Nutrient Scientific Advisory Board Meeting #29 Minutes

Friday, August 2, 2013
Durham Water Reclamation Facility- 1900 E. Club Blvd, Durham, NC 27704
9:30 am -12:00 pm

Attendees
Members: John Cox (& Michelle Woolfolk, alt), Trish D'Arconte, Andy McDaniel (& Brian Jacobson, alt), Bill Hunt, Josh Johnson, Grady McCallie, Forrest Westall, Larry Band

Non-Members: Andy Sachs (facilitator), Jason Robinson (DWR), Rich Gannon (DWR), John Huisman (DWR), Adugna Kebede (DWR), Heather Benson(TJCCOG), Trevor Clements & John Butcher (TetraTech), Haywood Phthisic (LNBA), Melinda Clark & Steve Bristow (Wake), Tom Davis (Orange Co), Sally Hoyt (UNC), Peter Raabe & Szu Ying Chen (American Rivers); Frank Park (Guilford Co); Robert Patterson (Morrisville)

Agenda Topics
- Update on Legislation
- Jordan Watershed Model Update
- 205j Projects Update (Measures Report & Accounting Tool)
- UNRBA MOA Update
- Existing Development Model Program Update

Materials
- August Meeting Plan
- Minutes from 205 Measures Subcommittee – 6/24/13
- Minutes from 205j Accounting Tool Subcommittee – 6/24/13

Update on Legislation
Jason Robinson briefly summarized three session laws that were recently approved by the General Assembly that affect the Jordan Lake and the Jordan Rules, and the make-up of the Environmental Management Commission:
- Session Law 2013-395 introduced a three-year delay to implementation that has not already occurred on the Jordan Rules. Although an official interpretation of this bill has not been verified, this specifically could delay the implementation dates of nitrogen compliance under the wastewater rule, local implementation under the new development stormwater rule, and stage 2 of the existing development stormwater rule. DWR explained that despite the delay, staff will proceed with implementation number of things, including refinements to the Jordan existing development model program. Also, since state and federal entities already had to begin implementing their new development requirements, they will be required to continue implementing these.
- Session Law 2013-360 sets up a 24-month demonstration project in Jordan lake that will involve the deployment of floating in-lake, long-distance circulators with objectives of improving water quality and reducing harmful algal blooms.
- The third bill describes changes to the membership of the Environmental Management Commission.

- Mr. Westall expressed concerns over H74 (SL 2013-413), which requires periodic review of all rules, since the UNRBA is committed to and spending local funds on rule implementation. The UNRBA has sent these concerns to the DENR's Secretary, recommending exemption of the Falls rules from RRC review.
- A bill that discusses built-upon-area was brought up, and a member explained that the bill called for an ongoing study, so the outcome is unclear.

Jordan Watershed Model Update

Trevor Clements and Jon Butcher of TetraTech gave an update on the ongoing Jordan watershed model that is being developed to estimate existing development nutrient allocations for affected parties in the Jordan Lake watershed. *[Note: TetraTech's PowerPoint presentation can be found under the "Meetings" section of TJCOG's Jordan Jurisdictional Allocation Model Development webpage located here: http://www.tjcog.org/jordan-jurisdictional-allocation-model-development.aspx.]* The following questions and comments were brought up by Board members during and after the presentation. Some of these questions and comments were followed up with a response.

- Is fertilizer application specifically accounted for?
    - No, LSPC does not explicitly account for fertilizer application. It uses build-up and wash-off rates.
- How are malfunctioning septic systems accounted for, and fully failing systems versus partially failing systems?
    - Counties were asked for this information, but very little was submitted. Assumptions had to be made. Started with Chesapeake's, refined for Jordan.
- The model overestimates stream N loads where flow is point source-dominated, like UNH.
- There was not sufficient data to explicitly simulate sanitary sewer overflows in the model; they need to be addressed in some other way.
- TetraTech identified potential improvements for future:
    - More precipitation stations;
    - More sophisticated reservoir simulation beyond OASIS, e.g. capturing water transfers;
    - Improved data basis for onsite failure and functioning system attenuation rates.
- Why wasn't local government precipitation monitoring data used?
    - All years are not available, and there are budget constraints in the project for collecting and using all available monitoring data. But overall the data that was used seemed to be representative.
- Was load calibrated at intermediate stations?
    - Intermediate stations they did point-by-point comparisons for days that N and P were sampled;
    - Lower stations they did LOADEST-based continuous simulation and total load estimates and calibrated against those.
- Calibration time period?
    - Hydrology to baseline, water quality to mix of baseline and 2010 to make more robust, mixing across stations.
- On the nutrient slides, it appears that phosphorus load is under predicted while nitrogen is over-predicted at high flow. Is this just a relic of hydrology?

    - This is probably a reflection of hydrology during tropical storms. Flow-matching is improved over previous modeling at high flow, so appears to be a concentration assignment issue that's beyond the current model's capabilities.
- Can you generate error bars on monthly load estimates and jurisdictional loads?
    - It's more important to be unbiased in error vs. having tight ranges.
    - Can't really know uncertainty on jurisdictional estimates since don't know 'actual' loads.
- Percent error is only somewhat useful, the errors would be better presented in absolute numbers, since the numbers are so low and small differences sometimes result in large percent errors.
    - Agreed, will revise.
- What is meant by the term "corroboration"?
    - It's being used in place of "validation", because validation means that is proving something is true, which isn't an accurate description of this process where the truth isn't known. "Corroboration" better describes the process.
- How was slope treated in the model?
    - While slope is used in some models, slope is minor in this watershed and therefore was incorporated into the separate HRUs, but was incorporated less directly through the soil types and by calculating DERs.
- Land cover dates?
    - Baseline is mix of 1999 through 2002, later period is 2010. Step change introduces some uncertainty especially to small jurisdictions with lots of development.
- There should be a lower jurisdiction size limit, for which municipalities that fall below it will not use the estimates provided by the watershed model.
    - There was a lot of discussion about this, and some members did not agree with this interpretation.
    - TetraTech made the point that load uncertainty and error is for all land uses together, but they have greater confidence in the urban load estimates based on the build-up/wash-off simulation design, and urban is what matters most to this project.
- Subcommittee members stated their agreement to move forward in using the model to estimate the allocations of affected parties.

Upper Neuse River Basin Association (UNRBA) Memorandum of Agreement

Forrest Westall, Executive Director of the UNRBA gave a brief summary of their MOA with DENR for a project that will investigate nutrient load-reducing measures and develop nutrient credit accounting for them. This is separate from and an addition to the ongoing 205J measures project. The UNRBA board met in March and authorized the MOA. DENR has agreed to contribute $50k to the project and UNRBA is still working on determining the funding they will provide. Selection of the measures is still ongoing, and discussions still need to take place regarding the approval tier being sought re. the tiered approval process that is described in DWR's draft model program. CardnoEntrix, the contractor selected to do the project, is estimating that the project will take one year. Sixty measures are currently being looked at, but this number will be narrowed down. The products should be able to be used universally after they go through the approval process.

Existing Development Model Program

Rich Gannon gave an update on DWQ's Jordan/Falls Existing development Model Program. Public meetings were held and many good comments were received at the meetings and afterward. Revisions were made in response to comments. Many were made to the feasibility assessment section, in particular requiring this to be more specific for early implementation years and less specific in out years. Staff took the product to the July EMC, which returned it for further work as recommended by staff, mainly expanding the toolbox of measures.

Follow-up actions: DWQ intends to take the measures approval process that was included as an appendix out to public comment, revise and seek its approval by the Director. The model program still has a lot of areas that need to be further fleshed out. The ongoing 205J project will help expand the toolbox for load-reducing measures, as will the UNRBA project that was discussed early. A trading framework needs to be developed and described in the model program. The scoping level cost-effectiveness estimates for BMPs need to be refined over the next 24 months, particularly narrowing the ranges.

Future Meeting Dates

- Unless specifically rescheduled, the first Friday of each month, 9:30 – 12:00 at TJCOG.
- September 6th at Durham Water Reclamation Facility