EPA's Final Numeric Criteria to Address Phosphorus and Nitrogen Pollution in Florida's Inland Waters

November 30, 2010

EPA's Final Rule

- Establishes numeric nutrient criteria to protect Florida's designated uses for freshwater lakes, springs, and streams located outside of South Florida*
- Delays effective date for 15 months to conduct outreach and discuss implementation strategies
- Responds to key concerns expressed in public comments
- Provides flexible options for implementation

Schedule and Approach

- EPA made a Clean Water Act determination in January 2009 that numeric nutrient standards are needed
- EPA entered into a consent decree in August 2009 (revised in June 2010 and October 2010) to:
  - Propose numeric criteria for lakes and flowing waters by Jan 2010, finalizing by Nov 2010
  - Propose numeric criteria for estuaries and coastal waters by Nov 2011, finalizing by Aug 2012
- EPA relied on Florida's extensive data and used many technical approaches developed by Florida's Department of Environmental Protection (FDEP) to develop the final nutrient criteria

Rule for Lakes

- Definition
  - "Lake" means a a slow-moving or standing body of freshwater that occupies an inland basin that is not a stream, spring, or wetland
- The rule
  - Classifies lakes into 3 groups based on color and alkalinity
  - Derives criteria from field data showing correlations between chlorophyll *a* (Chl *a*), total phosphorus (TP), and total nitrogen (TN)
  - Includes an option for the State to adjust TN and TP criteria for a particular lake within a certain range if sufficient data show the Chl *a* criterion is met

Criteria for Lakes*

Lake Color and Alkalinity	Chl-a (mg/L)	TN (mg/L)	TP (mg/L)
Colored Lakes > 40 PCU	**0.020**	**1.27** [1.27-2.23]	**0.05** [0.05-0.16]
Clear Lakes, High Alkalinity ≤ 40 PCU and Alkalinity > 20 mg/L $CaCO_3$	**0.020**	**1.05** [1.05-1.91]	**0.03** [0.03-0.09]
Clear Lakes, Low Alkalinity ≤ 40 PCU and Alkalinity ≤ 20 mg/L $CaCO_3$	**0.006**	**0.51** [0.51-0.93]	**0.01** [0.01-0.03]

* All concentrations are annual geometric means not to be surpassed more than once in a three-year period. Bracketed numbers reflect the range in which Florida can adjust the TN and TP criteria when data shows the lake is meeting the relevant Chl *a* criterion.

Rule for Streams

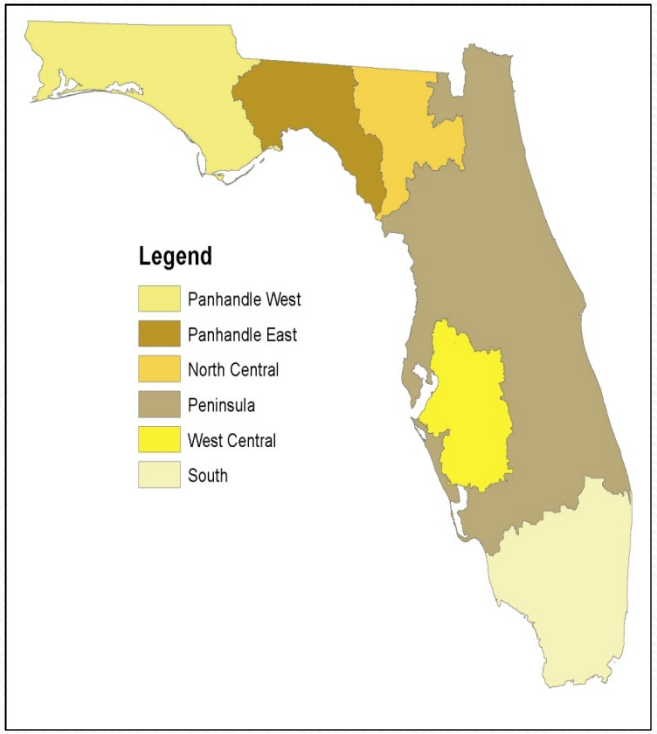
- Definition
  - "Stream" means a free-flowing, predominantly fresh surface water in a defined channel, and includes rivers, creeks, branches, canals, freshwater sloughs, and other similar water bodies
- The rule
  - Classifies streams into 5 watershed-based regions that account for geological differences throughout the State
  - Derives criteria from field data in least-disturbed streams that are not impaired for nutrient-related impacts

Criteria for Rivers/Streams

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

Concentrations are annual geometric means not to be surpassed more than once in a three-year period

Map of EPA's stream classification by NWRs used in final rule.



Downstream Protection for Lakes

- Federal Regulations require WQS to provide for the attainment and maintenance of WQS in downstream waters
- The final rule includes a flexible tiered approach to apply downstream protection values (DPVs) for TP and TN to a watershed to ensure protection of downstream lakes:
  - TN and or TP levels at the point of entry into the lake using BATHTUB model or alternative scientifically-defensible models such as WASP, or
  - Ambient instream levels of TN and/or TP at the point of entry into the lake where lake criteria are met in the lake, or
  - Lake criteria values for TN and/or TP at the point of entry into the lake where lake criteria are not met in the lake or lake is un-assessed

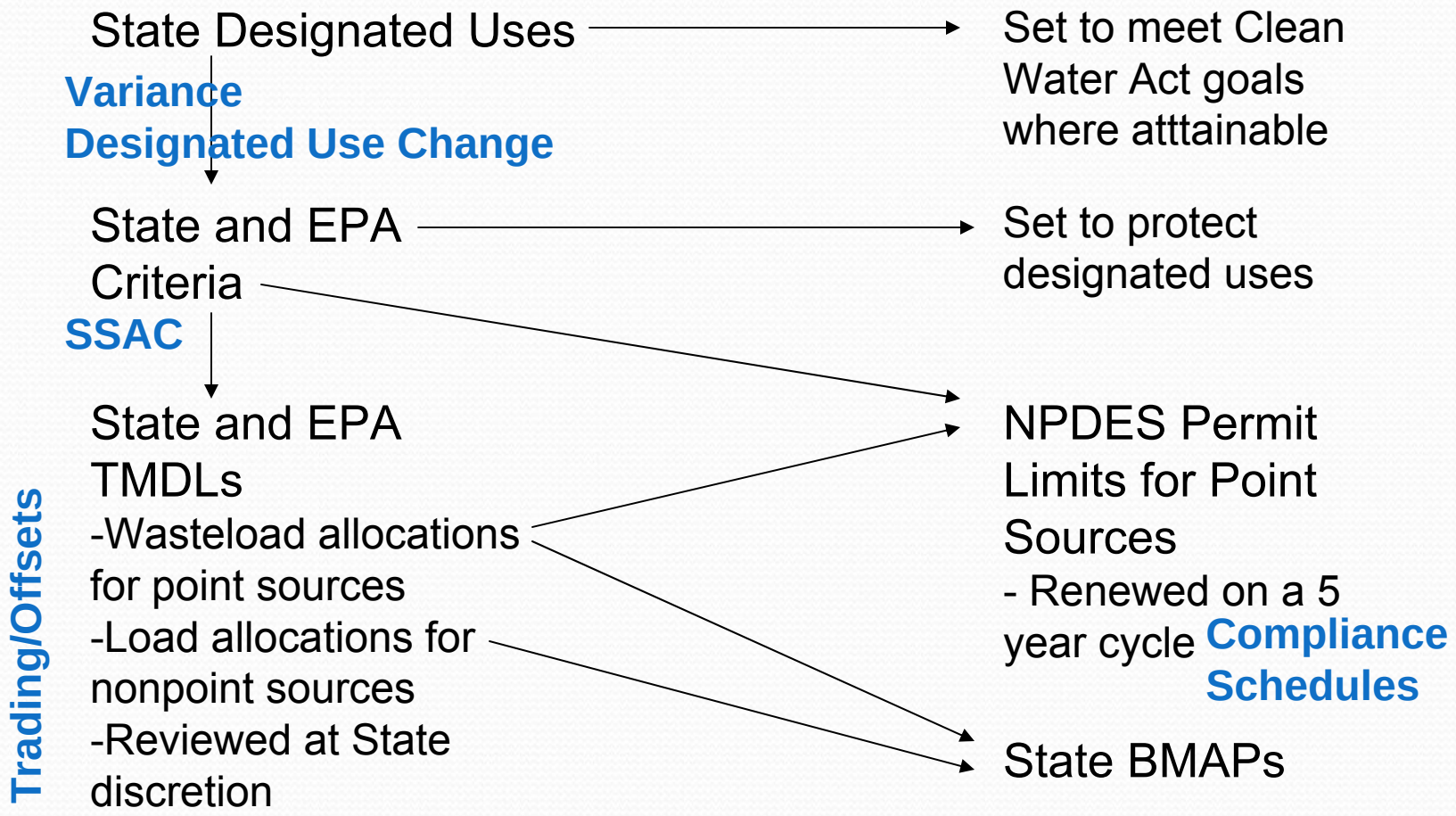
Rule for Springs

- Definition
  - "Spring" means a site at which ground water flows through a natural opening in the ground onto the land surface or into a body of surface water
- Rule
  - Establishes nitrate-nitrite criterion of 0.35 mg/L as an annual geometric mean, not to be exceeded more than once in a three-year period
  - Based on experimental laboratory data and field evaluations that document the response of nuisance algae to nitrate-nitrite concentrations

Site-Specific Alternative Criteria

- Final Rule allows any entity to submit a request for site-specific alternative criteria (SSAC) with supporting rationale to EPA, based on:
  - Replicating approaches used in the rule with new data or applying to a smaller subsets of waters, or
  - Conducting biological, chemical, and physical assessments, or
  - Using another scientifically defensible approach protective of the designated use
- After notice and comment, EPA may approve the SSAC for purposes of the Federal Rule

What Are Some Implementation Tools?



Implementation

- Entities whose implementation actions will help meet the criteria in EPA's rule:
  - Industries that discharge nutrients to lakes and streams
  - Publicly owned treatment works
  - Agricultural operations
  - Entities who manage stormwater runoff
  - Fertilizer users and septic system owners
- Potential implementation measures:
  - Upgrade treatment technologies (point sources)
  - Install best management practices (MS4s & nonpoint sources)
  - Develop and implement total maximum daily loads (TMDLs)
  - Develop site-specific alternative criteria (SSAC)
  - Restore wetlands

Economic Analysis

EPA has prepared an analysis of potential costs associated with meeting these standards.

- Cost estimates of $135.5 to $206.1 million per year to meet the proposed criteria
  - Roughly $40-$72 per household per year
- Costs are attributed to:
  - upgraded treatment and pollution prevention actions at wastewater treatment facilities and industrial dischargers
  - implementation of best management practices for nonpoint sources (including agriculture and Phase 1 and 2 MS4s), & upgraded septic systems
- Different cost estimates based on different baselines & assumptions
- Represents a significant investment

Key Questions

- How will existing TMDLs be affected?
- How will permits be affected?
- Will there be accelerated implementation?
- What effect do compliance schedules, variances, and designated uses changes have?
- What happens if I can't meet a permit limit set to equal the criteria
- Why are various cost estimates so different?

Schedule

- Final rule published November 15, 2010
- SSAC provision of rule will take effect 60 days after the rule is published in the Federal Register
- Remainder of rule will take effect 15 months after publication
- EPA is committed to working with FDEP over the next 15 months on assisting affected parties in understanding the final criteria; evaluating site-specific criteria requests; and working through implementation issues
- EPA technical experts will be providing outreach, technical assistance, additional information, and followup to questions