were rated as NS or PS were then examined to determine if there were management strategies in place. If so, the streams were eliminated from the list. Management strategies that were considered included the following:

1. Miscellaneous nonpoint programs - Any waterbodies where DWQ was aware of nonpoint management studies (e.g. 319 or similar program) were eliminated if nonpoint sources were the only problem.

2. Point sources - All waters where point sources were the only problem were eliminated if the facility was under SOC, under schedule for removal, recently upgraded, or some other strategy was in place.

Two segments of the Chowan River were removed from the list that are impacted by nutrients. The Chowan River Basin is classified as nutrient sensitive waters (NSW), and goals established in a 1982 management plan and updated in 1990 for the basin included nutrient reductions of 35 to 40 percent for phosphorus and 20% for nitrogen. Point sources in the basin have been assigned limits for both parameters, and nonpoint sources are prioritized for agricultural cost share funds. Further information on nutrients in the Chowan River are provided in Chapters 3, 4, and 6.

The entire Chowan River in North Carolina has been removed from the 303(d) list for dioxin due to the implementation of point source strategies in Virginia. Further information is provided below with the fish consumption advisory information.

Changes in the Chowan River Basin's 303(d) list from earlier lists are based on updated chemical and biological monitoring results. If updated information indicated no impairment, a previously listed waterbody was removed. No waters were removed from the previous Chowan 303(d) list for this reason. If previously supporting waterbodies had new data that indicated impairment, these waterbodies were added to the list. Ahoskie Creek was added (not monitored in past) based on biological data collected in 1995. In addition, if no new data were collected on a given waterbody, and all available data were greater than 5 years old, the waterbody was excluded from the list. If future data indicate impairment, the stream will be added to the list. Cypress Creek, Painter Swamp, and Bells Branch have had no data collected on them. Under today's use support methods they would never have been listed. Finally, Big Woods was included on the last version of the list. No listing of a stream of this name was found in the use support. Big Woods may be a local name. The Chowan River Basin 303(d) list is shown in Table 1.

Fish consumption advisories are no longer considered when determining use support since the entire state was posted in June 1997 for the consumption of bowfin from mercury contamination. It should be noted that bowfin do not occur statewide; they are found primarily within the coastal plain. While DWQ considers fish consumption advisories as impairment, we did not want to mask other causes and sources of impairment by having the entire state listed as impaired due to advisories. Therefore, they are discussed in Chapter 3 and summarized on Figure 3.2.

Although, fish consumption advisories are not considered when determining use support, the advisory information is considered when developing the state's 303(d) list, and further information is provided below. The Chowan River from the Virginia state line to the mouth is under fish consumption advisory due to dioxin in fish. There is a pulp and paper mill in Virginia upstream of the advisory area. This facility has eliminated dioxin in its discharge, but it will take time before use support is restored. Since no other management strategy is warranted in the basin to control dioxin, the waterbody is not included on the 303(d) list. In the prior 303(d) list for the Chowan River Basin, the entire river was included on the list because of the dioxin issue.

Mercury advisories were also reviewed. Other than the recent statewide ban on bowfin no waters have been closed for other species in the basin due to mercury contamination. Only those waters that are listed for species other than bowfin will be included on the 303(d) list. Listing all waters in the basin will only mask other areas of impairment. North Carolina will continue to work on the mercury problem, but developing load numbers for the parameter will not help solve the problem.

Instead, North Carolina has implemented monitoring to help determine the sources. At this time, it appears that the atmosphere is the main source, and studies have begun to examine this theory.

The DWQ has formed a nonpoint source team in the Chowan River Basin, and Chapter 7 contains a list of the members. DWQ and the team will work as partners to identify, prioritize, and address the nonpoint source problems in the basin. DWQ believes that using these teams is the best way to manage many of the nonpoint source impacted areas of the state, since an understanding of the local resources and economy and support from local stakeholders will be fundamental to successfully manage nonpoint source pollution. Although there are some general management guidelines, there is no single technique for controlling nonpoint source pollution. The most efficient and effective nonpoint source strategies will be site specific. The number of waterbodies that can be addressed within a basin planning cycle will be dependent on available resources.

In order to provide some funds for the nonpoint source teams, the statewide NPS workgroup decided to allocate up to \$100,000 to each basin's NPS team on a 5 year rotating schedule. The Chowan NPS team must submit a proposal by the end of March 1997 to be eligible for funds.

The Chowan NPS team has identified one impaired stream as a high priority: Ahoskie Creek. Ahoskie Creek has a diversity of impacts and land use in the basin, and the team felt that it could evaluate the impacts from different land practices in the basin. In addition, Ahoskie Creek is a headwater creek that drains to other impaired waterbodies. Beginning with impaired headwater streams may be the most efficient method to address nonpoint source impairment in larger watersheds.

The final requirement for 303(d) is to prioritize the list. The Clean Water Act requires that the prioritization be based on the degree of impairment (use support rating) and the uses to be made of the waterbody (stream classification). Since all use support ratings and stream classifications are identical, these criteria did not help in prioritization. Since the NPS team has identified Ahoskie Creek as a potential area in which to focus its efforts, it was given the highest rating for TMDL development. The NPS team is still reviewing the waterbodies in the basin. If the NPS team chooses other priority watersheds, the priorities may be revised. The NPS teams will be DWQ's main method of addressing these small impaired watersheds, and the management strategies they develop will be done in lieu of numeric TMDLs. All other waterbodies were rated as low. The amount of work that will be completed in time for the 2003 Chowan Basin Plan will depend on available resources.

#### Additional Guidance on Using the 303(d) List

The column headings in the 303(d) list refer to the following:

**Class** - The information in this column indicates the classification assigned to the particular waterbody. Stream classifications are based on the existing and anticipated best usage of the stream as determined through studies and information obtained at public hearings. The stream classifications are described in 15 A NCAC 2B .0300, and a copy of the pertinent pages of these regulations is attached in Appendix I.

**Wtrbdy** - The number in this column refers to the DWQ subbasin in which the waterbody is located. The NRCS 14 digit hydrologic units nest within the DWQ subbasins.

**Problem Parameter** - These are the causes of impairment as identified in the 305(b) report. Where no cause is listed, the rating was based on biological data, and available chemical data showed no impairment. These biological data may include benthic, fish habitat, and fish tissue information. It should also be noted that where a problem parameter is identified, the parameter listed exceeded the state's water quality standards for that substance. This parameter is a potential cause of the

impaired stream, but there may be other, unidentified causes contributing to the impairment as well. Problem parameters included in the Chowan 303(d) list are outlined below:

DO - dissolved oxygen

Rating - This column lists the overall use support rating. These values may be NS (not supporting) or PS (partially supporting). The 305(b) report describes these use support ratings further.

Major Sources (P,NP) - This column indicates whether point (P) or nonpoint (NP) sources are the major sources of impairment.

Subcategory - This column breaks the point and nonpoint sources down further. A list describing what each number means is provided after the list.

Table 1: 303(d) List for the Chowan River Basin

Name of Stream	Description	Class	Wtrbdy	Problem Parameters	Rating	Major Sources		Priority
						(P,NP)	Subcategory	
Potecasi Creek *	From source to Meherin River	CNSW	30102	DO,pH	FS	NP	10	Low
Cutawhiskie Swamp *	From source to Potecasi Creek	CNSW	30102		FS	NP	10,71	Low
Wiccacon River *	From source to Chowan River	CNSW	30101		FS	NP	90	Low
Ahoskie Creek *	From source to Wiccacon River	CNSW	30101		FS	NP	10,71	High

\* DWQ believes the best way to manage these waterbodies is through the NPS team process. Management strategies developed by these teams will be in lieu of a numeric TMDL. The number of waterbodies addressed during each basin cycle will depend on available resources. Ahoskie Creek has been identified as a potential high priority waterbody by the Chowan NPS team.

## Subcategory Codes

- 0 Point Sources
  - 01: Industrial
  - 02: Municipal
  - 03: Municipal Pretreatment (indirect dischargers)
  - 04: Combined sewer overflows (end-of-pipe control)
  - 05: Storm sewers (end-of-pipe control)
  - 06: Schools
  - 07: Other non-municipal
  
- 1 Nonpoint Sources
  
- 10 Agriculture
  - 11: Non-irrigated crop production
  - 12: Irrigated crop production
  - 13: Specialty crop production (e.g., truck farming and orchards)
  - 14: Pasture land
  - 15: Range Lots
  - 16: Feedlots - all types
  - 17: Aquaculture
  - 18: Animal holding/management areas
  
- 20 Silviculture
  - 21: Harvesting, reforestation, residue management
  - 22: Forest Management
  - 23: Road Construction/maintenance
  
- 30 Construction
  - 31: Highway road/bridge
  - 32: Land Development
  
- 40 Urban Runoff
  - 41: Storm Sewers (source control)
  - 42: Combined sewers (source control)
  - 43: Surface runoff
  - 44: Finger Canals
  - 45: Industrial
  
- 50 Resource Extraction/Exploration/Development
  - 51: Surface mining
  - 52: Subsurface mining
  - 53: Placer mining
  - 54: Dredge mining
  - 55: Petroleum activities
  - 56: Mill tailings
  - 57: Mine tailings
  - 58: Abandoned mines
  
- 60 Land Disposal / Runoff / Leachate From Permitted Areas)
  - 61: Sludge
  - 62: Wastewater
  - 63: Landfills
  - 64: Industrial land treatment
  - 65: On-site wastewater systems (septic tanks, etc.)
  - 66: Hazardous Waste

- 70 Hydrologic/Habitat Modification
  - 71: Channelization
  - 72: Dredging, sand dipping
  - 73: Dam construction
  - 74: Flow regulation
  - 75: Bridge construction
  - 76: Removal of riparian vegetation
  - 77: Streambank modification/destabilization
  - 78: Collapsed dam
  
- 80 Other
  - 81: Atmospheric deposition
  - 82: Waste storage/storage tank leaks
  - 83: Highway maintenance and runoff
  - 84: Spills
  - 85: In-place contaminants
  - 86: Natural
  - 87: Marinas, harbors
  - 88: Airport
  - 89: Military activities (off road)
  
- 90 Source Unknown
  - 91: General Erosion (road erosion)

**References for Abbreviations**

AQTox	Aquatic Toxicology Group (DWQ)
ARO	Asheville Regional Office (DWQ)
BMAN	Benthic Macroinvertebrate Survey (DWQ)
Comp	Compliance Group (DWQ)
DEM	Division of Environmental Management
DFR	Division of Forest Resources
DWQ	Division of Water Quality (formerly DEM)
DWR	Division of Water Resources
FAC	Food and Agriculture Committee
FRO	Fayetteville Regional Office (DWQ)
LQ	Division of Land Quality
Meck Co	Mecklenburg County
MRO	Mooresville Regional Office (DWQ)
NCFS	North Carolina Forest Services
RRO	Raleigh Regional Office (DWQ)
SCS	USDA Soil Conservation Service
<del>SWCD</del>	<del>Soil and Water Conservation District</del>
Topo	Topographic Map
WaRo	Washington Regional Office (DWQ)
WiRo	Wilmington Regional Office (DWQ)
WRC	Wildlife Resource Commission
WRRI	Water Resources Research Institute
WSR	Winston-Salem Regional Office (DWQ)
USGS	United States Geological Survey