

Path Forward Committee Meeting May 13, 2019



Agenda

- Opening comments
- Modeling and regulatory support status
- Monitoring program status
- Ongoing DEQ discussion/issues
- Coordination with the UNC Collaboratory
- Discuss optional Falls Lake implementation approach

Modeling and Regulatory Support Status

Summary of Decisions from the March MRSW Meeting

Availability of Data to Support Sub-daily Model Time Steps

- Modeling team has discussed the availability of NEXRAD radar precipitation data with the State Climate Office (SCO)
 - SCO prefers to provide data at 6-hr intervals or higher
 - They quality assure (QA) 6-hr increments and daily datasets
 - Hourly data is not QA'd by the SCO
 - Difficult to keep up with hourly data as it comes in
 - Prefer not to distributed data that has not QA'd

Model Time Step

MRSW Discussion and Decision

- MRSW Comments:
 - Prefer to keep QA of external datasets with originating agencies to reduce further scrutiny of UNRBA work
 - Hourly inputs for everything would not be available (e.g., impoundment releases) so having hourly precipitation and hourly time step may not be beneficial
 - Cost and schedule implications of developing and working with hourly precipitation data and hourly time step are prohibitive
 - 6-hr or 12-hr time step is preferable to daily
- MRSW Decision:
 - Move forward with a 6-hr model time step and request NEXRAD data in 6-hr increments

Preliminary Catchment Delineations and Discussion of Further Delineation

- Preliminary delineations addressed
 - Hydrology / stream network
 - Soil type
 - Impoundments
 - UNRBA monitoring stations
 - City of Durham revised modeling catchments
- Discussed additional delineations at
 - County boundaries
 - Municipal boundaries

Catchment Delineation

MRSW Discussion and Decision

- MRSW Comments
 - Delineating at municipal boundaries generates too many small and disjointed areas, and these boundaries change every year
 - Post processing is required regardless; prefer a simplified and transparent post processing step
 - Some further delineation at county lines (above a reasonable threshold would be beneficial); but not every subwatershed and county line
- MRSW Decision
 - Delineate at a county line if the line cross the major reach flow path, the subwatershed is relatively large, and the county line would cause at least a 60/40 split
 - Document decision process
 - Post process model output to develop jurisdictional loads

Simulating Best Management Practices

- Simulating each individual BMP is challenging
 - Staggered implementation within each model period
 - Design goals vary and may not be tracked in available database (volume, water quality, other)
 - Level of function may be not tracked and would be difficult to model on an individual basis
- Simulating BMP scenarios or regional-scale BMPs is more efficient
- Accounting for differences in “existing” and “new” development can account for BMPs indirectly and allow flexibility for building implementation scenarios

BMP/Land Use

MRSW Discussion and Decision

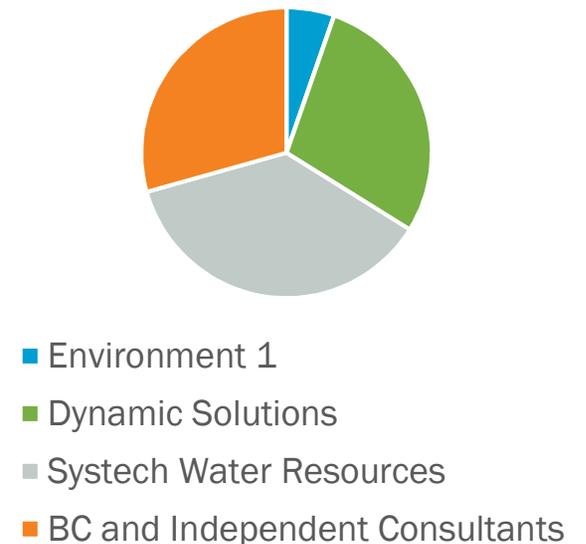
- **MRSW Discussion**
 - Simulating every BMP is not technically feasible, nor would many of the jurisdictions have the supporting data
 - Beyond just existing development (ED) and new development (ND), need to account for water supply overlay rules and Neuse TMDL requirements; consider how to account for buy downs as well if in upper Neuse basin
 - City of Durham SWMM models incorporate some differences based on rule implementation
 - Need to be able to account for BMP retrofits associated with ED
- **MRSW Decision**
 - Use the 3 USGS land use datasets to assign ED and ND
 - Use the nutrient application rates and hydrologic parameters for ED and ND, which can vary by catchment, to account for implementation of rules over time

Overview of the FY2020 Re-examination Scope of Work

FY2020 Anticipated Budget for the Re-examination

- Combine the transitional monitoring program, modeling, and regulatory support in a single contract
- Anticipated budget is \$740K to \$750K

UNRBA Monitoring, Modeling, and Regulatory Support



Proposed FY2020 Scope of Work for the Re-examination to be Reviewed by the MRSW

- Continue the transitional monitoring program to collect data for future needs (adaptive management)
- Calibrate and validate mechanistic models for stream flows and lake levels
 - WARMF watershed
 - EFDC lake
- Continue with statistical analyses to support the mechanistic models and explore relationships for the empirical modeling
- Continue stakeholder engagement and support communications
- Work with the UNC Collaboratory on prioritizing studies in future years

Monitoring Program Status

Status of the Final UNRBA Monitoring Report for Supporting Re-Examination of the Falls Lake Nutrient Strategy

- Preliminary draft has been reviewed by Subject Matter Experts and Executive Director
- Includes expanded discussion and analyses
 - Evaluate trends and indications from data
 - Compare recent inlake concentrations to historic conditions (after lake filling) and baseline period
 - Compare recent tributary loading to the lake to historic and baseline periods

UNRBA Review Schedule

- Draft will be delivered to the PFC May 24th
- Webinar discussion June 5th or 6th to address comments (if requested by the PFC)
- Presentation and additional discussion at the June 10th PFC meeting
- Presentation to the Board on June 19th

Ongoing DEQ Discussion/Issues

Ongoing DEQ Discussion

- Clean Water Act 305(b) and 303(d) evaluation of Falls Lake
- Memorandum of Understanding / Agreement
- Land conservation credit
- Revision of the chlorophyll-a water quality standard

Coordination with the UNC Collaboratory

Coordination with the UNC Collaboratory

- Collaboratory has finished studying Jordan Lake
- Planning their first set of studies on Falls Lake (July 2019)
- They have invited UNRBA input on beneficial studies for the Falls Lake modeling and re-examination
 - Year 1 to focus on research oriented studies
 - Provide key inputs for development and calibration of watershed and lake models
- Meeting on May 16th to discuss a potential list of studies
- Prior to future years, we will take a broader look at additional studies
 - Coordinate with MRSW and PFC
 - Develop a planning process with the Collaboratory

Potential List of Studies

- Collaboratory consultation and model review
- Characterization of septic density in the Falls Lake Watershed
- Understanding phytoplankton shade adaptation
- Evaluation of different methods for water quality analyses
- Falls Lake evaluation of current toxic algae referenced to regulatory and advisory thresholds
- Understanding the relationship between increased tributary flows and sources of elevated chlorophyll-a concentrations
- Evaluation of nitrification/denitrification and nitrogen fixing algae in Falls Lake

Input from the PFC

- Today we are looking for input from the PFC on the potential list of studies for Year 1.
 - Is the PFC comfortable with this list of studies?
 - Any changes to language or focus?

Optional Falls Lake Implementation Approach

Background

- In February, a workgroup of PFC members began comparing calculation methods and assumptions regarding Stage I existing development load reduction requirements (i.e., jurisdictional loads)
- Comparison of the various methods and review of the Falls Lake Rules indicated several challenges and uncertainties for implementing the Stage I existing development requirements
- The Work group began considering an alternative framework
 - Provide a bridge to the completion of the re-examination
 - Serve as a pilot study for the re-examination implementation approach

Objectives of Alternative Falls Lake Implementation Approach

- Implement projects in the watershed to improve water quality while the re-examination process unfolds
- Include participation by all UNRBA local governments
 - Some local governments have pre-existing plans for water quality improvement projects and practices
 - Some have set aside funds but not begun implementation
- Demonstrate commitment of the UNRBA to a reasonable, fair, and equitable management strategy

Summary of Potential Core Principles

- Minimum funding levels should be fair and equitable
 - Individual members may continue to fund their own projects at greater levels accumulating additional project credit
- Promote coordination and cooperation with other regulated entities (e.g., agriculture, DOT, other state/federal agencies)
- Local government participation with the UNRBA may need to be a requirement to qualify for inclusion under this program
- UNRBA member consensus is necessary to proceed with development of the optional approach
 - Will also need to coordinate with elected officials, regulators, legislators, and stakeholders

Summary of Potential Core Principles

- Focus on investment levels rather than counting pounds of nutrients
 - Continue to track pounds for future reference
 - Track lake water quality during optional program implementation
- Include existing list of approved practices and expand this list to cover other approaches (e.g., land conservation)
- Activities implemented under this framework would count toward the revised re-examination approach
- Project prioritization would consider capital and long-term maintenance costs, location with respect to hot spots, and site opportunities
- Coordinate with DEQ on MS4 permit requirements / Falls Lake implementation (pending timing)



Implementation Considerations

Potential Eligible Practices

- Stormwater control measures
- Stream restoration
- Urban stream buffers
- Programmatic measures
- Infrastructure improvements
- Illicit discharge detection and elimination
 - Reduction of sanitary sewer overflows
 - Leaky infrastructure
- Land conservation
- Grant funded projects

- Need a commitment from DEQ to get all of these practices approved
- Should certain types of practices be limited in the amount that is eligible?

Project Prioritization

- Joint compliance should consider a joint selection process that reflects
 - Effectiveness in terms of nutrient reductions
 - Funding mechanisms
 - Opportunities
 - Public acceptance
- Decision framework generally aimed at maximizing water quality benefits, promoting development of locally supported projects, and quantifying ancillary benefits (to be determined)
 - Multi-benefit projects could be prioritized because of greater ecosystem benefits, or
 - Weighing a portion of a project's costs for the nutrient benefits relative to the total cost of a project (e.g., flood mitigation projects)

Tracking Considerations

- Account for all new projects implemented under this program
 - Simplifies tracking for this interim period
 - Counts funds set aside for eligible practices moving forward
 - Ensures implementation progress across the watershed
- Local governments will continue to track projects and reductions relative to 2006 for future data needs

Logistic Considerations for Establishing an Optional Implementation Approach

- Determining best regulatory vehicle
 - Under Rules
 - New legislation
 - Bubble permit
 - Interlocal agreements
- Ensuring participation
 - Drivers
 - Expectations
 - Schedules
 - Penalties (e.g., not participating results in falling under the current rules)

- What information needs to be compiled to inform the decision on the best vehicle?
- What are the options for managing the program and how do they vary based on the vehicle selected?
- How do other groups evaluate member participation?

Political/Relationship Questions and Concerns

- Buy in from member governments / elected officials
- Local soil and water conservation districts
- Coordination with legislators
- Buy in from environmental /conservation groups
- Support from DEQ / executive branch
- EPA / congressional representatives
- Other state agencies (e.g., DOT, Dept. of Agriculture)
- Agricultural representatives (Farm Bureau, WOC, etc.)
- Other stakeholders

- If UNRBA decides to move forward, what communication materials are needed for these groups?
- Who should develop these?
- When is the appropriate time for scheduling meetings with each group?
- On what topics would the UNRBA seek input from external stakeholders?



Examples of Minimum Funding Levels

Example Minimum Funding Levels

- The workgroup requested evaluation of fair and equitable methods to set the minimum funding levels for the group
 - Individual members may exceed these levels based on current plans
- These examples are for illustration purposes only and do not reflect a commitment of funding by the local governments

Example Minimum Funding Levels

- Three funding allocation methods were evaluated

Method	Percent Water Supply	Percent Impervious Area	Percent Total Area	Equal Distribution
Existing UNRBA fee structure	50	0	40	10
Include impervious area in fee structure: Option 1	50	25	25	0
Include impervious area in fee structure: Option 2	50	30	20	0

- USGS impervious cover data for 2011 were used to evaluate options that include impervious area in the calculation of fee allocations.

Example Allocation Percentages

Member	Impervious Area (ac)	Existing Fee Structure	Impervious Option 1	Impervious Option 2
Butner	3,038	1.5	1.5	1.6
Creedmoor	1,030	1.1	0.5	0.6
Durham	21,761	22.2	28.0	29.2
Durham Co.	11,022	9.0	8.9	8.6
Franklin Co.	1,041	1.2	0.6	0.6
Granville Co.	4,843	6.8	5.3	4.9
Hillsborough	2,031	2.2	2.0	2.1
Orange Co.	11,162	11.0	10.1	9.6
Person Co.	4,920	7.7	5.9	5.4
Raleigh	667	30.5	30.1	30.1
SGWASA	Not applicable	0.0	0.0	0.0
Wake Co.	10,403	6.0	6.8	6.9
Wake Forest	524	0.9	0.2	0.3
Total	72,441	100	100	100

Example Allocations if Total = \$1 million per year

Member	Impervious Area (ac)	Existing Fee Structure	Impervious Option 1	Impervious Option 2
Butner	3,038	\$15,228	\$15,047	\$16,256
Creedmoor	1,030	\$10,898	\$5,384	\$5,738
Durham	21,761	\$223,397	\$280,038	\$291,884
Durham Co.	11,022	\$88,819	\$88,514	\$86,115
Franklin Co.	1,041	\$12,325	\$6,309	\$6,492
Granville Co.	4,843	\$66,813	\$53,383	\$49,431
Hillsborough	2,031	\$22,346	\$20,194	\$21,224
Orange Co.	11,162	\$107,997	\$100,925	\$96,238
Person Co.	4,920	\$76,159	\$59,461	\$54,399
Raleigh	667	\$308,150	\$300,558	\$300,902
SGWASA	Not applicable	-	-	-
Wake Co.	10,403	\$59,135	\$67,907	\$68,769
Wake Forest	524	\$8,732	\$2,280	\$2,551
Total	72,441	\$1,000,000	\$1,000,000	\$1,000,000

Discussion Items

- Comfort level with an optional implementation approach
- Input on potential core principles
- Concerns, issues, questions with the approach as outlined
- Thoughts on funding structure, optional recommendations
- Willingness to continue developing the implementation details for the optional approach as identified
 - If yes
 - Establish next steps
 - More detailed evaluation of establishing this program
 - Statutory
 - Regulatory
- Continue with existing workgroup and legal workgroup?



Closing Comments Additional Discussion