



Triennial Review of Florida's Water Quality Standards:

Proposed Revisions to Bioassessment Criteria and Threshold Implementation

Division of Environmental Assessment & Restoration

Nov. 5, 2019



Triennial Review (TR)

- **Continued improvements to the State's Water Quality Standards (WQS)**
- **Share DEP's proposed revisions to improve Florida's WQS**
- **Receive feedback and suggestions from the public**



Scope

- **Notices of Rule Development for TR included all rules with surface water quality standards**
 - **Chapter 62-4 (Permits),**
 - **Chapter 62-302 (Surface Water Quality Standards), Chapter 62-303 (Identification of Impaired Surface Waters, or “IWR”), and**
 - **Chapter 62-304 (Total Maximum Daily Loads)**
- **Published on March 29, 2019**
- **Notices listed all rule sections related to surface water quality standards**
 - **All surface water quality standards are open for potential revision and public comment**



Bioassessment-related Changes

- **Revisions to the “Numeric Nutrient Criteria Implementation Document”**
 - Clarify key issues, streamline document, and make corrections
 - Only incorporate specific portions into rule
 - Floral Metrics (Sections 6.3 to 6.8), and
 - Stream Exclusions (Chapter 12)
- **Revisions to 62-303, F.A.C. biological rules for planning list (.340) and verified list (.440)**



Quick Refresher on Numeric Nutrient Standard for Streams

- **Achieve Numeric Nutrient Standard for Streams If:**
 - Information on chlorophyll *a* levels, algal mats or blooms, nuisance macrophyte growth, and changes in algal species composition do not indicate an imbalance in flora or fauna;
- AND EITHER**
- The average score of at least two temporally independent Stream Condition Indices (SCIs) is 40 or higher, with neither of the two most recent SCI scores less than 35,
OR
- The Nutrient Thresholds (expressed as annual geometric means) are not exceeded more than once in a three year period



Floral Metric Summary

(from revised NNC Implementation Document Section 6.8)

Floral Community	Floral Metric	Evidentiary Threshold of No Imbalances
Macrophytes	LVS C of C	Site average ≥ 2.5
Macrophytes	LVS FLEPPC	Site average $\leq 25\%$
Periphyton	RPS Rank	$\leq 25\%$ rank 4-6 coverage
Periphyton	RPS Algal Community Composition (Autecology)	If 20 to 25% rank 4-6 coverage, no nuisance dominant taxa
Phytoplankton	Chlorophyll a	3.2 to 20 $\mu\text{g/L}$ = site specific; $< 3.2 \mu\text{g/L}$



Changes to Section 6.3 – Floral Evaluation

- Revised such that streams that fail the LVS are placed on the Study List of potentially impaired waters (rather than Verified List) to evaluate whether nutrients contributed to LVS failure
 - Exotic or tolerant plants can occur even without anthropogenic nutrient enrichment
 - Study List also considered part of federal 303(d) list
- Added requirement that RPS and LVS be conducted in different hydrological seasons (May-Sept and Oct-April)
 - Previously only required 2 temporally independent surveys ($\geq$ 3 months apart)



Changes to Section 6.3 – Floral Evaluation

- **Added text summarizing overall assessment approach**
 - **Assessment based on two most recent samples**
 - **If both pass an evidentiary threshold, then passes**
 - **If both fail, then site fails**
 - **If one passes and one fails, then either look at third most recent assessment or conduct additional assessment**
 - **For RPS, third most recent or new sample must be conducted in hydrologic season that failed**
 - **Assessment determination based on third assessment**



Changes to Section 6.4 – Evaluating Algal Mats (RPS)

- **Added text reiterating assessment approach (described in previous slide), but specific for RPS**
- **Merged RPS Decision Key with Algal Species Composition decision key in next section**



Changes to Section 6.5 – Evaluating Dominant Algal Species Composition

- **Shifted focus of algal species evaluation to taxa associated with nutrient enrichment and potentially toxin-producing taxa.**
- **Dominance of these taxa indicate numeric nutrient standard not achieved**
- **Added text noting how to assess most recent two or three samples**



Changes to Section 6.7 – Evaluating Algal Blooms, Chlorophyll *a*, and Phytoplankton Taxonomic Data

- Streams with Annual Geometric Mean (AGM) < 3.2 µg/L attain, and streams with AGM > 20 µg/L more than once in 3-year period do not (no change)
- Evaluate streams with chl *a* between 3.2 and 20 µg/L on site-specific basis by comparing to reference streams in region (no change)
- If inconclusive, will be placed on Study List if either TN or TP thresholds exceeded



Changes to Section 10 – Implementing the NNC in the IWR

- **Added Section 10.1 to address assessment of floral metrics of the numeric nutrient standard for streams**
- **If any station within a WBID conclusively fails a floral evidentiary threshold, WBID is listed as impaired**



Section 12 – Basic Info Needs for Distinguishing Flowing Waters (Stream Exclusion)

- Added new introductory paragraph that notes
 - The numeric nutrient standards for streams only applies to “flowing waters” meeting the stream definition, but
 - Default assumption is that any flowing water meets the definition unless demonstration is made that the waterbody meets one of the exclusions, and
 - All exclusions will be tracked/documented



Section 12 – Basic Info Needs for Distinguishing Flowing Waters (Stream Exclusion) (continued)

- **Exclusions for**
 - Non-perennial streams, wetlands, lake-like portions of streams, and tidal creeks, and
 - Ditches, canals, and other conveyances that are man-made or predominantly channelized or physically altered, and primarily used for water management purposes and have marginal or poor stream habitat or habitat components
- If excluded, water still assessed for nutrient impairment using nutrient impairment thresholds
 - Chl *a* > 20 µg/L for freshwater and > 11 µg/L for marine
 - “Other information” and Trends



Section 12.1 – Non-Perennial Water Segments

- Previously could only demonstrate non-perennial based on taxa present, but now can *also* demonstrate based on
 - Stream flow data, and
 - Drainage area using the HydroBioGeomorphic (HGB) classification system developed by John Kiefer of Amec Foster Wheeler, Inc



Section 12.1.1 – Stream Flow as an Indicator

- Define several terms:
 - Perennial – measurable flow for at least 180 consecutive days in at least 90% of years
 - Likely Perennial – measurable flow for at least 180 consecutive days in at least 50% of years
 - Seasonally Perennial – measurable flow for at least 90 consecutive days in at least 75% of years
 - Non-perennial – flows less than any of the above
- Meet stream exclusion if neither perennial nor likely perennial
- Minimum flow record is five years
- Can estimate using nearby gages



Section 12.1.2 – Geomorphology as an Indicator

- Text describes HBG as hierarchical 4-step process (see next slide) that breaks streams out by regions and classes (karst, highlands, flatwoods)
- Lists regions and provides a map
- Describes how soils are used to determine stream class using GIS layers
- Describes flow characteristics of each class in each region
- Summarizes perenniality info in table – note that only non-perennial streams clearly meet stream exclusion
 - If seasonally non-perennial, need biology or flow data



HBG as Indicator of Perenniality

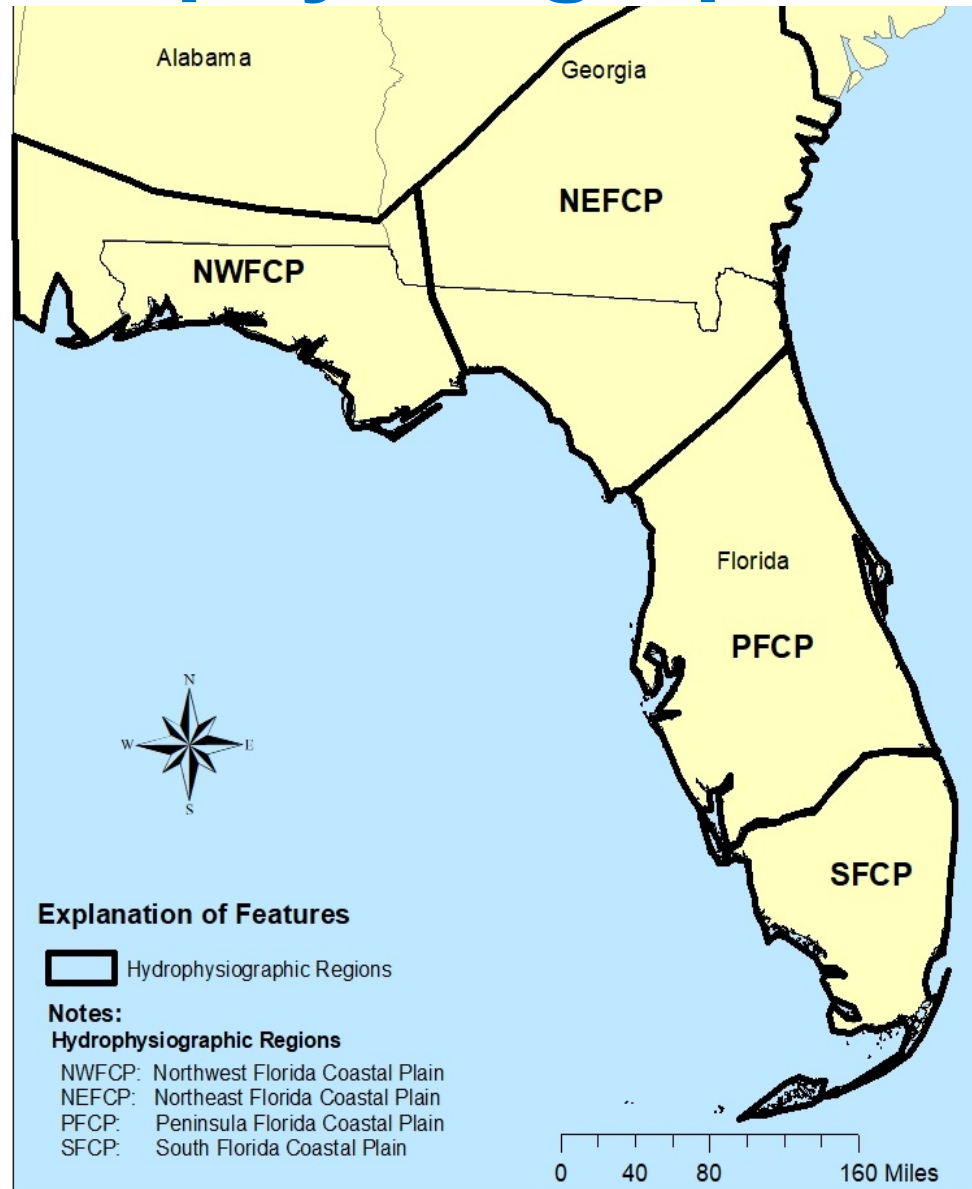
1 – Regional Scale – how climate structures streams

2 – Watershed Scale – how geology affects flow and water delivery

- Karst watersheds are assumed to be perennial
- Highlands or flatwoods determined using percent hydrologic soils in the drainage area using GIS data layers
- Final step in the determination of perenniality involves determining the drainage area



Hydrophysio-graphic Regions





Non-Perenniality based on HBG

Region	Water Source	Drainage Area (DA) sq. miles	Perenniality	NNC Guidance
Peninsula	Flatwoods	DA <5	Non-perennial	Stream NNC not applicable.
		≥5 DA <20	Seasonally Perennial	Need biological or hydrologic demonstration.
		≥20 DA <50	Likely Perennial	NNC applies.
		DA ≥50	Perennial	NNC applies.
	Highlands	DA <1	Non-perennial	Stream NNC not applicable.
		≥1 DA ≤5	Likely Perennial	NNC applies.
		DA ≥ 5	Perennial	NNC applies.
Northeast	Flatwoods	DA <1	Non-perennial	Stream NNC not applicable.
		≥1 DA <5	Seasonally Perennial	Need biological or hydrologic demonstration.
		≥5 DA <20	Likely Perennial	NNC applies.
		DA ≥20	Perennial	NNC applies.
	Highlands	DA <3	Seasonally perennial	Need biological or hydrologic demonstration.
		3 ≥DA ≥5	Likely Perennial	NNC applies
		DA ≥5	Perennial	NNC applies
Northwest	Flatwoods	DA <1	Non-perennial	Stream NNC not applicable.
		≥1 DA <5	Seasonally Perennial	Need biological or hydrologic demonstration.
		≥5 DA <10	Likely Perennial	NNC applies.
		DA ≥10	Perennial	NNC applies.
	Highlands	DA <1	Seasonally Perennial	Need biological or hydrologic demonstration.
		≥1 DA <5	Likely Perennial	NNC applies.
		DA ≥5	Perennial	NNC applies.



Section 12.3 – Water Management Conveyances

- **Added scores for “poor” and “marginal” Habitat Assessment, and scores for “poor category” Substrate Diversity, Availability, and Artificial Channelization, but did not change requirements for exclusion**



Proposed Revisions to Rule 62-303.330, F.A.C. (Biological Assessment)

- **Revisions to biological health assessments for Planning List (previously based on just one sample)**
 - **In paragraph 62-303.330(3)(b), added that if average score of all SCIs is below 40, waterbody placed on Planning List**
 - **In paragraph 62-303.330(3)(e), added that if average score of all LVIs is below 43, waterbody placed on Planning List**
- **Language is consistent with Verified List methodology**
- **Allows for earlier identification of potential impairments and consistency in assessment periods**



Proposed Revisions to Rule 62-303.390, F.A.C. (The Study List)

- In paragraph (2)(e), added text to list streams on the Study List if they fail the LVS and the LVS results cannot be linked to anthropogenic nutrient inputs
 - If they also meet the stream definition and do not have a site specific numeric interpretation of the narrative
- In subsection (6), added text for waters placed on the Study List due to failing LVS floral metric noting DEP shall conduct a site-specific assessment of the stream to determine potential causes of the nuisance macrophyte growth



Proposed Revisions to Rule 62-303.430, F.A.C. (Biological Impairment)

- In paragraph (2)(a), clarified that an additional SCI will be collected for the biological health assessments if the average score is below 40
 - In cases where there are only two SCIs and there is greater than a 20 point difference between the two scores
- In paragraph (2)(b), added provision to place a lake on Verified List if “either of the two most recent temporally independent LVI scores is less than 43”
- Also in paragraph (2)(b), clarified that an additional LVI will be collected if the average score is below 43
 - In cases where there are only two LVIs and there is greater than a 20 point difference between the two scores



Schedule

- **Written comment period through Nov. 22**
 - **Comments to Kaitlyn Sutton at**
 - **Kaitlyn.Sutton@FLORIDADEP.gov, or**
 - **2600 Blair Stone Road, Mail Station 6511, Tallahassee, FL 32399-2400**
- **Will decide whether another round of workshops is needed based on comments received**
- **If not needed, would bring to Environmental Regulation Commission (ERC) for adoption early next year**
 - **45-day notice period prior to adoption hearing**

