

“Independently Applicable” Numeric Nutrient Criteria; Some Science and Alternatives

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Numeric Nutrient Criteria (NNC) and the CWA

- Designated uses
- Water quality “criteria”
- Narrative or numeric
- Designated uses and criteria drive CWA



EPA's Current NNC Position

- States must adopt NNC for *both* N and P in all water bodies
- NNC apply regardless of actual observed and documented water body biology and in-stream impairment

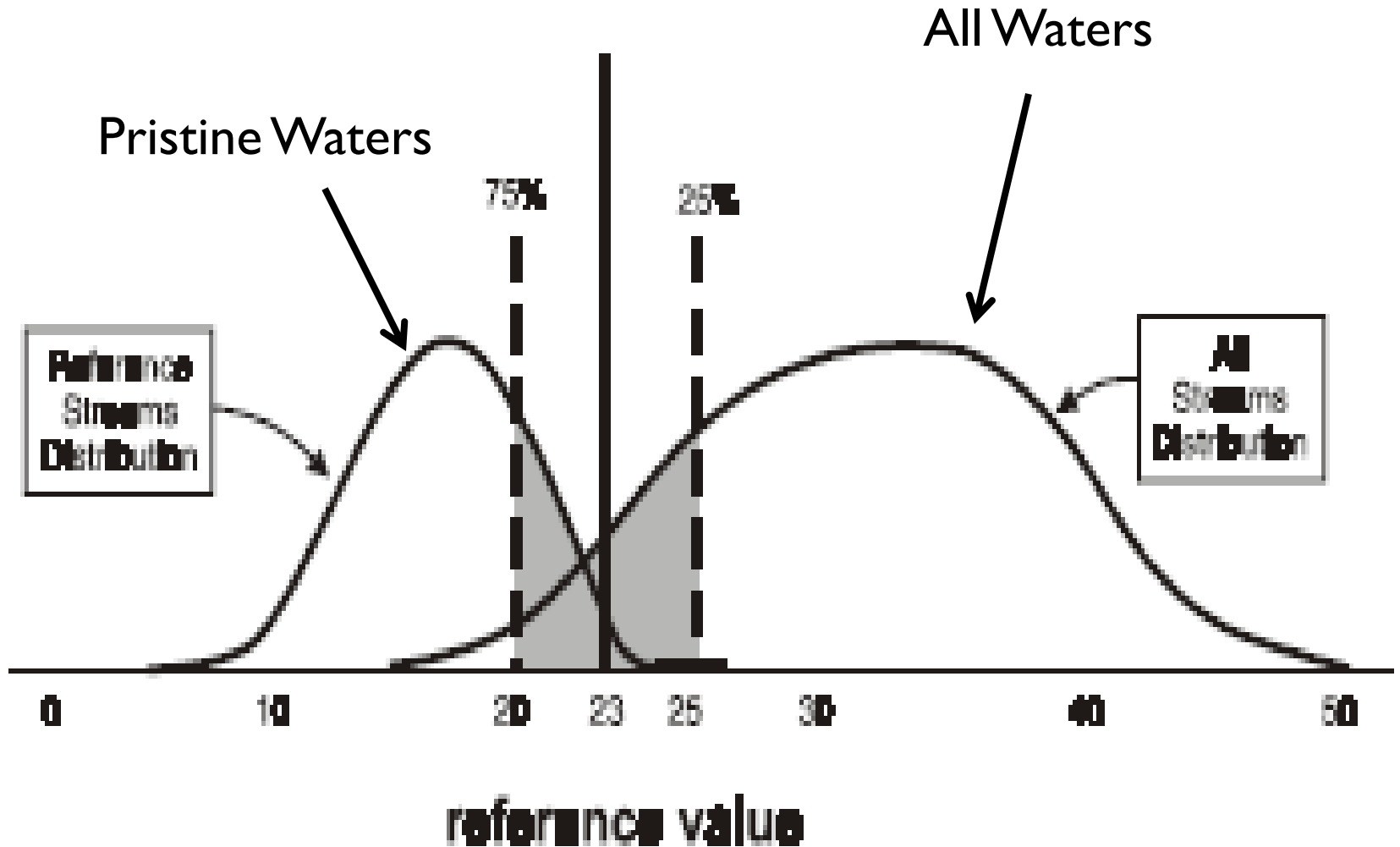


USGS NAWQA 2010 Study

- USGS found TN and TP in 90% of agricultural streams at above **“Background Levels”**
- **Background Levels** = pristine waters
TN = .58 ppm TP = .034 ppm
- Pristine \neq fishable and swimmable drinking water TN \leq 10 ppm



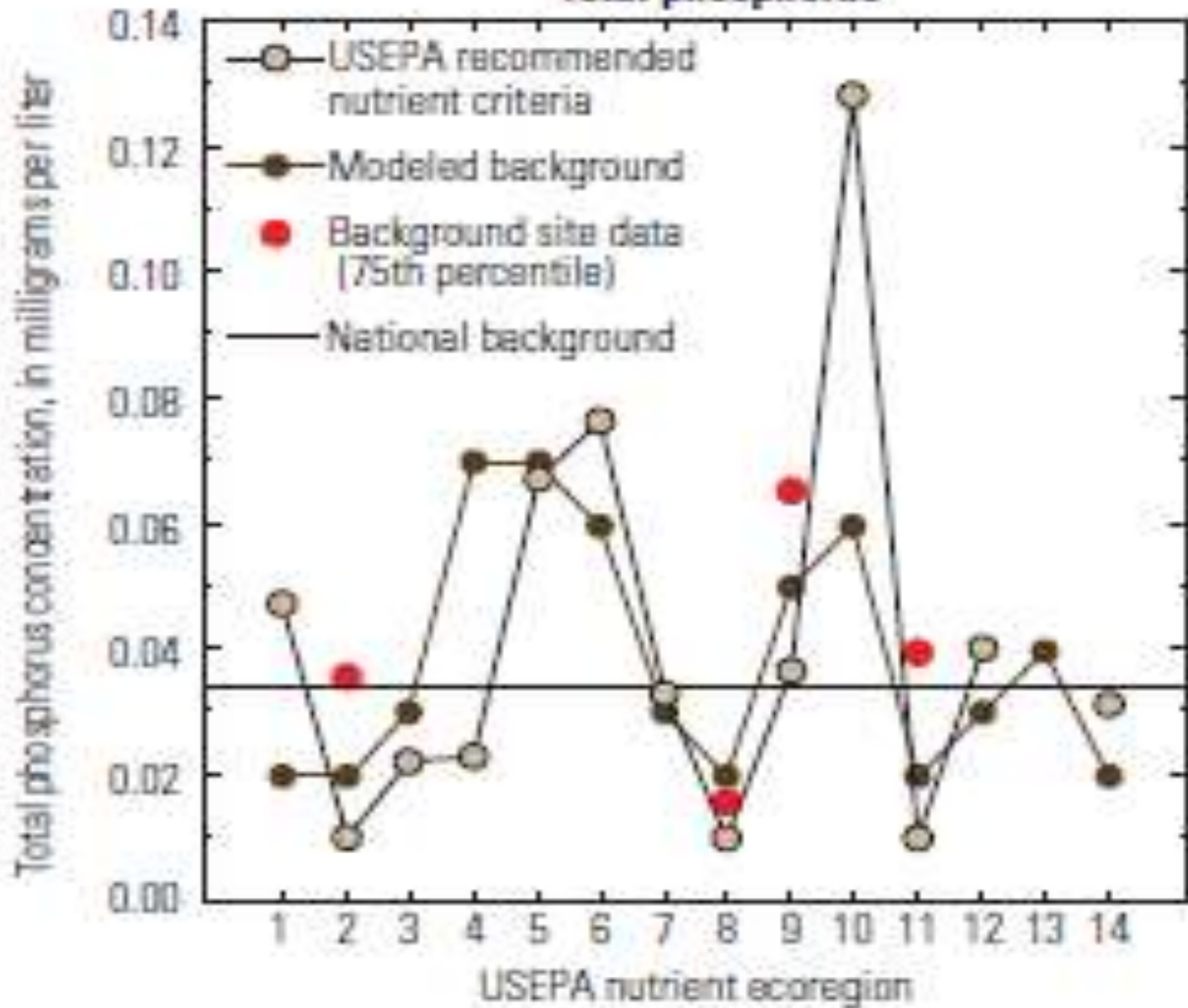
NNC Benchmarked to Pristine Waters



EPA EcoRegions for Reference Waters



Total phosphorus



Issues w/ Independently Applicable

- Cannot identify when biology will respond – no independent statistical correlation
- No demonstrable biological cause and effect -- pristine can be well below biologically needed
- Nearly all waters impaired
- Is the standard attainable? FL ag = \$1 bil

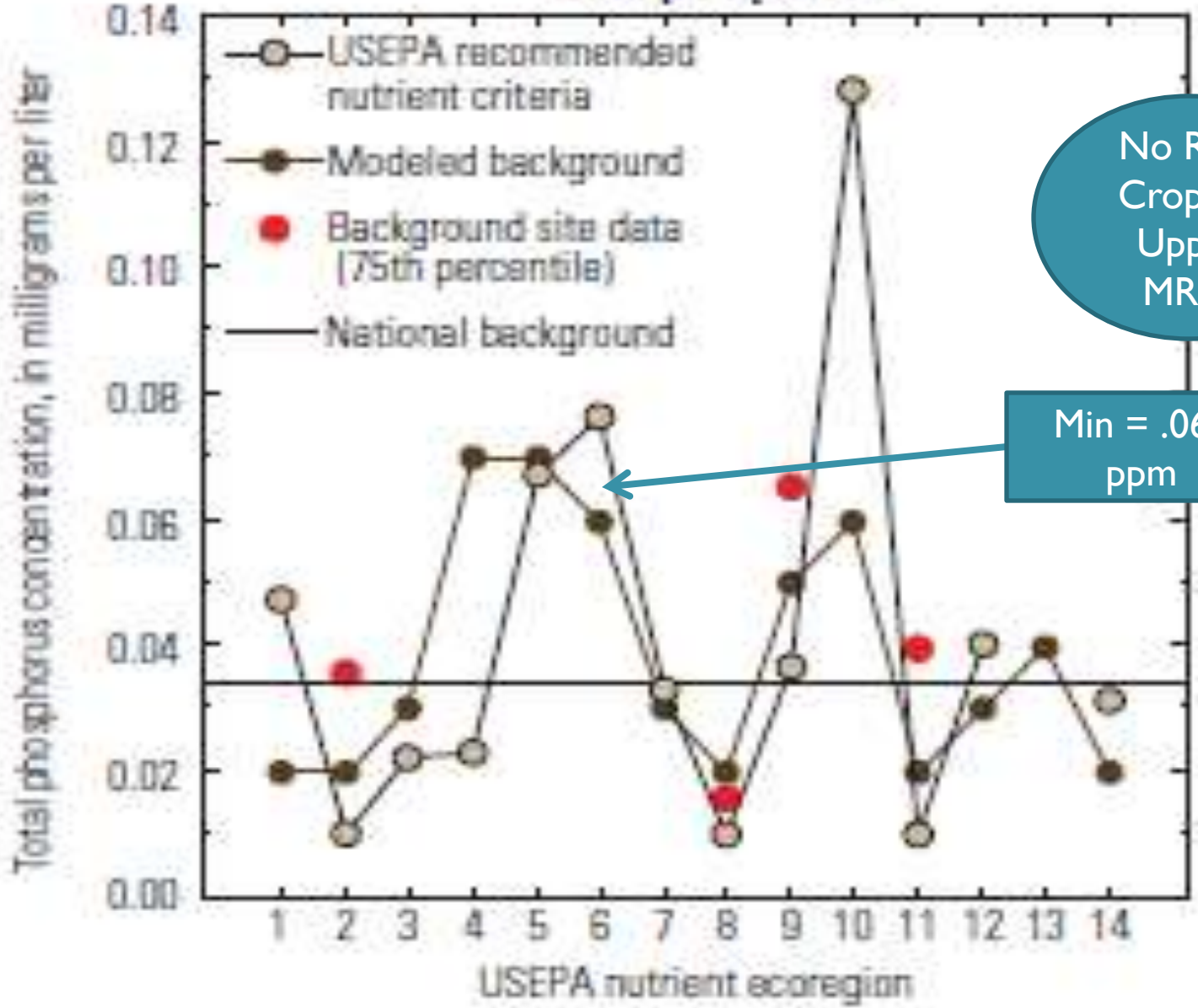


EPA's Science Advisory Board

- “...the uncertainty associated with estimated stressor-response relationships would be problematic if this approach were used as a “stand alone” method because statistical associations do not prove cause and effect.”
- The approach will work “...if the approach is appropriately applied (i.e., not used in isolation but as part of a weight-of-evidence approach).”



Total phosphorus



NNC and the MRB



The Mississippi River Basin

States' Alternative Approaches

- Apply NNC only after verifying that nutrients are the cause of adverse water quality impacts in a water body
- Focus on directly reducing nutrient loadings
- Focus on balancing biological, causal, and environmental response variables.
- Use monitoring to set permit levels to protect designated uses or downstream waters



Alternatives (continued)

- Criteria for response variables, such as chlorophyll *a* or dissolved oxygen
- Use other (non-nutrient) indicators of adverse water quality to direct reduction activities
- Set controls for only the problem nutrient



Ag Groups' Position

- Will support how states approaching this
- Support the SAB's "weight of evidence" approach
- Use NNC but not independently of other meaningful and observable indicators
 - Protective of water quality
 - Will drive nutrient load reductions without wasting resources

