

## Water Quality Standards Advisory Committee

### MEETING MINUTES

Thursday, July 11, 2013 1:30 pm – 3:30 pm  
Department of Environmental Services  
Rooms 112/113/114  
29 Hazen Drive, Concord, NH

#### Attendees

Name	Organization
Dan Blais	Home Builders and Remodelers' Association of NH
Joe Boyer	Plymouth State University
Sam Demeritt	NH Wildlife Federation
John Hodsdon	NH Farm Bureau Federation
John Magee	NH Fish & Game Department
Mike Metcalf	NH Water Works Association
William Schroeder	NH Lakes Association
Jasen Stock	NH Timberland Owners Association
Ellen Weitzler	EPA Region I
Michael Parsont	NH Association of Natural Resource Scientists
Bill Arcieri	VHB
Gary Abbott	Associated General Contractors of NH

#### DES Attendees

Ted Diers

Philip Trowbridge

Sandy Crystall

Matt Wood

#### 1) Introductions

The meeting began with a round of introductions.

#### 2) Approval of the 1/10/2013 meeting minutes

The minutes for the 1/10/13 meeting were approved without correction.

#### 3) EPA update on water quality standards

Ellen Weitzler gave an update on water quality standards issues for New Hampshire and nationally.

- EPA Approval of NH's Surface Water Quality Regulations: EPA is reviewing the current version of NH's Surface Water Quality Regulations. It is likely that all provisions will be approved, except for the ammonia criteria. The regulations contain ammonia criteria that were recommended by EPA in 1999 but are no longer supported. It is likely that EPA will neither approve nor disapprove the ammonia criteria. New EPA recommendations for ammonia criteria are expected in 2013, which NH can adopt to address this deficiency.
- Recreational Water Quality Criteria: New EPA recommendations for recreational water quality criteria (e.g., bacteria criteria for beaches) were discussed at the 1/10/13 WQSAC meeting. Ellen highlighted one particular policy change. Old EPA guidance had allowed states to not use criteria for single sample maximum concentrations in 305b/303d assessments. This guidance has been changed. States are now expected to use the upper

limit threshold, called the “Statistical Threshold Value” for assessments. This change should not affect NH because NH already follows this practice.

- Methodology for Human Health Water Quality Criteria: EPA is in the process of updating the assumptions used to model human health risks for setting water quality criteria. For example, the assumption for the average weight of a person will increase from 70 kg to 80 kg. The drinking water intake rate will also increase. EPA expects to use these new assumptions to update the human health criteria for a small group of pollutants initially.
- Ammonia Water Quality Criteria: EPA will be releasing a new recommended water quality criteria for ammonia this summer. The criteria are expected to be more stringent than the previous recommendation from 1999. The criteria will not be dependent on the types of species present because they are based on effects to mussels and snails which are ubiquitous. A Federal Register notice with the new criteria is expected this summer.
- Water Quality Standards Academy: In April 2013, EPA hosted a 3-day short course of the Water Quality Standards Academy in Chelmsford, MA. Six staff from NH DES completed the course.

#### **4) Research on updated criteria for toxic contaminants and NPDES permits**

Phil Trowbridge presented research conducted by DES on NPDES permit limits for toxic contaminants. Copies of the slides are attached. Topics discussed by the WQSAC were:

- The research shows that revised copper and ammonia criteria would have the biggest impact on dischargers in NH.
- Copper criteria and the Biotic Ligand Model (BLM):
  - Using the BLM accounts for the mitigating effects of dissolved organic carbon on the bioavailability of copper. It has the potential to be less stringent than the current hardness-corrected criteria. However, using the BLM would increase monitoring costs because 10 other parameters are needed for the model. There are also challenges associated with interpreting results, given that every measurement could have its own criteria.
  - All states that use the BLM also have a default copper criteria. The BLM is adopted as site-specific criteria in place of the default criteria.
  - The hardness-corrected copper criteria used by NH currently is approved by EPA because it is protective of designated uses.
  - The NH Surface Water Quality Regulations currently contain a provision that allows the use of the BLM as site-specific criteria (Env-Wq 1704). The wording may need to be updated to reflect the latest BLM guidance.
  - If there is an interest from NH industry, DES could support the development of a saltwater BLM for copper.
- New ammonia criteria have not yet been released by EPA. DES should review the criteria when it is available.

#### **5) Potential addition of compliance schedule authorization to Env-Wq 1700**

Ted Diers led a discussion about adding a provision to Env-Wq 1700 that would allow compliance schedules to be added to federal NPDES permits. The main points and points of discussion were:

- The proposal would allow for compliance schedules within and potentially that exceed the 5-year duration of NPDES permits. This change would add some flexibility to NPDES permitting that does not exist currently.
- DES has not decided whether the provision will apply to all NPDES permits or only to certain types of permits (e.g., general permits).
- DES is moving forward quickly with this proposal. If the rulemaking proposal is ready before the next WQSAC meeting, DES will share the draft with the WQSAC by email.

#### **6) Great Bay Nitrogen Non-Point Source Study**

Matt Wood presented research conducted by DES on non-point sources of nitrogen to the Great Bay Estuary. Copies of the slides are attached. The full report is available on the DES website at: <http://des.nh.gov//organization/divisions/water/wmb/coastal/great-bay-estuary.htm>. Public comments will be accepted until August 16, 2013.

#### **7) Other Business**

Bill Schroeder announced that he would like to step down as Chair of the WQSAC after serving in that capacity for 4-5 years. He requested that election of new officers be placed on the agenda for the next meeting. Anyone interested in serving as Chair or Vice Chair of the committee, should contact Phil Trowbridge.

Sandy Crystall announced that the Army Corps of Engineers is seeking comments on a new General Permit for all of New England (NEGP). This is intended to replace the state-specific NH PGP that has been used for the past 20 years. The draft NEGP can be downloaded from: <http://www.nae.usace.army.mil/Missions/Regulatory/StateGeneralPermits/NewEnglandGeneralPermit.aspx>. The comment period on the permit has been extended until August 28, 2013.

Phil Trowbridge announced that Ken Rhodes, who was unable to attend the meeting, wanted the group to be aware a recent Supreme Court case involving wetlands mitigation. See *Koontz v. St. Johns River Water Management District* at: [http://www.supremecourt.gov/opinions/12pdf/11-1447\\_4e46.pdf](http://www.supremecourt.gov/opinions/12pdf/11-1447_4e46.pdf).

#### **8) Adjourn**

The meeting was adjourned at 3:30 pm.

#### **Attachments**

- Slides for Item #4 (Research on updated criteria for toxic contaminants and NPDES permits)
- Slides for Item #6 (Great Bay Nitrogen Non-Point Source Study)

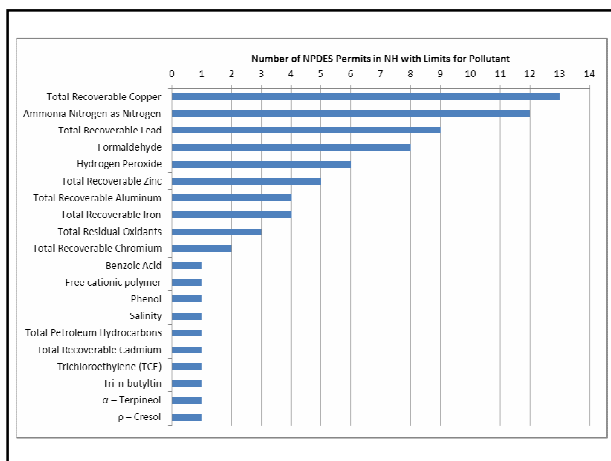
## Research on Updated Criteria for Toxic Contaminants and NPDES Permits

Philip Trowbridge, PE  
N.H. Department of Environmental Services  
July 11, 2013



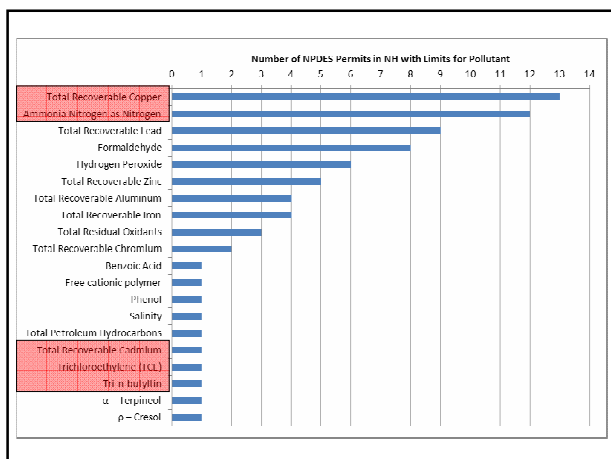
## Methods

- Reviewed ALL NPDES permits in NH for non-conventional pollutant limits
- Checked latest EPA Recommended Criteria for pollutants with permit limits
- Researched the basis for limits from permit Fact Sheets



## Identification of Changes to Water Quality Criteria for Toxic Contaminants in NH NPDES Permits

Updated WQC	No Change to WQC	No WQC
Ammonia Nitrogen as Nitrogen	Total Recoverable Aluminum	Benzic Acid
Total Recoverable Copper	Total Recoverable Zinc	Free cationic polymer
Total Recoverable Cadmium	Total Recoverable Lead	Salinity
Trichloroethylene (TCE)	Total Recoverable Iron	Total Petroleum Hydrocarbons
Tri-n-butyltin	Phenol	α-Terpineol
		p-Cresol
		Hydrogen Peroxide
		Formaldehyde
		Total Recoverable Chromium
		Total Residual Oxidants



## Copper

- Existing WQC:
  - 2.7 ug/L (freshwater chronic)
  - Hardness corrected
- New Recommended WQC:
  - Biotic Ligand Model for freshwater
  - No changes to marine WQC or human health WQC.

## Ammonia

Criteria expressed as:

Temp = 25 °C

pH = 7

Units = mg N/L

- Existing WQC:
  - Acute: 24.1 (salmonids present)
  - Chronic: 3.08 in (1999 rules), 3.0 (2008 rules)
- Gold Book WQC (basis for some permits)
  - Acute: 13.5 (salmonids present)
  - Chronic: 0.9 (salmonids present)
- New WQC: Not yet released

## Other Pollutants

- Cadmium
  - New WQC is lower but this value was already used for NPDES permit
- TCE
  - New WQC is lower but technology-based limit used for NPDES permit
- Tributyltin
  - New WQC is negligibly higher (increase from 0.37 to 0.42 ug/L)

# Great Bay Nitrogen Non-Point Source Study

Matthew A. Wood  
Philip Trowbridge, P.E.

July 11, 2013

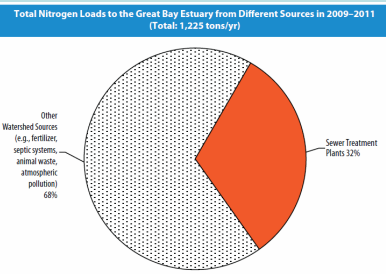


# Great Bay Nitrogen Non-Point Source Study Overview

Matthew A. Wood  
[Matthew.Wood@des.nh.gov](mailto:Matthew.Wood@des.nh.gov)



## Introduction



Source: PREP (2013)

The purpose of this study is to determine how much nitrogen each non-point source type contributes to the estuary.



Piscataqua Region Study Area



## Non-Point Sources of Nitrogen

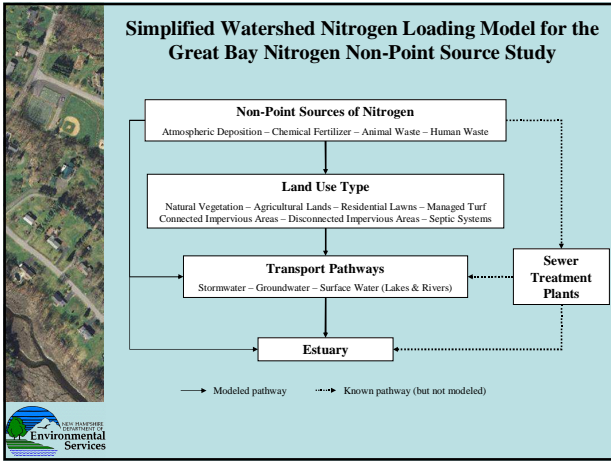


## Nitrogen Loading Model

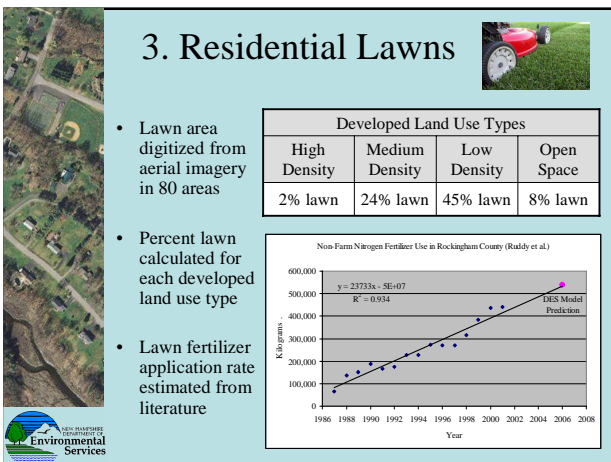
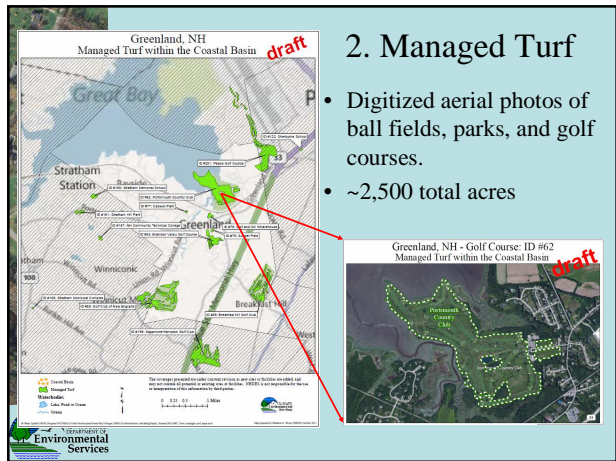
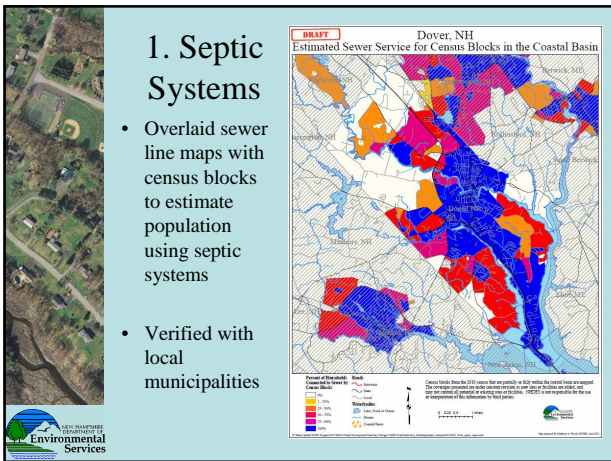
- Published by Valiela et al. (1997)
- Predicts annual loads to the estuary from inputs and assumed attenuation
- Appropriate at the watershed scale
- Accurate to  $\pm 13\%$  on average







- ### DES Customization of the Model
- NLM assumptions based on Cape Cod
  - DES created custom datasets or algorithms to refine estimate:
    1. Septic Systems
    2. Managed Turf
    3. Residential Lawns
    4. Connected & Disconnected Impervious Surfaces
    5. Stormwater/Surface Water Pathway



### 4. Connected & Disconnected Impervious Area

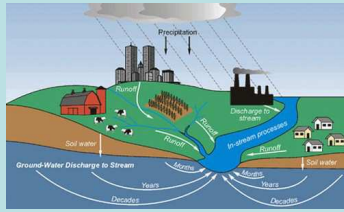
**Connected IA**      **Disconnected IA**

Model treats runoff in the stormwater system differently from runoff that infiltrates

Total IA calculated from PREP maps  
CIA estimated using Sutherland Equations\*

\*[http://www.pacificwr.com/Publications/Estimating\\_EIA.pdf](http://www.pacificwr.com/Publications/Estimating_EIA.pdf)

## 5. Stormwater/Surface Water Pathway

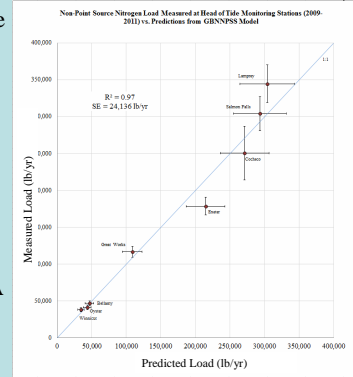


Accounts for transport through runoff and surface waters  
Attenuation estimated from Estuarine Loading Model

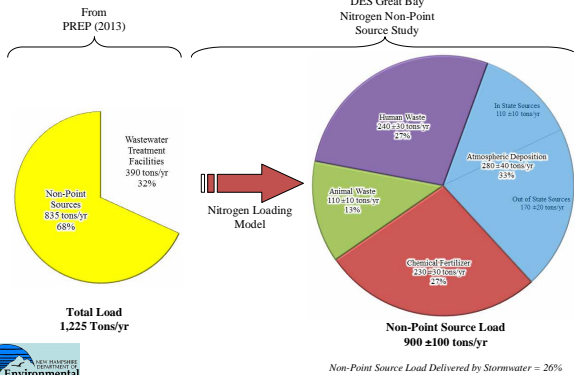


## NLM - Validation

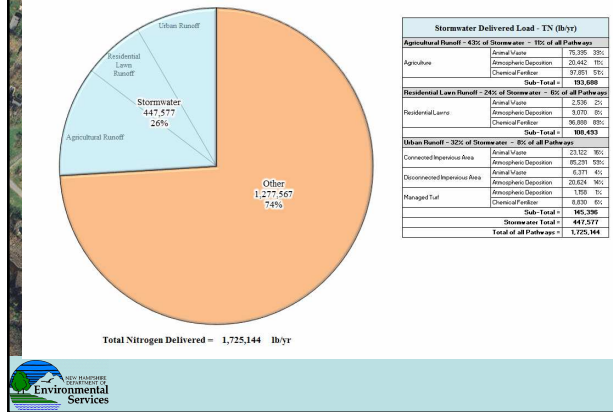
- Results were validated using measured loads from the eight major watersheds
- External QA of model by Valiela



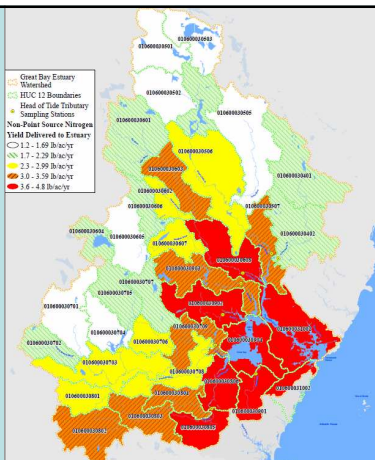
## Summary of Non-Point Source Nitrogen Loads to the Great Bay Estuary



## Non-Point Source Nitrogen Delivered to Estuary Total Load through Stormwater for the Great Bay Estuary Watershed



## Hot Spots




## Summary


- Atmospheric deposition, fertilizer, and human waste contribute equal amounts to non-point source. Animal waste is a small contributor.
- One-quarter of non-point source nitrogen is delivered through stormwater.
- Densely settled areas near the estuary contribute the most non-point source nitrogen.
- Results are available down to the town scale.







## How to Access the Report





The Report, Section V and the Appendices are available at:

<http://des.nh.gov/organization/divisions/water/wmb/coastal/documents/gbnpss-report.pdf>


(or Go To A-Z List and Select "Great Bay Estuary")

Publications

- Great Bay Nitrogen Non-Point Source Study
- Section V – Model Results for Subwatersheds and Municipalities in the Piscataqua Region
- Appendices

## Public Comments



- Accepted through **August 16, 2013**
- Must be in writing and sent to:

Philip Trowbridge  
NH Dept. of Environmental Services  
PO Box 95, 29 Hazen Drive  
Concord, NH 03302

or

[Philip.Trowbridge@des.nh.gov](mailto:Philip.Trowbridge@des.nh.gov)




## Questions on the Results & Discussion



