Appendix IV

303(d) Listing
and
Reporting Methodology

YEAR 2000 DRAFT LIST OF 303(d) WATERS IN THE CATAWBA RIVER BASIN

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 improve water quality to the point that standards or uses are being met. Listed waters must be prioritized, and a management strategy or total maximum daily load (TMDL) must subsequently be developed for all listed waters. This draft of the 303(d) list will be submitted to EPA for approval in the year 2000. The latest approved 303(d) list was published on May 15, 1998. A summary of the 303(d) process follows. More complete information can be obtained from *North Carolina's 1998 303(d) List* (DENR, 1998), which can be obtained by calling the Planning Branch of DWQ at (919) 733-5083.

303(d) List Development

Generally, there are four steps to preparing North Carolina's 303(d) list. They are: 1) gathering information about the quality of North Carolina's waters; 2) screening those waters to determine if any are impaired and should be listed; 3) determining if a total maximum daily load (TMDL) has been developed; and 4) prioritizing impaired waters for TMDL development. This document also indicates whether the Division of Water Quality (DWQ) intends to develop a TMDL as part of a Management Strategy (MS) to restore the waterbody to its intended use. The following subsections describe each of these steps in more detail.

Sources of Information

For North Carolina, the primary sources of information are the basinwide management plans, 305(b) reports and accompanying assessment documents, which are prepared on a five-year cycle. Basinwide management plans include information concerning permitting, monitoring, modeling and nonpoint source assessment by basin for each of the 17 major river basins within the state. Basinwide management allows the state to examine each river basin in detail and to determine the interaction between upstream and downstream, point and nonpoint pollution sources. As such, more effective management strategies can be developed across the state.

Listing Criteria

Waters whose use support ratings were not supporting (NS) or partially supporting (PS) based on monitored information in the 305(b) report were considered as initial candidates for the 303(d) list. Waters that were listed on the previously approved 303(d) list were evaluated and automatically included if the use support rating was NS, PS or not rated (NR).

Fish consumption advisory information was then reviewed to determine if other waters should be added to the list. Fish consumption advisories are no longer considered when determining use support since a fish advisory for mercury contamination in Bowfin was posted for the entire state in June 1997. While fish consumption advisories do indicate impairment, DWQ did not want to mask other causes and sources of impairment by having the entire state (or an entire basin) listed as impaired due to fish consumption advisories. However, DWQ believes that advisories on specific waters are cause to include the water on the 303(d) list; therefore, advisories other than

the statewide Bowfin posting were considered when developing North Carolina's 303(d) list. Waters listed due to fish consumption advisories may have overall ratings of fully supporting (FS) because fish advisories are not considered in the 305(b) use support process.

Guidance from EPA on developing the 1998 303(d) lists indicated that impaired waters without an identifiable problem parameter should not be included on the 303(d) list. However, DWQ feels that waters listed in the 305(b) report as impaired for biological reasons, where problem parameters have not been identified, should remain on the 303(d) list. The Clean Water Act states that chemical, physical and biological characteristics of waters shall be restored. The absence of an identified cause of impairment does not mean that the waterbody should not receive attention. Instead, DWQ should resample or initiate more intensive studies to determine why the waterbody is impaired. Thus, biologically impaired waters without an identified cause of impairment are on the draft 303(d) list.

Assigning Priority

North Carolina is required to prioritize its 303(d) list in order to direct resources to those waters in greatest need of management. The CWA states that the degree of impairment (use support rating) and the uses to be made of the water (stream classification) are to be considered when developing the prioritization. In addition, DWQ reviews the degree of public interest and the probability of success when developing its prioritization schemes. Waters harboring endangered species are also given additional priority. A method to assign ratings to freshwaters that have recent data indicating impairment has been devised based on these criteria.

The prioritization process results in ratings of high, medium and low. Generally, waters rated with the highest priority are classified for water supply use, rated not supporting, and harbor an endangered species. Waters receiving a high priority are important natural resources for the State of North Carolina and generally serve significant human and ecological uses. High priority waters will be addressed first within their basin cycles when technically feasible. TMDLs are not possible where the pollutant(s) have yet to be identified. TMDLs cannot be attempted without flow data. Collecting physical/chemical data and accumulating flow data are milestones that must precede developing TMDLs of any priority.

EPA recently issued guidance that suggested states should develop TMDLs and management strategies on all of their impaired waters within the next eight to thirteen years. To meet this federal guidance, the DWQ is striving to address all 303(d) listed waters that have a priority of high, medium or low within the next 10 years. Numeric TMDLs, if proper technical conditions exist, and management strategies will be developed for these waters. The DWQ is constantly reviewing its resource allocations in order to meet this aggressive schedule.

Other priorities have also been assigned to waters. A monitor priority indicates that the waterbody is listed based on: 1) data older than 5 years; 2) biological impairment without an identified pollutant; or 3) biological impairment where the criteria used to originally rate the stream as impaired has been deemed inappropriate. Many low flow streams and swamp waters were rated as biologically impaired in the past using inappropriate criteria. These waters will be resampled and rated using specialized criteria currently in development. Until the updated rating criteria is finalized, these waters will continue to be rated NR and will stay on the 303(d) list. Further information on the monitoring approaches that have a monitor priority is provided in the next section.

The final priority listed on the 303(d) list is N/A for not applicable. This priority was assigned to waters that DWQ believes will meet their uses based on the current management strategies. DWQ will not develop a new TMDL or management strategy for these waters unless data continue to indicate impairment, and sufficient time has passed for the waterbody to respond to the management action. An example of this priority is a water impaired by a point source, and the pollutant causing the impairment has been completely removed from the point source.

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 15A NCAC 2B .0300.

Subbasin – 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.

Cause of Impairment – The cause of impairment as identified in the use support rating process. When a chemical problem parameter is identified, the parameter listed exceeded the state's water quality standards for that parameter. Biological impairment is based on data relating to benthic and fish habitat as well as community structure. There may be other unidentified causes contributing to the impairment. Causes included in the 303(d) list are listed below:

Chl *a* – chlorophyll *a*
Cl – chloride
Cu – copper
DO – dissolved oxygen
Fecal – fecal coliform bacteria
Hg – mercury
NH_3 – ammonia
Nutr – nutrients
Pb – lead
pH – pH
Tox – toxicity
Turb – turbidity
Aq. Weeds – aquatic weeds
Biological Impairment – Impairment based on benthic/fish data
Fish Advisory – Fish advisory issued by DEH

Overall Rating – This column lists the overall use support rating. These values may be **NS** (not supporting), **PS** (partially supporting), **FS** (fully supporting) and **NR** (not rated). A rating of not rated is typically assigned to waters that were sampled using biocriteria that may not apply, or there is no data available on the water. These waters appeared on earlier lists, and they continue to be listed for administrative reasons, but no TMDL or management strategy will be developed until we have updated information that the water continues to be impaired. For waters listed solely on the basis of fish consumption advisories, the rating may be fully supporting (FS). The 305(b) report describes these use support ratings further. On the 303(d) list of lakes, the overall use support rating is found in the column entitled "Overall Use Rating." Ratings for specific uses are found in the columns entitled "Fish Consumption", "Aquatic Life and Secondary Contact", "Swimming" and "Drinking Water."

Source – This column indicates which sources are the probable major sources of impairment.

Approach – This column indicates the approach DWQ will take to restore the waterbody. More than one approach may be listed. TMDLs are typically developed for DO, nutrients, fecal coliform, ammonia and metals. Management strategies are typically done for pH, sediment and turbidity. Further information on each approach is provided below.

TMDL – A numeric TMDL (total, maximum, daily, load), as defined by EPA, will be developed.

MS – Management Strategy. These waters are on the list based on data collected within the five years prior to when the use support assessment was completed. A cause of impairment has been identified, but North Carolina cannot develop a numeric TMDL as EPA defines it. A management strategy may contain the following elements: further characterization of the causes and sources of impairment, numeric water quality goals other than TMDLs, and best management practices to restore the water.

RES – Resample. This waterbody was identified as being impaired based on water quality data that were greater than 5 years old or invalid at the time the use support assessment was performed. This waterbody will be resampled prior to TMDL or management strategy development to ensure the impairment continues to exist.

PPI – Problem Parameters Identification. Available chemical data do not show any parameters in violation of applicable standards, but biological impairment has been noted within the five years prior to use support assessment. DWQ will resample these waters for chemical and biological data to attempt to determine the cause of impairment. TMDLs or management strategies will be developed within 2 basin cycles of pollutant identification.

SWMP – Swamp waters. This water may not actually be impaired. Swamp waters previously evaluated using freshwater criteria will continue to be monitored and will be reevaluated when swamp criteria are available.

Priority – Priorities of high, medium and low were assigned for waters identified as being impaired based on data that were not greater than 5 years of age at the time the use support assessment was done and for which a cause of impairment has been identified. All waters assigned a priority of high, medium or low will be addressed within the next two basin cycles. Priorities of monitor and N/A have also been assigned where appropriate. Further explanation on each of these is provided below:

High – Waters rated high are important resources for the state in terms of human and ecological uses. Typically, they are classified as water supplies, harbor federally endangered species, and are rated as not supporting. These waters will be addressed first within their basin cycles when technically feasible.

Medium – Waters rated medium may be classified for water supply or primary recreational use, may have state endangered or other threatened species, and may be rated as partially or not supporting.

Low – Waters rated low generally are classified for aquatic life support and secondary recreation (i.e., Class C waters) and harbor no endangered or threatened species.

Monitor – The waterbody is included on the 303(d) list based on:

1. Data that is greater than 5 years of age when use support assessment is done (denoted by RES in approach column).
2. Biological data collected within 5 years of use support assessment, but no cause of impairment has been identified (available chemical data show full use support denoted by PPI in approach column).
3. Freshwater biological criteria applied to swamp waters.

In general, waters given this priority based on recent biological data will be sampled prior to waters listed based on older information. All waters with this priority will be resampled as resources allow. Waters with a monitor priority will not have a management strategy or TMDL developed for it before updated sampling or analyses of the biological criteria is complete. Once updated sampling is done and problem pollutants have been identified, these waters will be addressed by either a management strategy or TMDL within two basin planning cycles (10 years).

N/A – DWQ believes that its current management strategy will address the water quality impairment, but it may take a number of years before standards are met. In this case, DWQ plans to continue monitoring the water to determine if improvements are occurring, but no new management strategy or TMDL will be developed unless sufficient time has passed for improvement to occur, and data indicate the water is still impaired.

The lakes table column entitled "Trophic Status" refers to the trophic status of the lake, a relative description of the biological productivity of the lake. The lake may be hypereutrophic, eutrophic, mesotrophic or oligotrophic. Oligotrophic lakes are nutrient poor and biologically unproductive. Mesotrophic lakes have intermediate nutrient availability and biological productivity. Eutrophic lakes are nutrient rich and highly productive. Hypereutrophic lakes are extremely eutrophic.