NC Nutrient Scientific Advisory Board Meeting Summary

December 3, 2021 / 9:30 am – 12:00 pm
Remote WEB Meeting

ATTENDEES

Members / Advisors
Charles Brown – Cary
Mike Burchell - NCSU
Alisha Goldstein – Chapel Hill
Sally Hoyt – UNC
Bill Hunt - NCSU
Brian Jacobson - AECOM
Josh Johnson – AWCK
Eric Julz - Cary
J.V. Loperfido – Durham
Andy McDaniel - DOT
David Phlegar – Greensboro
Haywood Phthisic – LNBA
Peter Raabe – American Rivers
Allison Schwarz Weakley - Chapel Hill
Forrest Westall – UNRBA
Sandra Wilbur – Durham

DEQ Staff
Patrick Beggs - DWR
Trish D'Arconte – DWR
Nora Deamer - DWR
Jim Farkas - DEMLR
Rich Gannon – DWR
Jim Hawhee - DWR
Joey Hester - DWR
John Huisman – DWR
Kelsey Rowland - DWR

Guests
Anne Coan - NC Farm Bureau Federation
Kathryn Cooper - Raleigh
Alexandra Dinwiddie – NC DSWC
Jacob Dorman - Stormwater Solutions
Sujit Ekka - AECOM
Barrett Jenkins – Restoration Systems
Keith Larick - NC Farm Bureau Federation
Annette Lucas – McAdams Co
Alix Matos - Brown and Caldwell
Chris Millis
Don O'Toole - Durham
Sushama Pradham – NC DHHS
Ashley Rodgers – Wake County
Kirstin Szogas - AECOM
Jamie Smedso – UNC-CH
Rahn Sutton - Contech
Daniel Wiebke – McAdams Co
Sarah Waickowski – NCSU

TJCOG Staff
Maya Cough-Schulze

AGENDA TOPICS

1. Approve December 3, 2021 Meeting Summary
2. Status Update on Falls Lake: Stage I Alternative Implementation and Stage II Re-examination – UNRBA, Forest Westall, Alix Matos
3. SNAP 4.2 and SCM Credit Document revisions: Reviewer Comments & Further Discussion – Trish D'Arconte, DWR
4. JLOW Update – Peter Raabe, American Rivers
5. Jordan rules update – Patrick Beggs, DWR
6. NSAB Updates/Round robin

Meeting Materials and the NSAB Charter are available online: www.deq.nc.gov/nps

MEETING SUMMARY

Patrick Beggs (DWR) opened the meeting with introductions and a review of the agenda.

The September 3, 2021 meeting summary was approved.

Status Update on Falls Lake: Stage I Alternative Implementation and Stage II Re-examination

Presenter: UNRBA - Forest Westall - UNRBA, Alix Matos - Brown and Caldwell

A summary of highlights follows. Complete slides and video recording can be found online.

Forrest Westall

Background/Context:

- Regulated Sectors have made progress toward implementing Falls Lake Stage I Rules. New Development requirements were implemented beginning in mid-2012
- WWTPs have reduced loading beyond the requirements in the rules, providing temporary nutrient credits
- Existing development has had more obstacles; some local governments in the watershed, including Durham and Hillsborough, have installed retrofits.
- The WWTP load reductions that have already been achieved are many times greater than the load reduction requirements for existing development

Stage I Existing Development Interim Alternative Implementation Approach (IAIA)

- The IAIA is a program recognized by the EMC-approved Falls Lake Stage I Existing Development Model Program. Participants can choose to implement this collaborative approach instead of by developing individual local programs.
- Based on required investment levels in approved water quality improvement projects/practices rather than counting pounds, this approach makes sense for local governments; known levels of investment requirements are easier to plan for and get approved in annual budgets
- Participants must report annually to DWR/DEQ about projects they undertake and the investments expended
- Eligible projects represent an expanded the list of actions/practices but includes currently approved nutrient reducing practices in NC; see presentation for full list of category types. Examples of new projects:
    - Person County allocated a county-owned parcel to land conservation and passive recreational activity rather than selling the land or harvesting the timber
    - Orange County identified a potential investment credit from their support of the Hydrilla Eradication project—this is under review by DWR

Status update for Stage II Rules reexamination

- Requires 40% N reduction, 77% P reduction from baseline year (2006) across existing development, WWTPs, agriculture, DOT (project development each year is required) and other State and Federal facilities – analysis of these levels of reduction shows it is not technically feasible or financially viable
    - Technology limits
    - Built-out areas not possible to retrofit
    - Legal restrictions
    - Cost estimates >1 billion
    - Falls Lake's shallow depth makes it prone to algal growth
- Watershed is currently 60% forested. Agriculture continues to decrease, and development will continue to increase (noting that new development rules are being implemented)
- UNRBA has monitored for 4 years (at a cost of $3.5 million) to support updated model development
- Coordination with UNC Collaboratory studies, data-sharing, and third-party review of the models

Looking to the Future: Recommendations for Management of Existing Development in the Revised Rules

- Potential application of an investment approach as the long-term program for mitigating impacts from ED
- Potential cooperation between different categories of land use within the watershed
- Using cost or BMP installation as a compliance tracking approach (Stage I ED IAIA should be considered as a "pilot" program for this approach)
- Perhaps with some limitations on different types of investment projects
- Will need to include ways of projecting water quality benefits using this approach
- Ultimately, the tracking of water quality changes and documentation of maintaining and improving lake quality will be key components of such an approach

<u>Alix Matos</u>

Watershed Modeling Effort Stage II Reexamination

- UNRBA WARMF model using as much local data as possible
- Meteorology data including NEXRAD (weather radar) precipitation data from State Climate Office (78 stations), many other sources
- USGS gages
- Land use data integrating national and state sources
- Soil data from USDA
- Sources of Loading
    - Atmospheric deposition
    - Included data from major and minor wastewater dischargers, sanitary sewer overflows, discharging sand filters, land application of nutrients to agriculture and developed areas

- Modeled impact of impoundments including Little River and Lake Michie reservoirs, etc.
- Model largely performed well for gaged streamflow stations and water quality – best for total nutrients (detail on performance ranking in modeling QAPP)
- Precipitation drives variability of loading from year to year. Modeling years: 2015-2018 had average to high rainfall; much more rain in 2018 with 2017 being the driest
- Subject Matter Experts (SME) are currently reviewing model source load allocations
- Watershed model outputs are being used as input for lake models.
- Scenario Screening Workgroup will recommend which scenarios to evaluate with the models; these will be assessed using cost-benefit data and to inform development of recommendations for a revised nutrient management strategy and to support technical justification for a petition to establish site-specific chlorophyll-a standard

Additional Information

- Comprehensive website -https://www.unrba.org/
- General information website -https://upperneuse.org/
- Reference documents
- UNRBA Infographic
- UNRBA Fast Facts
- Overview of the Work of the UNRBA
- Comprehensive UNRBA Monitoring Data Report
- UNC Collaboratory Falls Lake Study website -https://nutrients.web.unc.edu/resources/
- Forrest R. Westall, Sr. - UNRBA Executive Director - forrest.westall@unrba.org
- Alix Matos – UNRBA Consultant Project Manager - amatos@brwncald.com

Discussion and Questions:

Discussion and Questions:

- Andy McDaniel: Retrofitting in the Falls Lake watershed is challenging. DOT will be opening bids on first subsurface gravel wetland next week. Engineers' estimate is over $300,000 and there aren't many opportunities to implement these. Because of this, we are putting together a nature-based stormwater solutions document. Between I-85 and Club Blvd, DOT owns two remnant preserves adjacent to Beaver Marsh preserve owned by ECWA. Donating these properties would make sense financially.
- Forrest: IAIA approves and DWR concurs with land conservation as an approved investment practice, but a state-approved nutrient credit has not been established.
- Andy: Can this be creditable under ED rules?
- John Huisman: We can talk about it. Part of the driver of IAIA was trying to determine a lb credit for land conservation.
- Don O'Toole: When will it be ironed out? This conversation has been going on for years now.
- Peter Raabe: The problem is that land conservation does not reduce existing nutrient inputs it only avoids future contributions from the land once it would be developed. The rule and the law is not set up to include that sort of great work. That is why the IAIA is so

important and without that sort of alternate approach it is close to impossible to 'iron out' this 'nutrient reduction credit.'

- Andy: These lands will go up for public auction if not conserved.
- Mike Burchell: Could flow be diverted into some of these lands to get additional treatment of runoff? Also, could DOT do some of these projects in-house in order to reduce costs?
- Forrest: Durham has routed water into different treatment areas
- Andy: There 3700 DOT remnant properties across the state. It would be a huge win-win if local governments could help maintain the stormwater practices if DOT installed them on these properties.
- John/Rich: You've talked about the current nutrient management strategies putting everyone in silos and pitting them against each other. Can you share some alternative vision about how to get away from this model? (Re: trading, working together)
- Forrest: The devil is in the details. This would require a different kind of format and organization than we have currently. Right now, with agriculture having its own reduction requirements, there is an incentive for them not to 'give up' credits to offset existing development impacts. There may be opportunities for sharing funds like how Andy mentions.
- John/Rich: How do you envision using the watershed model? ie, for jurisdictional loads and delivery factors?
- Alix: We have tried to set up catchment boundaries so that we could understand loads at a county level and geological basin level. I can talk to colleagues about your specific questions. One of the main purposes is to develop the lake water quality models so that we understand how actions within the watershed (or lake) affect water quality, specifically chlorophyll a, in the lake.
- John/Rich: Can you share more about what UNRBA is doing to develop a petition for a site-specific standard?
- Alix: Jay Sauber is collecting information from other states, and the statistical model will predict chlorophyll a concentrations in the lake and impacts to designated uses; evaluating these outputs will inform development of the site-specific chlorophyll-a criteria.
- Forrest: We are also soliciting non-quantitative info from lake users

SNAP 4.2 and SCM Credit Document revisions: Reviewer Comments & Further Discussion

Presenter: Trish D'Arconte, DWR

Slides and video recording can be found online.

Revising SNAP tool for New Neuse and Tar-Pam Stormwater Rules

- Data for new SCM types is going into the NEST program and revising how nutrient EMCs are calculated

- Trish would love your help integrating existing BUA and offsite run-on! Email her: trish.darconte@ncdenrgov

SCM Credit Document revision

- Documenting percent reduction values, event mean concentration (EMC) method better
- EMC influent concentrations were sometimes much lower than SNAP land cover values – wanted to ensure data quality
- Clarifying what data we need to collect about SCMs before submitting to DWR for approval as primary SCM
- More to be done to coordinate between DEMLR and DWR terms
- Need to ensure consistence between proprietary and non proprietary practices: number of studies, performance over time
- Example of issue: Hard to communicate hydrologic fate of inflow, effluent and ET&I of bioretention per MDC (doesn't add to 100% because percents of percents)
    - Sally: Any downside to making it add up to 100%?
    - Trish: Only for under- or over-sized
    - Sally/Bill: Make it add up to 100% for table, then have example for under or over-sized
- What to do with approved SCMs that have insufficient data? (floating wetland islands, green roofs and disconnected impervious surface)
    - Trish: No green roofs follow MDC.
    - Bill: All in NC have had a lot more organic matter so have shed N and P.
    - Sally: I think we need to include these practices because these are not proprietary, they are generally accepted GSI practices.
- Trish: We have one proprietary practice approved that doesn't have enough data either.
    - Sandi: Will these be allowed to be used for new development before we have enough data? We have been conservative about including anything we don't have data for in past. I lean toward allowing them, knowing it will be short-term – the numbers will be adjusted when we have more data.
    - Sally: It seems like the limited data will give us less benefit than the current data, so there's no downside to using it now.
- Should we require more studies for new, non-proprietary SCMs? (4 vs 2.)
    - Sally: Will most non-proprietary practices be variants of existing SCMs? It seems strange to me that we would treat non-proprietary practices more stringently than proprietary.
    - Bill: 2 studies for proprietary systems was a political decision. 4 studies would be better.
    - Alix: It seems like a statistical evaluation of just 2 studies would be helpful. If they are similar, maybe two is enough; if they are very different, maybe more are needed. Or if you only have 2 studies, you could require use of the max result until 3 or 4 studies are conducted.
    - Josh Johnson: What kind of design differences?
    - Trish: I have not been sent designs from those who have submitted ideas (such as wetland or infiltration possible hybrids?)

Trish wants to bring the final draft SCM credit document for NSAB review in early 2022, then review updated SCM performance data, and then a final review of SNAP 4.2 in Spring.

JLOW Update

Peter Raabe, American Rivers – JLOW Advisory Committee

- IAIA is testing ground for JLOW; which will involve more stakeholders and much greater acreage!
- Plan to form an organization in first half of 2022– voluntary actions aren't as powerful as actually having money in the game; will be a membership organization.
- Jordan Lake Rules are primary focus but not the only focus of JLOW work.
- Recent meet-and-greet with top-level officials at DEQ including Secretary Biser to inform them what JLOW is and does.

Jordan rules update

Timeline:

- 2021-2022 Model Revision and Review
- 2022 Rule Concepts Development and Review
- 2022-2023 Draft Rule Development and Review
- 2023 Rules Impact Analysis Development
- 2024 Hearings / Approval / Adoption

Questions

Eric Kulz: Will the schedule include the revision/updating of the Jordan Lake Buffer Rule?

Patrick: All the rules will start at the same time but the buffer rule will go on its own timeline and the 401 buffer permitting branch will help lead that. (Paul Wojoski and Sue Homewood)

NSAB Updates/Round robin

Peter Raabe: Allocations from infrastructure bill will award $200 million to NC SRF (both grants and loans for water infrastructure) – everyone should look this up!

JV Loperfido: Durham has finished a street sweeping study – N and P content at different times of year, metals compared with Charlotte data, and cost comparison (street sweeping is comparable to many BMPs re: cost/lb). Contact JV for the study: john.loperfido@durhamnc.gov

Bill Hunt: Have collected data on sand filters; [.]

Joey Hester, DWR: Buffer restoration nutrient offset credit is being revised; currently in internal review.

Patrick Beggs, DWR:

- No January NSAB
- Potential plan for February NSAB.
    - Mike Burchell to present on constructed wetlands for wastewater.
    - Bill Hunt will present a sandfilter research update. this at Feb 4 NSAB.
    - Trish may present updated SCM performance data, but may hold off till March.

The NSAB will meet February 4, 2022.