

Breakout Group #3: Urban and Aquatic Discharge of Reactive Nitrogen

Updated Summary as of October 27, 2008

General Comments

- Effects are not well defined in the white paper
- Not enough perspective on the problem of Nr
- Need a clear statement on the issue to preface the actions
- The cultural eutrophication problem is huge
- Identified need for a “decision framework” for assessment and to develop appropriate solutions using the suite of available management tools, both regulatory and non regulatory

Most comments fit into one of three categories: Regulatory/Non-regulatory Management, Educational and Technical/Technology

1. Regulatory/Non-Regulatory Management of Nr

- Policy and Rule development should reflect management needs and address them
- Development of Criteria is Needed
 - Across media approaches/critical loads
 - Air quality is regulated towards human endpoints
 - Water quality towards biological endpoints
 - TMDL tools are limited to regulated sources
 - While criteria may not be the best route, regulations and policies need to comprehensively accommodate these management tools to effect a change and attain Nr management goals
 - Water Quality Standards/Criteria may provide that tool
 - What does/will it take to meet WQS? (Probably everything we can do plus more)
 - Criteria will be a driving force, and does afford flexibility when unattainable through Use Attainability approaches under the CWA; however, uncertain where to draw the attainability line for reasonable efforts and costs for marginal gains
 - EPA should push the states to make better use of water quality standards to manage nutrients
- Nutrients are a “pollutant” under the CWA
- Need to look toward integrated policies – How can CWA/CAA be “shaken up” and “refreshed” to meet integrated needs?
- Downstream effects (both air and water) are often ignored
- Tradeoffs – without change, farms are not going to be regulated; economic approaches may provide some benefits
- Point Sources (Regulated for Water):
 - Wastewater treatment plants
 - Relatively small national Nr contribution; Locally important

- Lots of money spent; has not resolved Nr problem
 - Stormwater
 - Does clamping down on point sources solve the problem? Or should regulatory authority be extended?
 - Should point sources be more rigorously controlled “because you can”?
- Alternatives for wastewater treatment:
 - Force a consideration of treatment alternatives, and alternatives to treatment
 - Look for symbiotic effects, e.g., Nr and CO₂
 - Redefine “secondary treatment” to include nutrient limits
 - Look at wetlands treatment policies
 - Consider Water Reuse
- Nonpoint Sources (Not Regulated for Water):
 - Terrestrial Sources have unknowns regarding cost and effectiveness
 - EPA/States lack authority
 - Regulate fertilizer
 - Regulate agriculture and other nonpoint sources
 - Use 319 CWA (nonpoint source program) as a device to promote management
- Must consider energy efficiency
- Use low impact, green infrastructure approaches for both prevention and treatment, e.g., preservation of landscape features such as wetlands and use of artificial wetlands for treatment
- Atmospheric Deposition (Not Aimed towards WQ goals)
- TMDL
 - Site specific evaluations are essential; TMDLs are a step in the right direction, but both watershed and airshed contributions must be fully considered for both assessment and management purposes
 - Consider economics of alternatives (see also Trading)
 - Include uncertainty analyses
- Trading/Market forces/Tax and Economic Incentives/Disincentives
 - Establishing trading ratios for point to nonpoint/stormwater is a barrier
 - Unrealistic criteria and management goals can negatively affect prospects for trading
 - Cap needs to be related to reduction targets, and attainable
 - Administrative hurdles for trading – monitoring, tracking; benefits must be quantifiable and verifiable
 - Be aware of nitrogen load equivalencies – balance the effect of both geographic location and nitrogen speciation.

2. Educational

- Need to look beyond regulatory tools
- Public needs to be informed about agricultural and stormwater runoff, especially non-regulatory aspects where they are essential to management
- Social Marketing:
 - Land Management is essential to Nr management, but is seldom regulated from that perspective
 - Educational program must include other issues like carbon, energy, energy efficiency, green infrastructure, smart growth
 - To motivate the program needs to define/describe the problem(s) in relation to human concerns
 - Example: Native American with tear in his eye
 - Pfiesteria in Chesapeake Bay
 - Tie market-based approaches to social marketing
- Be wary of administrative costs and degree of oversight – very intensive efforts may not yield benefits and may not be sustained once the oversight is gone – money sometime “sits” due to lack of public interest
- Actions must be easy and mainstreamed into social lifestyles and demands, and be popular or chic.
- Tax and financial incentives/disincentives:
 - Energy costs a good example of pushing public towards conservation
 - Climate change has boosted green industry
 - Stormwater utilities, septic districts, fertilizer taxes, etc. may provide programmatic funding as well as serve as a disincentive to pollution
- Collaborate among federal/state incentive programs
- Consider land/development reuse before new development; use LID and green practices, including minimal disturbance of land and landscape features that remove Nr

3. Technology

- Force a consideration of alternatives to standard secondary treatment
- Look for symbiotic effects, i.e., treatment of multiple pollutants
- Understand the cost of treatment technologies and their unintended consequences such as energy usage and putting N₂O into the atmosphere
- Develop nitrogen budgets with uncertainty analyses at regional levels, address the local impacts of the various nitrogen species, and provide states with the technical help to develop cascades and budgets for their watersheds and to evaluate boundary conditions for neighboring states.
- INC should recommend the use of green infrastructure in new developments and retro fit it into existing areas.
- Develop a decision framework to assess and determine appropriate solutions

- Research and Develop effective management practices, especially for stormwater/nonpoint source
- Comprehensive monitoring
- Effects-based analyses will drive management efforts.