

Lower Neuse Basin Association®
Neuse River Compliance Association®
P.O. Box 1410
Clayton, N.C. 27528 - 1410

July 31, 2018

Mrs. Connie Brower
Division of Water Resources, Water Planning Section
1611 Mail Service Center
Raleigh, N.C. 27699 - 1611

Dear Connie:

On behalf of the Lower Neuse Basin Association ("LNBA") and the Neuse River Compliance Association ("NRCA") we respectfully submit the attached comments on the "Proposed Modification to Draft Water Quality Standards & Classifications; 15A NCAC 02B .0211 (4) and 15A NCAC 02B .0220 (3)

This year represents the 24th year the LNBA and its members have participated in a voluntary NPDES coalition program based on cooperation between the NC Division of Water Resources (DWR) and our members. Our extensive water quality monitoring data has been collected and analyzed in concert with the NC DWR to provide an abundant amount of water quality assessment data for the Neuse River Basin. The NRCA's members, formed in 2002, have invested/expended over \$400 million to successfully meet and exceed the point source nutrient loading TMDL reductions required for the attainment of the chlorophyll-a water quality standard in the Neuse River estuary. This successful effort has been quantitatively reported to the DWR for many years. The LNBA/NRCA members and their local governments have provided broad based public support for our efforts to reduce the point source load of both nitrogen and phosphorus to the Neuse River Estuary. The designation of water quality impairment for the Neuse River estuary was based on a combination of factors that included excessive levels of chlorophyll-a, massive fish kills, and nuisance algal blooms. These combined factors – exceedance of numerical water quality standards and the direct impairment of designated uses – provided the stimulus for widespread public support for responsive improvements in nutrient management. The proactive and reactive benefits of local government support is thus a key driver in the lessons learned comments that we offer to the proposed 2B rules concerning the chlorophyll-a water quality standard

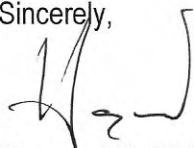
North Carolina's chlorophyll-a water quality standard of 40 ug/L was first approved by the EMC on August 9, 1979. Much has changed in North Carolina during this time and much has been learned about the management and science of nutrient over enrichment.

The attached list of members of the LNBA/NRCA offer the following comments to the proposed chlorophyll-a standard in order to provide for a meaningful level of water quality protection so that the designated uses of receiving waters are protected and to appropriately stimulate public support for any necessary and reasonable management strategies to restore those designated uses that are considered impaired.

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Thank you for the opportunity to submit our comments. If you require any additional information please let us know.

Sincerely,

A handwritten signature in black ink, appearing to read 'Haywood M. Phthisic, III'. The signature is stylized with a large initial 'H' and a long horizontal stroke.

Haywood M. Phthisic, III

Enclosure

cc: LNBA/NRCA Board

*Lower Neuse Basin Association/Neuse River Compliance Association
Membership*

Town of Apex	City of Goldsboro
Town of Benson	Town of Havelock
Town of Cary	Johnston County
Town of Clayton	Town of Kenly
Contentnea MSD	Town of LaGrange
Town of Farmville	City of New Bern
Dupont-Kinston	City of Raleigh
Duke Energy Progress	City of Wilson
Town of Fuquay-Varina	City of Kinston
Aqua, North Carolina	Craven County
South Granville Water & Sewer Authority	CWS Systems, Inc.

LNBA/NRCA Comments on Proposed Water Quality Standards

1. There is no clear description of a compliance measurement, duration, assessment period, or frequency and thus these interpretation issues are likely to change based on the dynamics of the EMC membership and DWR staff applying the rules. The proposed chlorophyll-a standard could be greatly improved by adding specificity to these issues. Does the current proposal mean that the 40 ug/L numeric criteria cannot be exceeded in any month between April and October? What happens if the standard is exceeded for only 3 months during a five year assessment period? Does this mean that the 303(d) impairment status is meeting the criteria because it represents <10% of the months (3 out of 35 months) for the five year assessment period (7 months per year for 5 years)? Similarly if 4 months are exceeded in the first year but no other months are exceeded in the remaining years is the water impaired? (4 out of 35 months).
2. There is no language offering the ability to develop a site-specific standard. Site specific standards can greatly enhance the knowledge of how a chlorophyll-a standard is appropriate for a specific waterbody and how compliance can be determined appropriately for site specific needs and the protection of site-specific designated uses. The actual concentration of chlorophyll-a is dependent on the individual hydrology, morphology, and retention time characteristics of the waterbody. These site-specific factors would greatly help define appropriate chlorophyll-a levels for the protection of designated uses. One of the reasons that EPA and the states continue to struggle with developing numerical criteria for nutrient over enrichment is that no one solution to establishing numerical criteria can fit all of the various site specific types of water bodies. Artificial piedmont reservoirs (aka drowned rivers) are ecologically very different than estuaries and estuaries are very different than natural lakes. The EMC should explicitly recognize the advantages of establishing site specific criteria from chlorophyll-a based on a detailed evaluation of science, appropriate designated uses, and feasible, cost effective management strategies. Recent research by the NC Collaboratory has shown the very different conditions in Jordan Lake, especially the New Hope Creek arm, from Falls Lake.
3. The proposed water quality chlorophyll-a standard as applied to individual stations does not incorporate the additional knowledge gained by applying the standard to appropriate water quality segments based on multiple stations to determine the central tendency of chlorophyll-a to the segment. An appropriate statistical averaging of chlorophyll-a results over an entire segment of the waterbody over the entire growing season is a reasonable approach. April through October is a reasonable reflection of the growing season. A geometric mean of the growing season is a reasonable statistical evaluation of the highly variable chlorophyll-a concentration.
4. The chlorophyll-a standard as is currently applied using the current 303(d) listing methodology is not appropriately related to the attainment of designated uses. It is difficult to find broad based public support for expensive and often onerous management strategies based on the concentration of a nebulous individual water quality parameter such as chlorophyll-a. Chlorophyll-a is not a definitive measurement of aquatic life thresholds. It is a relative measure of ecosystem richness. Exceedance of the current chlorophyll standard does not require insults to the designated uses of recreation, fish and wildlife, impairment from algal toxins, fish kills or

other challenges to actual designated uses. In order to be an effective standard for both assessment and management strategies, the chlorophyll-a standard should use a combined criteria approach. Bolstering the numerical criteria of 40 ug/L with the addition of considerations for impairment decisions based on eutrophication impact factors that include assessments of impairment to specific designated uses.

The exceedance of the chlorophyll-a numerical criteria does not necessarily mean that the designated uses of a water body are impaired. Thus, Eutrophication Impact Factors help to support numerical chlorophyll-a criteria and enhance the confidence in making designated use support attainment decisions and appropriate 303(d) listings. Water Quality assessment units that exceed numerical criteria values for Chlorophyll-a, are to be deemed impaired if any of the following eutrophication impact factors are documented for the respective designated uses within the same year. Eutrophication impacts include:

- (I) Eutrophication-related mortality or morbidity events for fish and other aquatic organisms;
- (II) Cyanobacteria counts in excess of 100,000 cells per milliliter (cells/ml);
- (III) Significant shifts in aquatic animal diversity attributed to eutrophication; and
- (IV) Excessive levels of algal toxins that impair any of the designated uses.

The Commission should encourage the development of alternative site specific standards in rule for the control of chlorophyll-a concentrations based on a detailed analysis of designated uses and water quality variables which may include site specific conditions for climatic, hydrologic residence time, geology, drainage areas, water clarity, water retention structures, power generation, and other controlling factors. This robust and site specific analysis should also include the evaluation of specific water body segments and the appropriate uses and classification for those segments. Proposals for establishing site specific criteria must follow the petition for rule making process.

5. Successful water quality assessment and accounting for chlorophyll-a values should use a consistent and rational segmentation and geo-referencing approach for all segments including rivers, streams, lakes, wetlands, estuaries, and coastal waters. Frequent changes to water quality assessment segments based on the highly variable chlorophyll-a concentration levels is perplexing to the public and local governments. It is important that the selected segmentation approach be capable of providing a spatial scale that is adequate to characterize the attainment status of the entire segment not just a specific station. Water segments should represent a priori knowledge of factors such as flow, channel morphology, substrate, riparian condition, adjoining land uses, confluence with other waterbodies, and potential sources of pollutant loadings (both point and nonpoint). Segments should be larger than a single sampling station where ever possible. (See EPA 2006 Guidance Section V on implementation of 303(d) program). US EPA, through its December 2016 changes to the MS4 NPDES permit program, is requiring local governments to address impairments within the waters of each jurisdiction. A responsive program cannot be implemented if DWR constantly is switching the segments by which attainment is determined.

6. The methods (303d) of interpreting compliance with the chlorophyll-a standard are dynamic and have changed based on EMC/DWR decisions often without formal opportunities for public involvement. Because the adoption of new water quality standards requires both public involvement, and an appropriate rule making procedure that includes EPA oversight approval, the proposed chlorophyll-a standard should explicitly establish how attainment or non-attainment with the standard is to be determined. The current proposed rule is silent on how attainment can be shown for waters listed as impaired. An appropriate addition to the proposed rule should be made on how attainment can be shown after a designation of nonattainment.