

Montana's Approach for Developing and Implementing Numeric Nutrient Standards for Streams and Rivers

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Montana's Approach

- Science is used to determine the criteria
- Policy addresses the difficulties of meeting the criteria

Draft Numeric Nutrient Criteria

- Science behind the criteria has been peer-reviewed in a Department technical report
- Nutrient concentrations that protect sensitive beneficial water uses are low:

Typical concentrations in trout streams:

- Total P: 0.05 mg/L
- Total N: 0.3 mg/L

Typical concentrations in prairie streams:

- Total P: 0.12 mg/L
- Total N: 1.3 mg/L

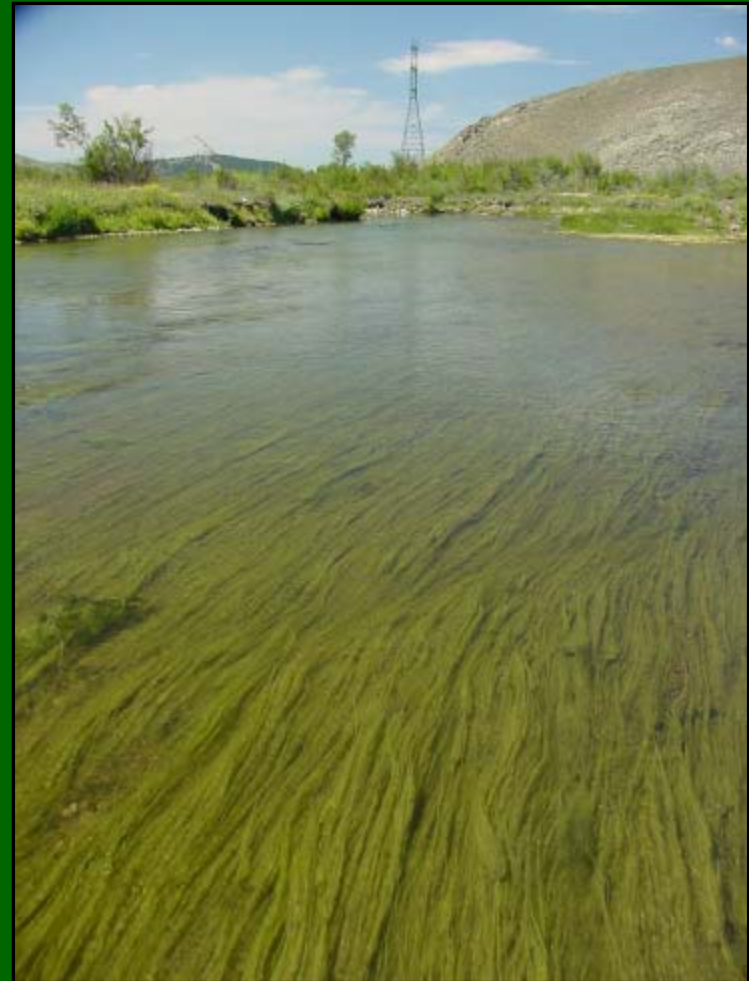
- Criteria would be applied seasonally (July 1-Oct 1 each year)

Science: How were the Criteria Derived?

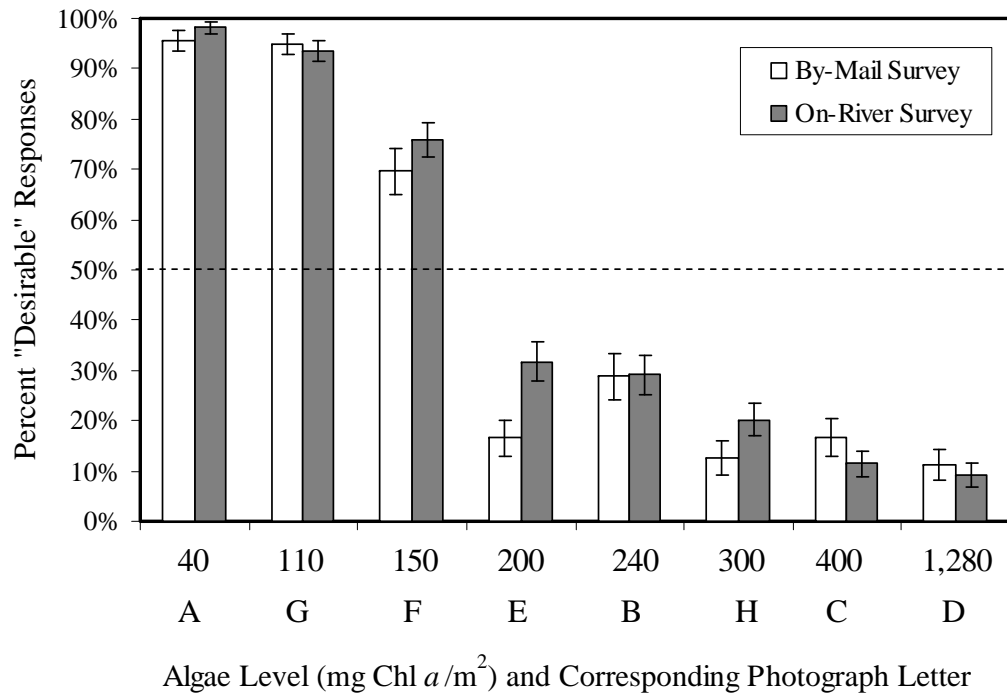
- Based on nutrient concentrations where impact to uses begins to occur
 - Recreation
 - Fish and aquatic life
- Impact thresholds are determined using:
 - stressor-response studies (e.g., TN vs. dissolved oxygen concentrations)
 - public opinion surveys
 - Comparison to reference stream data (sites with minimal impacts)

Science: *How were the Criteria Derived?*

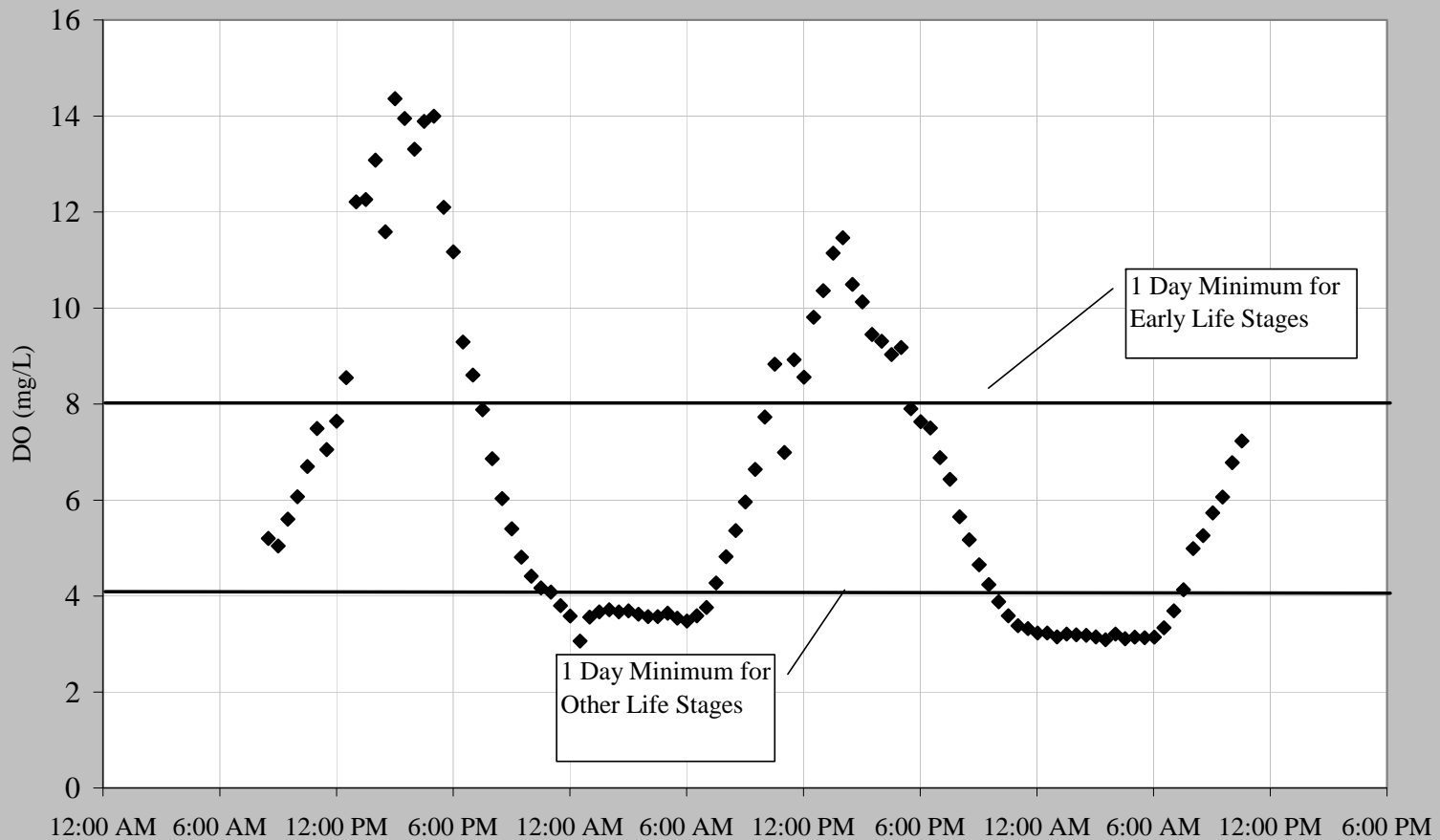
Criteria are designed to protect against nuisance algal growth...



Science: How were the Criteria Derived?



Science: How were the Criteria Derived?



Science: How were the Criteria Derived?

Comparison to Reference Streams: Nutrient concentrations in reference streams — which don't have nuisance algae or low dissolved oxygen problems — were compared to the stressor-response studies



Policy: Economic Considerations

- As a wastewater facility works to achieve lower and lower nutrient concentrations, the cost to achieve those concentrations goes up nearly exponentially
- In Montana, the nutrient concentrations indicated by the science are sometimes at or below current wastewater technologies

Policy: Economic Considerations

- *Federal Regs:* Not intended to result in WQ standards so stringent that compliance would cause severe economic (i.e., substantial and widespread) impacts on a community
- *State Law — 75-5-301(2)(a), § MCA:* formulate and adopt standards of water quality, giving consideration to the economics of waste treatment and prevention.

Policy: Economic Considerations

- We are building in an option for communities to receive relief from very stringent requirements based on:

- Ability to pay for treatment (affordability)
- Availability of treatment technology (limits of technology)

} Case-by-case evaluations

- *These options apply only to wastewater treatment beyond the federally mandated technology-based regulations*

Policy: Two Types of Temporary Variances

- *Affordability:*
 - Community needs to demonstrate it would have substantial and widespread (S&W) economic impacts resulting from compliance with the nutrient criteria
 - **IF** community would have S&W economic impacts, **THEN** it could receive a variance. It would be expected to pay for wastewater treatment at some pre-defined level (e.g., 2% of median household income)
- *Limits of Technology:*
 - Some communities could afford almost any proven and available technology, but still can't meet the criteria
 - Could receive a limits-of-technology variance

Policy: Substantial & Widespread Impacts — *Remedies*

Why go the variance route?

(Options: Remove designated use, create use subcategories, variance)

- **Variance is better option because:**
 - Designated use not removed — retained as goal, creates review process
 - Applies only to parameter's infeasible to achieve
 - EPA Headquarters and Region VIII agree it's a better choice
 - Time limit (in practice) can be up to 20 years
 - Variance would need to be re-justified every 3-5 years
 - Allows time for technology to catch up, become less expensive

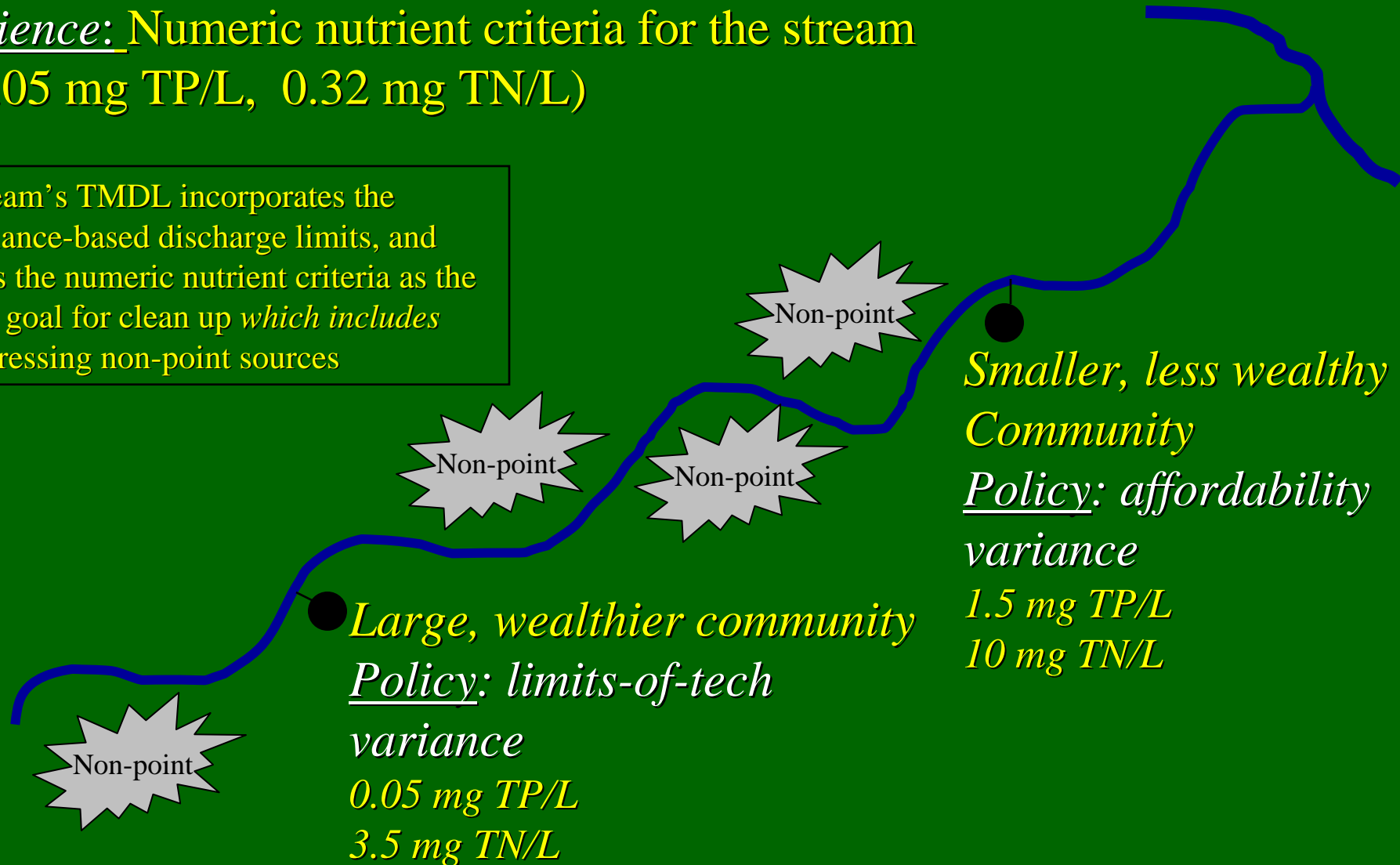
Policy: Using the Variance-Based Approach

- All reasonable approaches would be pursued to avoid using a variance
 - Land application
 - Determine total contribution to water quality problem (TMDL)
 - e.g., if <5%, communities not required to meet nutrient criteria?
 - Pollutant trading
 - Compliance schedules
 - Other options...

How This Would Look Along a Stream

Science: Numeric nutrient criteria for the stream
(0.05 mg TP/L, 0.32 mg TN/L)

Stream's TMDL incorporates the variance-based discharge limits, and uses the numeric nutrient criteria as the end goal for clean up *which includes* addressing non-point sources



Thank You.

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