



*Florida Department of
Environmental Protection*

*Overview of EPA's Promulgated
Numeric Nutrient Criteria for
Florida's Streams, Lakes and Springs*

*Prepared by: Florida Department of Environmental Protection,
Division of Environmental Assessment and Restoration*



Overview of Presentation

- **DEP's Perspective on NNC**
- **Nutrient Criteria Development Timeline**
- **EPA's Promulgated Criteria**
- **Site-Specific Alternative Criteria**
- **TMDLs as SSACs**
- **Implementation and Cost Estimates**
- **Legal Challenges**
- **What's Next?**





DEP's Perspective on EPA's NNC

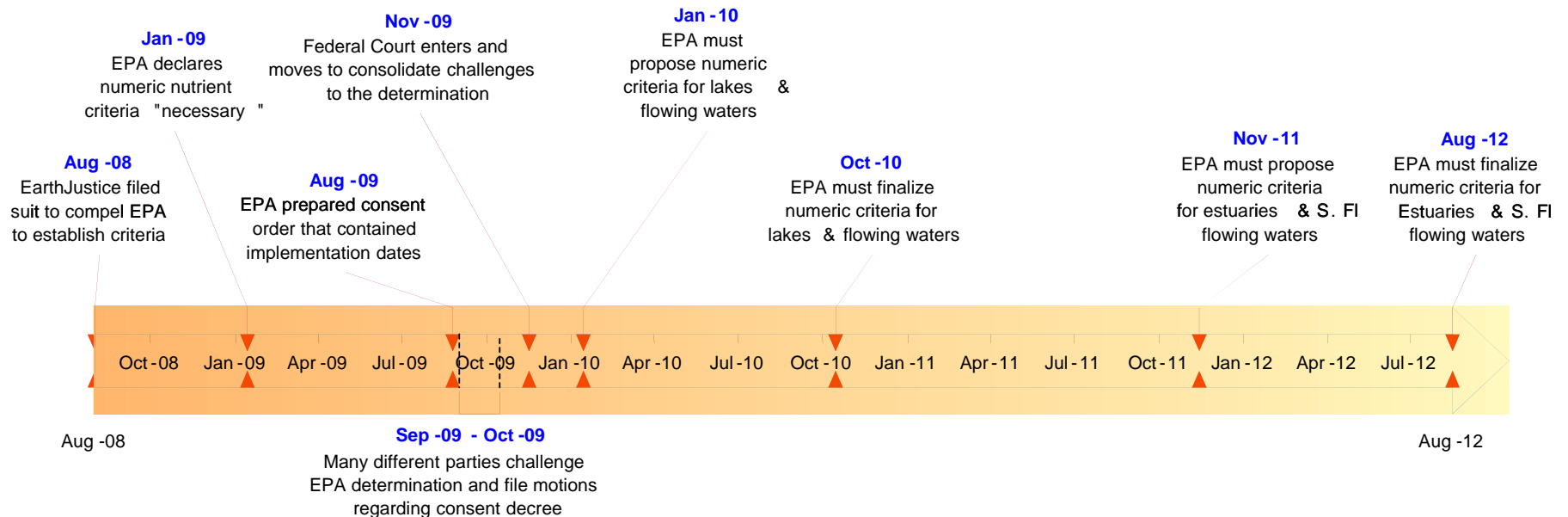
- **Agree that more must be done to address nutrient impairment**
 - **Based on current assessments ~40% of Florida's inland waters are impacted by nutrients**
- **Numeric Nutrient Criteria must be based on sound science and any policy decisions must take economics into account**
- **EPA relied largely on Florida data and analysis, and made substantive improvement over their initial proposal, but....**
 - **We still have some issues**





Nutrient Criteria Development Timeline

- FDEP Started Developing Numeric Criteria in 2001
- Litigation began in 2008



Note: If court invalidates EPA determination, consent decree and any promulgated criteria would be invalid.





Background - EPA's Proposal

- **Promulgated rule includes:**
 - a) **Lake, stream, and spring criteria for the protection of aquatic life**
 - b) **Additional stream criteria for the protection of downstream lakes**
 - **EPA deferred “DPVs” for estuaries**
 - c) **Provisions for Federal Site-Specific Alternative Criteria (SSAC)**





Effective Date

- **Criteria effective 15 months after publication in the Federal Register**
 - **Published on Dec. 6, 2010, so go into effect on March 6, 2012**
- **Federal site-specific alternative criteria (SSAC) provision of section 131.43(e) went into effect on Feb. 6, 2011 (60 days after publication in the Federal Register)**





Background - EPA's Proposal (continued)

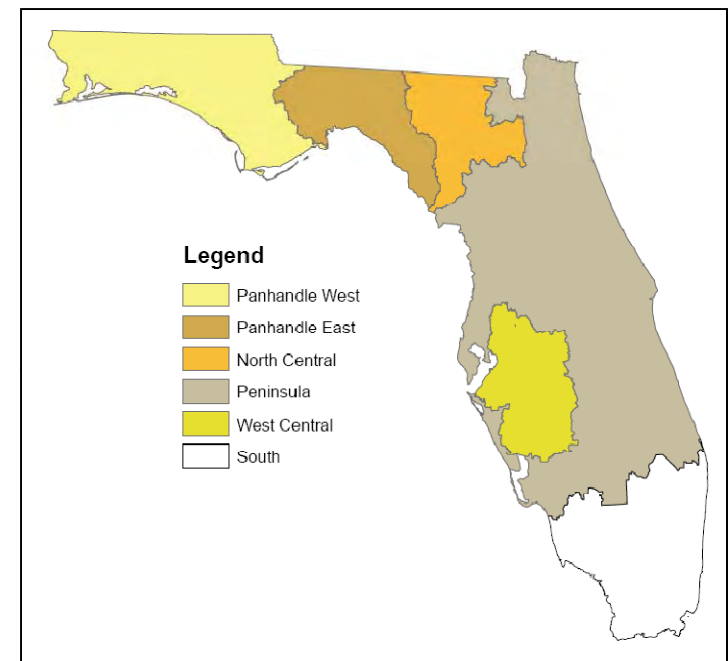
- **We had an approved Nutrient Criteria Development plan at the time of the “determination” letter, and continued to work on criteria through summer of 2009**
 - **Held workshops on draft criteria and rules in Summer 2009**
 - **We stopped all rule development when EPA signed Consent Decree**





Stream Criteria

- We could not identify consistent dose-response relationships
- Based on reference approach, with 5 regions
 - Used DEP's "benchmark" approach (90th percentile of minimally disturbed sites) for most of the regions, and
 - Used EPA's "SCI" approach (75th percentile of biologically healthy sites) for West Central Region





Stream Criteria (continued)

Table B-1. EPA's Numeric Criteria for Florida Streams.

Nutrient Watershed Region	Instream Protection Value Criteria	
	TN (mg/L) ^a	TP (mg/L) ^a
Panhandle West ^b	0.67	0.06
Panhandle East ^b	1.03	0.18
North Central ^c	1.87	0.30
West Central ^d	1.65	0.49
Peninsula ^e	1.54	0.12

- Expressed as annual geometric means, which cannot be exceeded more than once in a 3-year period
- Not clear if criteria are average for the waterbody, or apply everywhere, and we have asked for clarification





Stream Criteria (continued)

- **Differences from DEP approach include:**
 - **EPA excluded sites that were impaired for Dissolved Oxygen (DO), which excluded many sites that drain wetlands areas, which tend to have naturally higher TN levels**
 - **EPA did not require biological validation of impairment, which we required in our draft rule**
 - **EPA did not establish requirements for SSAC process**





Lake Criteria

- Based on empirical relationships

Table C-1. EPA's Numeric Criteria for Florida Lakes.

Lake Color ^a and Alkalinity	Chl-a (mg/L) ^{b, *}	TN (mg/L)	TP (mg/L)
Colored Lakes ^c	0.020	1.27 [1.27-2.23]	0.05 [0.05-0.16]
Clear Lakes, High Alkalinity ^d	0.020	1.05 [1.05-1.91]	0.03 [0.03-0.09]
Clear Lakes, Low Alkalinity ^e	0.006	0.51 [0.51-0.93]	0.01 [0.01-0.03]

- “Clear” < 40 PCU, and “Low Alkalinity” < 20 mg/L
- Criteria expressed as annual geometric means, which cannot be exceeded more than once in a 3-year period





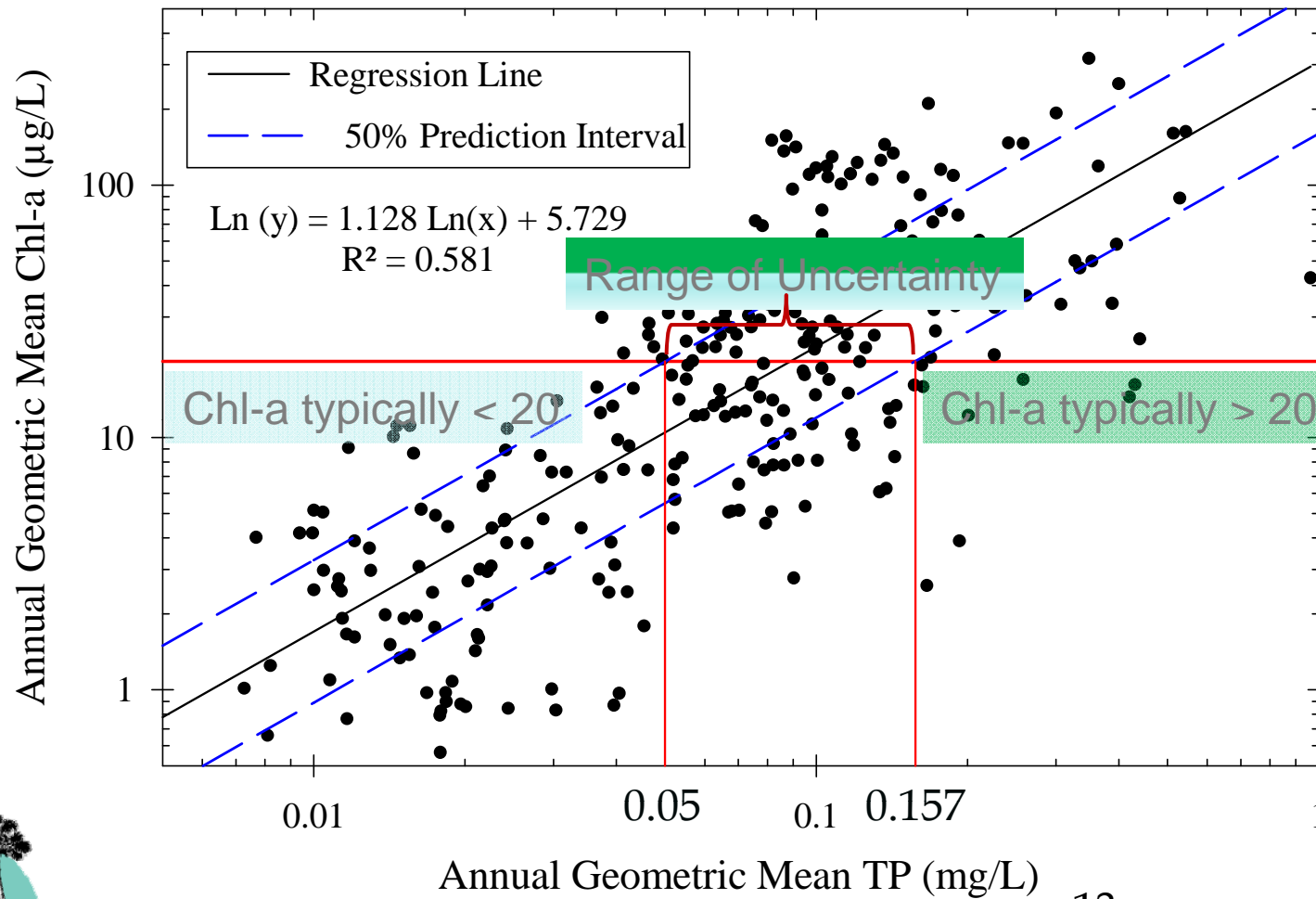
Lakes Modified Criteria

- **“Baseline” criteria for TN and TP apply unless DEP establishes “modified criteria”**
 - **To be eligible, must meet chl a magnitude for at least the 3 immediately preceding years, and must meet data requirements**
 - **At least one sample in May – September and at least one sample in October – April, and a minimum of 4 samples from each year**
 - **Must be within range shown in parenthesis, and cannot be above criteria applicable to streams receiving the lake’s discharge**





Colored Lake Chl-a Response to Total Phosphorus





Lake Modified Criteria (continued)

- **Differences from DEP approach**
 - **We planned to implement modified criteria on annual basis**
 - **If chlorophyll a criterion met, the TN and TP criteria would be the measured values, as long as they were below the upper range**
 - **Easy to implement in 303(d) context, but harder to implement in permitting context**
 - **EPA's requirement for data in all three years greatly limits number of lakes eligible for modified criteria**





Lake Downstream Protection Values (DPVs)

- **DPV can be allowable load or concentration at the point of entry into the lake**
 - **If DPV not met at point of entry, then streams in watershed do not attain DPV and would be listed as impaired**





Lake DPVs (continued)

- **Provides three options to determine DPV**
 1. **Can use BATHTUB, WASP or other scientifically defensible model**
 2. **If downstream lake meets applicable nutrient criteria, then DPVs are ambient in-stream levels**
 - **Assessed on annual basis**
 3. **If do not model and lake criteria not attained, then the DPVs are set at lake criteria**
 - **No assimilation in lake or in stream**





Concerns with Downstream Protection Values

- **DEP believes that DPVs are neither legally nor technically necessary, and will present an undue burden on DEP to develop**
 - **Not needed because stream criteria based on reference approach are inherently protective**
 - **Limits State's/Stakeholder's flexibility on how best to address impairment of downstream waters**
 - **SAB Panel draft report noted they appear to "unnecessarily restrict" TMDL Allocation process**





Springs Nitrate Criterion

- **Set at 0.35 mg/L as an annual geometric mean, not to be exceeded more than once in a three-year period**
 - **Based on dose-response relationships with periphyton and lab studies**





Federal SSAC Provision

- **Includes provision that allows EPA to establish site-specific chlorophyll *a*, TN, TP, or nitrate-nitrite numeric criterion where that SSAC is demonstrated to be protective of the applicable designated use(s)**
 - **Must be consistent with 40 CFR 131.11, including protection of downstream waters**





SSAC Steps

- 1. Entity seeking SSAC must compile the supporting data and analyses, develop expression of the criterion, and prepare the needed documentation**
 - 2. Entity must provide copy of all materials to DEP so that DEP can provide comments to EPA**
 - 3. Regional Administrator will evaluate submittal and if adequate, will prepare Technical Support Document and publish a public notice and take comment on the proposed SSAC**
- Approval is an agency action that can be challenged**





Allowable SSAC Approaches

- **Regulation describes three approaches**
 - **Can use approaches that EPA used to develop stream and lake criteria and apply these methods to a smaller subset of waters**
 - **Can “conduct a biological, chemical, and physical assessment of waterbody conditions”, or**
 - **Use another scientifically defensible approach that is protective of designated use**
- **EPA has prepared draft guidance**





Impact of Criteria on Nutrient TMDLs

- **While not specifically addressed in rule, the preamble notes that**
 - **No TMDL will be rescinded or invalidated as a result of the rule**
 - **Rule does not have the effect of withdrawing any prior EPA approval of a TMDL in Florida**
 - **Neither the CWA nor EPA regulations require TMDLs to be completed or revised within any specific time period after a change in water quality standards occurs**



But....., NNC “trump” if more stringent



Impact of Criteria on Nutrient TMDLs

(continued)

- Preamble also provides discussion about nutrient TMDLs as potential candidates for SSAC
 - EPA-established or approved TMDLs may provide sufficient information to support a SSAC
 - Federal SSAC procedure must be followed for determining whether any specific TMDL target should be adopted as a SSAC
- We feel that nutrient TMDLs should “trump” NNC, and have raised several issues related to translating TMDLs into SSACs

Most notably load versus concentration





Implementation

- **Regulation does not address implementation**
- **EPA plans to work with DEP and stakeholders to address questions about implementation of criteria**
 - **EPA hosted webinars to answer and solicit questions**
- **Preamble notes that can use compliance schedules, variances, and use changes**





Economic Analysis

- **EPA significantly underestimated costs to implement the criteria (\$130 Million)**
 - **We think costs more likely to be between \$1.7 and \$4.8 Billion ANNUALLY**
 - **EPA cost estimates too low because they only estimated incremental costs, assuming our draft criteria were adopted, AND presumed many dischargers would receive some type of relief**
 - **Our estimates include treatment to meet NNC**
 - **Reverse Osmosis and/or Deep Well Injection**





Legal Challenges to EPA's NNC

- **Several parties challenged the regulation, alleging**
 - **Determination is arbitrary/capricious (was a litigation strategy)**
 - **EPA violated a fundamental precept of the CWA that States have the primary responsibility for adopting water quality standards**
 - **“Reference” approach for streams is not valid because it does not link nutrients to impairment**
 - **Criteria are impossible to achieve, and many pristine waters and waters with naturally high nutrients will be deemed impaired**

EPA failed to follow required administrative procedures





What's Next?

- **Lawsuits will take years**
- **DEP still evaluating the criteria and will need to brief new leadership team**
 - **Not clear what State rulemaking will be done**





For More Information

<http://www.dep.state.fl.us/water/wqssp/nutrients>

