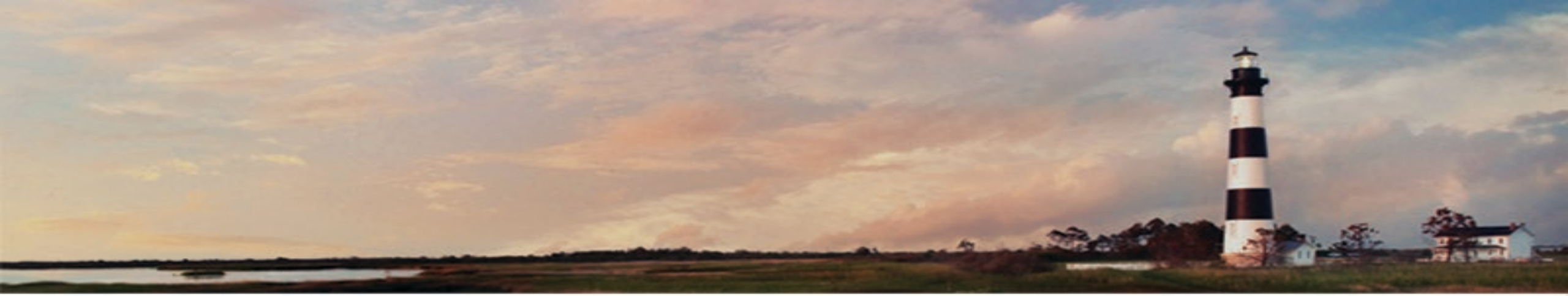


Nothing Compares
NORTH CAROLINA

2020-2022 Surface Water Triennial Review Amendments To Select Rules in 15A NCAC 02B .0200 and .0300

Environmental Management Commission

March 2021

Chris Ventaloro, DWR

Action Item Request

Request Approval to Proceed to Public Notice and Hearing with Proposed Surface Water Triennial Review Amendments to Select Rules in 15A NCAC 02B .0200 and .0300 and Regulatory Impact Analysis

Triennial Review Process

Development

- Staff review existing standards, stakeholder feedback from previous Tri. Rev., new guidance & literature.
- Develop rule package, present to WQC and EMC.

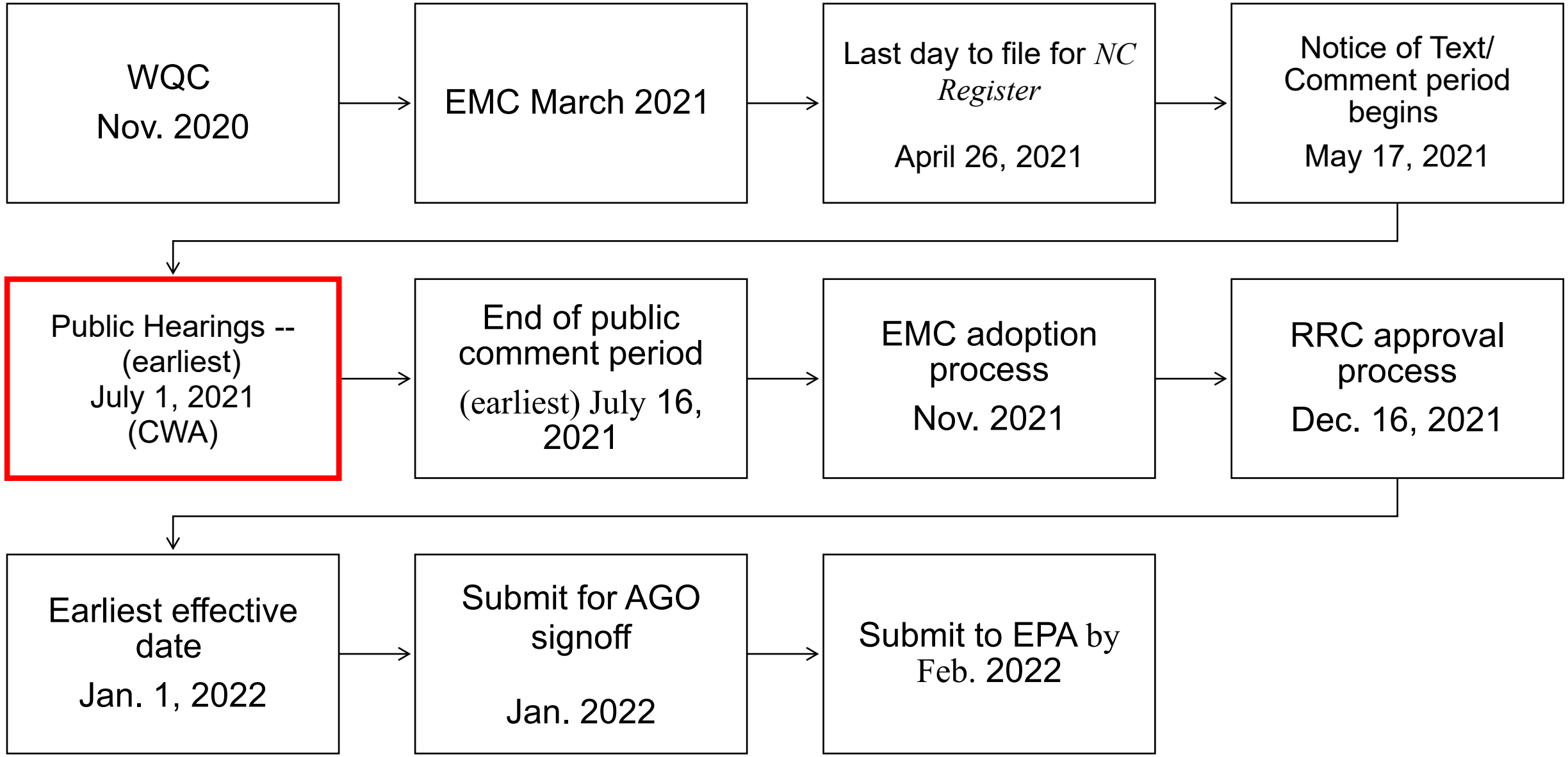
State Approval

- Publish in *NC Register*, hold hearings, EMC adopts
- RRC approval
- NC Attorney General sign off

Federal Approval

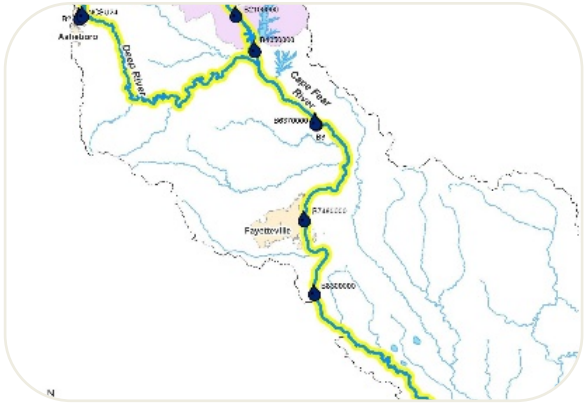
- EPA Clean Water Act review
- Endangered Species Act consultation
- NC notified of approval/disapproval of TR changes to standards

Estimated Timeline

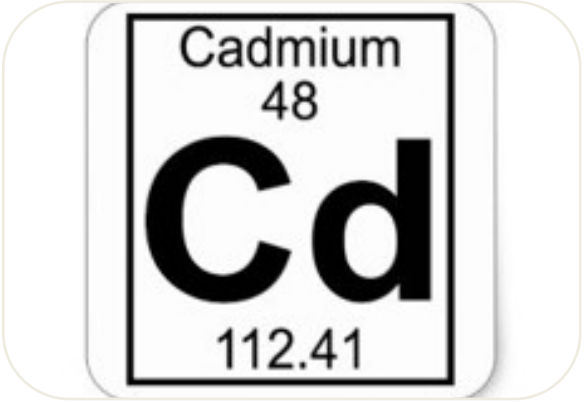


Topic	Proposed for Adoption?
EPA 2012 Recreational Criteria (human health)	Yes, Asheville Region
EPA 2013 Ammonia Criteria (freshwater aquatic life)	No
EPA 2015 Updated Human Health Criteria and Exposure Factors	No
EPA 2016 Cadmium Criteria (freshwater & saltwater aquatic life)	Yes
EPA 2016 Selenium Criteria (freshwater aquatic life)	Yes
EPA Recreational Criteria Cyanotoxin Criteria (human health)	No
EPA 2019 Aluminum Criteria (freshwater aquatic life)	No
1,4-Dioxane (human health)	Yes
PFAS (human health)	No
Nutrient Criteria	Site-specific (under development)

Topics for this Rulemaking

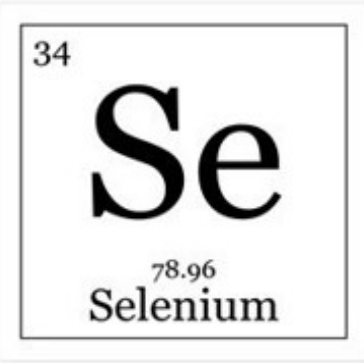


1,4-Dioxane



Cadmium

Cyanide

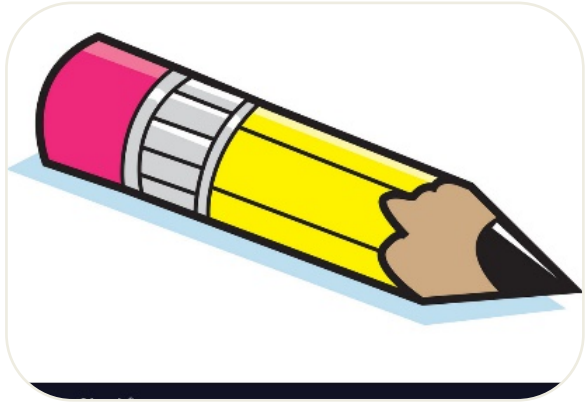


Selenium

Recreational bacteria (E. coli)

Eastern Band of Cherokee Indians

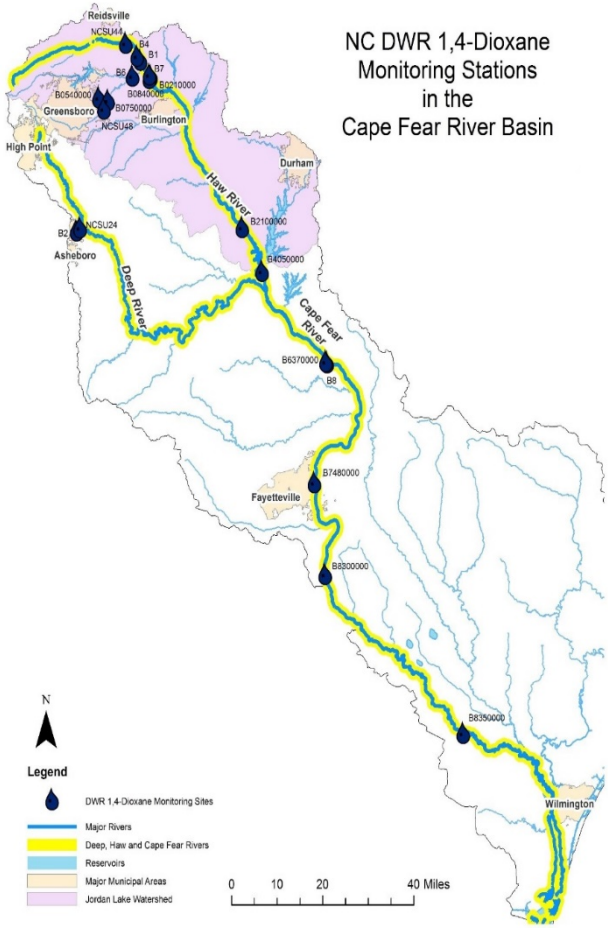
Definitions



Technical corrections

1,4-Dioxane

- Contaminant of Concern in NC
- Codification of standards for fish consumption & water supply
- Carcinogen
- Calculated per 02B .0208 and implemented as standards
- Toxicity data from EPA IRIS, exposure factors in rule 02B .0208



Link: Additional info: DEQ Cape Fear River 1,-4-Dioxane study

1,4-Dioxane

- Standard to codify = **80 ug/L**
- All surface waters for fish consumption
- 15A NCAC 02B .0208

$$WQS = \frac{RL\ x\ BW}{CPF\ x\ (FCR\ x\ BCF)}$$

CPF (Cancer Potency Factor) = 0.1 mg/kg/day

RL (Risk Level) = 1.00×10^{-6}

BW (Body Weight) = 70 kg

FCR (Fish Consumption Rate) = 17.5 g/person-day

BCF (Bioconcentration factor) = 0.5 L/kg

1,4-Dioxane

- Standard to codify = **0.35 ug/L**
- Class WS waters (water supply)
- 15A NCAC 02B .0212 - .0218

$$WQS = \frac{RL\ x\ BW}{CPF\ x\ (DWI + [FCR\ x\ BCF])}$$

CPF (Cancer Potency Factor) = 0.1 mg/kg/day

RL (Risk Level) = 1.00 x 10^{-6}

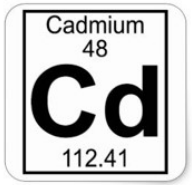
BW (Body Weight) = 70 kg

DWI (Drinking Water Intake) = 2.0 L/day

FCR (Fish Consumption Rate) = 17.5 g/person-day

BCF (Bioconcentration factor) = 0.5 L/kg

Cadmium



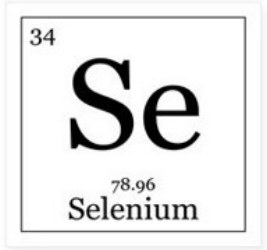
- Replace existing freshwater dissolved, hardness-dependent & saltwater dissolved Cadmium standards
- EPA's Aquatic Life Ambient Water Quality Criteria for Cadmium – 2016
- 15A NCAC 02B .0211
- Sources: manufacturing (batteries, pigments, plastic stabilizers, metal coatings, alloys, electronics), naturally occurring*

Cadmium

Exposure	Current Standard (ug/L)	Proposed Standard (ug/L)
Acute, freshwater*	0.82	0.83
Acute, trout, freshwater*	0.51	0.49
Chronic, freshwater *	0.15	0.25
Acute, saltwater	33	40
Chronic, saltwater	8.8	7.9

*Hardness-dependent, calculated @ 25 mg/L hardness

Selenium



- Replace existing standard = 5 ug/L (total Se)
- EPA's Aquatic Life Ambient Water Quality Criteria for Selenium (Freshwater) – 2016
- Updated toxicology information results in new chronic numeric criteria - bioaccumulation
- Sources: mining, coal-fired power plants, irrigated agriculture, naturally occurring

Selenium

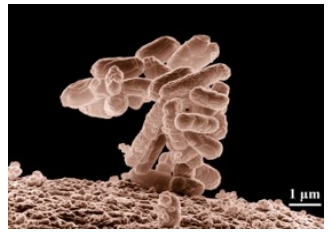
Priority	Component	Magnitude	Duration
1	Fish egg/ovary	15.1 mg/kg	Instantaneous
2	Fish whole body	8.5 mg/kg	Instantaneous
	Fish muscle tissue	11.3 mg/kg	Instantaneous
3	Water (lentic)	1.5 ug/L	30-day average
	Water (lotic)	3.1 ug/L	30-day average

- Fish tissue given priority over water column data (*when available*)
- Class C waters
- 15A NCAC 02B .0211

Cyanide

- Existing 15A NCAC 02B .0211 standard:
  - Cyanide, total = 5 ug/L
- Based on EPA 1985 NRWQC for free cyanide – but no method published for free cyanide!
- Proposed standard:
  - Cyanide, free or total = 5 ug/L
- Adding free cyanide method as an alternative to total cyanide

Site-Specific Recreational (E. coli)



- Site-specific for Class B waters in 19 Counties (Asheville Region)
- EPA's 2012 Recreational Water Quality Criteria
- *E. coli* indicator replaces existing fecal coliform indicator
- 15A NCAC 02B .0219
- Sources: improperly functioning wastewater treatment plants, leaking septic systems, stormwater runoff, animal carcasses, and runoff from animal manure and manure storage areas.

Site-Specific Recreational (E. coli)

Standard Component	NC Proposed E. coli Standard
Magnitude	100 cfu or MPN per 100 mLs
Duration	Geometric mean of at least five samples collected over a 30-day period
Threshold Excursion Frequency	Not to exceed 320 cfu or MPN per 100 mLs in more than 20 percent* of samples in the 30-day period. (Comments on alternatives to this excursion frequency will be sought)

Eastern Band of Cherokee Indians

- Eastern Band of Cherokee Indians granted Treatment as a State by EPA
- EBCI now required to establish a Water Quality Standards Program to satisfy CWA requirements
- EBCI has jurisdiction over waters within boundaries

15A NCAC 02B .0301 language change:

"(f)(2) In addition to Subparagraph ~~(f)(1)~~ (1) of this ~~Rule,~~ Paragraph, for unnamed streams entering other ~~states,~~ states, tribes approved for treatment as a state and administering an United States Environmental Protection Agency approved water quality standards program, or for specific areas of a river basin, the following Rules shall apply:"

Definitions

15A NCAC 02B .0202

- "Lentic"
- "Lotic"
- "Industrial discharge" (clarification only)

Technical Corrections

Approved Jan. 2020 WQC & Mar. 2020 EMC, but not codified

15A NCAC 02B .0215

.0215(2)(f) Correct “WS-II classification” to “more protective classification, such as WS-III”

15A NCAC 02B .0216

.0216(2)(f) Correct “WS-IV classification” to “more protective classification, such as WS-II or WS-III”

Technical Corrections

15A NCAC 02B .0311(o)(4)

"(o) The Cape Fear River Basin Classification Schedule was amended effective November 1, 2007 with the reclassifications listed below, and the North Carolina Division of Water Resources maintains a Geographic Information Systems data layer of these UWLs. … (4) Weymouth Woods Sandhill Seep near Mill Creek [18-23-11-(1)] was reclassified to Class WL UWL."

Regulatory Impact Analysis

- Approved by OSBM Feb 11, 2021
- Net benefit $3.96 M over 10 years
  - ✓ Local Gov't ≥ Private >>> State Gov't
  - ✓ Higher freshwater Cd standard
  - ✓ Addition of free Cn method
  - ✓ Change from FC to *E. coli*
- Potential but unlikely costs from lower Se standard

Regulatory Impact Analysis

- Unquantified potential indirect long-term benefits to aquatic life, fisheries, and human health
  - ✓ More accurate assessment of impairment
  - ✓ Potential avoided increases in Se concentration
  - ✓ Ongoing human health benefits from 1,4-dioxane ITVs

Additional Specific Topics for Public Feedback

- Human Health Criteria & updated exposure factors
- Ammonia Criteria (aquatic life)
- Recreational (E. Coli) Criteria – freshwater
- Shellfish leasing areas/mariculture designated use
- Recreational Cyanotoxin Criteria
- Methyl Mercury
- Aluminum Criteria (aquatic life)
- Contaminants of Emerging Concern
- Others?
- Variances

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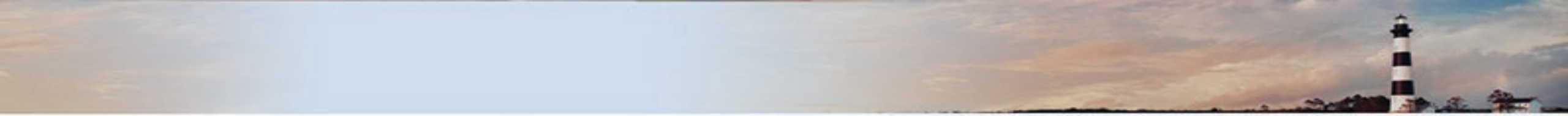

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