

Jordan Lake Targeted Watershed Study
Meeting Summary
Meeting #8
June 20, 2007

Attendees: Ruth Swanek, Kathryn Benson, Klaus Albertin, Lucas Sharkey, Julie Henshaw, Bob Dodson, Joe Pearce, Phil Ross, Shari Bryant, Rich Gannon, Jason Robinson, Bob Patterson, Robin Watson, Trish D'Arconte, Linda Holt, Kelly Williams, Sharon Myers, Trish McGuire, Glenn Bowles, Scott Pickard, Cherri Smith, Andy McDaniel, Paul Clark, Deborah Anderson, Mike Templeton, Ed Holland, Deborah Amaral

Meeting Introduction

Ruth Swanek, CH2M HILL

The meeting was opened by Ruth Swanek of CH2M HILL. Ruth provided an overview of the agenda, discussed meeting objectives, and facilitated the introduction of attendees.

Stormwater BMP Overview

Lucas Sharkey, CH2M HILL

Discussions to review methods to:

1. Quantify nutrient reductions
2. Quantify pollutant loadings
3. Establish cost methodology
4. Review examples

Discussion on quantifying nutrient reductions: The BMP manual nutrient reductions are a starting point for quantifying reductions. Communication with Dr. Bill Hunt of North Carolina State University established reduction levels for BMPs not included in the 2007 BMP Manual.

Proximity to the lake makes a difference in credit generation. Implementation of a specific BMP near the lake generates more credits than utilizing the same BMP further upstream in the watershed. Final transport coefficients have not been established. Rich Gannon of DWQ will provide transport coefficients when finalized.

Discussion on treatment train removal efficiency: There are new guidelines in the 2007 BMP Manual related to removal mechanism per BMP. Removal efficiencies are not the same when you place the BMPs in series. Efficiency is reduced with each successive BMP.

Discussion on pollutant loading calculations: The simple method utilizes EMC (event mean concentration) values to determine the pollutant load generated by the proposed land use change. CH2M HILL calculated EMC values by determining site percent imperviousness and applying equations presented in the DENR BMP manual. The 2007

BMP manual suggests using the Upper Neuse Site Evaluation Tool and the Tar Pamlico Export Calculation Worksheet to determine loadings. In the March stakeholder meeting it was shown there is not a significant difference in estimated loads when using the Upper Neuse Site Evaluation Tool, Tar Pamlico Export Calculation worksheet, and the Simple Method equation. Thus, the Simple Method equation will be utilized in the trading examples.

Cost Calculations: The equations from Preliminary Data Summary of Urban Stormwater Best Management Practices, EPA, 1999 with an escalation factor were used in examples. To determine cost per pound, a 20 year life cycle was used with maintenance costs (escalated per year), land costs, and construction costs.

Land costs were presented and discussed. It was agreed that an industrial category for UNH needs to be added, because the commercial land cost in the UNH seems high compared to tracts in RTP. Residential land cost in the Haw looks low, especially when you consider that the closer you get to the water, the more expensive land becomes.

Examples of Stormwater Credit Generation Potential: Examples in the following areas were presented:

1. New Development
2. Existing development
3. NCDOT

Other issues:

Riparian Buffer credit – If there is an existing buffer, this is not creditable. If a non-functioning buffer is restored, that is creditable.

Cistern credit – Cisterns do not have established credits in the DENR 2007 BMP Manual. It was suggested that the impervious surface runoff stored in cisterns can be considered as a credit on a case-by-case basis. UNC Chapel Hill would like to see an example using a cistern as part of the BMP scenario. A complete water balance should be shown, and water stored should be used. Further discussion with Dr. Bill Hunt and Rich Gannon on an approach is required.

Agricultural BMP Overview

Klaus Albertin, CH2M HILL

Cattle fencing, poultry dry stack conversion and land management BMPs were discussed. These examples need to be evaluated further by working with the NRCS, NCSU and DWQ. There have been recent developments with research at NCSU that have decreased the effectiveness of buffers to 50% for 50 foot and 65% for 100 foot buffers. There is also software available for all but three counties in the Jordan Lake watershed to refine nutrient loading calculations.

Julie Henshaw will provide information that will be useful in evaluating agricultural practices. Phil Ross will also provide additional details to confirm the nutrient load

reductions and cost calculations for agricultural practices. Further discussion with the agriculture break out group and Rich Gannon of DWQ will occur to confirm assumptions on examples. Rich Gannon noted that in the Tar-Pamlico river basin, credit for conservation tillage is given in certain circumstances, such as corn only crops.

The stakeholders suggested that converting cropland to grass (converted to forest in example presented) should be examined. The stakeholders also suggested that strip cropping, contour terraces, and grassed waterways be considered as management practices.

The definition of how the agriculture rule will be applied needs to be determined. From Rich Gannon's perspective credit generation for phosphorous seems unlikely due to variability. The design of the agriculture rule is structured as an aggregate that is applied at the watershed or county basis. Clarification on when a credit is generated (watershed, county, individual) is needed. Once a county or watershed area meets its goal, any additional BMPs would be eligible as a credit. If an individual producer meets the goal and goes above minimum BMPs outlined in the rule, then this may be eligible.

Point Source Overview

Klaus Albertin, CH2M HILL

Point source loading graphs of the projected loading with and without an upgrade were presented. Pilot participants agreed to look over the nutrient projection spreadsheets and see if they agree with the way the data productions were calculated. Costs from the fiscal note were presented; the costs per facility upgrade need to be developed to determine credits on unit cost basis.

Caution in examining available credits is recommended because the plants do not operate the same every day and there needs to be flexibility when considering credits. The point sources may wish to keep a certain number of credits to ensure compliance with their NPDES permits. DWQ indicated that it reviews the Neuse River trading permits annually, and a similar process could be used in Jordan Lake. If major permit modifications are required they are subject to a public participation process. The trading implementation framework needs to consider this issue.

Trading Assumptions and Analysis

Ruth Swanek, CH2M HILL

It was emphasized that trading is voluntary. A preliminary comparative cost estimate was reviewed.

BMPs could be installed at the outlet of a catchment or subwatershed that includes land in more than one political jurisdiction. If one local government paid for the BMP, would that local government get credit for the entire load removed or would they be required to sell a portion of the load reduction to the other local government? This question was discussed, and the local government stakeholders indicated that they would likely work cooperatively to install the BMP.

This issue could also impact government agencies such as NCDOT and UNC-Chapel Hill. In this case, NCDOT or the University could install a BMP that would treat runoff from a local government. Further discussion with DWQ will occur. One way to address this issue may be through Partnerships formed when developing BMPs.

NCDOT is also reviewing whether it can legally trade nutrient credits with a local government. The issue of who can claim credit for new development BMPs that go beyond state minimum requirements needs clarification.

Other BMPs to investigate are the credits generated from stream and wetland restorations performed in jurisdictional boundaries.

Next Steps and Schedule

Ruth Swanek, CH2M HILL

- Draft Technical Memoranda
 - Baseline Analysis
 - Monitoring
 - BMP Effectiveness
 - Cost Analysis
- Finalize Assumptions for Trading Analysis
 - Loads and Reductions
 - Costs
- Evaluate Trading Feasibility
 - Relative cost effectiveness comparison
 - Capacity (demand vs. supply as far as mass)
- Evaluate possible implementation mechanisms
- Future meetings will occur on Tuesdays or Thursdays
- Mini-meetings: July – September (if necessary)
- Full group meetings: September time frame