

Path Forward Committee Meeting

June 4, 2024



Agenda

- Opening Comments, Agenda Review/Revisions
- FY2025 Contracts
- Status of Updates to the UNRBA Website
- Concerns with Development in the Falls Lake Watershed
- Year Three of IAIA Ends June 30th
- DWR Proposed Changes to New Development Rules for the High Rock Lake Watershed
- DWR Interviews of Local Government Stormwater Staff
- Falls Lake Rules Readoption Process
- Modeling and Regulatory Support Status
- Evaluation of Falls Lake Assessment Methodology and a Site-Specific Chlorophyll-a Water Quality Standard
- Communications Support
- Other Status Items
- Closing

Opening Comments, Agenda Review/Revisions

FY2025 Contracts

Overview FY2025 Contracts

- At the June 12th meeting, the UNRBA Board will be asked to review and approve three contracts to support the UNRBA efforts in FY2025
 - Executive Director Services
 - Financial Assistance Services
 - Modeling, Regulatory Support, and Communications (MRSC)
- The Executive Director has provided the contract documents to Aarin Miles at the City of Durham who has agreed to provide an advisory contract review for the UNRBA.

Review Status of FY2025 Contracts

- The Board has reviewed and approved the budgets for Executive Director and Financial Services.
- The contracts for the Executive Director Services will be consistent for FY 2025, but Financial Services will be covered under a separate contract.
- The Financial Services contract will run through March 2025 and includes support for an audit effort and coordination assistance for transition of financial support to a new contractor beginning April 2025
- The costs and scope of MRSC has been reviewed and discussed during previous meetings and budget discussions.
- The Executive Director has provided the scope document for MRSC to the PFC ahead of this meeting.
- The PFC will be asked to make recommendations to the Board concerning these three contracts.
- [See next slides](#)

FY2025 Financial Services Contract

- Nine-month contract with Haywood Phthisic
 - Ends March 31, 2025
 - Accounting and financial record keeping services
 - Interface with auditing contractor
- Total contract amount is \$12,600
 - \$1200 per month for nine months: (\$10,800)
 - Mileage reimbursement (IRS rate): \$1,000
 - Reimbursable expenses: \$800
- Haywood's portion will be under a separate contract with UNRBA, rather than through McGill Associates
- Haywoods's portion will be subtracted from the Board-approved contract amount for Executive Director Services
- [PFC vote on a recommendation to the Board to approve the FY2025 Financial Services Contract for \\$12,600](#)

FY2025 Executive Director Services Contract

- Contract with McGill Associations
 - Executive Director compensation (\$125/hour) \$198,750
 - Travel and other reimbursable support costs \$20,000
 - Other support services (\$3,000)
- Previously approved amount was \$243,390
 - Minus \$12,600 for separate Financial Services Contract
 - Minus \$9,040 to be held in UNRBA reserve fund to cover financial services with a different contractor for April 1 to June 30, 2025
- PFC vote on a recommendation to the Board to approve the FY2025 Executive Director Services Contract for \$221,750

FY2025 Modeling and Regulatory Support and Communication Support Contract

- Managed by Brown and Caldwell with four subcontractors
 - Dynamic Solutions – EFDC Lake Modeling
 - Systech Water Resources – WARMF Modeling
 - KDV Decision Analytics – Statistical/Bayesian Modeling
 - Brindle Creek – Economic Evaluations
- Total contract is \$595,010
 - Brown and Caldwell \$390,000
 - Dynamic Solutions – \$40,000
 - Systech Water Resources – \$40,000
 - KDV Decision Analytics – \$65,000
 - Brindle Creek – \$50,000
- PFC vote on a recommendation to the Board to approve the FY2025 Modeling and Regulatory Support and Communication Support Contract

Status of Updates to the UNRBA Website

Status of UNRBA Website Updates

- The UNRBA communications team has revised the draft content in response to feedback from PFC members and communications staff from the City of Durham
- The content pages will include links to separate pdf documents that can be easily updated (e.g., list of Board members, key findings of the watershed modeling).
- Beta versions of the [Home Page](#), [About Us](#), [Updated Strategy](#), and [Resource Library](#) were provided to the PFC ahead of the June meeting for review and feedback
- Links within the content still need to be added
- **Certain links will not yet function**
- Work continues on the Scientific Studies page
- These sections will be provided to the PFC via email
- The PFC is asked to provide comments by email
- Beta versions of the webpages will also be provided to the Board ahead of their June 12th meeting
- We are working closely with the developer to maximize improvements within budget capacity

FY2024 Amendment to the Website Development Contract

- The current contract to combine and re-develop the UNRBA website is \$20,000.
- The contractor, River Delta Consulting Services, and the UNRBA support team have been working several months to develop content and design the website
- At their September 2023 meeting, the Board authorized the use of up to \$10,000 from contingency to increase the contract to \$30,000 if necessary.
- The content is being finalized in June, and the developer is assessing if additional funds will be needed.
- After its June meeting, the Board does not meet again until September
- Executive Director to finalize an amendment and present to the Board for final approval

Concerns with Development in the Falls Lake Watershed

Concerns with Development in the Falls Lake Watershed

- Concerns with development in the Falls Lake Watershed continue to be raised.
- An [article](#) was recently published by Sound Rivers.
- The article is not a complete representation of
 - How development affects Falls Lake
 - The distinction between development practices and the Falls Lake Rules
 - The science and research developed to assess the watershed and lake
 - How the UNRBA's Consensus Principles II address
 - Nutrient impacts of development
 - Continued investment in the watershed
 - Importance of land preservation

Concerns with Development in the Falls Lake Watershed

- Nor does the article reference
 - The Durham County's revised development ordinance
 - The full picture on land use in the watershed and that 75 percent of the watershed is forested or natural areas
 - This is why these areas contribute most of the nutrient loading to Falls Lake
 - The UNRBA's conclusions that natural areas in the watershed have been important in maintaining uses and that natural areas must be preserved
- Development and growth concerns in the watershed are beyond the scope of the work of the UNRBA
- The Falls Lake Rules are not a “development management” approach to nutrient impacts, nor can they be (the state lacks the authority to regulate development planning and approval)

Concerns with Development in the Falls Lake Watershed

- New Development Rules address post-construction nutrient impacts.
- The UNRBA has been an advocate for land preservation
- One of our member governments have greatly strengthened construction and development controls related to sediment and impact of development on natural components of sites
- We are concerned that efforts to seek significantly more restrictive development constraints could endanger the progressive efforts to further constrain construction impacts and New Development controls
- The Falls Watershed and Durham County in particular are the only places in the State with the current level of control

Concerns with Development in the Falls Lake Watershed

- For other local government regulations (including some originally proposed by Durham County), the State legislature has removed the ability of local governments to regulate
 - Stormwater
 - Development
 - Riparian buffers
- This political concern about stormwater management has already resulted in significant restrictions on regulation at the state and local level.
- This interest in the overall impact of stormwater management is illustrated by the proposed amendment being considered by the NC House Ag Committee that says a county or city
“shall not impose a stormwater utility fee on property used for bona fide farm purposes as provided in [G.S. 160D-903](#)”

Concerns with Development in the Falls Lake Watershed

- If we are to achieve the continued management of new development and existing land use in the watershed, we need to make sure that we do not jeopardize the authority to implement these programs
- We hope to reach out to those raising these issues and to encourage them to reference the positive efforts of the UNRBA
- This will continue to be a case of keeping reasonable controls in place and to promote the investment program into the future without jeopardizing the authority to manage important aspects of development in the watershed

**Year Three of the IAIA Ends
June 30th**

Year Three of the IAIA Ends June 30th

- The third-year of the Stage I Existing Development Interim Alternative Implementation Approach (IAIA) is ending soon.
- Annual reports from each participant are due to [John Huisman](#) at the Division of Water Resources (DWR) with a copy to the [Executive Director](#) and [Alix Matos](#) by September 30, 2024.
- The latest version of the template is available [here](#)
 - Save a copy of this latest version 6.3
 - Replaces “JurisdictionName” and “FY” in the file name with your organization’s name and FY24
 - Review the “Instructions” tab and “Column Explanations” tab
 - Enter FY204 projects into the “User Input” tab
 - Blue cells are dropdown menus
 - Purple cells are automatically populated
 - Green cells are user entered values or text

Reminders – Accounting for Rollover

- You need a copy of last year’s submitted report to count rollover if your organization invested or committed more than the required minimum amount
 - If you do not have a copy of last year’s report, you can obtain a copy from [Alix Matos](#)
 - Manually enter the value from **row 8** (purple shading) of the Summary Information block from your **FY23 report** into **row 7** (green shading) of the Summary Information block from your **FY24 report**

Summary Information for the Participating Jurisdiction:	
Local government submitting the annual report:	Select from dropdown
Minimum annual investment level specified in the UNRBA Bylaws:	\$0
Reporting period (fiscal year):	FY2022
Total investment for fiscal year (cash and inkind expended for specific project(s)):	\$0
Carry over from previous year (not applicable the first year):	\$0
Carry over to next fiscal year(s):	\$0
Compliance with the minimum investment level based on funds expended (cash and inkind):	Yes
Contact information for the person submitting the report for this fiscal year:	
Name	
Email	
Phone Number	

Reminders – Committed Funds Count

- If your organization set aside and committed funds toward an eligible activity before June 30th, but the payment has not been invoiced or paid, you can claim this investment for FY2024
- Care must be taken that previously claimed committed funds are not claimed the year they are paid

O	P
---	---

Total Funds Committed This Fiscal Year (All Partners, This Fiscal Year)	Cash Funds Expended of Committed for Fiscal Year by Your Organization
The sum of each participating jurisdiction's commitment for this fiscal year. Funds committed and claimed, but not spent this fiscal year must not be claimed again once spent.	Enter cash amount expended or committed this fiscal year by local government using this form to track compliance. Funds committed and claimed, but not spent this fiscal year must not be claimed again once spent.

DWR Proposed Changes to New Development Rules for the High Rock Lake Watershed

DWR Proposed Changes to New Development Rules for the High Rock Lake Watershed

- We continue to monitor DWR's draft proposal for changes to post-construction stormwater rules for the High Rock Lake Watershed.
- We are concerned that this proposal will impact the rules readoption process and the UNRBA's recommendations for revised Falls Lake Rules.
- We also are concerned that seeking more aggressive development controls for the Falls Watershed will put at risk current management efforts and that the post-construction proposals under consideration will threaten existing programs.
- Options in the proposal include requiring peak flow or volume reductions better than pre-development conditions depending on the intensity of the development.
- The PFC reviewed this proposal and provided input during and following the May PFC meeting.

DWR Proposed Changes to New Development Rules for the High Rock Lake Watershed

- Since this draft has potential to impact the components of the revised Falls Lake Rules, our input is important.
- DWR has indicated it is updating the proposal and will provide that in the future.
- We will continue to be engaged in the review of this proposal and provide for PFC review and the filing of comments on the updated draft.
- As discussed above, the UNRBA wants to ensure that productive programs continue in Falls and are not inadvertently put at risk by seeking new and potentially more restrictive requirements for new development.

DWR Interviews of Local Government Stormwater Staff

DWR Interviews of Local Government Stormwater Staff

- DWR has been reaching out to local stormwater regulators to learn more about local programs and reporting systems.
- Ellie Rauh will continue to reach out to local governments in the Falls Lake watershed.

Falls Lake Rules Readoption Process

Status of Falls Lake Rules Readoption

- The UNRBA submitted the [UNRBA Concepts and Principles for the Reexamination](#) and [Consensus Principles II](#) in November 2023.
- The NC Collaboratory submitted their final report in December 2023
- These submittals trigger the initiation of the Falls Lake Rules Readoption Process. The following activities are ongoing:
 - UNRBA continues to pursue a legislative change to § 77-141
 - PFC and Board have reviewed the proposed language
 - Staff from DWR and American Rivers indicate support
 - DWR staff continue to develop the list of milestones and areas of support the UNRBA can provide
 - Executive Director and support team have begun drafting text to support the Rules Readoption process based on the UNRBA recommendations and two documents listed above.
 - Anticipate similar allowance as IAIA in the Model Program
 - Legal Group and Dan McLawhorn will review and provide input first, followed by the PFC and then Board
 - The UNRBA will consult with representatives of agriculture before beginning drafts of sections that pertain to agriculture

Schedule for Rules Readoption

- The UNRBA is engaging on every aspect of this process and how other actions or proposals may impact our efforts to achieve a balanced and productive set of new rules.
- The UNRBA will continue to identify opportunities to work with other stakeholders as we begin coordinating, collaborating, and supporting DWR in rules review process
- **June to December 2024**
 - DWR to begin rule making and their stakeholder process
 - Regulatory Forum to present rule making process to UNRBA members and other stakeholders
 - Meetings with the Chairs of the Environmental Management Commission (EMC) and its Water Quality Committee
- **2026/2027**
 - DWR anticipates rules readoption
 - **We hope to achieve rules readoption earlier**

Modeling and Regulatory Support Status

Watershed Model Report

- The UNRBA has submitted the final watershed modeling report and watershed modeling files to DWR and EMC.
- The Executive Director has requested a formal statement from DWR as specified in Section (5)(f)(iii) of the Falls Lake Rules which require that “the Division shall assure that the supplemental modeling is conducted in accordance with the quality assurance requirements of the Division.”
- The UNRBA submitted and the Division approved the UNRBA Modeling Quality Assurance Project Plan for this purpose.

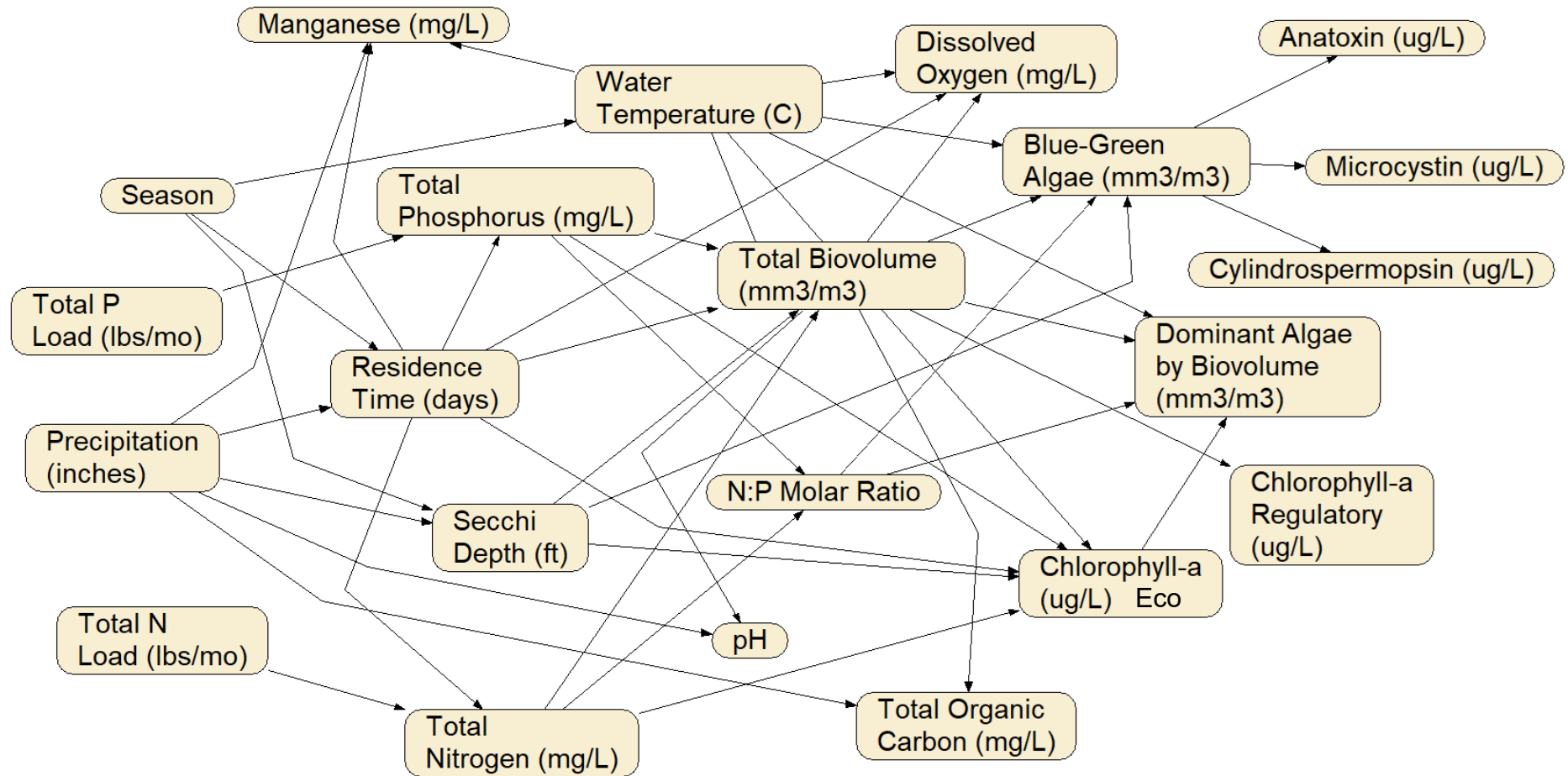
Lake Model Report and Modeling Files

- The UNRBA has also submitted lake modeling files for two of three lake models (WARMF and EFDC). The third lake model (statistical/Bayesian) is under development.
- The lake model report addresses all three UNRBA lake models
- The modeling team has received comments on the draft report from PFC members and DWR and is responding accordingly
 - Points of clarification
 - Requests for summaries of various aspects of modeling (uncertainties, applications, etc.)
- The UNRBA will submit the lake report and appendices to DWR for review and approval under Falls Lake Rule 15A NCAC 02B .0275 following this initial review process.

Statistical/Bayesian Modeling Status

- The statistical model and appendix are under development
- Model input data is summarized in the main lake report.
- The NC Collaboratory will provide funding to Nathan Hall to continue serving as a subject matter expert on statistical model development
- Subject matter experts, Drs. Nathan Hall and Marty Lebo reviewing
 - Model network (linkages among variables)
 - Adding additional node for the ratio of nitrogen to phosphorus
 - Model sensitivity among variables
 - How much variables influence each other
 - Expressed as percent variance reduction
- The team met May 20, 2024, to discuss the model network and preliminary findings summarized on the following slides

Statistical/Bayesian Model Network

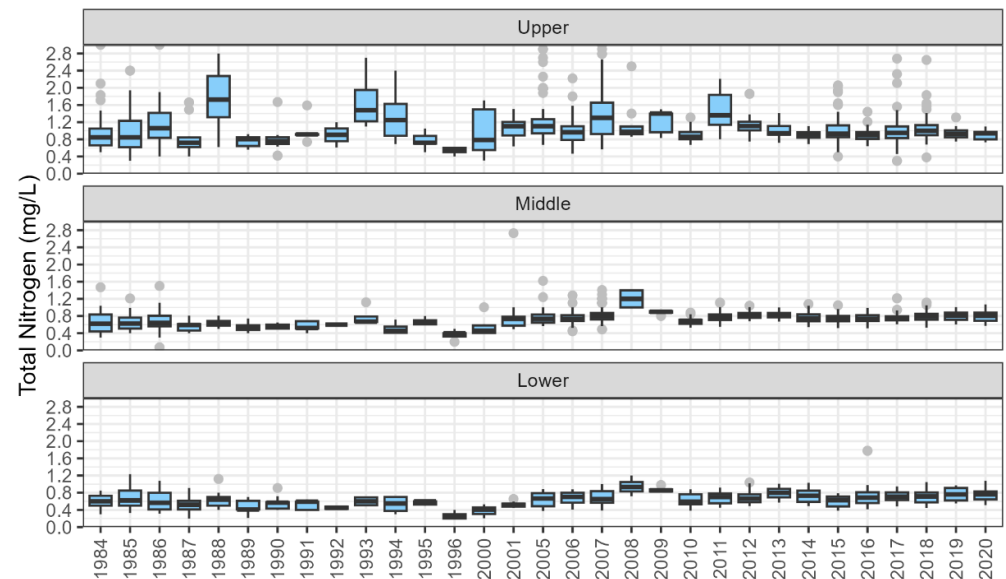


Adding the Ratio of Nitrogen to Phosphorus Molar Concentrations to the Model

- The ratio of N to P is well studied in estuarine and lake systems
- The other variables in the Falls model are not sensitive to this ratio
- The ratios for Falls are much higher than usually reported
- The ratios (based on totals) do not account for nutrient availability
 - Approximately 90 percent of total nitrogen is organic
 - Most phosphorus is particulate, but we cannot quantify
 - DWR stopped monitoring Falls for dissolved P many years ago due to detection issues
 - P is either bound to sediment or stored within algal cells
- The ratio changes from the upstream to downstream direction in Falls, but does not help predict total biovolume, blue green biovolume, or chlorophyll-a
- Decided to leave the ratio in the model because it is so commonly evaluated, even though it provides little predictive information
 - We will be prepared to address questions and cover this decision and the SME input in the report

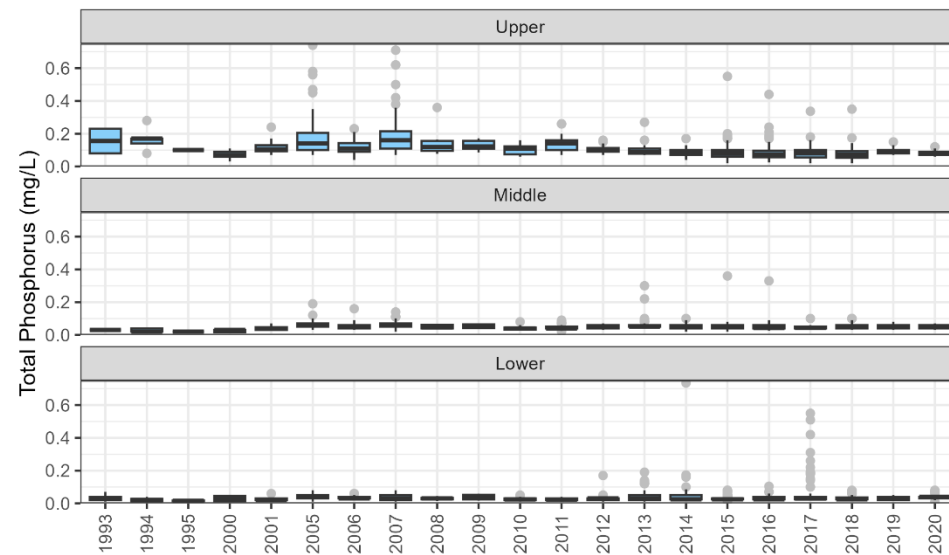
Sensitivity of Ecological Categories for Chlorophyll-a (<30, 30-60,>60) to Total Nitrogen Concentrations

- The variability in TN concentration categories in the raw data is relatively small, especially in Middle and Lower Lake Units
- TN categories are <0.63, 0.63-0.74, 0.74-0.83, 0.83-0.95, >0.95 mg/L with 20% of data in each category for the entire lake
- 60% of data is within 0.63 to 0.95 mg/L (1.5 times difference in the upper and lower bound of this subset of data)
- TN categories reduce the variability in predictions of chlorophyll-a ecological by 2 to 3 percent.
- Weak relationship



Sensitivity of Ecological Categories for Chlorophyll-a (<30, 30-60,>60) to Total Phosphorus Concentrations

- The variability in TP concentration categories in the raw data is relatively small, especially in Middle and Lower Lake Units
- Categories are <0.03, 0.03-0.04, 0.04-0.05, 0.05-0.08, >0.08 mg/L
- 20% of data is in each category for the entire lake
- 60% of data is within 0.03 to 0.08 mg/L (2.7 times difference in the upper and lower bound of 60% of the data)
- TP categories reduce the variability in predictions of chlorophyll-a ecological by 7% in the upper, 0.5% in middle, and 3% in lower lake.
- Generally weak predictions
- Slightly higher in upper lake
- Likely because the variability in the data is slightly higher



Sensitivity of Ecological Categories for Chlorophyll-a (<30, 30-60,>60) to Other Variables in the Upper Lake

Node	Variance Reduction	Percent

Chlorophyll-a (ug/L)	791.1	100
Total Phosphorus (mg/L)	51.13	6.46
Water Temperature (C)	40.06	5.06
Dominant Algae by Biovol	33.33	4.21
Total Biovolume (mm3/m3)	29.69	3.75
Residence Time (days)	27	3.41
Season	26.13	3.3
Total Nitrogen (mg/L)	19.66	2.49
Dissolved Oxygen (mg/L)	9.807	1.24
N:P Molar Ratio	9.199	1.16
Manganese (mg/L)	4.087	0.517
Blue-Green Algae (mm3/m3)	4.036	0.51
Chlorophyll-a Regulatory	3.54	0.448
Total Organic Carbon (mg)	0.8382	0.106
Total P Load (lbs/mo)	0.5766	0.0729
Precipitation (inches)	0.3972	0.0502
pH	0.3156	0.0399
Secchi Depth (ft)	0.1871	0.0237
Total N Load (lbs/mo)	0.06615	0.00836
Microcystin	0.05608	0.00709
Anatoxin	0.001123	0.000142
Cylindrospermopsin	0	0

Full historic data set
(back to the 1980s)

In the upper lake, Chl-a is
most sensitive to Total P and
Temperature

Overall, chla-a is not very
sensitive to any of the nodes

Both N and P loads are <1%

Comparison to EFDC Nutrient Load Reduction Curves

- The nutrient load reduction curves were generated by the EFDC model using very different data sets and methods
 - EFDC evaluated load reductions to get to less than 10% exceedance of the 40 $\mu\text{g/L}$ chlorophyll-a standard at a single station based on the 2015 to 2016 calibration period
 - Statistical model is evaluating sensitivity of three ecological categories of chlorophyll-a using all stations the upper lake segment and all available data (from the 1980s to 2020s)
- EFDC model predicted
 - 50% reduction in TN is needed to achieve the standard **90%** of time
 - Reductions in TP by 50% could only achieve the standard **65%** of time

**Evaluation of Falls Lake
Specific Assessment
Methodology and Site-Specific
Chlorophyll-a Criteria**

Evaluation of Falls Lake Specific Assessment Methodology and Site-Specific Chlorophyll-a Criteria

- The UNRBA continues to focus on our primary priority: coordination with DWR and stakeholders in the development of a revised management strategy through the rules review process.
- Noting that two additional goals remain under consideration:
 - Modifications of the 303(d) water quality assessment method for chlorophyll-a in Falls Lake
 - Development of a proposed site-specific chlorophyll-a criteria
- Dr. Marty Lebo is coordinating with the statistical modeling effort on his continued evaluation of a Falls Lake-specific assessment methodology and site-specific chlorophyll-a.

Communications Support

Communications Support

- The UNRBA continues to coordinate with DWR
 - Rules readoption process
 - Potential modifications to the water quality assessment methods
 - Development of a site-specific chlorophyll-a criteria for Falls Lake
- The work with DWR will intensify greatly following submittal of the UNRBA's and NC Collaboratory's recommendations in December 2023.
- Additional meetings to gather input from NC Collaboratory staff, researchers, and representatives of NGOs are being planned.
- Jurisdictions should identify additional meetings where support from the UNRBA team is needed

Additional Information and Activities

- Continued comprehensive update of the website
- Updates to fast facts and infographics finalized
- Working on a slide deck for UNRBA members to present the recommendations for a revised nutrient management strategy; will finalize once website is finalized with links
- Planning for a joint stakeholder workshop with DWR and UNRBA on the rules readoption process (possibly September 18, 2024 or November 20, 2024 to coincide with a day already reserved by UNRBA Board members)
- Participation in a synthesis workshop with UNRBA and NC Collaboratory regarding the intersection of research studies and insights for the rules readoption process
- American Rivers has offered to coordinate a series of videos as their “Neuse River of the Year” event for the upper part of the basin. We will coordinate on this effort after the updated UNRBA website is published (FY2025).

Coordination with Stakeholders

- The UNRBA will continue to identify opportunities to work with other stakeholders as we move through rules readoption.
- The “open” nature of all UNRBA meetings remains a key component of a transparent communications approach.
- We encourage member representatives and interested individuals to speak up about ideas and opportunities to communicate our work and the importance of our recommendations on a revised strategy and a site-specific standard.

Other Status Items

Other Status Items

- DWR Neuse Watershed Model Information Session / Delivery Factors for WWTP, etc.
- Inquiries and Issues Regarding Nutrient Credits
 - Soil improvement practice
 - Repair/replacement of failing onsite wastewater treatment systems
- Jordan Lake rules readoption process

Future Meetings Currently Scheduled:

Next BOD Meeting: June 12, 2024, 9:30 AM to Noon

Next PFC Meeting: July 2, 2024, 9:30 AM to Noon

Closing Comments

Additional Discussion