

**Path Forward Committee Meeting**  
**9:30 AM on September 7, 2021**  
**Remote Access Only (see next slides)**



# Remote Access Options

Equipment Type	Access Information	Notes
Computers with microphones and speakers	<a href="#">Join Microsoft Teams Meeting</a> <b>Please mute your microphone</b> unless you want to provide input.	Press control and click on this link to bring up Microsoft Teams through the internet. You can view the screen share and communicate through your computer's speakers and microphone
Computers without audio capabilities, or audio that is not working	<a href="#">Join Microsoft Teams Meeting</a> (888) 404-2493 Passcode: 371 817 961# <b>Please mute your phone</b> unless you want to provide input.	Follow instructions above <b>Turn down your computer speakers, mute your computer microphone,</b> and dial the toll-free number through your phone and enter the passcode
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# Remote Access Guidelines

- This meeting will open 10 minutes prior to the first meeting start time (e.g., MRSW) to allow users to **test equipment** and ensure communication methods are working
- If you dial in through your phone, mute your microphone and turn down your speakers to **avoid feedback**
- Unless you are speaking, please mute your computer or device microphone and phone microphone to **minimize background noise**

# Agenda

- Opening comments
- Falls Lake Research Presentation
- Modeling and Regulatory Support Status
- Status of the UNRBA Stage I Existing Development Interim Alternative Implementation Approach (IAIA)
- Status of Proposed Chlorophyll-a Site Specific Standards for High Rock Lake
- 2022 303(d) Listing and Delisting Methodology
- Status of the EPA Draft Ambient Water Quality Criteria Recommendations for Lakes and Reservoirs
- Plan for Statistical Model Development and Evaluation of Regulatory Options Relative to the Water Quality Standard
- Communications Support
- Other Status Items
- Closing Comments

# **Falls Lake Research Presentation**

# Falls Lake Research Presentation

- Dr. Brent McKee will present his research on
  - The measurement of suspended sediment inputs and associated organic carbon to Falls Lake
  - The amount of sediment mixing and accumulation impacting nutrient fluxes and carbon Falls Lake
- This work is important to the UNRBA lake modeling efforts that are currently underway.
- Dr. McKee's [presentation](#) from the Symposium and [interim report](#) are available online at <https://nutrients.web.unc.edu/2021-falls-lake-symposium/> and <https://nutrients.web.unc.edu/resources/>

# **Modeling and Regulatory Support (MRS) Status**

# Watershed Analysis Risk Management Framework (WARMF) Modeling Status

- A special meeting of the MRSW was held August 27<sup>th</sup> to review revised watershed model results based on feedback received during the August 3<sup>rd</sup> PFC meeting
  - Improvements have been made to
    - Total phosphorus simulations across the watershed
    - Nitrogen simulations downstream of Little River Reservoir
  - Modified terminology to refer to percent bias rather than percent difference
  - Regenerated the performance criteria, time series comparisons for concentrations, and comparisons to annual and daily load estimates and distributed to the PFC prior to this meeting



# Performance Rankings from the UNRBA Modeling Quality Assurance Project Plan

**Table A.7-2 General Watershed Model Calibration Guidance**

Parameter	Percent Bias Criteria		
	Very Good	Good	Fair
Sediment	< ± 20	± 20-30	± 30-45
Water Temperature	< ± 7	± 8-12	± 13-18
Water Quality/Nutrients	< ± 15	± 15-25	± 25-35
Flow (Total Volume)	≤ 5%	5-10%	10-15%

# Performance Summary for lake loading stations on “big 5”, full period (2015-18)

Parameter	Ellerbe	Eno	Flat	Knap	Little
Temperature	Very good	Good	Good	Good	Good
TSS	Low	Low	Low	Fair	Fair
Ammonia	Very good	High	Very good	Very good	High
Nitrate	Very good	Fair	Fair	Fair	Very good
TKN	Fair	Very good	Good	Very good	Fair
TN	Very good	Very good	Very good	Good	Good
TP	Very good	Very good	Good	Low	Very good
TOC	Very good	Very good	Very good	Very good	Very good
Chlorophyll-a	Low	Good	Very good	Very good	Very good

# Feedback from MRSW Special Meeting

- Feedback from third-party reviewers Dan Obenour and Nathan Hall and DWR modeling staff was generally positive
- Suggestions to **document challenges and potential model biases** to inform lake model development and calibration
  - E.g., if watershed model is predicting too little suspended sediment, may need to do some bias adjustments when building the lake model
- Requests for additional information/reporting (in progress)
  - Load allocations by source to Falls Lake and by county
  - Documentation of model code changes
  - Executable and model input files for review
  - Watershed model report (likely to the MRSW in October)

# WARMF Watershed Model Discussion

- MRSW voted to approve the WARMF watershed model calibration and its use for developing the lake models on August 27, 2021
- PFC reviewed preliminary calibration results on August 3, 2021, and revised results were distributed prior to this meeting
- PFC discussion of approving WARMF watershed model calibration and its use for developing the lake models (WARMF and EFDC)

# WARMF Lake Modeling Status

- WARMF Lake is under development with current focus on hydrodynamics and stratification
- Preliminary results show some bi-directional flow as reported by Dr. Rick Luettich at the July MRSW meeting
- Modeling team plans to reach out to Collaboratory funded researchers to review modeling as it progresses to integrated their knowledge into the model development

# **Environmental Fluid Dynamics Code (EFDC) Falls Lake Modeling Status**

- Modelers will finalize the calibration of water levels and temperatures in Falls Lake based on final watershed model output once approved by the PFC
- Water quality calibration also proceed
- EFDC hydrodynamic calibration report are under development

# Status of Two Scenario Workgroups

- The MRSW and PFC have formed two workgroups to provide input to the modeling team on scenarios
- The Model Scenario Output Workgroup
  - Discussing reporting formats for comparing scenario descriptions and model output
  - The 6<sup>th</sup> meeting for this workgroup was held April 12<sup>th</sup>
  - Decision to transition to an online reporting tool
- The Scenario Screening Workgroup
  - Developing a selection process for choosing scenarios and a preliminary list of scenarios to evaluate
  - The 6<sup>th</sup> meeting for workgroup was held August 19<sup>th</sup>
  - Two subgroups are working on scenario forms for scenarios preliminarily assigned a high priority

**Status of the UNRBA Stage I  
Existing Development Interim  
Alternative Implementation  
Approach (IAIA)**



# Status of the IAIA Program

- On June 16, 2021, the UNRBA Compliance Group Committee (CGC) submitted the Stage I Existing Development Interim Alternative Implementation Approach (IAIA) Program to DWR and the EMC
- DWR acknowledged receipt of the submittal on June 30<sup>th</sup> and implementation of the program began on July 1<sup>st</sup>
- A reporting tool has been developed and reviewed by the IAIA Reporting Workgroup. This tool will be distributed to the PFC for review and discussion prior to their next meeting

# **Status of Proposed Chlorophyll-a Site Specific Standards for High Rock Lake**

# Status of Proposed Chlorophyll-a Site Specific Standards for High Rock Lake

- In July, the EMC voted to send the proposed High Rock Lake Site Specific Water Quality Standard out to public hearing.
  - The official public notice will come out in the September 1<sup>st</sup> edition of the NC Register.
  - The hearing will be virtual and is scheduled for October 28<sup>th</sup> at 6:00 with the comment period ending on November 15<sup>th</sup>
- This proposal is precedent setting for site specific chlorophyll-a criteria in NC lakes and reservoirs and will likely affect the process for establishing a site-specific standard for Falls Lake.
- At the September 15, 2021 Board meeting, The Executive Director will request that the Board reaffirm his authorization to comment on this rule-making precedent.

# **Status of the 2022 303(d) Listing and Delisting Methodology**

# Status of the 2022 303(d) Listing and Delisting Methodology

- On June 3, 2021, EPA approved North Carolina's submittal of the 2020 303(d) list of waters not attaining water quality standards.
- EPA approval of the NC 2020 303(d) list facilitated DWR's decision to finalize the Integrated Report (IR) that includes all 305(b) water quality assessments (water quality standard assessments for waters meeting and not meeting water quality standards).
- Falls Lake assessments are not included in the 303(d) list because of the current water quality management strategy (Falls Rules).

# Status of the 2022 303(d) Listing and Delisting Methodology

- DWR, in responding to UNRBA Comments, stated “DWR acknowledges that the UNRBA is currently in the process of developing updated models for Falls Lake and has also conducted special studies to further the ecological understanding of the lake. These studies will support the development of any future site specific approach(es), through the rules readoption process. Following rules readoption, DWR will determine if a site specific assessment approach is called for and adjust the Integrated Report Category Assignment Procedure as necessary.”

**Status of the EPA Draft  
Ambient Water Quality Criteria  
Recommendations for Lakes  
and Reservoirs**

# Status of the EPA Draft Ambient Water Quality Criteria Recommendations for Lakes and Reservoirs

- EPA noticed their Draft Ambient Water Quality Criteria Recommendations for Lakes and Reservoirs of the Conterminous United States: Information Supporting the Development of Numeric Nutrient Criteria on May 22, 2020.
- The criteria are models that yield total nitrogen and total phosphorus concentrations to protect the designated uses of Aquatic Life, Recreation, and Drinking Water.
- These models, based on a 2007 EPA national lake survey, will replace EPA criteria based on the ecoregion/reference condition approach.
- If adopted, this document could potentially influence the UNRBA re-examination process review by EPA and the DWR.



# Status of the EPA Draft Ambient Water Quality Criteria Recommendations for Lakes and Reservoirs

- At the June 17<sup>th</sup> Board meeting, the Board authorized the Executive Director to submit comments on this EPA proposal on behalf of the UNRBA.
- During the July PFC meeting, an overview of the EPA proposal was provided, and the Executive Director provided a draft of the comments to the PFC on July 7<sup>th</sup>.
- The UNRBA comments were finalized following comments from the PFC.
- Formal comments on the EPA Draft Criteria document for lakes were submitted to the Federal Docket on July 13, 2020.
- A copy of the final comments was provided to the Board and the PFC.

# Status of the EPA Draft Ambient Water Quality Criteria Recommendations for Lakes and Reservoirs

- A summary of the comments submitted was provided during the August 4, 2020 PFC meeting ([August 2020 PFC PowerPoint Presentation](#), slides 15-26).
- On August 13, 2021, EPA finalized the recommendations; few changes were made in response to comments received from several organizations.
- In response to comments, EPA reiterated that the models are available to State's to use to set criteria, but State's can use other justified methods for setting criteria.
- EPA's approved recommendations are available at [Ambient Water Quality Criteria to Address Nutrient Pollution in Lakes and Reservoirs | US EPA](#).

# **Plan for Statistical Model Development and Regulatory Options for the Chlorophyll-a Water Quality Standard**

# Planning for Development of a Petition for Site Specific Criteria

- A primary task for the legal team is to begin consideration of a petition for site specific criteria for Falls Lake
- The UNRBA Statistical Model of Falls Lake will be used to support this effort
- Evaluation of other State's site-specific standards for chlorophyll-a and nutrient-related standards is ongoing.
- The legal team and the statistical modeling team are coordinating on this effort
- We have identified a Subject Matter Expert for assistance to the UNRBA in the evaluation of site-specific criteria for Falls Lake, Dr. Marty Lebo who was part of the High Rock Lake SAC and this work is underway

# Status of the Technical Advisors Workgroup

- The Technical Advisors Workgroup held their initial meeting in May
- This group has compiled a list of local contacts to assist with setting the designated use evaluation metrics for the statistical/Bayesian model
- The MRSW provided additional contacts during their meeting in July
- The PFC members are invited to offer additional suggestions for contacts
- The modeling team will begin coordinating with these contacts in September and October by designated use

# Contacts Identified by the Workgroup and MRSW

- **Aquatic Life**
  - DWR: Jeff Deberardinis, Fisheries Biologist
  - Wake County: Chris Snow, Parks Recreation and Open Space Director
  - Eno River Foundation: Jessica Sheffield, Executive Director
  - Ellerber Creek Watershed Association: Rickie White, Executive Director
  - Wildlife Resources Commission: Christian Waters, Director of NC Inland Fisheries
    - Triangle Fly Fishers: Terry Hackett, President
- Contacts continued on next slide

# Contacts Identified by the Workgroup and MRSW

- **Recreation (fishing, swimming)**
  - Durham County: Patrick Eaton and Noelle Spence
  - Wake County: Betsy Pearce, Watershed Management
  - Froghollow Outdoors: contact to be identified
  - Upper Neuse River Keeper: Matthew Starr
  - Wildlife Resources Commission: Christian Waters, Director of NC Inland Fisheries
  - Triangle Fly Fishers: Terry Hackett, President
- Contacts continued on next slide

# Contacts Identified by the Workgroup and MRSW

- **Drinking Water**
  - City of Raleigh
    - Whit Wheeler, Assistant Public Utilities Director
    - Vanessa Barnes, Laboratory Supervisor
- **Flood Protection**
  - US Army Corps of Engineers
    - Steven Gager, Project Manager, Neuse River Basin Flood Risk Management Study
    - Tony Young, Water Management Chief
  - North Carolina Department of Public Safety: John Dorman
- PFC discussion



# Communications Support

# Continued Coordination with the UNC Collaboratory

- The UNRBA and UNC Collaboratory met virtually to discuss research studies for FY22
- The Falls Lake researchers will be presenting at upcoming UNRBA MRSW and PFC meetings to ensure the modeling team is integrating these studies into the models
- The UNRBA Modeling Team has been and will continue to reach out to the Falls Lake researchers as the modeling progresses to ensure the best science and available information is incorporated

# UNRBA Technical Stakeholder Workshop

- The UNRBA Technical Stakeholder Workshop was postponed until FY2022 (this fiscal year) due to COVID-19 and the Collaboratory/UNRBA Symposium.
- Anticipate first half of meeting to provide an update on model calibration for WARMF and EFDC and loading summaries to Falls Lake
- Second half is typically small group sessions; potential topics include review and stakeholder input of
  - Discussion of scenarios under consideration
  - Data sources for the statistical model
  - Output metrics for the statistical model
- PFC Discussion - The plan was to hold this workshop in person this November, but recent developments with COVID-19 will likely require either holding the workshop virtually or delaying until early 2022.

# Meetings with DWR, DEQ, and EPA Region 4

- DEQ leadership
  - Provide an overview of technical work
    - Monitoring
    - Modeling
    - Collaboratory research and coordination
- DWR planning and modeling groups
  - Review of technical work
    - Monitoring
    - Modeling
    - Collaboratory research and coordination
  - Approach for re-examination
- The Executive Director and his team discussed the modeling project with Tim Wool at EPA Region 4 on August 30<sup>th</sup> 2021
  - Overview of the Rules and need for re-examination
  - Modeling status
  - Request for modeling files and modeling report

# External Stakeholder Communication Needs

- Objectives continue to be reviewed relative to communication opportunities with stakeholders.
- To support the re-examination process and achieve broad support for the UNRBA recommendations, additional outreach to external stakeholders including DWR, DEQ, and other interested stakeholders is needed;
- Coordination with local leaders to convey messages and facilitate outreach will be necessary.
- This effort will require the support of the UNRBA membership, staff and Board representatives.
- As a reminder, the [Infographic](#) and [Fast Facts](#) are available online <https://upperneuse.org/resource-library>
- An [Overview of the Work of the UNRBA](#) provided to the UNC Collaboratory for inclusion in their reporting is available online <https://nutrients.web.unc.edu/resources/>

# Other Status Items

# Ongoing Items

- Leadership and organizational changes at DEQ and EPA
  - Elizabeth Biser was confirmed by the NC Senate as Secretary of DEQ on August 24, 2021 ([Senate confirms Elizabeth Biser as DEQ secretary | Coastal Review, NC DEQ: Elizabeth S. Biser](#))
- Intensive workgroup activity and management of expectations and resources—A lot to do between now and recommendations in 2023
- Ongoing DEQ/DWR Items
  - MOA
  - Neuse Watershed Model Information Session – Delivery Factors for WWTP

## **Future Meetings as Currently Scheduled:**

**Next BOD Meeting: September 15, 2021, 9:30 AM to Noon**

**Next MRSW or PFC Meeting: October 5, 2021, 9:30 AM to Noon**



# Closing Comments Additional Discussion