15A NCAC 02B .0211 is proposed for amendment as follows:

15A NCAC 02B .0211 FRESH SURFACE WATER QUALITY STANDARDS FOR CLASS C WATERS

In addition to the standards set forth in Rule .0208 of this Section, the following water quality standards shall apply to all Class C waters. Additional standards applicable to other freshwater classifications are specified in Rules .0212, .0214, .0215, .0216, .0218, .0219, .0223, .0224, .0225, and .0231 of this Section.

(1) The best usage of waters shall be aquatic life propagation, survival, and maintenance of biological integrity (including fishing and fish); wildlife; secondary contact recreation as defined in Rule .0202 of this Section; agriculture; and any other usage except for primary contact recreation or as a source of water supply for drinking, culinary, and food processing purposes. All freshwaters shall be classified to protect these uses at a minimum.

(2) The conditions of waters shall be such that waters are suitable for all best uses specified in this Rule. Sources of water pollution that preclude any of these uses on either a shortterm or -longterm- basis shall be deemed to violate a water quality standard;

(3) Chlorine, total residual: 17 ug/l;

(4) Chlorophyll a (corrected): except as specified in Sub-Item (a) of this Item, not greater than 40 ug/l for lakes, reservoirs, and other waters subject to growths of macroscopic or microscopic vegetation not designated as trout waters, and not greater than 15 ug/l for lakes, reservoirs, and other waters subject to growths of macroscopic or microscopic vegetation designated as trout waters (not applicable to lakes or reservoirs less than 10 acres in surface area). The Commission or its designee may prohibit or limit any discharge of waste into surface waters if the surface waters experience or the discharge would result in growths of microscopic or macroscopic vegetation such that the standards established pursuant to this Rule would be violated or the intended best usage of the waters would be impaired;

(a) Site-specific High Rock Lake Reservoir [Index Numbers 12-(108.5), 12-(114), 12-117-(1), 12-117-(3), and 12-118.5] Chlorophyll a (corrected): not greater than a growing season geometric mean of 35 ug/L in the photic zone based on all samples collected in a minimum of five different months during the growing season. For the purpose of this Sub-Item, the growing season is April 1 through October 31 and the photic zone is represented by a composite sample taken from the water surface down to twice the measured Secchi depth. Chlorophyll a shall not occur in amounts that result in an adverse impact as defined in 15A NCAC 02H .1002.

(5) Cyanide, total: 5.0 ug/l;

(6) Dissolved oxygen: not less than 6.0 mg/l for trout waters; for nontrout- waters, not less than a daily average of 5.0 mg/l with an instantaneous value of not less than 4.0 mg/l; swamp waters, lake coves, or backwaters, and lake bottom waters may have lower values if caused by natural conditions;

(7) Fecal coliform: shall not exceed a geometric mean of 200/100ml (MF count) based upon at least five samples taken over a 30-day period, nor exceed 400/100ml in more than 20 percent of the samples examined during such period. Violations of this Item are expected during rainfall events and may be caused by uncontrollable nonpoint source pollution. All coliform concentrations shall be analyzed using the membrane filter technique. If high turbidity or other conditions would cause the membrane filter technique to produce inaccurate data, the most probable number (MPN) 5-tube multiple dilution method shall be used.

(8) Floating solids, settleable solids, or sludge deposits: only such amounts attributable to sewage, industrial wastes, or other wastes as shall not make the water unsafe or unsuitable for aquatic life and wildlife or impair the waters for any designated uses;

(9) Fluoride: 1.8 mg/l;

(10) Gases, total dissolved: not greater than 110 percent of saturation;

(11) Metals:

(a) With the exception of mercury and selenium, acute and chronic freshwater aquatic life standards for metals shall be based upon measurement of the dissolved fraction of the metal. Mercury and selenium water quality standards shall be based upon measurement of the total recoverable metal;

(b) With the exception of mercury and selenium, aquatic life standards for metals listed in this Sub-Item shall apply as a function of the pollutant's water effect ratio (WER). The WER shall be assigned a value equal to one unless any person demonstrates to the Division's satisfaction in a permit proceeding that another value is developed in accordance with the "Water Quality Standards Handbook: Second Edition" published by the US Environmental Protection Agency (EPA-823-B-12-002), which is hereby incorporated by reference, including subsequent amendments and editions, and can be obtained free of charge at http://water.epa.gov/scitech/swguidance/standards/handbook/. Alternative site-specific standards may also be developed when any person submits values that demonstrate to the Commission that they were derived in accordance with the "Water Quality Standards Handbook: Second Edition, Recalculation Procedure or the Resident Species Procedure", which is hereby incorporated by reference including subsequent amendments and can be obtained free of charge at http://water.epa.gov/scitech/swguidance/standards/handbook/.

(c) Freshwater metals standards that are not hardness-dependent shall be as follows:

(i) Arsenic, dissolved, acute: WER· 340 ug/l;

(ii) Arsenic, dissolved, chronic: WER· 150 ug/l;

(iii) Beryllium, dissolved, acute: WER· 65 ug/l;

(iv) Beryllium, dissolved, chronic: WER· 6.5 ug/l;

(v) Chromium VI, dissolved, acute: WER· 16 ug/l;

(vi) Chromium VI, dissolved, chronic: WER· 11 ug/l;

(vii) Mercury, total recoverable, chronic: 0.012 ug/l;

(viii) Selenium, total recoverable, chronic: 5 ug/l;

(ix) Silver, dissolved, chronic: WER· 0.06 ug/l;

(d) Hardness-dependent freshwater metals standards shall be derived using the equations specified in Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals. If the actual instream hardness (expressed as $CaCO_3$ or Ca+Mg) is less than 400 mg/l, standards shall be calculated based upon the actual instream hardness. If the instream hardness is greater than 400 mg/l, the maximum applicable hardness shall be 400 mg/l.

Table A: Dissolved Freshwater Standards for Hardness-Dependent Metals

Numeric standards calculated at 25 mg/l hardness are listed below for illustrative purposes. The Water Effects Ratio (WER) is equal to one unless determined otherwise under Sub-Item (11)(b) of this Rule.

Metal	Equations for Hardness-Dependent Freshwater Metals (ug/l)	Standard at 25 mg/l hardness (ug/l)
Cadmium, Acute	WER· [{1.136672-[ln hardness](0.041838)} · e^{0.9151 [ln hardness]-3.1485}]	0.82
Cadmium, Acute, Trout waters	WER· [{1.136672-[ln hardness](0.041838)} · e^{0.9151[ln hardness]-3.6236}]	0.51
Cadmium, Chronic	WER· [{1.101672-[ln hardness](0.041838)} · e^{0.7998[ln hardness]-4.4451}]	0.15
Chromium III, Acute	WER· [0.316 · e^{0.8190[ln hardness]+3.7256}]	180
Chromium III, Chronic	WER· [0.860 · e^{0.8190[ln hardness]+0.6848}]	24
Copper, Acute	WER· [0.960 · e^{0.9422[ln hardness]-1.700}] Or, Aquatic Life Ambient Freshwater Quality Criteria-Copper 2007 Revision (EPA-822-R-07-001)	3.6 NA
Copper, Chronic	WER· [0.960 · e^{0.8545[ln hardness]-1.702}] Or,	2.7

	Aquatic Life Ambient Freshwater Quality Criteria-Copper 2007 Revision (EPA-822-R-07-001)	NA
Lead, Acute	WER· [{1.46203-[ln hardness](0.145712)} · e^{1.273[ln hardness]-1.460}]	14
Lead, Chronic	WER· [{1.46203-[ln hardness](0.145712)} · e^{1.273[ln hardness]-4.705}]	0.54
Nickel, Acute	WER· [0.998 · e^{0.8460[ln hardness]+2.255}]	140
Nickel, Chronic	WER· [0.997 · e^{0.8460[ln hardness]+0.0584}]	16
Silver, Acute	WER· [0.85 · e^{1.72[ln hardness]-6.59}]	0.30
Zinc, Acute	WER· [0.978 · e^{0.8473[ln hardness]+0.884}]	36
Zinc, Chronic	WER· [0.986 · e^{0.8473[ln hardness]+0.884}]	36

(e) Compliance with acute instream metals standards shall only be evaluated using an average of two or more samples collected within one hour. Compliance with chronic instream metals standards shall only be evaluated using an average of a minimum of four samples taken on consecutive days or as a 96-hour average;

(12) Oils, deleterious substances, or colored or other wastes: only such amounts as shall not render the waters injurious to public health, secondary recreation, or to aquatic life and wildlife, or adversely affect the palatability of fish, aesthetic quality, or impair the waters for any designated uses. For the purpose of implementing this Rule, oils, deleterious substances, or colored or other wastes shall include substances that cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines, as described in 40 CFR 110.3(a)-(b), incorporated by reference including subsequent amendments and editions. This material is available, free of charge, at: http://www.ecfr.gov/;

(13) Pesticides:

(a) Aldrin: 0.002 ug/l;

(b) Chlordane: 0.004 ug/l;

(c) DDT: 0.001 ug/l;

(d) Demeton: 0.1 ug/l;

(e) Dieldrin: 0.002 ug/l;

(f) Endosulfan: 0.05 ug/l;

(g) Endrin: 0.002 ug/l;

(h) Guthion: 0.01 ug/l;

(i) Heptachlor: 0.004 ug/l;

(j) Lindane: 0.01 ug/l;

(k) Methoxychlor: 0.03 ug/l;

(l) Mirex: 0.001 ug/l;

(m) Parathion: 0.013 ug/l; and

(n) Toxaphene: 0.0002 ug/l;

(14) pH: shall be between 6.0 and 9.0 except that swamp waters may have a pH as low as 4.3 if it is the result of natural conditions;

(15) Phenolic compounds: only such levels as shall not result in fish-flesh tainting or impairment of other best usage;

(16) Polychlorinated biphenyls (total of all PCBs and congeners identified): 0.001 ug/l;

(17) Radioactive substances, based on at least one sample collected per quarter:

(a) Combined radium-226 and radium-228: the average annual activity level for combined radium-226 and radium-228 shall not exceed five picoCuries per liter;

(b) Alpha Emitters: the average annual gross alpha particle activity (including radium-226, but excluding radon and uranium) shall not exceed 15 picoCuries per liter;

(c) Beta Emitters: the average annual activity level for strontium-90 shall not exceed eight picoCuries per liter, nor shall the average annual gross beta particle activity (excluding potassium-40 and other naturally occurring radionuclides) exceed 50 picoCuries per liter, nor shall the average annual activity level for tritium exceed 20,000 picoCuries per liter;

(18) Temperature: not to exceed 2.8 degrees C (5.04 degrees F) above the natural water temperature, and in no case to exceed 29 degrees C (84.2 degrees F) for mountain and upper piedmont waters and 32 degrees C (89.6 degrees F) for lower piedmont and coastal plain Waters; the temperature for trout waters shall not be increased by more than 0.5 degrees C (0.9 degrees F) due to the discharge of heated liquids, but in no case to exceed 20 degrees C (68 degrees F);

(19) Toluene: 0.36 ug/l in trout classified waters or 11 ug/l in all other waters;

(20) Trialkyltin compounds: 0.07 ug/l expressed as tributyltin;

(21) Turbidity: the 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 background conditions, the existing turbidity level shall not be increased. Compliance with this turbidity standard shall be deemed met when land management activities employ Best Management Practices (BMPs), as defined by Rule .0202 of this Section, recommended by the Designated Nonpoint Source Agency, as defined by Rule .0202 of this Section.

(22) Toxic Substance Level Applicable to NPDES Permits: Chloride: 230 mg/l. If chloride is determined by the waste load allocation to be exceeded in a receiving water by a discharge under the specified 7Q10 criterion for toxic substances, the discharger shall monitor the chemical or biological effects of the discharge. Efforts shall be made by all dischargers to reduce or eliminate chloride from their effluents. Chloride shall be limited as appropriate in the NPDES permit if sufficient information exists to indicate that it may be a causative factor resulting in toxicity of the effluent.

History Note: *Authority G.S. 143-214.1; 143-215.3(a)(1);*
Eff. February 1, 1976;
Amended Eff. January 1, 2015; May 1, 2007; April 1, 2003; August 1, 2000; October 1, 1995; August 1, 1995; April 1, 1994; February 1, 1993;
Readopted Eff. ~~November 1, 2019.~~ November 1, 2019;
Amended Eff. xx

15A NCAC 02H .1002 DEFINITIONS

The definition of any word or phrase in this Section shall be the same as given in Article 21, Chapter 143 of the General Statutes of North Carolina, as amended. Definitions set forth in 15A NCAC 02H .0150 and 40 CFR 122.2 and 122.26(b) (1 July 2015 Edition) are incorporated herein by reference, not including subsequent amendments and editions. These federal regulations may be accessed at no cost at http://www.gpo.gov/fdsys/. Other words and phrases used in this Section are defined as follows:

(1) "Adverse impact" means a detrimental effect upon water quality or best usages, including a violation of water quality standards, caused by or contributed to by a discharge or loading of a pollutant or pollutants.

(2) "Best usage" means those uses of waters specified for each classification as determined by the Commission in accordance with the provisions of G.S. 143-214.1 and as set forth in 15A NCAC 02B .0101, 15A NCAC 02B .0200, and 15A NCAC 02B .0300.

(3) "Built-upon area" or "BUA" has the same meaning as in G.S. 143-214.7.

(4) "CAMA Major Development Permits" means those permits or revised permits required by the Coastal Resources Commission as set forth in 15A NCAC 07J Sections .0100 and .0200.

(5) "Certificate of Stormwater Compliance" means the approval for activities that meet the requirements for coverage under a stormwater general permit for development activities that are regulated by this Section.

(6) "Coastal Counties" means any of the following counties: Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hertford, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, and Washington.

(7) "Commission" means the North Carolina Environmental Management Commission.

(8) "Common plan of development" means a site where multiple separate and distinct development activities may be taking place at different times on different schedules but governed by a single development plan regardless of ownership of the parcels. Information that may be used to determine a "common plan of development" include plats, blueprints, marketing plans, contracts, building permits, public notices or hearings, zoning requests, and infrastructure development plans.

(9) "Curb Outlet System" means curb and gutter with breaks or other outlets used to convey stormwater runoff to vegetated conveyances or other vegetated areas.

(10) "Design volume" means the amount of stormwater runoff that an SCM or series of SCMs is designed to treat.

(11) "Development" has the same meaning as in G.S. 143-214.7.

(12) "Director" means the Director of the Division of Energy, Mineral, and Land Resources.

(13) “Dispersed flow" means uniform shallow flow that is conveyed to a vegetated filter strip as defined in Rule .1059 of this Section, another vegetated area, or stormwater control measure. The purpose of "dispersed flow" is to remove pollutants through infiltration and settling, as well as to reduce erosion prior to stormwater reaching surface waters.

(14) "Division" means the Division of Energy, Mineral, and Land Resources.

(15) "Drainage Area or Watershed" means the entire area contributing surface runoff to a single point.

(16) "Erosion and Sedimentation Control Plan" means any plan, amended plan, or revision to an approved plan submitted to the Division of Energy, Mineral, and Land Resources or a delegated authority in accordance with G.S. 113A-57.

(17) "Existing development" means those projects that are built or those projects that have established a vested right under North Carolina law as of the effective date of the state stormwater program or applicable local government ordinance to which the project is subject.

(18) "General Permit" means a permit issued under G.S. 143-215.1(b)(3) and G.S. 143-215.1(b)(4) authorizing a category of similar activities or discharges.

(19) "Geotextile fabric" means a permeable geosynthetic comprised solely of non-biodegradable textiles.

(20) "Infiltration Systems" means stormwater control measures designed to allow runoff to move into the soil's pore space.

(21) "Intermittent stream" has the same meaning as in 15A NCAC 02B .0233.

(22) "Local government" has the same meaning as in 15A NCAC 02B .0202.

(23) "Major modification" means a change of a state stormwater permit that is not a "minor modification" as that term is defined in this Rule.

(24) "Minimum Design Criteria" or "MDC" means the requirements set forth in this Section for siting, site preparation, design and construction, and post-construction monitoring and evaluation necessary for the Department to issue stormwater permits that comply with State water quality standards adopted pursuant to G.S. 143-214.1.

(25) "Minor modification" means a change of a state stormwater permit that does not increase the net built-upon area within the project or does not increase the overall size of the stormwater control measures that have been approved for the project.

(26) "Non-erosive velocity" means the flow rate of water, usually measured in feet per second, that does not exceed the maximum permissible velocity for the condition and type of soil and groundcover over which the water is flowing. Erosion occurs when the maximum permissible velocity is exceeded.

(27) "Notice of Intent" means a written notification to the Division that an activity or discharge is intended to be covered by a general permit in lieu of an application for an individual permit.

(28) "NPDES" means National Pollutant Discharge Elimination System.

(29) "Off-site Stormwater Systems" means stormwater management systems that are located outside the boundaries of the specific project in question, but designed to control stormwater drainage from that project and other potential development sites.

(30) "One-year, 24-hour storm" means the maximum amount of rainfall during a 24 consecutive hour period expected, on average, to occur once a year. One-year, 24-hour storm depths are estimated by the National Oceanic and Atmospheric Administration (NOAA) Precipitation Frequency Data Server (PFDS), which is herein incorporated by reference, including subsequent amendments and editions, and may be accessed at no cost at http://hdsc.nws.noaa.gov/hdsc/pfds/.

(31) "On-site Stormwater Systems" means the systems necessary to control stormwater within an individual development project and located within the project boundaries.

(32) "Peak attenuation volume" means stormwater runoff in excess of the design volume that is conveyed to an SCM where it is not treated in accordance with the applicable MDC, but is released by the SCM in a controlled manner to address potential downstream erosion and flooding impacts to meet federal, State, or local regulations beyond the requirements of this Section.

(33) "Perennial waterbody" has the same meaning as in 15A NCAC 02B .0233.

(34) "Perennial stream" has the same meaning as in 15A NCAC 02B .0233.

(35) "Permeable pavement" means paving material that absorbs water or allows water to infiltrate through the paving material. "Permeable pavement" materials include porous concrete, permeable interlocking concrete pavers, concrete grid pavers, porous asphalt, and any other material with similar characteristics.

(36) "Person" has the same meaning as in G.S. 143-212(4).

(37) "Primary SCM" means a wet pond, stormwater wetland, infiltration system, sand filter, bioretention cell, permeable pavement, green roof, rainwater harvesting, or an approved new stormwater technology that is designed, constructed and maintained in accordance with the MDC.

(38) "Project" means the proposed development activity for which an applicant is seeking a stormwater permit from the state or other entity in accordance with this Section. "Project" shall exclude any land adjacent to the area disturbed by the project that has been counted as pervious by any other development regulated under a federal, State, or local stormwater regulation. Owners and developers of large developments consisting of many linked projects may consider developing a master plan that illustrates how each project fits into the design of the large development.

(39) "Public linear transportation project" means a project consisting of a road, bridge, sidewalk, greenway, or railway that is on a public thoroughfare plan or provides improved access for existing development and that is owned and maintained by a public entity.

(40) "Required storm depth" means the minimum amount of rainfall that shall be used to calculate the required treatment volume or to evaluate whether a project has achieved runoff volume match.

(41) "Redevelopment" has the same meaning as in G.S. 143-214.7.

(42) "Residential development" has the same meaning as in 15A NCAC 02B .0202.

(43) "Runoff treatment" means that the volume of stormwater runoff generated from all of the built-upon area of a project at build-out during a storm of the required storm depth is treated in one or more primary SCMs or a combination of Primary and Secondary SCMs that provides equal or better treatment.

(44) "Runoff volume match" means that the annual runoff volume after development shall not be more than ten percent higher than the annual runoff volume before development, except in areas subject to SA waters requirements per Rule .1019 of this Section where runoff volume match means that the annual runoff volume after development shall not be more than five percent higher than the annual runoff volume before development.

(45) "Seasonal High Water Table" or "SHWT" means the highest level of the saturated zone in the soil during a year with normal rainfall. SHWT may be determined in the field through identification of redoximorphic features in the soil profile, monitoring of the water table elevation, or modeling of predicted groundwater elevations.

(46) "Secondary SCM" means an SCM that does not achieve the annual reduction of Total Suspended Solids (TSS) of a "Primary SCM" but may be used in a treatment train with a primary SCM or other Secondary SCMs to provide pre-treatment, hydraulic benefits, or a portion of the required TSS removal.

(47) "Stormwater" has the same meaning as in G.S.143-213(16a).

(48) "Stormwater Collection System" means any conduit, pipe, channel, curb, or gutter for the primary purpose of transporting (not treating) runoff. A stormwater collection system does not include vegetated swales, swales stabilized with armoring, or alternative methods where natural topography or other physical constraints prevents the use of vegetated swales (subject to case-by-case review), curb outlet systems, or pipes used to carry drainage underneath built-upon surfaces that are associated with development controlled by the provisions of Rule .1003 in this Section.

(49) "Stormwater Control Measure" or "SCM," also known as "Best Management Practice" or "BMP," means a permanent structural device that is designed, constructed, and maintained to remove pollutants from stormwater runoff by promoting settling or filtration; or to mimic the natural hydrologic cycle by promoting infiltration, evapo-transpiration, post-filtration discharge, reuse of stormwater, or a combination thereof.

(50) "Ten-year storm intensity" means the maximum rate of rainfall of a duration equivalent to the time of concentration expected, on the average, once in 10 years. Ten-year storm intensities are estimated by the National Oceanic and Atmospheric Administration (NOAA) Precipitation Frequency Data Server (PFDS), which is herein incorporated by reference, including subsequent amendments and editions, and may be accessed at no cost at http://hdsc.nws.noaa.gov/hdsc/pfds/.

(51) "Vegetated setback" means an area of natural or established vegetation adjacent to surface waters, through which stormwater runoff flows in a diffuse manner to protect surface waters from degradation due to development activities.

(52) "Vegetated conveyance" means a permanent, designed waterway lined with vegetation that is used to convey stormwater runoff at a non-erosive velocity within or away from a developed area.

(53) "Water Dependent Structures" means a structure that requires access, proximity to, or siting within surface waters to fulfill its basic purpose, such as boat ramps, boat houses, docks, or bulkheads. Ancillary facilities such as restaurants, outlets for boat supplies, parking lots, and boat storage areas shall not be considered water dependent structures.

History Note: *Authority G.S. 143-213; 143-214.1; 143-214.7; 143-215.3(a)(1);*
Eff. January 1, 1988;
Amended Eff. August 1, 2012 (see S.L. 2012-143, s.1. (f)); July 3, 2012; December 1, 1995; September 1, 1995;
Temporary Amendment Eff. March 28, 2014;
Amended Eff. January 1, 2015;
Readopted Eff. January 1, 2017.

DRAFT

High Rock Lake
Site Specific Chlorophyll-a Criteria
Proposed Chlorophyll-a Assessment Methodology

(to be included in 303(d) Assessment Methodology for EMC Approval after the site-specific standard is approved)

October 28, 2020

Minimum Data requirements

1. Growing season geomean calculation requires a minimum of 5 samples per growing season, collected during 5 separate months.
2. At least 2 full growing seasons are needed to make listing or delisting decision. Data can be augmented if there is only 1 growing season in current data window. To augment, step year by year back until there are a total of 2 years of geomeans including the current data window, only as far as previous 5 years.

Impaired – at least 2 years Exceed Criteria

- If there is 1 growing season geomean in current data window – both current and augmented year exceed growing season geomean of 35 ug/L.
- If there are 2 or more growing season geomeans in current data window – more than 1 growing season geomean exceeds 35 ug/L.

Delisting (decision for a water already listed as impaired) – at least 2 years Meet Criteria

- If there is 1 growing season geomean in current data window – both current and augmented year do not exceed growing season geomean of 35 ug/L.
- If there are 2 or more growing season geomeans in current data window – zero years exceed growing season geomean of 35 ug/L. Unless there is a full 5 years of data – then zero exceedances in most recent 2 years of data (and maximum of one exceedance of geomean in 3 older years).