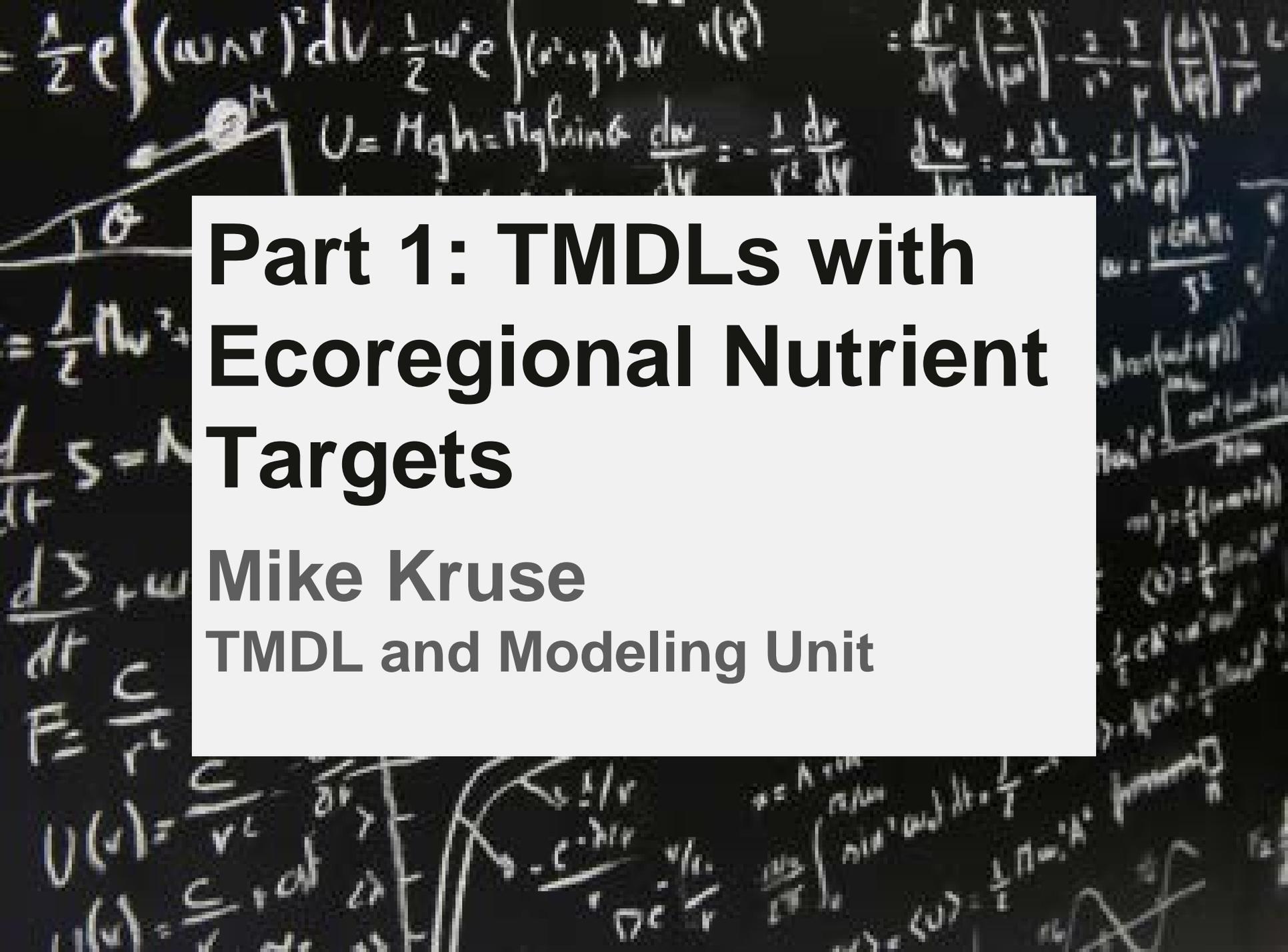




2010 Nutrient TMDLs and Permit Plan





The background is a chalkboard filled with mathematical equations and a diagram. On the left, a diagram shows a ball on a ramp at an angle θ . Above it, the equation $U = Mgh = Mgl \sin \theta$ is written, followed by $\frac{dU}{d\theta} = -\frac{1}{r^2} \frac{dU}{d\theta}$. To the right, there are several other equations involving derivatives and variables like w , b , and θ .

Part 1: TMDLs with Ecoregional Nutrient Targets

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Refresher: What's a TMDL?

- The maximum amount of a pollutant that a water body can receive and still meet WQS.
- Tool to inform watershed planning (math & path)
- Pollution diet
- $TMDL = \sum WLA + \sum LA + MOS$

Background: 2010 Nutrient TMDLs

- 1998 and 2002 303(d) listings for low dissolved oxygen, nutrients, or unknown pollutants
- 2001 Consent Decree, *America Canoe Association, et al. v. EPA*
- EPA recommended ecoregional nutrient criteria used as TMDL targets

Results: 2010 Nutrient TMDLs

- TN targets as low as 0.289 mg/L
TP targets as low as 0.007 mg/L
- Load duration curve approach used with wasteload allocations based on design flows and the specified nutrient targets
- *QUAL2K* model used to assign additional BOD wasteload allocations to point sources

Next Steps: 2010 Nutrient TMDLs

- Alternative nutrient targets?
 - More localized reference approach?
 - Clearer endpoints for attainment?
 - Chlorophyll a?
- QUAL2K model review



Part 2: Permit Plan

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TMDL WLA-based limits

- TMDLs with ecoregional nutrient targets set WLAs as low as:
 - **0.289 mg/L for Total Nitrogen**
 - **0.007 mg/L for Total Phosphorus**
- For nutrients, we have reasonable justification to set effluent limits as such:
WLA = Annual Average Limit



TMDL WLA-based limits

- A WWTF with Enhanced Secondary Treatment and Phosphorus Removal could get you to:
 - 3.0 mg/L for Total Nitrogen
 - 0.1 mg/L for Total Phosphorus
- Current WLA-based limits:
 - 0.5 mg/L for Total Nitrogen
 - 0.1 mg/L for Total Phosphorus

Unachievable through
technology



40 CFR 122.44(d)(1)(vii)(B):

Requires NPDES **permits** to include **effluent limits** developed consistent with the assumptions and requirements of any **WLA** that has been assigned to the discharge as a part of a **TMDL**.

What can DNR do?

- Issue permits with long schedules of compliance
- Schedules will be staggered to allow for staged upgrades
- We can't predict how everything will happen, so the permit will contain multiple "paths" to permit compliance



TMDL WLA-based limits are not achievable through technology

Schedule of Compliance in the permit

Path #1

Path #2

Path #3

???



Potential Path #1

Upgrade to a financially achievable level



Designated uses are re-attained in water body



TMDL WLA-based limits are not needed



Potential Path #2

Upgrade to a financially achievable level



Factor 6 variance is obtained



TMDL WLA-based limits are replaced with
“highest attainable conditions”



Potential Path #3

TMDL re-evaluated



TMDL WLAs are revised



Facility upgrades to meet new TMDL WLA-based limits

Phased Upgrades

- Phases for upgrades will be determined on a site-specific basis
 - Current treatment
 - Financial capability
- The permit schedule can be reevaluated and extended, if needed
- Allows for incremental water quality improvements
- Permits will set up a schedule for instream monitoring/water quality assessment



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Questions?

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