

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 4 ATLANTA FEDERAL CENTER 61 FORSYTH STREET ATLANTA, GEORGIA 30303-8960

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Ms. Coleen Sullins Director North Carolina Division of Water NC Department of Environment and Natural Resources 1617 Mail Service Center Raleigh, North Carolina 27699-1617

DIV. OF WATER QUALITY DIRECTOR'S OFFICE

SUBJECT: Approval of State of North Carolina's 2008 Section 303(d) List Submittal

Dear Ms. Sullins:

The U.S. Environmental Protection Agency (EPA), Region 4 has completed its review of the North Carolina Department of Environment and Natural Resources' Final 2008 Clean Water Act (CWA) section 303(d) list of water quality limited segments. EPA has determined that each of the water quality limited segments still requiring Total Maximum Daily Loads identified on the State's 2008 list, meets the requirements of the CWA section 303(d) and its implementing regulations, 40 CFR 130.7. EPA hereby approves the State of North Carolina's decision to include each of the waters designated by the State in its 2008 section 303(d) list. Enclosed for your information is the accompanying decision document for this approval action.

If you have questions concerning this matter, please contact me at (404) 562-9345 or Joanne Benante at (404) 562-9125.

Sincerely,

James D. Giattina Director Water Protection Division

Enclosure

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Prepared by the U.S. Environmental Protection Agency, Region 4 Water Management Division

March 9, 2010



North Carolina 2008 section 303(d) List Decision Document Ma

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I. Executive Summary

On February 5, 2010, the North Carolina Department of Environment and Natural Resources, Division of Water Quality (DWQ), submitted its final 2008 integrated section 305(b) report and section 303(d) list of impaired waters to the Environmental Protection Agency (EPA) for review. After a thorough review of North Carolina's submittal, EPA is approving the State's section 303(d) list. This Decision Document summarizes EPA's review and the basis for the Agency's decision.

Section 303(d)(1) of the Clean Water Act (CWA or Act) directs states to identify those waters within their jurisdictions for which effluent limitations required by section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard (referred to as water quality limited segments, defined in Title 40 of the *Code of Federal Regulations* (CFR) § 130.7), and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The section 303(d) listing requirement applies to water quality limited segments impaired by pollutant loadings from both point and/or nonpoint sources. After a State submits its section 303(d) list to EPA, the Agency is required to approve or disapprove that list.

This report updates the State's most recently approved section 303(d) list, approved by EPA on May 7, 2007 (the 2006 list). North Carolina's initial Public Review Draft of the 2008 section 303(d) list was issued on January 10, 2008, with comments due February 15, 2008. The State issued a Final list on April 1, 2008. However, EPA could not conclude that the listing methodology used by the State properly implemented the State's water quality standards. Following extensive negotiations, DWQ revised their assessment methodology and issued a revised Draft section 303(d) list on December 21, 2009. North Carolina provided the draft for public review and comment; comments were due on January 25, 2010. The State submitted the Final list to EPA on February 5, 2010.

II. Statutory and Regulatory Background

A. Identification of Water Quality Limited Segments for Inclusion on the Section 303(d) List

Section 303(d)(1) of the Clean Water Act (Act) directs states to identify those waters within its jurisdictions for which effluent limitations required by sections 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources, pursuant to EPA's long-standing interpretation of section 303(d).

EPA regulations at 40 CFR 130.7(b)(1) state, "Each State shall identify those water quality-limited segments still requiring TMDLs within its boundaries for which: (i) Technology-based effluent limitations required by sections 301(b), 306, 307, or other sections of the Act; (ii) More stringent effluent limitations (including prohibitions) required by either State or local authority preserved by section 510 of the Act, or Federal authority (law, regulation, or treaty); and (iii) Other pollution control requirements (e.g., best management practices) required by local, State, or Federal authority are not stringent enough to implement any water quality standards (WQS) applicable to such waters." EPA regulations define water quality limited segment as "[a]ny segment where it is known that water quality does not meet applicable water quality standards, and/or is not expected to meet applicable water quality standards, even after the application of the technology-based effluent limitations required by section 301(b) and section 306 of the Act." 40 CFR 130.2(j). Note: The term "water quality limited segment" as defined by federal regulations may also be referred to as "impaired waterbodies" or "impairments" throughout this decision document.

EPA's 2006 Integrated Water Quality Monitoring and Assessment Report Guidance (July 29, 2005), recommends the use of five categories to classify the water quality standard attainment status for each waterbody segment, or assessment unit. North Carolina currently uses the five categories recommended by EPA plus some additional sub-categories within those categories.

Category 1: Attaining the water quality standard and no use is threatened. This category consists of those assessment units where all applicable use support categories are rated "Supporting." Data and information are available to support a determination that the water quality standards are attained and no use is threatened. Future monitoring data will be used to determine if the water quality standard continues to be attained. Because of the statewide fish consumption advice for mercury in North Carolina, there are no Category 1 waters.

Category 2: Supporting or not Impaired for all monitored uses. This category consists of those assessment units where at least one of the applicable use support categories are rated "Supporting" and the other use support categories are rated "Not Rated" or "No Data." Data and information are available to support a determination that some, but not all, uses are attained. Attainment status of the remaining uses is unknown because there are insufficient or no data or information. Future monitoring data will be used to determine if the uses previously found to be in attainment remain in attainment, and to determine the attainment status of those uses for which data and information were previously insufficient to make a determination.

Category 3: No data or insufficient information to determine if any designated use is attained. Supplementary data and information, or future monitoring, will be required to assess the attainment status.

North Carolina has added the following sub-categories to Category 3:

Subcategory 3a: Instream/monitoring data are inconclusive.

Subcategory 3c: No Data available for assessment.

4b:

4c:

Subcategory 3t: No Data available for assessment – assessment unit is in a watershed with an approved TMDL.

Category 4: Impaired or threatened for one or more designated uses but does not require the development of a TMDL because:

4a: A TMDL has been completed. This category consists of those assessment units for which EPA has approved or established a TMDL and water quality standards have not yet been achieved. Monitoring data will be considered before moving an assessment unit from Category 4a to Categories 1 or 2.

Other pollution control requirements are reasonably expected to result in the attainment of the water quality standard in the near future. This category consists of those assessment units for which TMDLs will not be developed because other required regulatory controls (e.g., NPDES permit limits, Stormwater Program rules, implemented watershed plan, etc.) are expected to attain water quality standards within a reasonable amount of time. Future monitoring will be used to verify that the water quality standard is attained as expected.

Impairment is not caused by a pollutant, but by pollution. This category consists of assessment units that are impaired by pollution, not by a pollutant. EPA defines pollution as "The manmade or man-induced alteration of the chemical, physical, biological and radiological integrity of the water" See section 502(19) of the Clean Water Act. This category is primarily intended to be used for impairments related to water control structures such as dams. Future monitoring will be used to confirm that there continues to be an absence of pollutant-caused impairment and to support water quality management actions necessary to address the cause(s) of the impairment.

North Carolina has added the following sub-categories to Category 4:

Subcategory 4cr: Impaired - Loss of recreation use because swimming advisories were posted; however, no data is available for TMDL development.

Subcategory 4ct-Impaired assessment unit is in a watershed that is part of TMDL study area for the parameter of interest. Subcategory 4s-Impaired ecological/biological integrity with a concurrent Category 5 aquatic life parameter of interest.

Category 5: Impaired for one or more designated uses by a pollutant(s), and requires a TMDL. This category consists of those assessment units that are impaired by a pollutant and the proper technical conditions exist to develop TMDLs. When more than one pollutant is associated with the impairment of a single assessment unit in this category, the assessment unit will remain in Category 5 until TMDLs for all listed pollutants have been completed and approved by the EPA. The North Carolina 2008 section 303(d) list consists of those waterbodies placed in Category 5.

North Carolina has added the following sub-categories to Category 5:

Subcategory 5s- (previously NC Category 6) Impaired ecological/biological integrity and stressor study does not indicate any aquatic life standard violations.

NC Subcategory 5cs - Impaired loss of use, shellfishing waters, no data for TMDL (non-approved area)

B. Consideration of Existing and Readily Available Water Quality Related Data and Information (40 CFR Part 130.7(b)(5)(i-iv))

In developing section 303(d) lists, states are required to assemble and evaluate all existing and readily available water quality-related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of waters: (1) waters identified as partially meeting or not meeting designated uses, or as threatened, in the State's most recent section 305(b) report; (2) waters for which dilution calculations or predictive modeling indicate non-attainment of applicable standards; (3) waters for which water quality problems have been reported by governmental agencies, members of the public, or academic institutions; and (4) waters identified as impaired or threatened in any section 319 nonpoint assessment submitted to EPA. See 40 CFR 130.7(b)(5). In addition to these minimum categories, states are required to consider any other water quality-related data and information that is existing and readily available. EPA's 1991 Guidance for Water Quality-Based Decisions describes categories of water quality-related data and information that may be existing and readily available. See Appendix C of Guidance for Water Quality-Based Decisions: The TMDL Process, EPA Office of Water, 1991 ("EPA's 1991 Guidance"). While states are required to evaluate all existing and readily available water quality-related data and information, states may decide to rely or not rely on particular data or information in determining whether to list particular waters.

In addition to requiring states to assemble and evaluate all existing and readily available water quality-related data and information, EPA regulations at 40 CFR 130.7(b)(6) require states to include, as part of its submissions to EPA, documentation to

support decisions to list or not list waters. Such documentation needs to include, at a minimum, the following information: (1) a description of the methodology used to develop the list, (2) a description of the data and information used to identify waters, (3) a rationale for any decision to not use any existing and readily available data and information, and (4) any other reasonable information requested by the Region.

C. Priority Ranking

EPA regulations also codify and interpret the requirement in section 303(d)(1)(A) of the Act that states establish a priority ranking for listed waters. The regulations at 40 CFR 130.7(b)(4) require states to prioritize waters on its section 303(d) lists for TMDL development, and also to identify those impaired waterbodies targeted for TMDL development in the next two years. In prioritizing and targeting waters, states must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. CWA § 303(d)(1)(A) As long as these factors are taken into account, the Act provides that states establish priorities. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs; vulnerability of particular waters as aquatic habitats; recreational, economic, and aesthetic importance of particular waters; degree of public interest and support; and state or national policies and priorities.

III. Analysis of the North Carolina Submittal

A. Review of North Carolina's Identification of Waters (40 CFR 130.7(b)(6)(i - iv))

In reviewing North Carolina's submittal, EPA first reviewed the methodology used by the State to develop the list update in light of the State's approved water quality standards, and then reviewed the actual list of waters. This section describes the State's listing methodology and outlines EPA's evaluation of both that methodology and the actual list of impaired waterbodies included in the 2008 submittal. In cases where EPA could not determine if the State's listing methodology identified all impaired waterbodies for a given designated use or water quality criteria, EPA conducted a review of water quality data to determine whether any waterbodies should be added to the section 303(d) list.

Each of the assessment and listing methodologies contained in the 2008 Integrated Report are compared against the North Carolina water quality standards as found in the *North Carolina Division of Water Quality "Redbook"* (*Surface Waters and Wetlands Standards, North Carolina Administrative Code 15A NCAC 02B .0100, .0200 & .0300*; amended effective May 1, 2007, hereafter "North Carolina Water Quality Standards.") Information on monitoring procedures was obtained from the DWQ Monitoring Program Strategy (Version 2.0, March 2008), as well as DWQ's Basinwide Assessment Reports and Basinwide Water Quality Plans. The North Carolina 2008 section 303(d) list consists of those waterbodies placed in Category 5 (see Section IIA, above).

1. North Carolina's Water Quality Standards and Section 303(d) List Development

The Clean Water Act requires each State to identify and prioritize those waters where technology-based controls are inadequate to implement water quality standards:

Each State shall identify those waters within its boundaries for which the effluent limitations required by section 1311(b)(1)(A) and section 1311(b)(1)(B) of this title are not stringent enough to implement any water quality standards applicable to such waters. 33 U.S.C. 1313(d)(1)(A); see also 40 CFR 130.7(b) (EPA section 303(d) listing regulations)

EPA regulations expressly provide that "[f]or purposes of listing waters under 130.7(b), the term 'water quality standard applicable to such waters' and 'applicable water quality standards' refer to those water quality standards established under section 303 of the Act, including numeric criteria, narrative criteria, water body uses, and antidegradation requirements." 40 CFR 130.7(b)(3) EPA's review of the North Carolina section 303(d) list ensures that the list identifies water quality limited segments consistent with existing State standards.

Water quality criteria can be expressed either as narrative or numeric criteria. Numeric criteria typically establish either a maximum level or a range of levels of a pollutant which can be present in the waterbody while still attaining water quality standards. Narrative criteria typically describe a condition (e.g., waters shall be suitable for aquatic life propagation and maintenance of biological integrity) which must be met for the waterbody to meet water quality standards. Determining whether a waterbody is meeting water quality standards for narrative criteria requires the identification of reference points against which the waterbody can be evaluated. EPA defers to a State's interpretation of its water quality standards, including how narrative criteria should be interpreted, when that interpretation is consistent with the underlying narrative criteria and is a reasonable translation of those criteria.

Narrative Water Quality Criteria

The following is a list of the primary narrative criteria considered in North Carolina's water quality assessment. The sections below summarize EPA's review of the State's methodology against these narrative criteria.

- North Carolina Administrative Code (NCAC) 15A 02B .0208 (Narrative for toxics and temperature).
- NCAC 15A 02B .0211 (Several narratives relate to making all fresh waters suitable for aquatic life propagation and maintenance of biological integrity, wildlife, secondary recreation and agriculture).

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NCAC 15A 02B .0220 (Several narratives relate to making all salt waters suitable for aquatic life propagation and maintenance of biological integrity, wildlife, and secondary recreation).

NCAC 02B 15A .0231 (Narratives related to wetlands).

Numeric Criteria

The primary numeric criteria related to water quality assessment in North Carolina are detailed in 15A NCAC 02B .0100 and .0200 (amended effective date August 1, 2004). The State expresses its numeric water quality criteria in a variety of ways, which are delineated for each parameter in the following sections. In general, numeric criteria are written as "maximum permissible levels" or values which "shall not be exceeded."

2. Consideration of Existing and Readily Available Water Quality-Related Data and Information

Federal regulations provide that each state "shall assemble and evaluate all existing and readily available water quality-related data and information to develop the list required by §§ 130.7(b)(1) and 130.7(b)(2)." 40 CFR 130.7(b)(5) The North Carolina DWQ collects a variety of biological, chemical, and physical data from six primary programs, including benthic macroinvertebrates, fish community, fish tissue, lake assessment, ambient monitoring, and aquatic toxicity monitoring.

Sources routinely used for data and information include the following: previous section 303(d) lists; Clean Water Act § 305(b) reports; Clean Water Act section 319 nonpoint source assessments; waterbodies where specific fishing or shellfish bans and/or advisories are currently in effect; waterbodies identified by the State as impaired in its most recent Clean Lake Assessment conducted under section 314 of the CWA; drinking water source water assessments under section 1453 of the Safe Drinking Water Act; trend analyses and predictive models used for determining designated use, numeric and narrative standard compliance; and data, information, and water quality problems reported from local, State, or Federal agencies, Tribal governments, members of the public, and academic institutions.

DWQ maintains a standing solicitation for data on their website (<u>http://h2o.enr.state.nc.us/tmdl/General_303d.htm</u>). For data to be used for impairment determinations, data must meet specific submission criteria, including quality assurance and quality control of the collection and analysis of the data.

In previous list cycles, DWQ assessed use support for each river basin according to a five-year rotating schedule, such that only a subset of basins were updated for a given cycle. For the 2008 section 303(d) list, use support was assessed for all basins statewide based on data collected in calendar years 2002 through 2006. Some waterbodies may have biological data collected earlier for waters that have not been resampled during this data window or where the current impairment is based on that sample. According to DWQ's Use Assessment Methodology, a minimum of ten samples is needed to be considered for use support assessments. The Methodology states that if fewer than ten samples are collected and greater than ten percent of the samples exceed the numeric criteria, the assessment unit will be Not Rated and targeted for further sampling (Category 3a). DWQ's monitoring program routinely collects more than ten samples, with the exception, historically, for some lakes. Lakes are now targeted for more sampling.

EPA Conclusion

North Carolina's assessment methodology contains provisions, as described above, for limiting the use of data based on the age of data (five year window) and sample size (at least ten samples). North Carolina does include older data in their assessment when no current data is available. However, EPA recommends that older data not be automatically excluded, particularly when its inclusion could be used to augment small sets of more current data.

EPA identified the State's provisions as being overly restrictive and conducted a data review to determine if waters, which should be considered impaired, may have been omitted from the list due to these provisions. EPA conducted the review by reviewing all data received from DWQ for the applicable data window (2002 through 2006). Data sets which contained fewer than ten data points were examined to see if there were elevated levels of pollutants. EPA did not identify any waters that should be added to the 2008 section 303(d) list due to elevated levels in small data sets.

In order for EPA to conclude that the State's process is consistent with federal requirements for consideration of data and information, the State should revise its methodology to allow consideration of older data and data contained within smaller data sets for future section 303(d) lists.

3. Assessment Unit Delineation Approach / Geo-referencing

North Carolina maintains a water quality assessment database, which for each assessment unit provides a description, use support ratings, parameters of interest, potential stressors and sources as well as the capability to track changes through time. This database is linked with other North Carolina water quality databases including ambient, benthic and fish community data as well as the 1:24,000 hydrography. Assessment units are delineated to the 1:24,000 statewide hydrography and can be easily located using a Geographic Information System (GIS). The State has completed georeferencing statewide including indexing assessment units to the high resolution National Hydrography Dataset (NHD).

EPA Conclusion

The State provided a GIS dataset of the State's assessment units at NHD 1:24,000 scale. For the 2006 303(d) list, EPA contractor RTI geo-referenced this dataset to NHD

1:100,000 scale for inclusion in the EPA Reach Address Database. For the 2008 303(d) list DWQ posted draft GIS data on its website and will finalize the data on EPA approval (http://h2o.enr.state.nc.us/tmdl/General_303d.htm).

4. Aquatic Life Use Support

The State considers biological and ambient monitoring data in assessing the aquatic life use support category. EPA separated its review of North Carolina's assessment of aquatic life use support into five categories, as follows: waterbodies not listed due to natural conditions; assessment based on physical (naturally variable) parameters, nutrient enrichment in lakes and flowing waters, biological indicators; and toxic/non-conventional pollutants.

a. Waterbodies Not Listed Due to Natural Conditions

North Carolina may not list waterbodies where it determined that measured concentrations of pH (potential of Hydrogen ions, a measure of acidity or alkalinity) or dissolved oxygen (DO) did not meet the numeric criteria due to natural conditions. North Carolina's water quality standards address natural conditions, providing that "natural waters may on occasion, or temporarily, have characteristics outside of the normal range established by the standards. The adopted water quality standards relate to the condition of waters as affected by the discharge of sewage, industrial wastes or other wastes including those from nonpoint sources and other sources of water pollution. Water quality standards will not be considered violated when values outside the normal range are caused by natural conditions. Where wastes are discharged to such waters, the discharger will not be considered a contributor to substandard conditions provided maximum treatment in compliance with permit requirements is maintained and, therefore, meeting the established limits is beyond the discharger's control." (15A NCAC 02B .0205)

North Carolina has assigned a supplemental classification category for Swamp Waters (Sw) which is intended to recognize those waters that generally have naturally occurring very low velocities, low pH and low dissolved oxygen. State water quality standards acknowledge that DO and pH may be natural conditions that are outside the required standard range. For DO, 15A NCAC 02B .0211(3) (b) states, "swamp water, lake coves or backwaters, and the lake bottom waters may have lower values if caused by natural conditions." For pH, 15A NCAC 02B .0211(3) (g) states, "...swamp waters may have a pH as low as 4.3 if it is the result of natural conditions."

If DWQ identifies natural condition waters with point source discharges, DWQ conducts an analysis of the likely impact of the discharges. The waters will be listed if the discharges may contribute to the low DO or pH. For the 2008 section 303(d) list, DWQ's assessment methodology for classified swamp waters and for waters identified as swamp-like is as follows:

A classified swamp (Sw) AU was not rated for aquatic life when greater than 10% of DO samples were below 4 mg/l (5 for salt) for instantaneous samples (monthly) or when greater than 10% of samples were below a daily average of 5 mg/l (freshwater only). There is not a numerical standard for these water bodies and natural background conditions cannot be determined. This is a category 3a listing not requiring a TMDL.

A swamp like AU (not classified Sw) was not rated for aquatic life when greater than 10% of DO samples were below 4 mg/l (5 for saltwater) for instantaneous samples (monthly) or when greater than 10% of samples were below a daily average of 5mg/l (freshwater only) and when greater than 10% of samples were below a pH of 6.0 (SU) for freshwater or 6.8 (SU) for saltwater. Geographic location, biological data, tributary classifications, discharges and land use were considered when making use support determinations on waters considered to be swamp like or receiving significant swamp water input.

A classified swamp (Sw) AU was assessed as Impaired when greater than 10% of pH samples were below 4.3 (SU). A non-swamp water AU was assessed as Impaired for aquatic life when greater than 10% of samples were below a pH of 6.0 (SU) for freshwater or 6.8 (SU) for saltwater.

EPA Conclusion

DWQ has identified waterbodies containing low pH and DO which are due to natural conditions. For the 2008 list these are generally slow-moving blackwater streams, low-lying swamps and productive estuarine waters in the Coastal Plain. North Carolina's decision that these waterbodies should not be included on the State's section 303(d) list is reasonable.

b. Impairments Indicated by Physical Parameters

Naturally variable physical parameters are those that fluctuate in a waterbody due to non-anthropogenic influences such as rainfall/flow, depth, time of day, salinity, etc. Naturally variable parameters assessed by DWQ during this listing cycle include dissolved oxygen (DO), pH, temperature and turbidity. Comparison against the North Carolina water quality standards is as follows (note: mg/l is milligrams per liter).

Water Quality Standard	State Assessment Methodology
Freshwater Dissolved Oxygen NCAC 15A 02B .0211(3)(b)	
Dissolved oxygen: not less than 6.0 mg/l for trout water, not less than a daily average of 5.0 mg/l with a minimum	Minimum of 10 samples or 10 daily averages. Criterion exceeded $\leq 10\%$: Supporting Criterion exceeded >10%: Impaired
instantaneous value of not less than 4.0	If the 10% criterion was exceeded and fewer than

mg/l; swamp waters, lakes coves or	10 samples were collected the assessment unit
-backwaters, and lake bottom waters may-	was not rated and targeted for further sampling.
have lower values if caused by natural	
conditions (see section 4a, above).	
Saltwater Dissolved Oxygen	
NCAC 15A 02B .0220(3)(b)	
Dissolved oxygen not less than 5.0 mg/l,	
except that swamp waters, poorly flushed	
ideally influenced streams or	
embayments, or estuarine bottom waters	
may have lower values if caused by	
natural conditions (see section 4a, above).	
Freshwater pH	Minimum of 10 samples.
NCAC 15A 02B .0211 (3)(g)	-
pH shall be normal for the waters in the	Criterion exceeded $\leq 10\%$: Supporting
area, which generally shall range between	Criterion exceeded >10%: Impaired
6.0 and 9.0 except that swamp waters may	L .
have a pH as low as 4.3 if it is the result	If the 10% oritorian was speeded and former them
of natural conditions (see section 4a,	If the 10% criterion was exceeded and fewer than
above).	10 samples were collected the assessment unit
	was not rated and targeted for further sampling.
Saltwater pH	
Saltwater pH NCAC 15A 02B .0220(3)(g)	
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NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the	
NCAC 15A 02B .0220(3)(g)	
NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5.	Minimum of 10 samples
NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature	Minimum of 10 samples.
NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature NCAC 15A 02B .0211 (3)(j): not to	• • • •
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 NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature NCAC 15A 02B .0211 (3)(j): not to exceed 2.8° C above the natural water temperatures, and in no case to exceed 29° C for mountain and upper piedmont waters and 32° C for lower piedmont and coastal plain waters. The temperature for trout waters shall not be increased by more than 0.5° C due to the 	Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling.
NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature NCAC 15A 02B .0211 (3)(j): not to exceed 2.8° C above the natural water temperatures, and in no case to exceed 29° C for mountain and upper piedmont waters and 32° C for lower piedmont and coastal plain waters. The temperature for trout waters shall not be increased by more than 0.5° C due to the discharge of heated liquids but in no case	Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling. A trout water (Tr) AU was not rated for aquatic
 NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature NCAC 15A 02B .0211 (3)(j): not to exceed 2.8° C above the natural water temperatures, and in no case to exceed 29° C for mountain and upper piedmont waters and 32° C for lower piedmont and coastal plain waters. The temperature for trout waters shall not be increased by more than 0.5° C due to the 	Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling. A trout water (Tr) AU was not rated for aquatic life when greater than 10% of samples were
NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature NCAC 15A 02B .0211 (3)(j): not to exceed 2.8° C above the natural water temperatures, and in no case to exceed 29° C for mountain and upper piedmont waters and 32° C for lower piedmont and coastal plain waters. The temperature for trout waters shall not be increased by more than 0.5° C due to the discharge of heated liquids but in no case to exceed 20° C.	Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling. A trout water (Tr) AU was not rated for aquatic life when greater than 10% of samples were greater than 20° C. The presence of heated
 NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature NCAC 15A 02B .0211 (3)(j): not to exceed 2.8° C above the natural water temperatures, and in no case to exceed 29° C for mountain and upper piedmont waters and 32° C for lower piedmont and coastal plain waters. The temperature for trout waters shall not be increased by more than 0.5° C due to the discharge of heated liquids but in no case to exceed 20° C. Saltwater Temperature 	 Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling. A trout water (Tr) AU was not rated for aquatic life when greater than 10% of samples were greater than 20° C. The presence of heated discharges was not determined. This is a
 NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature NCAC 15A 02B .0211 (3)(j): not to exceed 2.8° C above the natural water temperatures, and in no case to exceed 29° C for mountain and upper piedmont waters and 32° C for lower piedmont and coastal plain waters. The temperature for trout waters shall not be increased by more than 0.5° C due to the discharge of heated liquids but in no case to exceed 20° C. Saltwater Temperature NCAC 15A 02B .0220(3)(k) 	Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling. A trout water (Tr) AU was not rated for aquatic life when greater than 10% of samples were greater than 20° C. The presence of heated
 NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature NCAC 15A 02B .0211 (3)(j): not to exceed 2.8° C above the natural water temperatures, and in no case to exceed 29° C for mountain and upper piedmont waters and 32° C for lower piedmont and coastal plain waters. The temperature for trout waters shall not be increased by more than 0.5° C due to the discharge of heated liquids but in no case to exceed 20° C. Saltwater Temperature NCAC 15A 02B .0220(3)(k) Temperature shall not be increased above 	Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling. A trout water (Tr) AU was not rated for aquatic life when greater than 10% of samples were greater than 20° C. The presence of heated discharges was not determined. This is a Category 3a listing (instream data inconclusive).
 NCAC 15A 02B .0220(3)(g) pH shall be normal for the waters in the area, which generally shall range between 6.8 and 8.5. Freshwater Temperature NCAC 15A 02B .0211 (3)(j): not to exceed 2.8° C above the natural water temperatures, and in no case to exceed 29° C for mountain and upper piedmont waters and 32° C for lower piedmont and coastal plain waters. The temperature for trout waters shall not be increased by more than 0.5° C due to the discharge of heated liquids but in no case to exceed 20° C. Saltwater Temperature NCAC 15A 02B .0220(3)(k) 	 Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling. A trout water (Tr) AU was not rated for aquatic life when greater than 10% of samples were greater than 20° C. The presence of heated discharges was not determined. This is a

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and in no cases to exceed 32° C due to the discharge of heated liquids.	meteorological conditions that occur on a regular basis. These conditions must be documented and reassessment will occur after more normal conditions return. This is a category 3a listing (instream data inconclusive). Examples of extreme conditions may include extreme drought, reservoir drawdown, hurricane impacts and flooding, dam failure, and saltwater encroachment. Other extreme conditions may be documented as needed for future assessments.
Turbidity NCAC 15A 02B .0211 (3)(k) Turbidity in the receiving water shall not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters the turbidity shall not exceed 25 NTU; if turbidity exceeds these levels due to natural conditions the existing turbidity level cannot be increased. (Additional information on Best Management Practices are listed, as well)	Minimum of 10 samples. Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling.
· · · · · · · · · · · · · · · · · · ·	[1] A.

The State currently does not list trout waters for temperature excursions where thermal discharges are present because they have not determined background conditions. EPA recommends that the State begin a monitoring program to determine background conditions and to assess such waters.

The State's water quality standards for DO, pH and turbidity do not specify an allowable percent of samples outside of the criteria. However, North Carolina's use of a ten percent threshold for determining use support for naturally variable parameters is consistent with EPA's guidance (2006 Integrated Water Quality Monitoring and Assessment Report Guidance, July 29, 2005; and Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Supplement, EPA-841-B-97-002B, p.3-17.) Other EPA guidance (Consolidated Assessment and Listing Methodologies, July 2002, "CALM") recommends that the "state's assessment and listing methodology should describe how chemical data are collected and how they are used to determine the attainment of WQS." The web page for DWQ's Ambient Monitoring System references a draft standard operating procedure (Intensive Survey Unit Standard Operating Procedures, August 2003) that provides additional information on the collection of samples which satisfies that provision.

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EPA conclusion

DWQ's methodology for assessment of DO, pH, temperature and turbidity is consistent with North Carolina's existing, EPA-approved water quality standards and with EPA regulations. EPA does not agree that provisions in the State's methodology related to age of data and minimum sample size are consistent with federal requirements.

The provisions of the State's methodology related to age of data and minimum sample size did not result in DWQ failing to identify any waters not attaining DO, pH, temperature and turbidity standards. EPA is, therefore, approving DWQ's listing decisions for DO, pH, temperature and turbidity. For trout waters EPA recommends that the State begin a monitoring program for waters with thermal discharges.

c. Impairments Indicated by Nutrient Enrichment

North Carolina's water quality standards include a numeric criterion for chlorophyll *a*, which is used as an indicator of nutrient enrichment in waters of the State.

Water Quality Standard	State Assessment Methodology
NCAC 15A 2B .0211 (3) (a) "Chlorophyll a: not greater than 40 ug/l for lakes, reservoirs,	Minimum of 10 samples.
and other waters subject to growths of macroscopic or microscopic vegetation not designated as trout waters, and not greater	Criterion exceeded ≤10%: Supporting Criterion exceeded >10%: Impaired
than 15 ug/l for lakes, reservoirs, and other waters subject to growths of macroscopic or microscopic vegetation designated as trout waters (n/a to lakes and reservoirs less than 10 acres in surface area)."	If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling.

EPA conclusion

EPA has determined that North Carolina's use of a ten percent threshold for determining use support for chlorophyll *a* is consistent with North Carolina's existing, EPA-approved water quality standards. EPA does not agree that provisions in the State's methodology related to age of data and minimum sample size are consistent with federal requirements.

The provisions of the State's methodology related to age of data and minimum sample size did not result in DWQ failing to identify any waters not attaining chlorophyll *a* standards. EPA is, therefore, approving DWQ's listing decisions for chlorophyll *a*.

d. Impairments Indicated by Biological Information

EPA reviewed North Carolina's listing methodology for assessment of Aquatic Life designated use support indicated by biological monitoring. North Carolina's water quality standards include a narrative for biological integrity applicable to all Class C waters, as follows.

Water Quality Standard	State Assessment Methodology
NCAC 15A 2B .0211 (2) "The waters shall be suitable for aquatic life propagation and maintenance of biological integrity, wildlife, secondary recreation and agriculture; sources of water pollution which preclude any of these uses on either a short- term or long-term basis shall be considered to be violating a water quality standard." NCAC 15 A 2B .0202 (11)	Benthic macroinvertebrate: Bioclassifications assigned ranging from Poor to Excellent in flowing fresh waters based on the number of taxa present in the pollution intolerant aquatic insect groups and the North Carolina Biotic Index (NCBI). Classifications are translated into use support categories. If the NCBI is Severe Stress (for Swamp waters), Fair or Poor, the waterbody is Impaired.
Biological integrity is defined as "the ability of an aquatic ecosystem to support and maintain a balanced and indigenous community of organisms having species composition, diversity, population densities and functional organization similar to that of reference conditions."	Fish community: North Carolina Index of Biotic Integrity (NCIBI) used to assess a stream's biological integrity by examining the structure and health of its fish community. NCIBI is translated into use support categories. If the NCIBI is Severe, Poor or Fair, the waterbody is Impaired.

If an assessment unit is assessed as biologically impaired for aquatic life and there were other aquatic life standards violations, DWQ places this impairment in Category 4s for the biological impairment. This waterbody would be a Category 5 listing for the identified standards violation and would then require a TMDL.

Benthic macroinvertebrate and fish community assessments are completed by the DWQ Biological Assessment Unit. The most recent Standard Operating Procedures for macroinvertebrate and fish community assessment, data and scores and ratings are available on the DWQ website (<u>http://h2o.enr.state.nc.us/esb/BAUwww/benthossop.pdf</u>). If both macroinvertebrate and fish community data are available, both are used to evaluate use support. The State's use of multiple assemblages is in conformance with EPA's recommendation in the 2002 CALM guidance that the use of more than one biological index enhances "confidence in the assessment finding."

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EPA Conclusion

The DWQ assessment listing methodology for biological data is consistent with North Carolina's existing, EPA-approved water quality standards and EPA regulations. EPA is approving DWQ's listing decisions based on biological data.

e. <u>Impairments Indicated by Toxic and Non-Conventional</u> <u>Pollutants</u>

Many pollutants which exert a toxic effect in water react and behave differently in the environment than the naturally variable pollutants discussed above. Unlike the naturally variable pollutants described above, toxic and non-conventional pollutants do not generally have wide variability in concentration under natural conditions that would still be protective of the designated use. Therefore, EPA carefully considered waterbodies with data related to toxic and non-conventional pollutants when reviewing North Carolina's section 303(d) list. In considering this data, EPA paid particular attention to the magnitude and duration of any exceedances, and also considered any compensating periods of time when no exceedances were observed. See the Technical Support Document for Water Quality-based Toxics Control, Appendix D - Duration and Frequency, U.S. Environmental Protection Agency, March 1991.

North Carolina's numeric water quality standards for toxic and non-conventional pollutants are listed as "maximum permissible levels to protect aquatic life applicable to all fresh surface waters" (NCAC 15A 02B .0211(3) (l)).

Parameter	Water Quality Standard NCAC 15A 02B .0211(3)(l)	State Assessment Methodology
Arsenic	50 ug/l	Minimum of 10 samples.
Chromium	50 ug/l (Total recoverable)	An assessment unit was assessed as Impaired for aquatic life when greater than
Lead	25 ug/l (Total recoverable)	10% of samples were greater than the above standards.
Cadmium	0.4 ug/l for trout waters and 2.0 ug/l for non-trout waters.	If the 10% criterion was exceeded and
Nickel	88 ug/l	fewer than 10 samples were collected the assessment unit was not rated and targeted
	Cadmium and Nickel criteria are based on total recoverable metals concentrations unless appropriate studies have been conducted to translate total recoverable metals to a toxic form.	for further sampling.

North Carolina's water quality standards include "Action Levels" for several toxic substances, including copper, iron, silver, and zinc. These compounds are considered to be non-bioaccumulative and have variable toxicity to aquatic life because of chemical form, solubility, stream characteristics or associated waste characteristics. Action levels have been typically used as a screen for potentially toxic impacts in receiving waters related to National Pollutant Discharge Elimination System (NPDES) permits (15A NCAC 02B .0211(4)). It should be noted, however, that the Action Level concept is intended to be used only for National Pollutant Discharge Elimination System (NPDES) permits. The North Carolina water quality standard goes on to state that, "[f]or purposes other than consideration of NPDES permitting of point source discharges…the Action Levels in this Rule…shall be considered as numerical ambient water quality standards."

1g/l	Minimum of 10 samples.
I	
) mg/l	An assessment unit was assessed as Impaired for aquatic life when greater than 10% of samples were greater than
ug/l	the above standards.
D6 ug/l	If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling.
	Iron was not assessed because the standard is being reevaluated and iron exceedances have been shown to be a natural condition.
	NC does not routinely monitor for silver.
	DWQ will review Copper and Zinc assessments that result in Category 5 listings to determine if the listing is appropriate. The review takes into account several lines of information including collocated biological ratings, quality of data and possibility of natural
	ug/l

.17

"Ten percent" Methodology

For toxic pollutants, EPA guidance recommends use of one-exceedance-in-threeyears frequency for listing decisions. According to the Consolidated Assessment and Listing Methodology (CALM)-Toward a Compendium of Best Practices, July 2002, EPA recommends that acute and chronic aquatic life criteria for toxics not be exceeded more than once every three-year period (1-in-3) on the average. The guidance states "EPA selected this frequency to provide a level of protection similar to the 7Q10 design flow or low-flow condition. The exceedance frequency recommendation is considered protective. Like the magnitude and duration components of the water quality criteria, it may also be revised to reflect site-specific information on exposure and response relationships." A state may use an alternative methodology to assess waters where the state has provided a scientifically defensible rationale that its methodology is no less stringent than EPA's recommended water quality standards. EPA has reviewed the justification North Carolina submitted supporting its listing methodology for toxic and non-conventional pollutants and does not believe the State has demonstrated that the frequency set out in its methodology is no less stringent than the frequency included in EPA's recommended water quality standards. Where other Region 4 states have used a ten percent exceedance criterion in their assessment methodologies for metals, the EPA Region 4 staff independently reviewed the data using the 1-in-3 method and determined there would be no additional listings.

For the 2008 section 303(d) list cycle, given the amount of data available in North Carolina, the ten percent exceedance methodology results in the same (or more) listings as the EPA-recommended frequency. For this list cycle, there are three new listings of impairments of arsenic, one cadmium, one lead and seven nickel (see section below on copper and zinc).

Action Level - Iron

DWQ provided USGS data to support the determination that high iron in many NC surface waters is a natural condition. EPA Region 4 analyzed the information and concurs that the levels of iron found do appear to be naturally occurring, related to the sediment in streams and the geochemistry of the ecoregions within the state.

Action Levels - Copper and Zinc

In the past, DWQ used their action level metals monitoring data only to screen waters for potential problems. For the NC 2006 section 303(d) list, DWQ did not assess use support for action level metals but committed to developing a scientifically defensible methodology for the 2008 list cycle. In the meantime, DWQ began the process to revise all of their metals standards.

The initial submittal of the 2008 section 303(d) list methodology for the action level metals stated that "exceedances of the 10% criterion were not adequate indicators of impacts to ecological / biological integrity in North Carolina waters due to high naturally

occurring levels and were not used to assess waters as Impaired." While the reasoning that elevated levels of iron in NC streams are naturally occurring may be based on scientific documentation, the same argument has not been made for copper and zinc.

In November 2008, DWQ proposed a revised methodology that placed more reliance on biological data. While EPA supports the use of a multiple line of evidence approach, DWQ's proposal placed an exceedingly high value on biological assessment over chemical data. EPA's Policy on the Use of Biological Assessments and Criteria in the Water Quality Program (Memorandum from T.T. Davis, Director, Office of Science and Technology to Water Management Division Directors, Regions 1-10, June 19, 1991) states: "Because biosurvey, chemical-specific and toxicity testing methods have unique as well as overlapping attributes, sensitivities, and program applications, no single approach for detecting impact should be considered uniformly superior to any other approach. EPA recognizes that each method can provide valid and independently sufficient evidence of aquatic life use impairment, irrespective of any evidence, or lack of it, derived from the other two approaches. The failure of one method to confirm an impact identified by another method would not negate the results of the initial assessment. This policy, therefore, states that appropriate action should be taken when any one of the three types of assessment determines that the standard is not attained. States are encouraged to implement and integrate all three approaches into their water quality programs and apply them in combination or independently as site-specific conditions and assessment objectives dictate." DWQ did not provide sufficient information to show the proposed combination of biological and chemical methods are protective.

EPA and DWQ subsequently came to an agreement which led to withdrawal of the initial submittal. DWQ submitted a revised methodology and 2008 section 303(d) list on February 5, 2010. In some cases when copper or zinc exceeded the criteria but biological sampling indicated no impairment (or in the absence of biological data), DWQ conducted additional reviews to determine use support of waters potentially impaired by these metals. The review consisted of an evaluation of all available relevant information, including, but not limited to, natural or background conditions, sample quality and representativeness of data.

Overall, DWQ's review resulted in 74 assessment units newly listed for copper and/or zinc (60 copper only, 5 zinc only and 9 copper/zinc combinations). A table of all new listings is provided in Appendix A. The review also resulted in a list of 17 assessment units which will require further investigation for potential impairments of copper and/or zinc. This list is provided in Appendix C.

EPA Conclusion

EPA Region 4 concurs that the levels of iron found appear to be naturally occurring. EPA recommends, and the state has agreed, that DWQ will continue to assess iron data to identify any waters with high levels not attributable to natural conditions.

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DWQ and EPA Region 4 worked together to develop an acceptable methodology to assess copper and zinc. Follow-up monitoring is recommended for the 17 waterbodies identified as potentially impaired. Monitoring and assessment should be based on North Carolina's EPA-approved water quality standards.

For the reasons set out above, EPA has not determined that use of the "> 10% exceedence" test is a reasonable method for DWQ to assess toxic or non-conventional pollutants consistent with the State's currently applicable, EPA-approved water quality standards. EPA does not agree that provisions in the State's methodology related to age of data and minimum sample size are consistent with federal requirements.

The provisions of the State's methodology related to age of data, minimum sample size, and toxic or non-conventional pollutants did not result in DWQ failing to identify any waters not attaining toxic or non-conventional pollutant water quality standards. EPA is, therefore, approving DWQ's listing decisions for toxic and non-conventional pollutants.

5. Fish Consumption Use Support

Class C waters are freshwaters protected for several uses, including fishing. Class SC is saltwater protected for several uses including fishing. All waters in the state are protected at a minimum at the Class C or SC level. The fish consumption use support category is based on protecting human health, so these waters are assessed to determine whether humans can safely consume fish from a particular waterbody.

Water Quality Standard	State Assessment Methodology
15A NCAC 02B.0211(l)(ix) Mercury (maximum permissible level): 0.012	Fish Consumption was assessed based on site-specific fish consumption advisories
ug/l	which were based on fish tissue data.
	Therefore, the impairments are based on
NCAC 15A 02B .0208(a)(2) Standards for	standards violations. Because of the
Toxic Substances and Temperature	statewide Mercury advisory there were no
Human Health Standards: The concentration	cases for Supporting fish consumption.
of toxic substances will not exceed the level	
necessary to protect human health through	PCBs and Dioxin Assessment Criteria
exposure routes of fish (or shellfish) tissue	An assessment unit was assessed as Impaired
consumption, water consumption, or other	when a site-specific advisory was posted for
route identified as appropriate for the water	PCBs or dioxins, respectively. According to
body.	the Neuse River Basin Assessment Report
(A) For non-carcinogens, WQS or criteria	(March 21, 2006), a value of 4.0 ppt for

dioxin in fish tissue triggers an advisory.
Mercury Assessment Criteria
An assessment unit was assessed as Impaired
for fish consumption when greater than 10%
of samples were greater than 0.012 μ g/l. A
minimum of 10 samples was needed to rate
the water as Impaired.
If the 10% criterion was exceeded and fewer
than 10 samples were collected the
assessment unit was not rated and targeted for
further sampling. This is a category 3a listing
not requiring a TMDL.
Statewide advice for Mercury in fish tissue
was not assessed because it was not
associated with a specific assessment unit but
was applied to all waters of the State.
Previous Category 5 listings for Mercury
based on site specific advisories will remain
in place.

The Monitoring Program Strategy states that DWQ conducts fish tissue testing for mercury, selenium, cadmium, PCBs and pesticides. Data are provided to the North Carolina Department of Health and Human Services (DHHS) for them to make the fish consumption advisory.

EPA Conclusion

North Carolina procedures for assessing waterbodies based on fish consumption advisories are generally consistent with North Carolina's existing, EPA-approved water quality standards. EPA agrees that North Carolina's listing methodology, as revised, provides for DWQ to make listing decisions based on fish tissue data and fishing advisories in a manner consistent with the state's currently applicable water quality standards and EPA regulations. EPA does not agree that provisions in the State's methodology related to age of data and minimum sample size are consistent with federal requirements.

The provisions of the State's methodology related to age of data and minimum sample size did not result in DWQ failing to identify any waters based on fish consumption use. EPA is approving DWQ's listing decisions for fish consumption use support based on that methodology.

6. Shellfish Consumption Use Support

The methodology for Shellfish Harvesting Use Support is applicable only to Class SA waters: tidal salt water bodies used for shellfish harvesting for market purposes.

Water Quality Standard	State Assessment Methodology
15A NCAC 02B .0221	An assessment unit was assessed as Impaired
Waters shall meet the current sanitary and	when the geometric mean was greater than 14
bacteriological standards as adopted by the	colonies/100ml or greater than 10% of the
Commission for Health Services and shall be	samples were higher than 43 colonies/100ml.
suitable for shellfish culturesQuality	A
standards applicable:	An assessment unit was assessed as Impaired
(a) Floating solids; settleable solids; sludge deposits: none attributable to sewage,	when the DEH growing area classification was Prohibited or Conditionally approved.
industrial or other wastes.	was riomoned of Conditionally approved.
(b) Sewage: None	This is a Category 5 listing requiring a
(c) Industrial Wastes or other wastes: none	TMDL.
which are not effectively treatedin	
accordance with the requirements of the	
Division of Health Services.	
(d) Organisms of the coliform group: fecal	
coliform group not to exceed a median MF of	
14/100 ml and not more than 10 percent of	
the samples shall exceed an MF count of	
43/100 ml in those areas most probably exposed to fecal contamination during the	
most unfavorable hydrographic and pollution	· · · · ·
conditions.	

The North Carolina Division of Environmental Health (DEH) operates its monitoring program under guidelines outlined in the National Shellfish Sanitation Program's Guide for the Control of Molluscan Shellfish. When a condition or event occurs that impacts the open status of waters, DEH closes those waters to protect public health. According to the DEH website

(<u>http://www.deh.enr.state.nc.us/shellfish/shellfish.htm</u>), conditionally approved "areas are generally open to shellfishing, but can be closed after a significant rainfall event due to the resultant runoff. The area will then remain closed until water sampling indicates a return to acceptable bacteria levels." By definition, conditionally approved areas do not meet the water quality criteria based on a sanitary survey involving detailed water quality assessments conducted under the national protocols. That is the reason EPA's guidance advises that all conditionally approved areas be listed on the 303(d) list.

EPA Conclusion

EPA agrees that North Carolina's listing methodology, as revised, provides for DWQ to make listing decisions based on bacteriological data and shellfish harvesting classification information and in a manner consistent with the state's currently applicable water quality standards and EPA regulations. EPA does not agree that provisions in the State's methodology related to age of data and minimum sample size are consistent with federal requirements.

The provisions of the State's methodology related to age of data and minimum sample size did not result in DWQ failing to identify any waters not attaining shellfish use. EPA is approving DWQ's listing decisions for shellfish use support based on that methodology.

7. Recreational Use Support

In addition to all Class C requirements, Primary Recreation Use Support (e.g., swimming, water-skiing, skin diving) is assessed for all Class B, SA and SB waters. Secondary Recreation Use Support (e.g., wading, boating) is assessed for all Class C, SC and WS waters. North Carolina bases its determination of use support on (1) fecal coliform bacteria water quality standard for fresh water and (2) the duration of swimming advisories issued by state and local health departments.

The water quality standard for fecal coliform is applicable to all Class C, SC and Class B, SA and SB waters, as follows.

Water Quality Standard	State Assessment Methodology
 15A NCAC 2B .0211 (3)(e) (Class C) 15A NCAC 2B .0219 (3)(b) (Class B) 15A NCAC .0220 (3)(e) Class SC Fresh Waters Organisms of the coliform group: fecal coliforms shall not exceed (1) a geometric mean of 200/100 ml. (MF count) based upon at least five consecutive samples examined during any 30 day period, nor exceed (2) 400/100 ml. in more than 20 percent of the samples examined during such period. 	Recreation Use SupportFresh WatersSupporting: neither part of the standard (#1and 2, at left) is exceeded.Impaired: either part of the standard (#1 and2, at left) is exceeded.Not Rated: insufficient fecal coliformbacteria data (less than 5 samples in 30 days).This is a Category 3a listing (instream datainconclusive).

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•	Coastal Waters
Coastal Waters Enterococcus, including <i>Enterococcus</i> <i>faecalis, Enterococcus faecium, Enterococcus</i> <i>avium</i> and <i>Enterococcus gallinarium</i> : not to	Impaired: geometric mean greater than 35 colonies/100ml. At least 5 samples must have been collected within the same 30-day period.
exceed a geometric mean of 35 enterococci per 100 ml based upon a minimum of five samples within any consecutive 30 days.	Not Rated: geometric mean was greater than 35 colonies/100ml and samples were not collected in the same 30-day period. This is a Category 3a listing (instream data inconclusive).
	Advisory Posting Assessment An AU was assessed as Impaired when a swimming advisory was posted for greater than 61 days in any 5 year period (includes permanent postings).

DWQ conducts monthly fecal coliform bacteria testing as part of its ambient monitoring program for fresh waters. The North Carolina Division of Environmental Health (DEH) tests coastal recreation waters for Enterococcus levels. According to the 2006 IR and confirmed by recent discussions with DWQ staff, "Locations with annual geometric means greater than 200 colonies per 100 ml, or when more than 20 percent of the samples are greater than 400 colonies per 100 ml, are identified for potential followup monitoring conducted five times within 30 days as specified by the state fecal coliform bacteria standard. If bacteria concentrations exceed either portion of the state standard, the data are sent to DEH and the local county health director to determine the need for posting swimming advisories."

EPA Conclusion

Based on its review of DWQ's assessment submittals, EPA has determined that DWQ assessment methodology for recreational use is consistent with North Carolina's existing, EPA-approved water quality standards. EPA does not agree that provisions in the State's methodology related to age of data and minimum sample size are consistent with federal requirements.

The provisions of the State's methodology related to age of data and minimum sample size did not result in DWQ failing to identify any waters not attaining recreational use. EPA is approving DWQ's listing decisions for bacteria related to recreational use based on that methodology.

8. Drinking Water Use Support and Protection of Human Health

Water supply watersheds are classified as WS-I through WS-V waters. Water quality standards applicable to Class C waters also apply to Class WS-I through WS-V waters. The following WQS apply to surface waters within water supply watersheds.

Water Quality Standard	State Assessment Methodology
NCAC 15A 02B .0212, .0214, .0215, .0216, .0218 Waters of this class are protected by numerous management strategies including significantly limiting the point and non- point sources and imposing development management practices. Chloride: 250 mg/l Nickel: 25 ug/l Nitrate nitrogen: 10 mg/l Barium: 1.0 mg/l 2,4-D: 100 ug/l 2,4,5-TP (Silvex): 10 ug/l Sulfates: 250 mg/l	An assessment unit was assessed as Impaired for water supply when greater than 10% of samples were greater than these standards. A minimum of 10 samples was needed to rate the water as Impaired. If the 10% criterion was exceeded and fewer than 10 samples were collected the assessment unit was not rated and targeted for further sampling.
Coliforms: total coliforms not to exceed 50/100ml (MF count) as a monthly geometric mean value in watersheds serving as unfiltered water supplies (in Class WS-I only) TDS: not greater than 500 mg/l Total hardness: not greater than 100 mg/l as calcium carbonate Phenolic compounds: not greater than 1.0 ug/l Beryllium: 6.8 ng/l Benzene: 1.19 ug/l Carbon Tetrachloride: 0.254 ug/l Chlorinated benzenes: 488 ug/l Dioxin: 0.000013 ng/l Hexachlorobutadiene: 0.445 ug/l Polynuclear aromatic hydrocarbons: 2.8 ng/l	The 2008 Use Support Methodology does not discuss an assessment methodology for these parameters. According to the North Carolina Monitoring Program Strategy (2005), "There are currently a number of indicators with associated standards or action levels that are not monitored or infrequently monitored, particularly pesticides and other organics. This is primarily due to expense of analysis or current analytical methods have reporting limits above the applicable standard"

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Tetrachloroethylene: 0.8 ug/l	
-Trichloroethylene: 3.08-ug/l	
Vinyl Chloride: 2 ug/l	
Aldrin: 0.127 ng/l	
Chlordane: 0.575 ng/l	
DDT: 0.588 ng/l	
Dieldrin: 0.135 ng/l	
Heptachlor: 0.208 ng/l	

All Toxics are Maximum Permissible Concentrations to protect human health through water consumption and fish tissue consumption for carcinogens and non-carcinogens.

EPA Conclusion

In previous list cycles, DWQ relied entirely upon the seven regional water treatment plants for making the assessment determination for public water supplies. EPA guidance stresses the importance of full assessment of public water supply and so is pleased that beginning with the 2008 section 303(d) list cycle, DWQ began conducting its own assessment of water supplies.

DWQ's methodology to assess attainment of drinking water and human health uses for conventional pollutants is consistent with North Carolina's existing, EPAapproved water quality standards and with EPA regulations. EPA does not agree that provisions in the State's methodology related to age of data and minimum sample size are consistent with federal requirements. For the reasons set out in the section addressing assessment of section III.A.4.e above, EPA has not determined that use of the "> 10% exceedence" test is a reasonable method for DWQ to assess toxic or non-conventional pollutants

The provisions of the State's methodology related to age of data, minimum sample size, and toxic or non-conventional pollutants did not result in DWQ failing to identify any waters not attaining drinking water and human health uses. EPA is, therefore, approving DWQ's listing decisions for drinking water and human health uses.

9. Other Pollution Control Requirements (40 CFR 130.7(b)(1))

EPA's regulations provide that TMDLs are not required for waterbodies where "[o]ther pollution control requirements (e.g., best management practices) required by local, State, or Federal authority are stringent enough to implement any water quality standards [WQS] applicable to such waters." 40 C.F.R. section 130.7(b)(1)(iii). EPA's 2006 Integrated Water Quality Monitoring and Assessment Report Guidance acknowledges that the most effective method for achieving water quality standards for some water quality impaired segments may be through controls developed and implemented without TMDLs (referred to as a "4b alternative"). EPA expects that these controls must be specifically applicable to the particular water quality problem and be expected to result in standards attainment in the near future. EPA will evaluate on a caseby-case basis a state's decisions to exclude certain segment/pollutant combinations from Category 5 (the section 303(d) list) based on the 4b alternative. Monitoring should be scheduled for these assessment units to verify that the water quality standard is attained as expected.

EPA Region 4 and NCDWQ chose McDowell Creek in the Catawba River Basin in Mecklenburg County, North Carolina, as a priority watershed in 2006. Charlotte-Mecklenburg Storm Water Services (CMSWS) submitted the McDowell Creek Watershed Management Plan (MCWMP) to EPA and NCDWQ in 2007 and it became clear that McDowell Creek was a good candidate as a 303(d) category 4b demonstration. EPA Region 4 worked in cooperation with NCDWQ to develop a demonstration that summarizes the documentation supporting the 4b classification for McDowell Creek. This demonstration is included in the Administrative Record.

For all waterbodies identified in Section 4b of North Carolina's 2008 section 303(d) list, the State expects that other required regulatory controls (e.g., NPDES permit limits, Stormwater Program rules, buyout programs, etc.) will result in meeting standards within a reasonable period of time. Future monitoring will be used to verify standards achievement. EPA agrees with DWQ's listing decisions based on the applicability of other pollution control requirements.

B. North Carolina's 2008 Section 303(d) List of Impaired Waters (40 CFR 130.7(b)(4))

1. North Carolina's Addition of Water Quality Limited Segments

North Carolina identified additional water quality limited segments in its 2008 section 303(d) list submittal, consistent with section 303(d) and EPA's implementing regulations. EPA is approving the addition of those water quality limited segments to North Carolina's section 303(d) list. The newly listed waterbodies are identified in Appendix A.

2. North Carolina's 2008 Section 303(d) Delistings (40 CFR 130.7(b)(6)(iv))

North Carolina proposed to remove specific water quality limited segments from its 2008 section 303(d) list submittal, consistent with section 303(d) and EPA's implementing regulations. EPA has reviewed the good cause justification for those delisting requests and is approving the delisting of those water quality limited segments from North Carolina's section 303(d) list. The delisted waterbodies are identified in Appendix B.

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C. Priority Ranking and Targeting (40 CFR 130.7(b)(4))

In previous Integrated Report submittals, DWQ provided a description of how water quality limited segments were prioritized for TMDL development. Prioritization was determined according to the severity of the impairment and the designated uses of the segment, taking into account the most serious water quality problems, most valuable and threatened resources, and risk to human health and aquatic life. According to EPA's *Final Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act; TMDL-01-03* dated July 21, 2003, "...States need not specifically identify each TMDL as high, medium or low priority. Instead, the schedule itself can reflect the State's priority ranking." The 2008 Integrated Report provides a Development Schedule (see below) as required but does not provide a description of the method used for prioritization.

D. Schedule for Development of TMDLs for Listed Waters and Pollutants

Pursuant to 40 CFR Section 130.7(b)(4), the state's submittal shall include "the identification of waters targeted for TMDL development in the next two years." The State has identified 15 waterbody-pollutant combinations that will be addressed over the next two years, as shown in Attachment D "Priority Ranking of Waterbodies for TMDL Development" of their 303(d) submittal. EPA has determined that the State's schedule for TMDL development represents adequate progress.

IV. Final Recommendation on North Carolina's 2008 Section 303(d) List Submittal

After careful review of the final section 303(d) list submittal package, the Water Management Division recommends that EPA Region 4 approve the State of North Carolina's 2008 section 303(d) list.

EPA's approval of North Carolina's section 303(d) list extends to all waterbodies on the list with the exception of those waters that are within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove the State's list with respect to those waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under section 303(d) for those waters. Appendix A North Carolina's Addition of Waterbodies to the 2008 Section 303(d) List

Basin	D	Waterbody Name	Cause for Listing
			Biological Criteria
Broad	9-(22)b	BROAD RIVER	Exceeded
21044			Standard Violation
Broad	9-(25.5)b	BROAD RIVER	Turbidity
Broad	1 (20.0)0		Standard Violation
Dioud	9-53-(5)	Buffalo Creek	Turbidity
Broad			Biological Criteria
Dioau	9-26b	Cleghorn Creek	Exceeded
	9-200		Standard Violation Low
Deced	0.50(1)	First Broad River	pH
Broad	9-50-(1)		Standard Violation
			1
Broad	9-50-(28)	First Broad River	Turbidity
			Biological Criteria
Broad	9-41-13-3	Mill Creek	Exceeded
		· · ·	Biological Criteria
Broad	9-46a	Sandy Run Creek	Exceeded
Cape Fear	16-(37.5)b	Haw River (B. Everett Jordan	Standard Violation
		Lake below normal pool elevation)	Turbidity *
Cape Fear	16-41-2-	Morgan Creek (including the Morgan Creek Arm	
	(9.5)	of New Hope River Arm of B. Everett Jordan	Standard Violation
		Lake)	Turbidity
Cape Fear	·	New Hope Creek (including New Hope Creek	
•	16-41-1-(14)	Arm of New Hope River Arm of B. Everett Jordan	Standard Violation
		Lake)	Turbidity
Cape Fear	16-41-(0.5)	New Hope River Arm of B. Everett Jordan Lake	Standard Violation
oupo i our		(below normal pool elevation)	Turbidity
Cape Fear	16-41-1-17-		Standard Violation
Cuperem	(0.7)b1	Northeast Creek	NO2+NO3-N
Cape Fear	16-41-1-17-	Northeast Creek	Standard Violation *
Cape I car	(0.7)b2		NO2+NO3-N
Cape Fear	16-41-1-12-		Standard Violation Low
Caperear	(1)	Third Fork Creek	Dissolved Oxygen
Cape Fear	16-41-1-12-		Standard Violation Low
Cape real	(2)	Third Fork Creek	Dissolved Oxygen
Como Foor	(4)		Biological Criteria
Cape Fear	16-12-1	Tickle Creek (Trickle Creek)	Exceeded
Come Free			Biological Criteria
Cape Fear	16-12	Travia Create	Exceeded
0 T		Travis Creek	Standard Violation
Cape Fear	10 (10 0) 11		1
	17-(10.5)d1	DEEP RIVER	Chlorophyll a
Cape Fear	17-(10.5)d2	DEEP RIVER	Standard Violation
			Turbidity
Cape Fear	17-2-(0.7)	East Fork Deep River	Standard Violation Fecal
			Coliform (recreation)
Cape Fear	17-3-(0.3)	West Fork Deep River	Biological Criteria
		· · · · · · · · · · · · · · · · · · ·	Exceeded
Cape Fear	18-4-(2)	Lick Creek	Standard Violation
I.		•	Turbidity*
Cape Fear	18-27-		Standard Violation Low
x = = = ===	(3)cUT2	UT at Cross Creek POTW	Dissolved Oxygen
Cape Fear	1		Standard Violation
Super out	18-(71)a	CAPE FEAR RIVER	Turbidity Standard
			Violation Nickel*
Cape Fear	10 (71)1		Standard Violation Nicke
	18-(71)b	CAPE FEAR RIVER	
Cape Fear	18-(87.5)a	CAPE FEAR RIVER	Standard Violation Nicke

1

			Standard Violation
			Arsenic
Cape Fear	18-64	Livingston Creek (Broadwater Lake)	Standard Violation
			Turbidity
Cape Fear	· · ·	4	Standard Violation Nickel
	18-88-2	Snows Marsh	Standard Violation
	1		Arsenic
Cape Fear			Standard Violation Nickel
*	18-88-3.5	Southport Restricted Area	Standard Violation
			Arsenic
·····	18-74-39a	Burgaw Creek	Standard Violation
Cape Fear	10 / 1 5 / 4	Bulguv Crook	Chlorophyll a
Caperear		CATAWBA RIVER (including backwaters of	Standard Violation
Catawba	11-(0)	Lake James below elevation 1200)	Turbidity
	11 (117)		
Catawba	11-(117)	CATAWBA RIVER (Lake Wylie below elevation	Standard Violation Low
		570)	pH
Catawba	11-38-34	Wilson Creek	Standard Violation Low
			pH
Catawba	11-129-5-		Standard Violation
·	(9.5)	Clark Creek	Turbidity
Catawba	11-129-1-	· · · ·	Standard Violation Low
	(12.5)b	Henry Fork	pH
Catawba	11-129-1-	Henry Fork	Standard Violation
	(12.5)c	5	Turbidity
Catawba	11-129-15-		Biological Criteria
Outumou	(6)	Hoyle Creek	Exceeded
Catawba	11-129-3-		Biological Criteria
Catawba	(0.7)	Pott Creek	Exceeded
Catawba	11-129-(0.5)	South Fork Catawba River	Standard Violation Low
Catawba	11-129-(0.3)	South Fork Calawoa River	pH
Catauta	11-129-		Standard Violation
Catawba		Bandh Fach Catanda D'ann	1
	(15.5)	South Fork Catawba River	Turbidity
Catawba	11-(123.5)b	CATAWBA RIVER (Lake Wylie South FK	Standard Violation
	<u> </u>	Catawba Arm) North Carolina portion	Turbidity
Catawba	11-137-1	Irwin Creek	Standard Violation Lead
	11-138	Twelvemile Creek	Standard Violation
Catawba			Turbidity
	25a2a	CHOWAN RIVER	
	LJULU		Standard Violation
Chowan	2.5424		Standard Violation Cadium*
Chowan Chowan			Cadium*
Chowan Chowan	26	ALBEMARLE SOUND	Cadium* Standard Violation
Chowan	26	ALBEMARLE SOUND	Cadium* Standard Violation Dioxin
			Cadium* Standard Violation Dioxin Standard Violation
Chowan Chowan	26 25c	ALBEMARLE SOUND CHOWAN RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin
Chowan Chowan French	26	ALBEMARLE SOUND	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low
Chowan Chowan French Broad	26 25c 6-34-(15.5)	ALBEMARLE SOUND CHOWAN RIVER Davidson River	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH
Chowan Chowan French Broad French	26 25c	ALBEMARLE SOUND CHOWAN RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation
Chowan Chowan French Broad Broad	26 25c 6-34-(15.5) 6-(1)	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity
Chowan Chowan French Broad French Broad French	26 25c 6-34-(15.5)	ALBEMARLE SOUND CHOWAN RIVER Davidson River	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation
Chowan Chowan French Broad French Broad French Broad	26 25c 6-34-(15.5) 6-(1) 6-(54.5)c	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER FRENCH BROAD RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation Turbidity
Chowan Chowan French Broad French Broad French Broad French	26 25c 6-34-(15.5) 6-(1)	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation Turbidity Standard Violation
Chowan Chowan French Broad French Broad French Broad French Broad	26 25c 6-34-(15.5) 6-(1) 6-(54.5)c 6-(54.5)d	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER FRENCH BROAD RIVER FRENCH BROAD RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity
Chowan Chowan French Broad French Broad French Broad French Broad French	26 25c 6-34-(15.5) 6-(1) 6-(54.5)c	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER FRENCH BROAD RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation
Chowan Chowan French Broad French Broad French Broad French Broad French Broad	26 25c 6-34-(15.5) 6-(1) 6-(54.5)c 6-(54.5)d 6-(54.5)f	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER FRENCH BROAD RIVER FRENCH BROAD RIVER FRENCH BROAD RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity
Chowan Chowan French Broad French Broad French Broad French Broad French	26 25c 6-34-(15.5) 6-(1) 6-(54.5)c 6-(54.5)d	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER FRENCH BROAD RIVER FRENCH BROAD RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation
Chowan Chowan French Broad French Broad French Broad French Broad French Broad	26 25c 6-34-(15.5) 6-(1) 6-(54.5)c 6-(54.5)d 6-(54.5)f	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER FRENCH BROAD RIVER FRENCH BROAD RIVER FRENCH BROAD RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity
Chowan Chowan French Broad French Broad French Broad French Broad French Broad French	26 25c 6-34-(15.5) 6-(1) 6-(54.5)c 6-(54.5)d 6-(54.5)f	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER FRENCH BROAD RIVER FRENCH BROAD RIVER FRENCH BROAD RIVER	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation
Chowan Chowan French Broad French Broad French Broad French Broad French Broad French Broad	26 25c 6-34-(15.5) 6-(1) 6-(54.5)c 6-(54.5)d 6-(54.5)f 6-76d	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER Hominy Creek	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Low pH Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity
Chowan Chowan French Broad French Broad French Broad French Broad French Broad French Broad French	26 25c 6-34-(15.5) 6-(1) 6-(54.5)c 6-(54.5)d 6-(54.5)f 6-76d	ALBEMARLE SOUND CHOWAN RIVER Davidson River FRENCH BROAD RIVER Hominy Creek	Cadium* Standard Violation Dioxin Standard Violation Dioxin Standard Violation Dioxin Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Standard Violation Turbidity Biological Criteria

French	6-78d	Swannanoa River	Standard Violation	
Broad	0-76u	Swamianoa River	Turbidity	
French	5-26-(7)	Jonathans Creek	Standard Violation	
Broad	5 20 (1)		Turbidity	
French	5-(7)c	PIGEON RIVER (Waterville Lake below	Biological Criteria	
Broad		elevation 2258)	Exceeded	
French	7	NOLICHUCKY RIVER	Standard Violation	
Broad			Turbidity	
French	7-2-(21.5)	North Toe River	Standard Violation	
Broad		·	Turbidity	
Hiwassee	1-63a	Persimmon Creek (Lake Cherokee)	Biological Criteria	
			Exceeded	
Hiwassee	1-52c	Valley River	Standard Violation	
8			Turbidity	
Little			Standard Violation Fecal	
Tennessee	2-79-36	Savannah Creek	Coliform (recreation)	
Little	2-79-39	Scott Creek	Standard Violation Fecal	
Tennessee			Coliform (recreation	
Little	2-79-(35.5)a	Tuckasegee River	Standard Violation Fecal	
Tennessee	0.50 (05.5)		Coliform (recreation Standard Violation Fecal	
Little	2-79-(35.5)b	Tuckasegee River	Coliform (recreation	
Tennessee	0.70 (28)	Tuckasegee River	Standard Violation Fecal	
Little	2-79-(38)	Tuckasegee River	Coliform (recreation	
Tennessee Little		Tuckasegee River Arm of Fontana Lake, Little	Standard Violation Fecal	
Tennessee	2-(78)a	Tennessee River, below elevation 1708 MSL	Coliform (recreation)	
Little	2-(10)a	Telinessee River, below elevation 1700 MbE	Biological Criteria	
Tennessee	2-190-(22)a	Cheoah River	Exceeded	
Tennessee	14-10-5b	Little Raft Swamp	Biological Criteria	
Lumber		Entro Funt S manip	Exceeded	
	14-6	Mill Branch	Biological Criteria	
Lumber			Exceeded	
	14-27	Porter Swamp	Biological Criteria	
Lumber			Exceeded	
	15-25-13	Calabash River	Standard Violation	
Lumber			Turbidity*	
Lumber	15-25p	Intracoastal Waterway	Standard Violation Fecal	
			Coliform (shellfish)	
Lumber	15-25t	Intracoastal Waterway	Standard Violation Fecal	
			Coliform (shellfish)	
		· · · · · · · · · · · · · · · · · · ·	Standard Violation Turbidity Standard	
к 1	15.05	Mantenany Claugh	Violation Low Dissolved	
Tumbon	15-25v	Montgomery Slough	Oxygen*	
Lumber	27-149-4-1	Great Pond	Standard Violation Fecal	
Neuse	27-1+9-4-1	Great I ond	Coliform (shellfish)	
Neuse	27-45-(2)	Black Creek	Standard Violation Low	
Incuse	21-+5-(2)	Bluck Creek	Dissolved Oxygen	
Neuse	27-33-4	Brier Creek	Standard Violation PCB	
Neuse	27-33-(10)a	Crabtree Creek	Standard Violation PCB	
Neuse		Crabtree Creek	Standard Violation PCB*	
Neuse	27-33-(10)b		Standard Violation PCB	
	27-33-(10)c	Crabtree Creek	Standard Violation PCB	
Neuse	07 22 (2 5)	Crahtras Crask (Crahtras I aka)	Turbidity	
	27-33-(3.5)a	Crabtree Creek (Crabtree Lake)	Standard Violation PCB	
Nauso	27-33-(3.5)b	Crabtree Creek (Crabtree Lake)	Standard Violation PCB	
Neuse	21-33-(3.3)0	CIADUCE CICCK (CIADUCE LAKE)	*	
Neuse	27-3-(8)	Flat River	Standard Violation Low	
TICUSE	21-5-(0)		Dissolved Oxygen	
			L'insorreu enjeur	
Neuse	27-3-(9)	Flat River (including the Flat River Arm of Falls	Standard Violation Low	
-------	------------------------------	--	---	---
		Dissolved Oxygen		
Neuse	27-33-4-1	Little Brier Creek	Standard Violation PCB	
Neuse	27-9-(0.5) Little Lick Creek		Standard Violation Turbidity*	
Neuse	27-(38.5)	NEUSE RIVER	Standard Violation Turbidity	
Neuse	27-(41.7)	NEUSE RIVER	Standard Violation Turbidity	
Neuse	27-(1)	NEUSE RIVER (Falls Lake below normal pool elevation)	Standard Violation Turbidity Standard Violation Chlorophyll a	
Neuse	27-(5.5)	NEUSE RIVER (Falls Lake below normal pool elevation)	Standard Violation Chlorophyll a	-
Neuse	27-23-(2)	Smith Creek	Ecological/biological Integrity Fish Community	_
Neuse	27-43-(1)d	Swift Creek	Biological Criteria Exceeded	
Neuse	27-43-(5.5)a	Swift Creek (Lake Benson)	Biological Criteria Exceeded	
Neuse	27-15-(1)	Upper Barton Creek	Biological Criteria Exceeded	
Neuse	27-9- · (0.5)ut2	UT2 to Little Lick Creek	Standard Violation Low Dissolved Oxygen	
Neuse	27-9-(2)ut2	UT2 to Little Lick Creek (including portion of Little Lick Creek Arm of Falls Lake)	Standard Violation Low Dissolved Oxygen	
Neuse	27-34-(4)b	Walnut Creek	Standard Violation Turbidity	
Neuse	27-72-(0.1)	Bear Creek	Biological Criteria Exceeded	-
Neuse	27-90a2	Core Creek	Biological Criteria Exceeded	
Neuse	27-(75.7)b	NEUSE RIVER	Standard Violation Low Dissolved Oxygen	-
Neuse	27-86-(7)b1	Contentnea Creek	Biological Criteria Exceeded	-
Neuse	27-86-2	Moccasin Creek (Bunn Lake)	Standard Violation Low Dissolved Oxygen	-
Neuse	27-86-3- (1)a2	Turkey Creek	Standard Violation Low Dissolved Oxygen	
Neuse	27-128-3a	Back Creek (Black Creek)	Standard Violation Fecal Coliform (recreation)	
Neuse	27-150-20a	Ball Creek	Standard Violation Fecal Coliform (shellfish)	
Neuse	27-150- (9.5)a1	Bay River	Standard Violation Fecal Coliform (shellfish)	
Neuse	27-150- (9.5)b2	Bay River	Standard Violation Enterrococcus	
Neuse	27-125-(6)a	Dawson Creek	Standard Violation Fecal Coliform (shellfish) Standard Violation Enterrococcus	
Neuse	27-125-2	Fork Run	Biological Criteria Exceeded	
Neuse	27-152a	Jones Bay	Standard Violation Fecal Coliform (shellfish)	
Neuse	27-101-17	Musselshell Creek	Biological Criteria Exceeded	

Neuse	27-(104)a	NEUSE RIVER Estuary	Standard Violation High
110030			pH
Neuse	27-(104)b	NEUSE RIVER Estuary	Standard Violation High pH
Neuse	27-(118)a1a	NEUSE RIVER Estuary at Camp Don Lee	Standard Violation Enterrococcus
Neuse	27-150-3	South Prong Bay River	Standard Violation Fecal Coliform (shellfish)
New	10-1-3-(1)	East Fork South Fork New River	Biological Criteria Exceeded
New	10-1-3-(8)	East Fork South Fork New River	Biological Criteria Exceeded
New	10-1-(3.5)a	South Fork New River	Biological Criteria Exceeded
New	10-1-(3.5)b	South Fork New River	Biological Criteria Exceeded
Pasquotank	30d	ALBEMARLE SOUND	Standard Violation Enterrococcus
Pasquotank	30-16-(7)	Alligator River	Standard Violation Turbidity
Pasquotank	99-(7)b	Atlantic Ocean	Standard Violation Enterrococcus*
Pasquotank	99-(7)d	Atlantic Ocean	Standard Violation Enterrococcus*
Pasquotank	99-(7)f	Atlantic Ocean	Standard Violation Enterrococcus*
Pasquotank	99-(7)h	Atlantic Ocean	Standard Violation Enterrococcus*
Pasquotank	30-21-7a	Broad Creek	Standard Violation Fecal Coliform (shellfish)
Pasquotank	30-1-6b	Coinjock Bay	Standard Violation Enterrococcus
Pasquotank	30-19-1b	Colington Creek	Standard Violation Enterrococcus
Pasquotank	30-1a2	Currituck Sound	Standard Violation Enterrococcus
Pasquotank	-30-1a3	Currituck Sound	Standard Violation Enterrococcus
Pasquotank	30-1b	Currituck Sound	Standard Violation Enterrococcus
Pasquotank	30-1c	Currituck Sound	Standard Violation Enterrococcus
Pasquotank	30-1-15b	Dowdys Bay (Poplar Branch Bay)	Standard Violation Enterrococcus
Pasquotank	30-9-(1)	Kendrick Creek (Mackeys Creek)	Standard Violation Nickel
Pasquotank	30-9-(2)	Kendrick Creek (Mackeys Creek)	Standard Violation Nickel
Pasquotank	30-21e2	Roanoke Sound	Standard Violation Enterrococcus
Pasquotank	30-1-11b	Sanders Bay	Standard Violation Enterrococcus
Pasquotank	30-16-12	Intracoastal Waterway (Pungo River-Alligator River Canal)	Standard Violation Turbidity
Roanoke	22-(31.5)a	DAN RIVER	Standard Violation Fecal Coliform (recreation)
Roanoke	22-(31.5)b	DAN RIVER	Standard Violation Fecal Coliform (recreation)
Roanoke	22-(38.5)	DAN RIVER	Standard Violation Fecal Coliform (recreation)
Roanoke	22-(1)b	DAN RIVER (North Carolina portion)	Standard Violation

	İ	1	Turbidity
······································			Standard Violation Fecal
			Coliform (recreation)
· -	22-(39)a	DAN RIVER (North Carolina portion)	Standard Violation
Roanoke	()-	F,	Turbidity
	22-30-(1)	Mayo River	Standard Violation
Roanoke		Mayo Mitor	Turbidity
Rounoke	22-40-(1)	Smith River	Standard Violation Fecal
Roanoke	22-40-(1)		Coliform (recreation)*
Rodiloke	22-40-(2.5)	Smith River	Standard Violation Fecal
Doonoko	22-40-(2.3)	Siniui Kivei	1
Roanoke	00.40.(2)	Smith River	Coliform (recreation)*
D 1 . "	22-40-(3)	Smith River	Standard Violation Fecal
Roanoke			Coliform (recreation)*
	· ·	· · · · · · · · · · · · · · · · · · ·	Standard Violation Fecal
		DAN RIVER (North Carolina	Coliform (recreation)
÷ .	22-(39)b	portion)	Standard Violation
Roanoke			Turbidity
•	23-10-2	Newmans Creek (Little Deep Creek)	Biological Criteria
Roanoke			Exceeded
	23-(26)b3	ROANOKE RIVER	Standard Violation Low
Roanoke			Dissolved Oxygen*
Tar-	· · · · · · · · · · · · · · · · · · ·		Biological Criteria
Pamlico	28-96	Greens Mill Run	Exceeded
Famileo	28-96	Hendricks Creek	
	20-01	HEHULICKS CIEEK	Biological Criteria
Pamlico	00.04.05.1		Exceeded
Tar-	29-34-35-1-		Biological Criteria
Pamlico	1	Acre Swamp	Exceeded
			Standard Violation
Tar-			Chlorophyll a
Pamlico	29-19-(5.5)	Bath Creek	Standard Violation
			Enterrococcus
Tar-		Blounts Bay (inside a line from Hill Point to	Standard Violation
Pamlico	29-9	Mauls Point) (PamlicoBlounts Bay Segment)	Chlorophyll a
Tar-	29-29-5a	East Fork North Creek	Standard Violation Fecal
Pamlico		· · · · ·	Coliform (shellfish)
Tar-	29-(5)b2	PAMLICO RIVER (Pamlico Bath Segment)	Standard Violation
Pamlico			Chlorophyll a
Tar-	29-(5)b1	PAMLICO RIVER (Pamlico Blounts Bay	Standard Violation
	29-(3)01	· · · · ·	1
Pamlico	20 (1)	Segment)	Chlorophyll a
Far-	29-(1)	PAMLICO RIVER (Upper Pamilco Segment)	Standard Violation
Pamlico			Enterrococcus
Tar-	29-(5)a1	PAMLICO RIVER (Upper Pamilco Segment)	Standard Violation
Pamlico			Enterrococcus
Tar-	29-(5)b3	PAMLICO RIVER(Pamlico Middle Segment)	Standard Violation
Pamlico		· · · · · · · · · · · · · · · · · · ·	Chlorophyll a
Tar-	29-34-(12)b	Pungo River	Standard Violation
Pamlico			Enterrococcus
Tar-			
Pamlico	29-49a	Swanquarter Bay	Standard Violation
			Enterrococcus
	· · · ·		Biological Criteria
Watauga	8-19	Beaverdam Creek	Exceeded
matauga			
	21-35-7-10-	Broad Creek (Nelson Bay)	Standard Violation
White Oak	4		Turbidity
White Oak	21-35-7a4		Standard Violation Fecal
		Core Sound	Coliform (shellfish)
White Oak	99-(4)b	Atlantic Ocean	Standard Violation
	1		Enterrococcus*
			Enterrococcus
White Oak	99-(4)d	Atlantic Ocean	Standard Violation

White Oak	20-36-	Bogue Sound (Including Intracoastal Waterway)	Standard Violation Fecal
Winte Oak	(0.5)a2	Dogue Sound (moreding mereouster (rater naj)	Coliform (shellfish)
White Oak	20-36-		Standard Violation Fecal
Winte Oak	(8.5)a1a	Bogue Sound (Including Intracoastal Waterway)	Coliform (shellfish)
White Oak	20-36-	Dogao boana (morading marcolating marcolating)	Standard Violation Fecal
Winte Oak	(8.5)a2	Bogue Sound (Including Intracoastal Waterway)	Coliform (shellfish)
	(0.5)a2	Dogue bound (mending muleousial waterway)	
		•	Standard Violation
			Turbidity Standard
			Violation Low Dissolved
			Oxygen
•			Standard Violation
			Chlorophyll a
White Oak	21-32	Calico Creek	Standard Violation Fecal
white Oak	21-32	Canco Creek	Coliform (recreation)
With the Oale	01.25.7.1.	Core Sound	Standard Violation Fecal
White Oak	21-35-7a1a	Core Sound	Coliform (shellfish)
White Oak	21-35-7a1b	Core Sound	Standard Violation Fecal
			Coliform (shellfish)
White Oak	20-36-1	Deer Creek	Standard Violation Fecal
			Coliform (shellfish)
White Oak	20-36-4b	Goose Creek	Standard Violation Fecal
			Coliform (shellfish)
White Oak	21-(17)d1	Newport River	Standard Violation Fecal
			Coliform (shellfish)
White Oak	21-(17)h	Newport River	Standard Violation
			Enterrococcus
White Oak	21-35-1b4	North River	Standard Violation
			Turbidity*
White Oak	21-35-1b7	North River	Standard Violation
			Enterrococcus
White Oak	21-23a	Oyster Creek	Standard Violation
			Enterrococcus
White Oak	21-35-1-7a		Standard Violation
Winte Out	21 55 1 /4	Ward Creek	Turbidity*
White Oak	21-25	Ware Creek	Standard Violation Fecal
Winte Oak	21-23	W are creek	Coliform (shellfish)
White Oak	20-(18)a1	WHITE OAK RIVER	Standard Violation Fecal
while Oak	20-(10)a1	WIIIIE OAK KIVEK	Coliform (shellfish)
William Oals	20 (19)-2		Standard Violation Fecal
White Oak	20-(18)e3	WHITE OAK RIVER	Coliform (shellfish)
	10.07.04.0	Dealer Channel	
NU: 01	18-87-24-3	Banks Channel	Standard Violation
White Oak			Enterrococcus
	10.10		Standard Violation High
	19-12	Brinson Creek	pH Standard Violation
White Oak			Chlorophyll a*
	18-87-21c	Middle Sound	Standard Violation Fecal
White Oak		· · · · · · · · · · · · · · · · · · ·	Coliform (shellfish)
	La Martine La Color		Standard Violation High
-	19-(10.5)	New River	pH Standard Violation
White Oak	· · · · · · · · · · · · · · · · · · ·		Enterrococcus
	T		Standard Violation High
•	19-14	Wilson Bay	pH Standard Violation
White Oak		[1] A.	Enterrococcus
	12-72-(4.5)b	Ararat River	Standard Violation
	1		Turbidity
· · ·			
Yadkin	12-102-13-		
· · ·	12-102-13-		Biological Criteria
Yadkin	12-102-13- (2) 12-63-14	Cedar Creek Cody Creek	

Yadkin	12-94-(0.5)a	Muddy Creek	Biological Criteria	1
, auxin	12-9+-(0.5)a		Exceeded	
Yadkin	12-94-(0.5)b	Muddy Creek	Biological Criteria	-
· · · · ·			Exceeded	
Yadkin	12-84-1-		Standard Violation	
	(0.5)	North Deep Creek	Turbidity	
Yadkin	12-46	Roaring River	Standard Violation Fecal	1.
			Coliform (recreation)	
Yadkin	12-84-2-		Standard Violation	
	(5.5)	South Deep Creek	Turbidity	
Yadkin	12-(86.7)	YADKIN RIVER	Standard Violation	Π.
			Turbidity	
Yadkin	12-(97.5)	YADKIN RIVER	Standard Violation	7
		•	Turbidity	
Yadkin	12-108-18-		Biological Criteria	7
	(3)	Bear Creek	Exceeded	
Yadkin	12-108-16-		Standard Violation	7
	(0.5)	Hunting Creek	Turbidity	
Yadkin	12-108-9-		Biological Criteria	
	(0.6)	Snow Creek	Exceeded	
Yadkin	12-108-20-	· · · · · · · · · · · · · · · · · · ·	Standard Violation	7
	4a	Third Creek	Turbidity	
Yadkin	12-108-20-	Third Creek	Standard Violation	
	4b		Turbidity	
Yadkin			Biological Criteria	
	12-119-(1)	Abbotts Creek	Exceeded	
Yadkin	12-119-(6)a	Abbotts Creek	Standard Violation	
			Turbidity	
Yadkin	12-118.5a	Abbotts Creek Arm of High Rock Lake	Standard Violation	
			Chlorophyll a	
Yadkin			Standard Violation High	
	12-118.5b	Abbotts Creek Arm of High Rock Lake	pH Standard Violation	
		1	Chlorophyll a	
Yadkin	12-126-(3)	Lick Creek	Biological Criteria	
			Exceeded	
Yadkin	12-126-(4)	Lick Creek	Biological Criteria	
			Exceeded	
Yadkin		Second Creek Arm of High Rock	Standard Violation High	
	12-117-(3)	Lake	pH Standard Violation	
17 11 1			Chlorophyll a	-
Yadkin		VADENI DIVED (including lange	Standard Violation High	
	10 (114)	YADKIN RIVER (including lower	pH Standard Violation	
	12-(114)	portion of High Rock Lake)	Chlorophyll a	
Yadkin		YADKIN RIVER (including lower	Standard Violation High	-
radkin	12 (124 5)0	portion of High Rock Lake)	pH Standard Violation	
	12-(124.5)a	portion of High Rock Lake)	Chlorophyll a	
Yadkin		YADKIN RIVER (including upper	Standard Violation High	-
1 duxiii	12-(108.5)b	portion of High Rock Lake below	pH	
	12-(100.5)0	normal operating level)	*	
Yadkin	13-(15.5)b	PEE DEE RIVER	Standard Violation	-
Lagkin	15-(15.5)0		Turbidity	
Yadkin	13-17-7	Back Creek	Biological Criteria	-
I UUMIII	15 17 7	Duck Creek	Exceeded	
Yadkin	13-17-40-11	Beaverdam Creek	Standard Violation Low	-
* *******			Dissolved Oxygen	
Yadkin	13-17-8-5a	Caldwell Creek	Biological Criteria	-
			Exceeded	
		Clarks Creek	Biological Criteria	
Yadkin	13-17-5-2	I Clarks Creek	1 DIOIOgical Criteria	

Yadkin	13-17-17	Clear Creek	Standard Violation
			Turbidity
Yadkin	13-17-6-		Biological Criteria
	(0.5)	Coddle Creek	Exceeded
Yadkin	13-17-6-		Standard Violation
	(5.5)	Coddle Creek	Turbidity
Yadkin	13-17-9-4-		Standard Violation
	(1.5)	Cold Water Creek	Turbidity
Yadkin			Biological Criteria
	13-17-5-3	Doby Creek	Exceeded
Yadkin	13-17-18-3		Biological Criteria
		Duck Creek	Exceeded
Yadkin	13-17-6-1	East Fork Coddle Creek	Biological Criteria
~ ~~~~~			Exceeded
Yadkin	13-17-9-(2)	Irish Buffalo Creek	Biological Criteria
			Exceeded
Yadkin	13-17-36-4-		Standard Violation
-	(0.5)	Little Richardson Creek (Lake Monroe)	Chlorophyll a
Yadkin			Standard Violation
	13-17-5b	Mallard Creek	Turbidity
Yadkin	13-17-8-4	McKee Creek	Biological Criteria
			Exceeded *
Yadkin	13-17-8	Reedy Creek	Biological Criteria
*			Exceeded
Yadkin	13-17-36-		Standard Violation
	(5)a1a	Richardson Creek	Turbidity
Yadkin	13-17-36-		Standard Violation
	(3.5)	Richardson Creek (Lake Lee)	Chlorophyll a
Yadkin	13-17d		Standard Violation
		Rocky River	Turbidity
Yadkin	13-17-36-9-		Biological Criteria
		Stewarts Creek	Exceeded
Yadkin	13-17-36-9-	Stewarts Creek [Lake Twitty	Standard Violation
	(4.5)	(Lake Stewart)]	Chlorophyll a
Yadkin	13-17-5-5	Stony Creek	Biological Criteria
	10 1. 00		Exceeded
Yadkin	13-17-5-4	Toby Creek	Biological Criteria
a avaivini	10 17 0 1		Exceeded

* Waterbody already on the 303(d) list; this is a new impairment.

Assessment Listing Unit Waterbody Name Basin Impairment **Delist Reason** Year Number Broad The assessment of new data documents that applicable 9-41water quality standards are 2004 being met (24.7)Second Broad River Turbidity Broad The assessment of new data Ecological/biolo documents that applicable 9-41gical Integrity water quality standards are 1998 13-(6)a Catheys Creek Benthos being met The assessment of new data Broad 9-41-Ecological/biolo documents that applicable 13-7gical Integrity water quality standards are 1998 Hollands Creek Benthos being met (3)a The assessment of new data Cape Fear Ecological/biolo documents that applicable gical Integrity 16water quality standards are (1)d2HAW RIVER Benthos 1998 being met Cape · Fecal Coliform TMDL completed and 16-Fear (1)d2HAW RIVER (recreation) 1998 approved by EPA Cape Haw River (B. Everett Fear 16-Jordan Lake below TMDL completed and ·(37.5)a normal pool elevation) Chlorophyll a 2006 approved by EPA Cape The assessment of new data Fear documents that applicable 16-11water quality standards are 14-2c 2006 being met South Buffalo Creek Turbidity The assessment of new data Cape Fear documents that applicable water quality standards are 16-11-14-2a South Buffalo Creek Turbidity 2006 being met Flaws in the original analysis Cape Fear Ecological/biolo of data and information led to 16-30gical Integrity the segment being incorrectly FishCom 2006 listed in Category 5 (1.5)Collins Creek Water quality standard Cape assessed for Category 5 listing Fear 16-38no longer applies due to a 1998 change in waterbody type (3)b Robeson Creek Aquatic Weeds Flaws in the original analysis Cape Fear Ecological/biolo of data and information led to 16-38gical Integrity the segment being incorrectly Benthos 2000 listed in Category 5 (5)Robeson Creek Cape New Hope River Arm Fear of B. Everett Jordan 16-41-Lake (below normal TMDL completed and pool elevation) Chlorophyll a 2006 approved by EPA (0.5)

Appendix B North-Carolina's Removal of Waterbodies from the 2008 Section 303(d) List

	New Hope River Arm	Cape			
	of B. Everett Jordan	Fear			4
16-41-	Lake (below normal	•			TMDL completed and
(3.5)a	pool elevation)		Chlorophyll a	2006	approved by EPA
		Cape			Pollutant causing impairment
		Fear	· .		identified. TMDL
16-41-			Ecological/biolo		implementation will result in
1-			gical Integrity		attainment of water quality
(11.5)b	New Hope Creek		Benthos	2000	standards
		Cape			Pollutant causing impairment
		Fear			identified. TMDL
16-41-	· · ·		Ecological/biolo		implementation will result in
1-			gical Integrity		attainment of water quality
(11.5)c	New Hope Creek		Benthos	2000	standards
1	New Hope Creek	Cape			
	(including New Hope	Fear			•
	Creek Arm of New				·
16-41-	Hope River Arm of B.				TMDL completed and
1-(14)	Everett Jordan Lake)		Chlorophyll a	2006	approved by EPA
<u>- \^ -/</u>		Саре			Flaws in the original analysis
		Fear	Ecological/biolo		of data and information led to
16-41-			gical Integrity		the segment being incorrectly
1-12-(1)	Third Fork Creek		Benthos	1998	listed in Category 5
		Cape		· · ·	Flaws in the original analysis
		Fear	Ecological/biolo		of data and information led to
16-41-			gical Integrity		the segment being incorrectly
1-15-(3)	Little Creek	· · · · · · · · · · · · · · · · · · ·	Benthos	2000	listed in Category 5
		Cape			The assessment of new data
16-41-		Fear			documents that applicable
1-17-					water quality standards are
(0.7)b1	Northeast Creek		Turbidity	2006	being met
16-41-		Cape			
1-17-		Fear	Fecal Coliform	0000	TMDL completed and
(0.7)b1	Northeast Creek		(recreation)	2000	approved by EPA
1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -		Cape	17		Flaws in the original analysis
1.4.1		Fear	Ecological/biolo		of data and information led to
16-41-	Month cost Greek		gical Integrity Benthos	2000	the segment being incorrectly listed in Category 5
1-17-(4)	Northeast Creek	Cana	DEHLIOS	2000	nsieu ili Calegol y 5
1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	Morgan Creek (including the Morgan	Cape Fear	1		
	Creek Arm of New		· · ·		
16-41-	Hope River Arm of B.				TMDL completed and
2-(9.5)	Everett Jordan Lake)		Chlorophyll a	2006	approved by EPA
<u> - ().)</u>		Cape			Flaws in the original analysis
		Fear	Ecological/biolo		of data and information led to
16-41-			gical Integrity		the segment being incorrectly
2-7	Meeting of the Waters	.	Benthos	2000	listed in Category 5
	<u> </u>	Cape			The assessment of new data
		Fear			documents that applicable
			Low Dissolved		water quality standards are
16-6-(3)	Troublesome Creek		Oxygen	2006	being met
	and the second distance	Cape			
17-	te a series a series and the series of the s	Fear			The assessment of new data documents that applicable water
(10.5)e1	DEEP RIVER		Turbidity	2006	quality standards are being met
		1	1 I di Oldity	1 2000	guany standards are being net

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•					
		Cape			The assessment of new data
	· · · · · · · · · · · · · · · · · · ·	Fear	·		documents that applicable
. 17-				<i>r</i>	water quality standards are
(10.5)e2	DEEP RIVER		Turbidity	2006	being met
	· ·	Cape			The assessment and
· · ·		Fear			interpretation of more recent
		1 Cui			or more accurate data in the
			Easlagical/high		record demonstrate that the
177			Ecological/biolo		
17-			gical Integrity		applicable water quality
(10.5)e2	DEEP RIVER	:	Benthos	2006	standard is being met
		Cape			Flaws in the original analysis
	•	Fear	Ecological/biolo		of data and information led to
		1.1.1	gical Integrity		the segment being incorrectly
17-(3.3)	Deep River		Benthos	1998	listed in Category 5
······		Cape	•		Flaws in the original analysis
		Fear	Ecological/biolo		of data and information led to
			gical Integrity		the segment being incorrectly
17-(3.7)	Deep River		Benthos	· 1998	listed in Category 5
17-(3.7)		Corre	Delini02	1770	Water quality standard
		Cape			
		Fear			assessed for Category 5 listing
17-					no longer applies due to a
(32.5)	DEEP RIVER		Chlorophyll a	2006	change in waterbody type
		Cape	J		Flaws in the original analysis
		Fear	Ecological/biolo		of data and information led to
			gical Integrity		the segment being incorrectly
17-(4)a	DEEP RIVER		Benthos	1998	listed in Category 5
17-2-	· ·	Cape	Fecal Coliform		TMDL completed and
	Fast Fast Door Diver	Fear	(recreation)	1998	
(0.3)b	East Fork Deep River		(Tecleation)	1990	approved by EPA
17-2-		Cape		1000	TMDL completed and
(0.3)b	East Fork Deep River	Fear	Turbidity	1998	approved by EPA
	· · · · ·	Cape			Pollutant causing impairment
		Fear			identified. TMDL
			Ecological/biolo		implementation will result in
17-2-			gical Integrity		attainment of water quality
(0.3)b	East Fork Deep River		Benthos	1998	standards
	**	Cape			Pollutant causing impairment
		Fear			identified. TMDL
	·		Ecological/biolo		implementation will result in
17-2-		· ·	gical Integrity		attainment of water quality
(0.7)	East Fork Deep River		Benthos	1998	standards
(0.7)	Last Fork Deep Kiver	0	Denuios	1990	
		Cape			The assessment and
		Fear			interpretation of more recent
					or more accurate data in the
			Ecological/biolo	,	record demonstrate that the
17-8-			gical Integrity		applicable water quality
(0.5)a	Reddicks Creek		Benthos	2006	standard is being met
		Cape			The assessment and
		Fear			interpretation of more recent
					or more accurate data in the
			Ecological/biolo		record demonstrate that the
17-8.5-			gical Integrity		applicable water quality
	Hickory Creek			2006	
(1)a	Hickory Creek	l	Benthos	2006	standard is being met

	· · ·				
		Cape			The assessment and
		Fear			interpretation of more recent
		· · · ·			or more accurate data in the
			Ecological/biolo		record demonstrate that the
	· · · · · ·		gical Integrity		applicable water quality
17-8-2	Jenny Branch		Benthos	2006	standard is being met
1102	Jenny Druhen	Cape	Dominou	2000	Previous listing in Category 5
and the second second		Fear			was inconsistent with the
		real	Declarical/hiclo		
			Ecological/biolo		assessment methodology.
18-			gical Integrity	1000	Available data insufficient to
(63)a	CAPE FEAR RIVER		Benthos	1998	determine attainment status
		Cape	and the processing of the		Low pH and/or low DO
	6	Fear			standards violations due to
18-18-			Low Dissolved		natural conditions in the
1-(2)	East Buies Creek	·	Oxygen	2008	watershed.
	· · · · · · · · · · · · · · · · · · ·	Cape			Low pH and/or low DO
		Fear			standards violations due to
18-20-		1.000			natural conditions in the
	Linner Little Diver		LowpH	2006	watershed.
(24.5)	Upper Little River	C.e.e.e	Low pH	2000	
		Cape			Low pH and/or low DO
		Fear			standards violations due to
18-23-	Little River (Lower				natural conditions in the
(10.7)	Little River)		Low pH	2006	watershed.
		Cape			Low pH and/or low DO
	•	Fear			standards violations due to
18-23-	Little River (Lower				natural conditions in the
(24)	Little River)		Low pH	2006	watershed.
		Cape			Water quality standard
	Little Cross Creek	Fear	Ecological/biolo		assessed for Category 5 listing
19.07		real			no longer applies due to a
18-27-	(Bonnie Doone Lake,		gical Integrity	1000	
4-(1)b	Kornbow Lake, Mintz p		Benthos	1998	change in waterbody type
		Cape			Water quality standard
	Little Cross Creek	Fear	Ecological/biolo		assessed for Category 5 listing
18-27-	(Bonnie Doone Lake,		gical Integrity		no longer applies due to a
4-(1)c	Kornbow Lake, Mintz p		Benthos	1998	change in waterbody type
		Cape		-	Water quality standard
·		Fear	Ecological/biolo	÷ .	assessed for Category 5 listing
18-27-	Little Cross Creek	,	gical Integrity		no longer applies due to a
4-(1.5)	(Glenville Lake)		Benthos	1998	change in waterbody type
+(1.5)	(Clentine Lake)	Cape			Low pH and/or low DO
	and the second		and the second second		standards violations due to
10.01		Fear			
18-31-			T	0000	natural conditions in the
(12)	Rockfish Creek		Low pH	2008	watershed.
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		Cape	· · · · ·	·	Low pH and/or low DO
		Fear			standards violations due to
18-31-					natural conditions in the
(15)	Rockfish Creek	·	Low pH	2006	watershed.
	Dealsfield Creat	Cape			Low pH and/or low DO
	Rockfish Creek	Fear			Low pH and/or low DO
	[(Upchurches Pond,				standards violations due to
18-31-	Old Brower Mill Pond	l e de la constante			natural conditions in the
(18)	(Number Two Lake)]	· · · · · · · · · · · · · · · · · · ·	Low pH	2006	watershed.
		Cape			Low pH and/or low DO
· · ·		Fear			standards violations due to
18-31-	· · ·				natural conditions in the
(23)	Rockfish Creek		Low pH	2006	watershed.
<u> </u>		L	L F	L	

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		I.			• •	· · · · · · · · · · · · · · · · · · ·
			Cape			Flaws in the original analysis
			Fear	Ecological/biolo		of data and information led to
•	18-5-		1997 - 19	gical Integrity		the segment being incorrectly
	(1)a	Gulf Creek		FishCom	1998	listed in Category 5
			Cape			The assessment of new data
	· · · _	Black River (Little	Fear	Ecological/biolo	,	documents that applicable
	18-68-	Black River)(Popes		gical Integrity		water quality standards are
	12-1a	Lake-Rhodes Pond)		Benthos	1998	being met
			Cape			Flaws in the original analysis
			Fear	Ecological/biolo		of data and information led to
	18-74-	Rock Fish Creek (New		gical Integrity		the segment being incorrectly
	29b	Kirk Pond)		Benthos	2000	listed in Category 5
			Cape			Flaws in the original analysis
		•	Fear			of data and information led to
	18-87-			Fecal Coliform		the segment being incorrectly
	(11.5)	Intracoastal Waterway		(shellfish)	2006	listed in Category 5
			Cape			Flaws in the original analysis
÷	· • • •		Fear			of data and information led to
	18-87-			Fecal Coliform		the segment being incorrectly
1	(23.5)b	Intracoastal Waterway	1	(shellfish)	2006	listed in Category 5
	<u>`</u>	· · · · · · · · · · · · · · · · · · ·	Cape			The assessment of new data
			Fear			documents that applicable
	18-87-	Myrtle Sound		Fecal Coliform		water quality standards are
	31a	Shellfishing Area		(shellfish)	2006	being met
		<u></u>	Cape			The assessment of new data
		-	Fear			documents that applicable
	18-88-		1.00	Low Dissolved		water quality standards are
	9b	Intracoastal Waterway		Oxygen	2006	being met
			Catawb	0.198-11		Watershed managment plan
			a	Ecological/biolo		implementation will result in
	11-115-		-	gical Integrity		attainment of water quality
	(1)	McDowell Creek		FishCom	1998	standards
			Catawb			Watershed managment plan
			a	Ecological/biolo		implementation will result in
	11-115-		-	gical Integrity		attainment of water quality
	(1.5)a	McDowell Creek		FishCom	1998	standards
	()		Catawb			Watershed managment plan
		-	a	Ecological/biolo		implementation will result in
	11-115-		"	gical Integrity		attainment of water quality
	(1.5)b	McDowell Creek		FishCom	2000	standards
			Catawb			Watershed managment plan
			a	Ecological/biolo		implementation will result in
	11-115-		-	gical Integrity		attainment of water quality
	(5)	McDowell Creek		Benthos	2000	standards
			Catawb			The assessment of new data
	x		a	Ecological/biolo		documents that applicable
	11-119-			gical Integrity		water quality standards are
	2-(0.5)b	Killian Creek		Benthos	2006	being met
			Catawb			The assessment of new data
	11-129-		a	Ecological/biolo		documents that applicable
	1-12)-		u .	gical Integrity		water quality standards are
	(12.5)a	Henry Fork		Benthos	2006	being met
	(12.5)a		Catawb		2000	Pollutant causing impairment
	1		a	Ecological/biolo		identified. TMDL implementation
	11-129-		a	gical Integrity		will result in attainment of water
	5-(9.5)	Clark Creek		Benthos	2002	quality standards
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			· · · · · · · · · · · · · · · · · · ·	Г — — — — — — — — — — — — — — — — — — —	
11-129-		Catawb	Fecal Coliform		TMDL completed and
5-(9.5)	Clark Creek	а	(recreation)	1998	approved by EPA
		Catawb	Fecal Coliform		TMDL completed and
11 125f	Crowdore Crools	a	(recreation)	2000	approved by EPA
11-135f	Crowders Creek		(recreation)	2000	The assessment of new data
		Catawb			
		a	Ecological/biolo		documents that applicable
			gical Integrity		water quality standards are
11-135f	Crowders Creek		Benthos	1998	being met
		Catawb	Fecal Coliform		TMDL completed and
11-137b	Sugar Creek	a	(recreation)	1998	approved by EPA
11-1570	Bugui Creek	Catawb	(rooroution)		Pollutant causing impairment
	• • • • • • • • • • • • • • • • • • •				identified. TMDL
		a	Easlasian1/hiolo		implementation will result in
	·		Ecological/biolo		
			gical Integrity	1000	attainment of water quality
11-137b	Sugar Creek		Benthos	1998	standards
· · ·		Catawb	1. Contract (1997)	1. N. 19	TMDL completed and
11-137b	Sugar Creek	a	Turbidity	1998	approved by EPA
		Catawb			Pollutant causing impairment
		a	· · ·		identified. TMDL
			Ecological/biolo		implementation will result in
			gical Integrity		attainment of water quality
11-137c	Sugar Creek		Benthos	2000	standards
11-15/0	Sugar Creek	Catawb	Denuios	2000	TMDL completed and
			The definition	2000	approved by EPA
11-137c	Sugar Creek	a	Turbidity	2000	
		Catawb	Fecal Coliform		TMDL completed and
11-137c	Sugar Creek	а	(recreation)	2000	approved by EPA
11-137-		Catawb			TMDL completed and
1	Irwin Creek	а	Turbidity	2000	approved by EPA
		Catawb	Fecal Coliform	· · · ·	TMDL completed and
11-137-		a		2000	
l ·	Irwin Creek		(recreation)	2000	approved by EPA
		Catawb			Pollutant causing impairment
		a		· ·	identified. TMDL
			Ecological/biolo		implementation will result in
11-137-	•		gical Integrity		attainment of water quality
1	Irwin Creek		FishCom	1998	standards
11-137-		Catawb		ŀ	TMDL completed and
8c	Little Sugar Creek	a	Turbidity	1998	approved by EPA
		Catawb	1	·	Pollutant causing impairment
		a			identified. TMDL
	· · · ·	u .	Ecological/biolo	1	implementation will result in
11 127			gical Integrity		attainment of water quality
11-137-	Little Sugar Creat			2000	standards
8c	Little Sugar Creek		Benthos	2000	
11-137-		Catawb	Fecal Coliform		TMDL completed and
8c	Little Sugar Creek	a	(recreation)	1998	approved by EPA
		Catawb		i	Pollutant causing impairment
4.		a			identified. TMDL
			Ecological/biolo		implementation will result in
11-137-	McAlpine Creek	1.1.1.1.1	gical Integrity		attainment of water quality
			Benthos	1998	standards
9a	(Waverly Lake)	Catant	Denuius	1990	
11-137-	McAlpine Creek	Catawb			TMDL completed and
9a	(Waverly Lake)	a	Turbidity	1998	approved by EPA
11-137-	McAlpine Creek	Catawb	Fecal Coliform	· · ·	TMDL completed and
TT.T?!		1		1998	approved by EPA
9a	(Waverly Lake)	a	(recreation)	I IUUX	

1		r		r		······
	11-137-	McAlpine Creek	Catawb a	Fecal Coliform	1000	TMDL completed and
-	_9d	-(Waverly-Lake)		_(recreation)	1998_	_approved_by_EPA
	11-137-	McAlpine Creek	Catawb	• •		TMDL completed and
	9d	(Waverly Lake)	а	Turbidity	1998	approved by EPA
			Catawb			Pollutant causing impairment
			а			identified. TMDL
			•	Ecological/biolo		implementation will result in
	11-137-	McAlpine Creek		gical Integrity		attainment of water quality
	9d	(Waverly Lake)		Benthos	1998	standards
	11-137-	McAlpine Creek	Catawb	Fecal Coliform		TMDL completed and
	9b	(Waverly Lake)	a	(recreation)	1998	approved by EPA
-	11-137-	McAlpine Creek	Catawb			TMDL completed and
	9b	(Waverly Lake)	a	Turbidity	1998	approved by EPA
	70		Catawb	Turoluty		Pollutant causing impairment
			a			identified. TMDL
-			a la	Ecological/biolo		implementation will result in
	11-137-	McAlpine Creek		gical Integrity		attainment of water quality
ļ	9b	(Waverly Lake)		Benthos	1998	standards
ļ	11-137-		Catawb			•
		McAlpine Creek	a	Fecal Coliform	2000	TMDL completed and
ļ	.9c	(Waverly Lake)		(recreation)	2000	approved by EPA
ļ	11-137-	McAlpine Creek	Catawb			TMDL completed and
	9c	(Waverly Lake)	а	Turbidity	2000	approved by EPA
			Catawb			Pollutant causing impairment
			a			identified. TMDL
				Ecological/biolo		implementation will result in
	11-137-	McAlpine Creek		gical Integrity		attainment of water quality
	9c	(Waverly Lake)		Benthos	2000	standards
			Catawb			Pollutant causing impairment
			a .			identified. TMDL
				Ecological/biolo		implementation will result in
	11-137-	McAlpine Creek	• .	gical Integrity		attainment of water quality
	9c	(Waverly Lake)		FishCom	2000	standards
		•	Catawb			The assessment of new data
			a,	Ecological/biolo		documents that applicable
	11-24-	North Fork Catawba		gical Integrity		water quality standards are
	(2.5)b	River		Benthos	2006	being met
			Catawb			The assessment and
			a			interpretation of more recent
						or more accurate data in the
				Ecological/biolo		record demonstrate that the
	11-32-			gical Integrity		applicable water quality
	1-4-1	Jacktown Creek		Benthos	2006	standard is being met
			Catawb			The assessment and
			a			interpretation of more recent
						or more accurate data in the
						record demonstrate that the
	11-38-			Sediment		applicable water quality
	34-14	Harper Creek	•	Historic Listing	1998	standard is being met
			Catawb			The assessment of new data
			а	Ecological/biolo		documents that applicable
	11-39-			gical Integrity		water quality standards are
	(0.5)a	Lower Creek		Benthos	2006	being met

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25b CHOWAN RIVER Chowan Or more accurate data in the record demonstrate that the applicable water quality standard is being met 25b CHOWAN RIVER Historic Listing 1998 standard is being met 25b Chowan Previous listing in Categor was inconsistent with the					1. J.	interpretation of more recent
25b CHOWAN RIVER Nutrients- Historic Listing 1998 applicable water quality standard is being met Chowan Chowan Previous listing in Categor was inconsistent with the					A State	or more accurate data in the
25b CHOWAN RIVER Historic Listing 1998 standard is being met Chowan Chowan Previous listing in Categor was inconsistent with the				11 A.		record demonstrate that the
Chowan Previous listing in Categor was inconsistent with the				Nutrients-		applicable water quality
Chowan Previous listing in Categor was inconsistent with the	25b	CHOWAN RIVER		1 .	1998	standard is being met
			Chowan			Previous listing in Category 5
					:	
						assessment methodology.
	· . :					Available data insufficient to
	25-4-8	Potecasi Creek		Low pH	1998	determine attainment status
			Chowan			Previous listing in Category 5
was inconsistent with the			· .		•	
assessment methodology.						
			i i sedate		le suite de la companya de la	Available data insufficient to
	25-4-8	Potecasi Creek		Oxygen	1998	determine attainment status
			Chowan			Flaws in the original analysis
				Ecological/biolo		of data and information led to
	25-4-8-	and the second	1. A.	gical Integrity		the segment being incorrectly
	1					

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		Chowan	· .		Flaws in the original analysis
		Chowan	Ecological/biolo		of data and information led to
25-4-8-			gical Integrity	· · · ·	the segment being incorrectly
5	Painter Swamp		Benthos	1998	listed in Category 5
	· · · · · · · · · · · · · · · · · · ·	French Broad	,		Pollutant causing impairment identified. TMDL
			Ecological/biolo		implementation will result in
6-	FRENCH BROAD		gical Integrity		attainment of water quality
(54.5)d	RIVER		Benthos	2006	standards
		French			The assessment of new data
	,	Broad	Ecological/biolo		documents that applicable
	Morgan Mill Creek	4 A	gical Integrity		water quality standards are
6-10-1b	(Kaiser Lake)		Benthos	2000	being met
		French			Flaws in the original analysis
		Broad	Ecological/biolo		of data and information led to
			gical Integrity		the segment being incorrectly
6-47	Gash Creek		Benthos	2000	listed in Category 5
· ,		French			Flaws in the original analysis
		Broad	Ecological/biolo		of data and information led to
6.51	Mill Dond Crossle		gical Integrity	2000	the segment being incorrectly
6-51	Mill Pond Creek	French	Benthos .	2000	listed in Category 5 The assessment of new data
		Broad	Foologian1/biolo		
		DIUau	Ecological/biolo gical Integrity		documents that applicable water quality standards are
6-78c	Swannanoa River		Benthos	2006	being met
0-700		French	Dentitios	2000	The assessment and
		Broad			interpretation of more recent
		21000			or more accurate data in the
			Ecological/biolo		record demonstrate that the
6-78-	Ross Creek (Lake		gical Integrity		applicable water quality
23b	Kenilworth)	,	Benthos	2000	standard is being met
		French	Fecal Coliform		TMDL completed and
6-84d	Newfound Creek	Broad	(recreation)	1998	approved by EPA
		French	Fecal Coliform		TMDL completed and
6-84c	Newfound Creek	Broad	(recreation)	1998	approved by EPA
		French	Fecal Coliform		TMDL completed and
6-84b	Newfound Creek	Broad	(recreation)	1998	approved by EPA
		French		1770	The assessment of new data
		Broad	Ecological/biolo		documents that applicable
6-96-	·		gical Integrity		water quality standards are
10a	Little Ivy Creek (River)		Benthos	2006	being met
14-	·	Lumber			TMDL completed and
(13)c	LUMBER RIVER		Mercury	1998	approved by EPA
		Lumber			TMDL completed and
14-(13)f	LUMBER RIVER		Mercury	1998	approved by EPA
14-		Lumber			TMDL completed and
(13)d	LUMBER RIVER		Mercury	1998	approved by EPA
14-		Lumber		1000	TMDL completed and
(13)a	LUMBER RIVER	T 1	Mercury	1998	approved by EPA
14-		Lumber	Manay	1000	TMDL completed and
(13)e	LUMBER RIVER	T	Mercury	1998	approved by EPA
14-		Lumber	Moroury	1000	TMDL completed and approved by EPA
(13)b	LUMBER RIVER	Lumber	Mercury	1998	TMDL completed and approved
14-(4.5)d	LUMBER RIVER	Luniber	Mercury	1998	by EPA
		L			-,

		T 1	r I		TMDI
14-		Lumber		1000	TMDL completed and
(4.5)b	LUMBER RIVER		Mercury	1998	approved by EPA
14-		Lumber		1000	TMDL completed and
(4.5)c	LUMBER RIVER		Mercury	1998	approved by EPA
		Lumber			TMDL completed and
14-(7)	LUMBER RIVER		Mercury	1998	approved by EPA
14-2-		Lumber	·		TMDL completed and
(1)a	Drowning Creek	1	Mercury	1998	approved by EPA
14-2-		Lumber	· .		TMDL completed and
(10.5)	Drowning Creek		Mercury	1998	approved by EPA
14-2-		Lumber			TMDL completed and
(6.5)	Drowning Creek		Mercury	1998	approved by EPA
14-2-	Aberdeen Creek [Pages	Lumber		· · · · · · · · · · · · · · · · · · ·	TMDL completed and
1 1		Bamoor	Moroury	1998	approved by EPA
11-(5)	Lake (Aberdeen Lake)]	T 1	Mercury	1990	
		Lumber		1000	TMDL completed and
14-22b	Big Swamp		Mercury	1998	approved by EPA
		Lumber			TMDL completed and
14-27	Porter Swamp		Mercury	1998	approved by EPA
		Lumber			TMDL completed and
14-30b	Ashpole Swamp		Mercury	1998	approved by EPA
		Lumber			TMDL completed and
14-30a	Ashpole Swamp		Mercury	1998	approved by EPA
		Lumber			TMDL completed and
15-(1)a	WACCAMAW RIVER		Mercury	1998	approved by EPA
		Lumber			TMDL completed and
15-(1)e	WACCAMAW RIVER		Mercury	1998	approved by EPA
15 (1)0		Lumber			TMDL completed and
15-(1)d	WACCAMAW RIVER		Mercury	1998	approved by EPA
15-(1)u	Wheen wheel wheel	Lumber			TMDL completed and
15 (1)b	WACCAMAW RIVER	Lumber	Mercury	1998	approved by EPA
15-(1)b	WACCAMAW KIVEK	Lumber	Wiereury	1770	TMDL completed and
15 (1)-	WACCANAN DIVED	Lumber	Marauru	1998	approved by EPA
15-(1)c	WACCAMAW RIVER	T	Mercury	1990	
		Lumber	26	1000	TMDL completed and
15-(18)	WACCAMAW RIVER		Mercury	1998	approved by EPA
		Lumber		1000	TMDL completed and
15-2-6	Big Creek		Mercury	1998	approved by EPA
		Lumber			TMDL completed and
15-4a	White Marsh		Mercury	1998	approved by EPA
· .		Lumber		· .	TMDL completed and
15-4b	White Marsh		Mercury	1998	approved by EPA
		Neuse			Flaws in the original analysis
					of data and information led to
27-	NEUSE RIVER		Fecal Coliform		the segment being incorrectly
(118)d	Estuary		(shellfish)	2004	listed in Category 5
		Neuse			The assessment of new data
· · · ·				1	documents that applicable
27-	NEUSE RIVER				water quality standards are
(96)b1	Estuary		Chlorophyll a	2004	being met
(90)01		Neuse		2004	Flaws in the original analysis
]		Trease	Ecological/biolo		of data and information led to
27 101			gical Integrity		the segment being incorrectly
27-101-	Drine Creek			1998	listed in Category 5
40-(1)	Brice Creek	1	Benthos	1998	insteu in Category 5

			Neuse			Flaws in the original analysis
			· · ·			of data and information led to
	÷.,			Fecal Coliform		the segment being incorrectly
	27-128b	Adams Creek	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	(shellfish)	2004	listed in Category 5
		. t	Neuse			Water quality standard
				Ecological/biolo		assessed for Category 5 listing
		Toms Creek (Mill		gical Integrity	ţ	no longer applies due to a
	27-24a2	Creek)		Benthos	1998	change in waterbody type
	27-33-		Neuse	Fecal Coliform		TMDL completed and
	18	Pigeon House Branch		(recreation)	1998	approved by EPA
	10	Pigeoli House Branch	Neuse	(recreation)	1990	Documentation that the state
			Ineuse			
						included on a previous section
				T 1 10 1.		303(d) list an impaired
				Ecological/biolo		segment that was not required
				gical Integrity	1000	to be listed by EPA
	27-4-(6)	Knap of Reeds Creek		Benthos	1998	regulations
			Neuse			The assessment of new data
				· · · ·		documents that applicable
	27-43-			Low Dissolved		water quality standards are
	15-(1)a	Middle Creek		Oxygen	2004	being met
			Neuse			The assessment of new data
						documents that applicable
	27-45-			Low Dissolved		water quality standards are
	(14)	Black Creek		Oxygen	2004	being met
			Neuse			The assessment of new data
.*						documents that applicable
	27-57-			Low Dissolved		water quality standards are
	(20.2)a	Little River		Oxygen	2004	being met
			Neuse			The assessment of new data
						documents that applicable
	27-57-	Little River (Tarpleys		Low Dissolved		water quality standards are
	(8.5)b	Pond)		Oxygen	2004	being met
			Neuse			The assessment of new data
				Ecological/biolo		documents that applicable
	27-57-	Buffalo Creek (Wendell		gical Integrity		water quality standards are
	16-(3)a	Lake)		Benthos	1998	being met
		·	Neuse			The assessment of new data
						documents that applicable
		Walnut Creek (Lake		Low Dissolved		water quality standards are
	27-68	Wackena, Spring Lake)		Oxygen	2004	being met
		Walnut Creek (Lake	Neuse			TMDL completed and
	27-68	Wackena, Spring Lake)		Aquatic Weeds	1998	approved by EPA
	27-00	Wackena, Spring Lake)	Neuse	Aquatic Weeus	1770	Flaws in the original analysis
			110030	Ecological/biolo		of data and information led to
	27-86-	Contentnea Cr		gical Integrity		the segment being incorrectly
		(Buckhorn Reservoir)		Benthos	1998	listed in Category 5
	(1)a		Neuse	Denuios	1770	Flaws in the original analysis
			TAGUSE	Ecological/biolo		of data and information led to
	77 04	Contentnes Cr		Ecological/biolo		
	27-86-	Contentnea Cr (Buelthern Beservoir)		gical Integrity	1000	the segment being incorrectly
	(1)b	(Buckhorn Reservoir)	AT.	Benthos	1998	listed in Category 5
			Neuse			The assessment of new data
	07 07			Ecological/biolo		documents that applicable
	27-86-			gical Integrity		water quality standards are
	14	Nahunta Swamp		Benthos	1998	being met

[]		NT	I		The approximent of new data
		Neuse			The assessment of new data documents that applicable
27-86-	Little Creek (West		Low Dissolved		water quality standards are
2-4	Side)		Oxygen	1998	being met
2-4	Side)	Neuse	Oxygen	1770	The assessment of new data
		INCUSE			documents that applicable
27-86-			Low Dissolved		water quality standards are
27-80-	Little Contentnea Creek		Oxygen	1998	being met
20		Neuse	Олуден	1770	
	Little Lick Creek	Incuse		12 - Carlor Carlor (1997) 1997 - Carlor Carlor (1997) 1997 - Carlor Carlor (1997)	Flaws in the original analysis
	(including portion of		Ecological/biolo		of data and information led to
	Little Lick Creek Arm		gical Integrity		the segment being incorrectly
27-9-(2)	of Falls Lake)	······	Benthos	1998	listed in Category 5
	•	Neuse			The assessment of new data
			Ecological/biolo		documents that applicable
			gical Integrity		water quality standards are
27-90b	Core Creek		Benthos	1998	being met
		Neuse			The assessment and
					interpretation of more recent
					or more accurate data in the
			Ecological/biolo		record demonstrate that the
2-79-			gical Integrity	0000	applicable water quality
55-2a	Beech Flats Prong		Benthos	2002	standard is being met
		Neuse	17 1		The assessment of new data
			Ecological/biolo		documents that applicable
27-97-		·	gical Integrity	1009	water quality standards are
(0.5)a2	Swift Creek	NTanaa	Benthos	1998	being met The assessment of new data
1		Neuse	Eli-l/hiele		
07.07			Ecological/biolo gical Integrity	·	documents that applicable water quality standards are
27-97-	Claura at Swamp		Benthos	1998	being met
5b	Clayroot Swamp	Neuse	Delluios	1990	The assessment and
		Incuse			interpretation of more recent
· ·					or more accurate data in the
			1	. •	record demonstrate that the
27-97-			· ·		applicable water quality
5-3	Creeping Swamp		Chlorophyll a	1998	standard is being met
<u> </u>		New		1770	The assessment of new data
					documents that applicable
10-1-					water quality standards are
(26)b	South Fork New River		Low pH	2006	being met
(20)0	Bouli I on I tow I tree	New			Pollutant causing impairment
A second s					identified. TMDL
			Ecological/biolo	a da antes a	implementation will result in
10-1-			gical Integrity		attainment of water quality
35-3	Ore Knob Branch	· · · · ·	Benthos	2006	standards
		New		1	Flaws in the original analysis
· · ·					of data and information led to
10-1-			Iron-Historic		the segment being incorrectly
35-3	Ore Knob Branch		Listing	2000	listed in Category 5
55-5		1			Flaws in the original analysis
55-5		New	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	I taws in the original analysis
33-3		New			of data and information led to
10-1-		New			

		• · ·				· · · · · ·
		,	New			Flaws in the original analysis
						of data and information led to
	10-1-					the segment being incorrectly
	35-3	Ore Knob Branch		Zinc	2000	listed in Category 5
			New			Pollutant causing impairment identified. TMDL
				Ecological/biolo		implementation will result in
	10-1-			gical Integrity		attainment of water quality
	35-4	Little Peak Creek		Benthos	.2006	standards
			New			Flaws in the original analysis
		. .			•	of data and information led to
	10-1-				,	the segment being incorrectly
	35-4	Little Peak Creek		Copper	2000	listed in Category 5
		· ·	Pasquot			Previous listing in Category 5
			ank		•	was inconsistent with the
	00.14					assessment methodology.
	30-14-	Course Disco		Low Dissolved	1000	Available data insufficient to
	4-(1)	Scuppernong River	-	Oxygen	1998	determine attainment status
			Pasquot			Previous listing in Category 5
			ank			was inconsistent with the
	20 14		· · · .			assessment methodology.
	30-14-	Course and Diver	1.1	TaniaIT	1000	Available data insufficient to
	4-(1)	Scuppernong River		Low pH	1998	determine attainment status
			Pasquot		;	Flaws in the original analysis
	30-21-		ank	Fecal Coliform		of data and information led to
		Broad Creek			2002	the segment being incorrectly
	7b	Broad Creek	Pasquot	(shellfish)	2002	listed in Category 5 Flaws in the original analysis
			ank			of data and information led to
				Fecal Coliform		the segment being incorrectly
	30-22-2	Eagle Nest Bay	- -	(shellfish)	2002	listed in Category 5
ł	J0-22-2	Lagie (West Day	Pasquot		2002	Flaws in the original analysis
			ank			of data and information led to
•				Fecal Coliform		the segment being incorrectly
	30-22-9	Beach Slue	1	(shellfish)	2002	listed in Category 5
ł	00 22 7		Pasquot			The assessment of new data
			ank			documents that applicable
	30-5-			Low Dissolved		water quality standards are
	(1)a	Little River		Oxygen	1998	being met
ł	<u></u>		Pasquot			The assessment of new data
		,	ank			documents that applicable
	30-5-			Low Dissolved		water quality standards are
	(1)b	Little River		Oxygen	1998	being met
ľ			Pasquot			The assessment of new data
			ank			documents that applicable
				Low Dissolved		water quality standards are
	30-5-(2)	Little River		Oxygen	2000	being met
ſ			Roanok	•		The assessment of new data
			e	Ecological/biolo		documents that applicable
				gical Integrity		water quality standards are
	22-25a 👘	Town Fork Creek		Benthos	2002	being met
			Roanok			Flaws in the original analysis
			e			of data and information led to
	22-58-					the segment being incorrectly
1	12-6a	Marlowe Creek		Copper	1998	listed in Category 5

· · · · · · · · · · · · · · · · · · ·	·····	Descale	· · · · ·		TMDL completed and
22 (52)	ROANOKE RIVER	Roanok	Dioxin	1998	approved by EPA
23-(53)	ROANOKE KIVEK	e Roanok	DIOXIII	1990	The assessment of new data
			Ecological/high		documents that applicable
х.		e	Ecological/biolo	-	water quality standards are
00.101			gical Integrity Benthos	1000	being met
23-10b	Smith Creek	D 1.	Benutos	1998	Defing met
	Nutbush Creek	Roanok			
	(Including Nutbush	e			Flaws in the original analysis
	Creek Arm of John H.	;	Ecological/biolo		of data and information led to
23-8-	Kerr Reservoir below		gical Integrity		the segment being incorrectly
(1)c	normal pool elevation)		Benthos	1998	listed in Category 5
<u> </u>		Tar -			The assessment of new data
		Pamlico			documents that applicable
28-	TAR RIVER (River				water quality standards are
(102.5)	Segment)		Chlorophyll a	1998	being met
28-	TAR RIVER (River	Tar -			TMDL completed and
	Segment)	Pamlico	Chlorophyll a	1998	approved by EPA
(102.5)	ocgniem)	Tar -	Споторнун а	1990	Previous listing in Category 5
		Pamlico			was inconsistent with the
		r annico			assessment methodology.
			Low Dissolved		Available data insufficient to
28-101	Chicod Creek		Oxygen	1998	determine attainment status
28-101		Tar -		1990	
S		Pamlico	Fecal Coliform	1000	TMDL completed and
28-101	Chicod Creek	1	(recreation)	1998	approved by EPA
	•	Tar -		1000	TMDL completed and
28-104	Kennedy Creek	Pamlico	Chlorophyll a	1998	approved by EPA
		Tar -			The assessment of new data
		Pamlico	Ecological/biolo		documents that applicable
			gical Integrity		water quality standards are
28-11a	Fishing Creek		Benthos	1998	being met
		Tar -			The assessment of new data
		Pamlico	Ecological/biolo		documents that applicable
			gical Integrity		water quality standards are
28-11b	Fishing Creek		Benthos	1998	being met
• •		Tar -			The assessment of new data
		Pamlico	Ecological/biolo	· ·	documents that applicable
		· .	gical Integrity		water quality standards are
28-87-1	Crisp Creek		Benthos	2006	being met
	PAMLICO RIVER	Tar -			
aa (1)	(Upper Pamilco	Pamlico	C 11 1 1	1000	TMDL completed and
29-(1)	Segment)		Chlorophyll a	1998	approved by EPA
		Tar -			The assessment of new data
	PAMLICO RIVER	Pamlico	1		documents that applicable
	(Upper Pamilco			1000	water quality standards are
29-(1)	Segment)		Chlorophyll a	1998	being met
		Tar -			Flaws in the original analysis
	PAMLICO RIVER	Pamlico			of data and information led to
29-	AND PAMLICO		Fecal Coliform	0000	the segment being incorrectly
(40.5)b	SOUND		(shellfish)	2006	listed in Category 5
		Tar -	A state of the		Flaws in the original analysis
· ·	PAMLICO RIVER	Pamlico			of data and information led to
29-	AND PAMLICO		Fecal Coliform	1	the segment being incorrectly
(40.5)c	SOUND	1	(shellfish)	2006	listed in Category 5

	4 · · · ·	Tar -			Flaws in the original analysis
	PAMLICO RIVER	Pamlico			of data and information led to
29-	AND PAMLICO		Fecal Coliform		the segment being incorrectly
(40.5)d	SOUND		(shellfish)	2006	listed in Category 5
	PAMLICO RIVER	Tar -			
	(Upper Pamlico	Pamlico			TMDL completed and
29-(5)a	Segment)		Chlorophyll a	1998	approved by EPA
		Tar -			Flaws in the original analysis
- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10		Pamlico	Ecological/biolo		of data and information led to
29-12-			gical Integrity	•	the segment being incorrectly
4-(1)	Jack Creek		Benthos	1998	listed in Category 5
		Tar -			TMDL completed and
29-4-(2)	Rodman Creek	Pamlico	Chlorophyll a	1998	approved by EPA
		Tar -			TMDL completed and
29-6-(1)	Chocowinity Bay	Pamlico	Chlorophyll a	1998	approved by EPA
	······································	Tar -	-		TMDL completed and
29-6-(5)	Chocowinity Bay	Pamlico	Chlorophyll a	1998	approved by EPA
•	-	White			Previous listing in Category 5
	· · ·	Oak	. *	, · ·	was inconsistent with the
•					assessment methodology.
		•	Low Dissolved	-	Available data insufficient to
19-16-2	Little Northeast Creek		Oxygen	1998	determine attainment status
		White		·	Flaws in the original analysis
		Oak ·			of data and information led to
19-39-			Fecal Coliform		the segment being incorrectly
(3.5)b1	Intracoastal Waterway		(shellfish)	2002	listed in Category 5
(White			Flaws in the original analysis
_ (Oak			of data and information led to
19-41-			Fecal Coliform		the segment being incorrectly
18b2	Bear Island ORW Area		(shellfish)	2002	listed in Category 5
		White			Flaws in the original analysis
		Oak	· ·		of data and information led to
19-41-			Fecal Coliform	,	the segment being incorrectly
2b	Mile Hammock Bay		(shellfish)	2002	listed in Category 5
	Bogue Sound	White			Flaws in the original analysis
	(Including Intracoastal	Oak			of data and information led to
20-36-	Waterway to Beaufort		Fecal Coliform		the segment being incorrectly
(8.5)b1	Inl		(shellfish)	2002	listed in Category 5
(· · ·	White			Flaws in the original analysis
		Oak			of data and information led to
21-35-			Fecal Coliform		the segment being incorrectly
(1.5)c	Back Sound		(shellfish)	2002	listed in Category 5
		White			Flaws in the original analysis
		Oak			of data and information led to
21-35-			Fecal Coliform		the segment being incorrectly
1b5	North River		(shellfish)	2002	listed in Category 5
		White	· · ·		Flaws in the original analysis
		Oak			of data and information led to
21-35-			Fecal Coliform		the segment being incorrectly
1-12-1b	Sleepy Creek		(shellfish)	2002	listed in Category 5
	r,	White			Flaws in the original analysis
		Oak			of data and information led to
21-35-			Fecal Coliform		the segment being incorrectly
1-12-2b	Whitehurst Creek		(shellfish)	2002	listed in Category 5
1-14-20		L		2002	Instea in Category 5

	· · · ·				
		White			Flaws in the original analysis
:		Oak			of data and information led to
21-35-			Fecal Coliform	· · ·	the segment being incorrectly
1-13b	Brooks Creek	4	(shellfish)	2002	listed in Category 5
		White			Flaws in the original analysis
		Oak			of data and information led to
21-35-			Fecal Coliform		the segment being incorrectly
7-3b	Styron Bay	- 1	(shellfish)	2002	listed in Category 5
7-50	Styloi Bay	M/hito	(SHEIIIISH)	2002	Flaws in the original analysis
and the second	$(x, y) \in [0, \infty)$	White			
		Oak			of data and information led to
21-35-			Fecal Coliform		the segment being incorrectly
7-3-2	Annis Run		(shellfish)	2002	listed in Category 5
		Yadkin			The assessment of new data
		– Pee			documents that applicable
13-2-	<i>a</i>	Dee	Low Dissolved		water quality standards are
(4.5)	Uwharrie River		Oxygen	2004	being met
(4.5)		Yadkin	<u>Onjgon</u>	. 2001	Pollutant causing impairment
		Pee			identified. TMDL
		I CC	Ecological/high		implementation will result in
10.000	· ·		Ecological/biolo		
12-108-			gical Integrity	0004	attainment of water quality
20-4b	Third Creek		FishCom	2004	standards
-		Yadkin			The assessment and
		Pee			interpretation of more recent
					or more accurate data in the
			Ecological/biolo		record demonstrate that the
12-108-	Second Creek (North		gical Integrity		applicable water quality
21a	Second Creek)		Benthos	2004	standard is being met
214	Beeond Creek)	Yadkin			
		Pee	Fecal Coliform	1000	TMDL completed and
12-110b	Grants Creek		(recreation)	1998	approved by EPA
		Yadkin			The assessment of new data
		Pee	Ecological/biolo	· · ·	documents that applicable
and the second	· · · · · ·		gical Integrity		water quality standards are
12-110b	Grants Creek		-Benthos	1998	being met
		Yadkin			TMDL completed and
12-110b	Grants Creek	Pee	Turbidity	1998	approved by EPA
		Yadkin			The assessment of new data
		Pee	Ecological/biolo	1	documents that applicable
12 110		100	gical Integrity	•	water quality standards are
12-110-	L'ula Carala			1009	
3	Little Creek	37 11 1	Benthos	1998	being met
1.1.1.1.1	and the second second second	Yadkin			The assessment of new data
		Pee	Ecological/biolo		documents that applicable
12-119-			gical Integrity		water quality standards are
7a	Rich Fork		Benthos	1998	being met
11 10		Yadkin			The assessment of new data
		Pee	ALC: NOT A CONTRACT OF		documents that applicable
12-119-			Low Dissolved		water quality standards are
7a	Rich Fork	i sa tu	Oxygen	2004	being met
- / a		Yadkin	<u> </u>		Flaws in the original analysis
		1	N		of data and information led to
10.10		Pee	NT		
12-119-			Nutrients-	1000	the segment being incorrectly
7-4	Hamby Creek	ļ	Historic Listing	1998	listed in Category 5
1 1 1 1 1	$= -\frac{1}{2} \frac{1}{2} \frac$	Yadkin		ľ	The assessment of new data
		Pee	4	· ·	documents that applicable
12-126-			Low Dissolved		water quality standards are
(3)	Lick Creek		Oxygen	2004	being met
1 (3)					

1	······································		·		
		Yadkin			The assessment of new data
		Pee	· · · · · · · · · · · · · · · · · · ·		documents that applicable
12-126-			Low Dissolved		water quality standards are
(4)	Lick Creek		Oxygen	2004	being met
		Yadkin	· · · · · · · ·		The assessment of new data
		Pee	Ecological/biolo		documents that applicable
			gical Integrity		water quality standards are
12-72-6	Faulkner Creek		Benthos	1998	being met
12-94-	Salem Creek (Middle	Yadkin	Fecal Coliform		TMDL completed and
12-(4)	Fork Muddy Creek)	Pee	(recreation)	1998	approved by EPA
		Yadkin			The assessment of new data
		Pee	Ecological/biolo		documents that applicable
12-94-			gical Integrity		water quality standards are
9b	Reynolds Creek		Benthos	1998	being met
		Yadkin			The assessment of new data
		Pee			documents that applicable
13-			Low Dissolved		water quality standards are
(15.5)a	PEE DEE RIVER		Oxygen	1998	being met
		Yadkin	<u> </u>	1	The assessment of new data
		Pee			documents that applicable
13-			Low Dissolved		water quality standards are
(34)a	PEE DEE RIVER		Oxygen	2004	being met
		Yadkin			Pollutant causing impairment
	•	Pee			identified. TMDL
			Ecological/biolo		implementation will result in
			gical Integrity		attainment of water quality
13-17b	Rocky River		Benthos	1998	standards
		Yadkin			Pollutant causing impairment
		Pee			identified. TMDL
		-	Ecological/biolo		implementation will result in
	· · ·		gical Integrity		attainment of water quality
13-17a	Rocky River		Benthos	1998	standards
	······································	Yadkin	Fecal Coliform		TMDL completed and
13-17a	Rocky River	Pee	(recreation)	1998	approved by EPA
		Yadkin		1990	
13-17-		Pee	Fecal Coliform	1000	TMDL completed and
18a	Goose Creek		(recreation)	1998	approved by EPA
		Yadkin			Flaws in the original analysis
		Pee			of data and information led to
13-17-			Sediment		the segment being incorrectly
31-4	Little Long Creek		Historic Listing	1998	listed in Category 5
		Yadkin	· · · · · · · · · · · · · · · · · · ·		The assessment and
.		Pee			interpretation of more recent
					or more accurate data in the
			Ecological/biolo		record demonstrate that the
13-17-			gical Integrity		applicable water quality
40-6	Waxhaw Branch		Benthos	1998	standard is being met
		Yadkin			Pollutant causing impairment
1		Pee			identified. TMDL
			Ecological/biolo		implementation will result in
13-17-			gical Integrity		attainment of water quality
6-(5.5)	Coddle Creek		Benthos	1998	standards
13-17-		Yadkin	Fecal Coliform		TMDL completed and
8-4	McKee Crock	Pee	1	1998	
0-4	McKee Creek		(recreation)	1998	approved by EPA

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Т		Yadkin	I		Flaws in the original analysis
	2000 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 -		Esslasian1/hinla		of data and information led to
		Pee	Ecological/biolo		
13-17-			gical Integrity	1000	the segment being incorrectly
8-4-1	Clear Creek		Benthos	1998	listed in Category 5
	YADKIN RIVER	Yadkin			The assessment of new data
	(including lower	Pee-Dee			documents that applicable
12-	portion of High Rock				water quality standards are
(114)	Lake)		Turbidity	2004	being met
	YADKIN RIVER	Yadkin	•		The assessment of new data
	(including lower	Pee-Dee			documents that applicable
12-	portion of High Rock	100 200			water quality standards are
(124.5)a	Lake)		Turbidity	2004	being met
(124.5)a	YADKIN RIVER	Yadkin	Turbuity	2004	The assessment of new data
	(including upper	Pee-Dee	T D' 1 1		documents that applicable
12-	portion of Tucktertown		Low Dissolved		water quality standards are
(124.5)b	Lake)		Oxygen	2004	being met
		Yadkin			The assessment of new data
	- 1	Pee-Dee			documents that applicable
12-108-					water quality standards are
20a1	Fourth Creek		Turbidity	1998	being met
		Yadkin			Pollutant causing impairment
		Pee-Dee			identified. TMDL
			Ecological/biolo		implementation will result in
			gical Integrity		attainment of water quality
13-20b	Brown Creek	· .	Benthos	1998	standards
13-200	BIUWII CIEEK	Yadkin	Denuios	1770	The assessment of new data
1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -		Pee-Dee			documents that applicable
		Pee-Dee			
12-108-			m 111	1000	water quality standards are
20a2	Fourth Creek		Turbidity	1998	being met
		Yadkin			Pollutant causing impairment
		Pee-Dee	e de la constante de la constan La constante de la constante de		identified. TMDL
			Ecological/biolo		implementation will result in
12-108-			gical Integrity		attainment of water quality
20a3	Fourth Creek	· · · ·	Benthos	1998	standards
		Yadkin		1	The assessment of new data
· .		Pee-Dee			documents that applicable
12-119-	and the second second second second		Low Dissolved	1 A	water quality standards are
7b	Rich Fork		Oxvgen	2004	being met
70		Yadkin	onjgon		The assessment of new data
	and the second sec	Pee-Dee			documents that applicable
12			Low Dissolved		water quality standards are
13-		1	1.	1998	being met
(15.5)b	PEE DEE RIVER	Ve al.	Oxygen	1990	
		Yadkin	T 1 1 1 1 1 1 1	1	The assessment of new data documents that applicable
		n		1	L documents that applicable
13-17-		Pee-Dee	Ecological/biolo		
36-		Pee-Dee	gical Integrity		water quality standards are
	Richardson Creek			1998	water quality standards are being met
36-	Richardson Creek	Pee-Dee Yadkin	gical Integrity Benthos	1998	water quality standards are being met The assessment of new data
36-	Richardson Creek		gical Integrity	1998	water quality standards are being met The assessment of new data documents that applicable
36-	Richardson Creek	Yadkin	gical Integrity Benthos	1998	water quality standards are being met The assessment of new data

APPENDIX C

ASSESSMENT UNITS WHERE FURTHER INVESTIGATION IS REQUIRED FOR POTENTIAL IMPAIRMENTS OF COPPER AND/OR ZINC

	·		1	
	ļ			
Assessment				
Unit	Waterbody	•		•
Number	Name	NC_Basin	Impairment	Review Notes
				Benthos station KB34 colocated with
		-		K7900000 has had Excellent or Good
•				bioclassifications since 1983. There are no
	New River			identified sources of Copper or Zinc in the
	(North			watershed upstream in Virginia -2008 NAIP.
	Carolina			DWQ will pursue a natural conditions study for
10b	Portion)	NEW	Copper	this
				Benthos station KB34 colocated with
				K7900000 has had Excellent or Good
				bioclassifications since 1983. There are no
	New River			identified sources of Copper or Zinc in the
	(North			watershed upstream in Virginia -2008 NAIP.
101	Carolina	NICIN	77:20	DWQ will pursue a natural conditions study for
10b	Portion)	NEW	Zinc	this
	YADKIN			· · · ·
	RIVER			· ·
	(including Tuckertown			Copper, chlorophyll a, and Turbidity
	Lake, Badin			Copper, chlorophyll a, and Turbidity exceedances not assessed in category 5 due to
12-(124.5)c	Lake)	YAD	Copper	insufficient samples N<10.
12 (124.5)0		THE .		Benthos station QB504 colocated with
				Q4165000 has only been sampled once in 2008.
	Second			There are no identified sources of Copper-2008
	Creek (North			NAIP. DWQ will continue to monitor Copper
	Second			to determine if the exceedances are regular and
12-108-21c	Creek)	YAD	Copper	ongoing.
·	•			Copper or Zinc Assessment exceedances not
· .				assessed in category 5 due to insufficient
12-110b	Grants Creek	YAD	Copper	samples N<10.
				Copper or Zinc Assessment exceedances not
I				assessed in category 5 due to insufficient
12-110b	Grants Creek	YAD	Zinc	samples N<10.
				Copper and Zinc exceedances not assessed in
13-17-40-(1)	Lanes Creek	YAD	Copper	category 5 due to insufficient samples N<10.
				Copper and Zinc exceedances not assessed in
13-17-40-(1)	Lanes Creek	YAD	Zinc	category 5 due to insufficient samples N<10.
······································	Barkers			Copper exceedances not assessed in category 5
13-17-40-10	Branch	YAD	Copper	due to insufficient samples N<10.
15-17-40-10				Copper exceedances not assessed in category 5
	Back Creek			due to insufficient samples N<10.
13-2-3-3-	(Back Creek			due to insufficient samples (18/10.
(0.7)	Lake)	YAD	Copper	
(0.7)	Lanci		Cohber	L

1. 1				Chorophyll <i>a</i> and Copper exceedances not
	Marks Creek			assessed in category 5 due to insufficient
13-45-(1)	(Water Lake)	YAD	Copper	samples N<10.
	HAW			Zinc exceedances not assessed in category 5
16-(1)d2	RIVER	CPF	Zinc	due to insufficient samples N<10.
s shert of	DEEP			Combined data are below 20% exceedance for
17-(4)b	RIVER	CPF	Zinc	fecal coliform
· · · ·	DEEP	· · · ·		Zinc exceedances not assessed in category 5
17-(4)b	RIVER	CPF	Zinc	due to insufficient samples N<10.
	Marlowe			Zinc and Copper exceedances not assessed in
22-58-12-6b	Creek	ROA	Copper	category 5 due to insufficient samples N<10.
	Marlowe			Zinc and Copper exceedances not assessed in
22-58-12-6b	Creek	ROA :	Zinc	category 5 due to insufficient samples N<10.
		e de la companya de l		Copper exceeds by exactly 10% at nearby
		-		J9930000. J9810000 is a mid channel station
	NEUSE			with no nearby sources. Not 95% confident in
07 (110) 0	RIVER	NTETT	Gamma	10% exceedance of standard. DWQ will
27-(118)a2	Estuary	NEU	Copper	continue to monitor. Benthos stationJB34 colocated with J5250000
	•			has had Good bioclassifications since 1995. Do
				not have 95% confidence in Copper exceedance
				of standard. There are no identified sources of
	NEUSE			Copper in the watershed. DWQ will pursue a
27-(49.5)a	RIVER	NEU	Copper	natural conditions study for this
	und dan dan		······	J8900800 is a mid channel station with no
	NEUSE			nearby sources. DWQ will continue to
	RIVER	-		monitor stations in immediate upstream
27-(96)b2	Estuary	NEU	Copper	freshwater do not exceed criteria.
				Zinc exceedances not assessed in category 5
27-23-(2)	Smith Creek	NEU	Zinc	due to insufficient samples N<10.
	Crabtree			Copper exceedances not assessed in category 5
27-33-(10)c	Creek	NEU	Copper	due to insufficient samples N<10.
				Do not have 95% confidence in Copper and
				Zinc Exceedances. Colocated Benthos at OB10
	i i i			has remained stable or improved since 1990.
	Fishing			Colocated fish community at OF17 has
28-11e	Creek	TAR	Zinc	improved since 1992 and is currently Excellent.
	a the second second			Do not have 95% confidence in Copper and
and the second second				Zinc Exceedances. Colocated Benthos at OB10
	Tishin -			has remained stable or improved since 1990. Colocated fish community at OF17 has
28-11e	Fishing Creek	TAR	Copper	improved since 1992 and is currently Excellent.
20-110	LICEN			07710000 is a mid-channel station with no
				nearby sources. Immediate upstream freshwater
	Chocowinity			stations do not exceed criteria DWQ will
29-6-(5)	Bay	TAR	Copper	continue to monitor

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