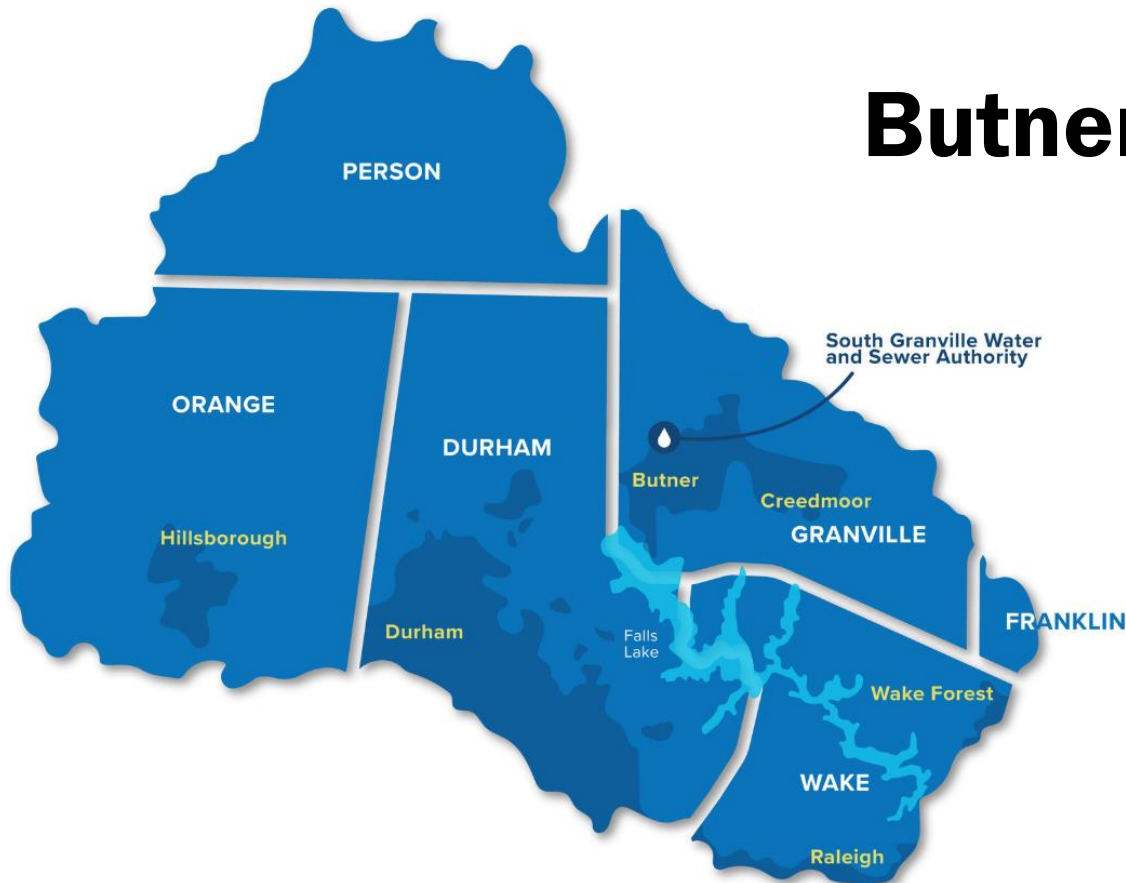




UNRBA Board Meeting March 15, 2023

Butner Town Hall



March 15, 2023 UNRBA Board Agenda

- **Opening—Sig Hutchinson, Chair**
- **Action Items**
 - Approval of January 18, 2023 Meeting Minutes
 - Approval of the Treasurer's Report
 - Approval of Contract Amendment #1 for Modeling and Regulatory Support for FY2023
 - Approval of the Budget for FY2024
- **Status Reports and Informational Items**
 - Modeling and Regulatory Support (MRS) Status
 - Developing Recommendations for a Revised Nutrient Management Strategy and a Petition for a Site-Specific Chlorophyll-a Water Quality Standard
 - Communications
 - Ongoing Discussions/Issues
- **Closing Comments**

Opening—Sig Hutchinson

Opening

- Introductions, Board member changes, and announcements
- Roll call for quorum
- Identification of any conflicts
- Review and approval of agenda

Action Items of UNRBA Board of Directors

**Approval of January 18, 2023
Meeting Minutes**

Approval of the Treasurer's Report

3/9/2023

Balance Forward: (per bank statement - 12/31/2022)	Checking	\$	232,815.87
	Savings		1,179,207.23
Debits:			
McGill Asso. (2023 Invs)		\$	31,943.30
Sauber Water Quality Consulting (2023 Invs)			12,880.00
Barnes & Thornburg (2022 - 23 Invs)			3,585.00
Brown & Caldwell (MRS, FY 23, 2022 Invs)			157,358.62
Phthisic Consulting, Inc. (2023 Invs)			825.00
WSP, Inc. (Invs, 2022)			1,042.00
MFG Consulting, LLC (2023 Invs)			571.59
Total Debits		\$	<u>208,205.51</u>
Credits:			
Interest (checking)		\$	56.48
Interest (savings)			2,839.85
Transfer from Savings Acc't to Checking Acc't			<u>100,000.00</u>
Account Balance (per bank statement - 2/28/2023)	Checking	\$	124,666.84
	Savings		<u>1,082,047.08</u>
Total UNRBA Account Balance :		\$	<u>1,206,713.92</u>
Outstanding invoices/deposits in process since the close of bank statement (2/28/2023):			
Debits:		\$	-
McGill Asso. (2023 Inv)			-
MFG Consulting, LLC (2023 Inv)			-
Sauber Water Quality Consulting (2023 Inv)			-
WSP, Inc. (2022 Inv)			-
Phthisic Consulting, Inc. (2023 Inv)			-
Brown & Caldwell (MRS, FY 23, 2022 Inv)			-
Credits:		\$	-
Transfer from Savings to Checking			<u>-</u>
Current Account Balances:	Checking	\$	124,666.84
	Savings		<u>1,082,047.08</u>
Total UNRBA Account Balance :		\$	<u>1,206,713.92</u>

**Consideration of
Contract Amendment #1
for Modeling and Regulatory Support
for FY2023**

Approval of the Budget for FY2024

- It is recommended that the budget remain the same as FY2023 with the exception of the increases to the Executive Director Services Contract that the Board approved at the January 18, 2023 meeting.
- The Path Forward Committee supported this recommendation at the meeting on March 7th. A contract and scope of work is under development. The PFC will review, and it will be presented to the Board for approval at the June meeting.
- See next slide for budget expenditures

Membership Fees Since FY2012-13

FY 2012-13	\$	259,381.00	
FY 2013-14		643,500.01	
FY 2014-15		811,999.98	
FY 2015-16		826,299.94	
FY 2016-17		978,800.02	
FY 2017-18		1,025,599.95	
FY 2018-19		1,136,265.01	
FY 2019-20		1,144,999.97	
FY 2020-21		1,152,850.05	
FY 2021-22		1,165,517.07	
FY 2022-23		1,192,892.05	
FY 2023-24		<u>1,204,940.00</u>	(Recommended budget for FY2023-24)
	\$	11,543,045.05	

Recommended Budget Expenditures for FY2023-24

Expenditures	Budget
Executive Director Services, Travel, and Other Support Services	\$235,440
Modeling and Regulatory Support	\$620,000 plus \$180,000 contingency*
Communications Support	\$60,000
Legal Support	\$100,000
Administrative Costs	\$6,000**
Website Improvements	\$3,500
Total	\$1,204,940

*The allocation to contingency may change as the scope of work is developed; the total contract amount would not change.

**Administrative costs include 990 tax return preparation, general liability and officer and director’s insurance, basic website support, lobbyist registration fees, and other expenses.

Comparison of Dues for FY2023-24 to FY2022-23

Member	Recommended Membership Fees FY 2023-24	Current Membership Fees FY 2022-23
Town of Butner	\$ 17,257.46	\$ 17,069.47
City of Creedmoor	12,081.92	11,954.91
City of Durham	268,841.83	265,834.44
Durham County	103,171.74	103,295.02
Franklin County	13,788.14	13,641.03
Granville County	78,912.96	77,998.40
Town of Hillsborough	23,686.43	23,983.45
Orange County	127,608.99	126,317.31
Person County	90,076.96	89,037.63
City of Raleigh	352,107.62	345,051.38
SGWASA	29,721.40	32,011.69
Town of Stem	9,102.89	9,010.99
Wake County	69,078.63	68,279.97
Town of Wake Forest	9,502.97	9,406.36
Total	\$ 1,204,939.94	\$ 1,192,892.05

Membership Fees for Recommended FY2023-24 Budget

\$ 1,204,940.00 Projected Revenue

Date: 3/08/2023

Member	Base Rate (10%)	2022 Raw Water Demands (50%)			Jurisdiction's Land Area (40%) (Revised 2023)			FY 2023-24 Fees (Proposed)
		Average Raw Water Demand (MGD)	\$ 602,470.00 (%)	Member's Sub-Share Cost	Jurisdiction's Acres Within Watershed	\$ 481,976.00 (%)	Member's Sub-Share Cost	
Town of Butner	\$ 8,606.71	NA			8,822	1.8	\$ 8,650.75	\$ 17,257.46
City of Creedmoor	8,606.71	NA			3,544	0.7	3,475.21	12,081.92
City of Durham	8,606.71	30.260	38	\$ 228,189.48	32,680	6.6	32,045.64	268,841.83
Durham County	8,606.71	NA			96,437	19.6	94,565.03	103,171.74
Franklin County	8,606.71	NA			5,284	1.1	5,181.43	13,788.14
Granville County	8,606.71	NA			71,698	14.6	70,306.25	78,912.96
Town of Hillsborough	8,606.71	1.523	2	11,484.88	3,666	0.7	3,594.84	23,686.43
Orange County	8,606.71	NA			121,358	24.7	119,002.28	127,608.99
Person County	8,606.71	NA			83,083	16.9	81,470.25	90,076.96
City of Raleigh	8,606.71	45.310	57	341,680.94	1,856	0.4	1,819.97	352,107.62
SGWASA	8,606.71	2.800	4	21,114.69	NA		-	29,721.40
Town of Stem	8,606.71	NA			506		496.18	9,102.89
Wake County	8,606.71	NA			61,669	12.5	60,471.92	69,078.63
Town of Wake Forest	8,606.71	NA			914	0.2	896.26	9,502.97
Total	\$ 120,493.94	79.893	100	\$ 602,469.99	491,517	100	\$ 481,976.01	\$ 1,204,939.94

Notes:

* Cost Allocation = 10% by uniform participation; 50% by raw water demands; and 40% by jurisdictional land area in UNRBA.

** 2022 annual daily average raw water demand reported by user systems.

*** Jurisdictional areas obtained from members, January, 2023. Percentages are calculated based on total basin acres. The towns of Mebane and Franklinton have a few acres but not enough to affect percentages. Municipal acreages do NOT include ETJs (although some municipalities may have some planning jurisdiction in ETJs, they do not collect tax revenue from these properties). SGWASA- and OAWS-owned acreages are included in their respective jurisdictional areas and are not calculated separately.

Status Reports and Informational Items

Modeling and Regulatory Support for the Re-examination of Stage II

Watershed Model Report and Training Status

- The Watershed Analysis Risk Management Framework (WARMF) model for the Falls Lake watershed has been calibrated for stream flows and water quality
- The model is currently being evaluated for scenarios which will be incorporated into the watershed model and lake model reports.
- Once the watershed model report is updated, the MRSW will review a revised draft report in response to their comments on the original draft after the watershed modeling scenarios have been conducted.
- A WARMF model training was held with UNRBA members and DWR modeling staff on February 6, 2023.
 - Several DWR modeling staff were in attendance
 - The required WARMF modeling files were submitted prior to the workshop

Lake Modeling Status

- The three lake water quality models are being developed considering the information generated by the watershed model (stream flows, nutrient concentrations, and delivered loads to Falls Lake)
 - Both WARMF Lake and EFDC have been calibrated for water quality in Falls Lake with approval by the MRSW.
 - The datasets for the statistical model have been compiled and are being evaluated to address questions about the relationships among precipitation, nutrient loading, chlorophyll-a, and satisfaction with designated uses.
 - This model will inform the proposed revised nutrient management strategy and the petition for a site-specific chlorophyll-a standard.
 - Third-party review of the statistical model by the Collaboratory researchers has begun
- Lake model reporting and scenario evaluation are under development.

Scenarios Under Evaluation

Short Name	Land use	Rainfall	Human Inputs	Atm. Dep.
UNRBA Study Period	2015-18	Avg. to wet	2015-18	2015-18
25% less atm. dep	2015-18	Avg. to wet	2015-18	-25%
25% more atm. dep	2015-18	Avg. to wet	2015-18	+25%
20% less rainfall	2015-18	Dry to avg.	2015-18	2015-18
20% more rainfall	2015-18	Very wet	2015-18	2015-18
All Forest, study period rainfall	Forest	Avg. to wet	None	2015-18
All Forest, 20% less rainfall	Forest	Dry to avg	None	2015-18

Atmospheric Deposition, Entire Watershed

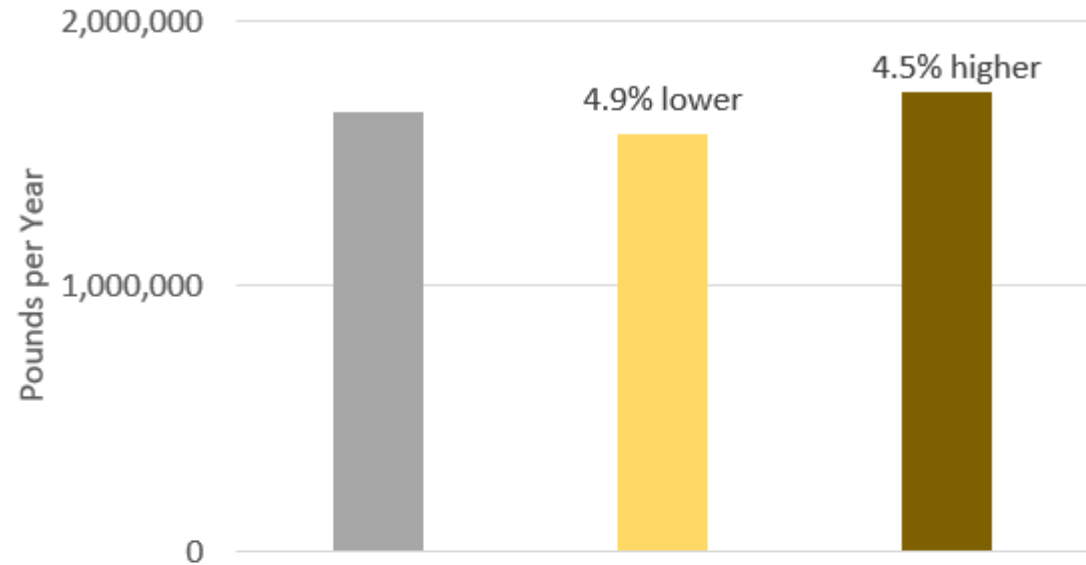
25% less atmospheric deposition:

- 4.9% less TN
- 0.8% less TP

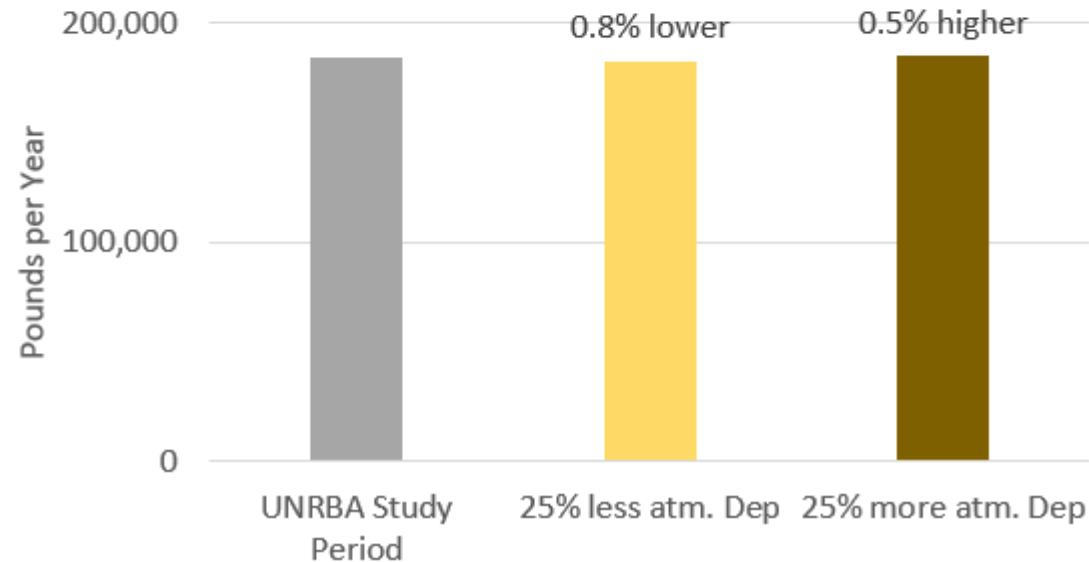
25% more atmospheric deposition :

- 4.5% more TN
- 0.5% more TP

Total Nitrogen Delivered to Falls Lake



Total Phosphorus Delivered to Falls Lake



Rainfall, Entire Watershed

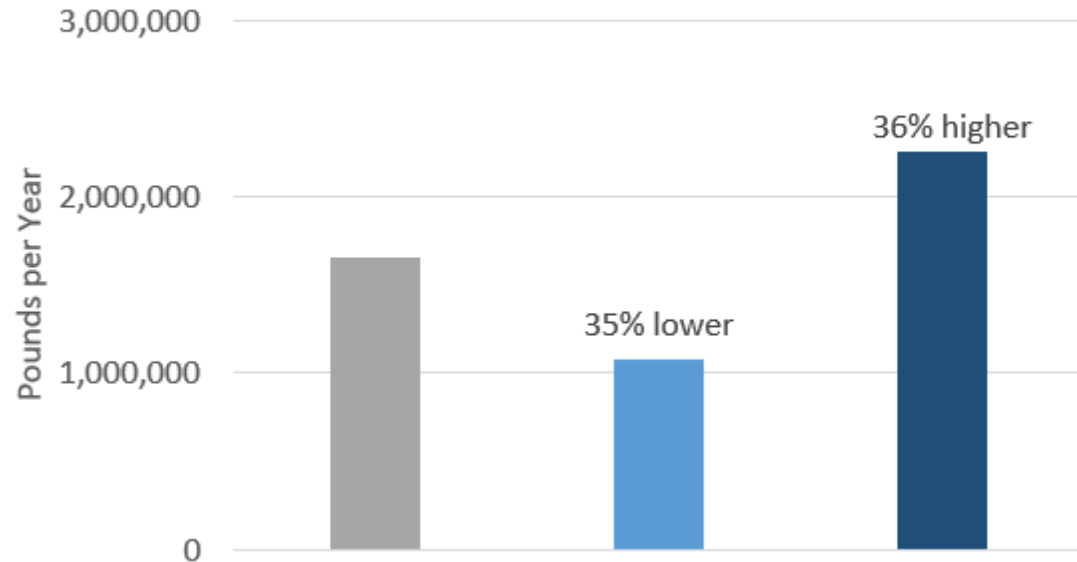
20% less rainfall:

- 35% less TN
- 42% less TP

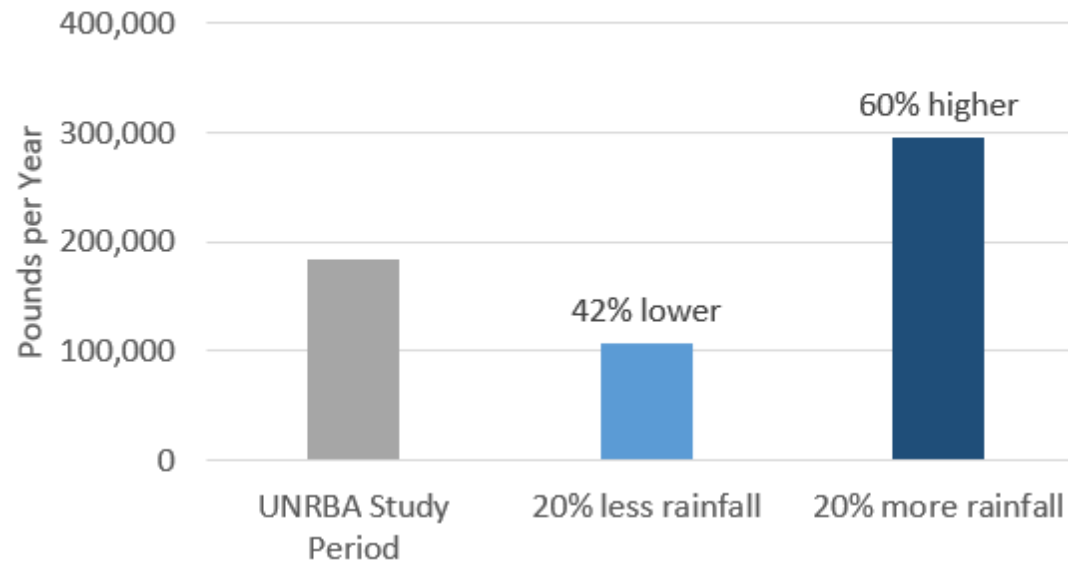
20% more rainfall:

- 36% more TN
- 60% more TP

Total Nitrogen Delivered to Falls Lake



Total Phosphorus Delivered to Falls Lake



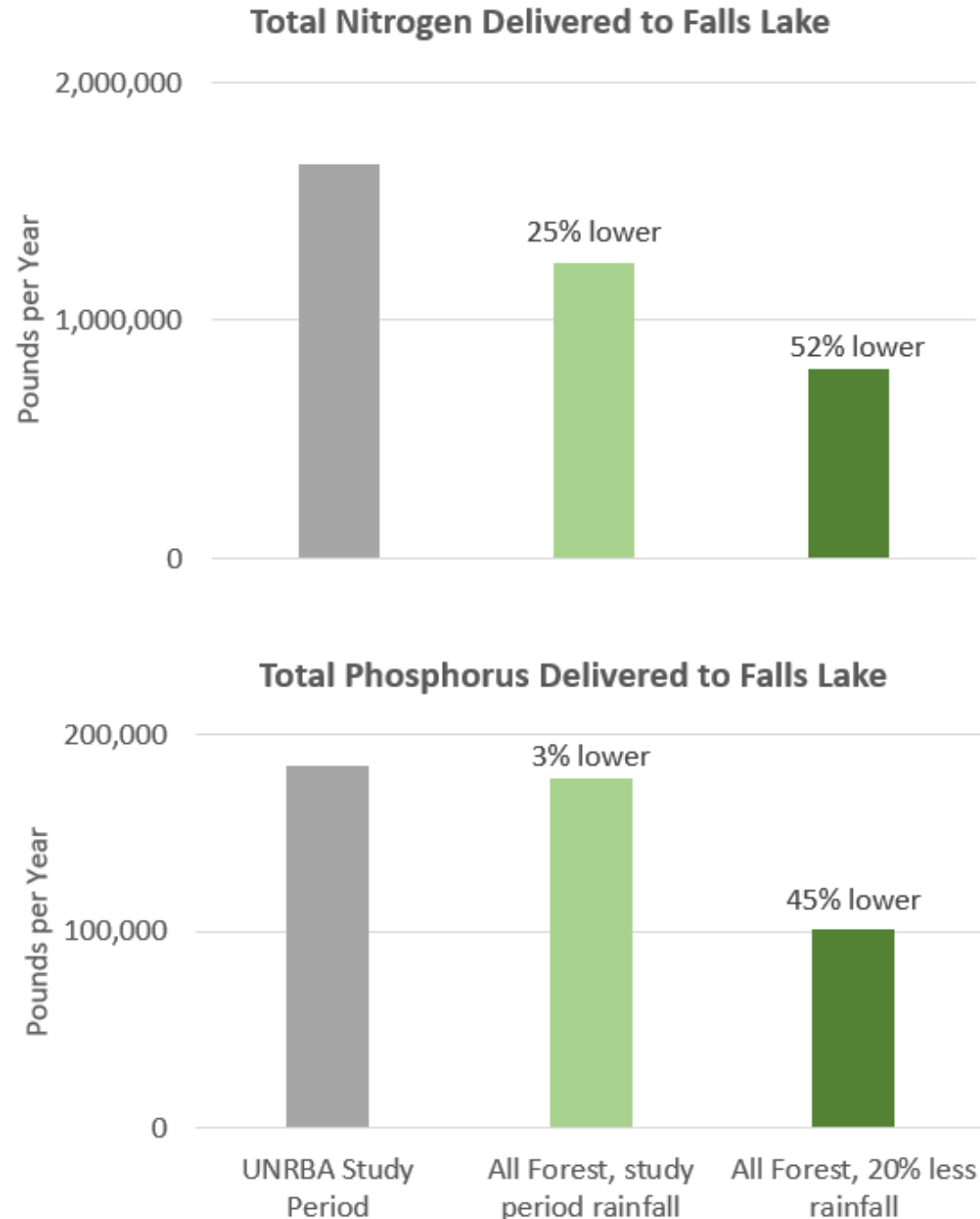
All Forest Scenario, Entire Watershed

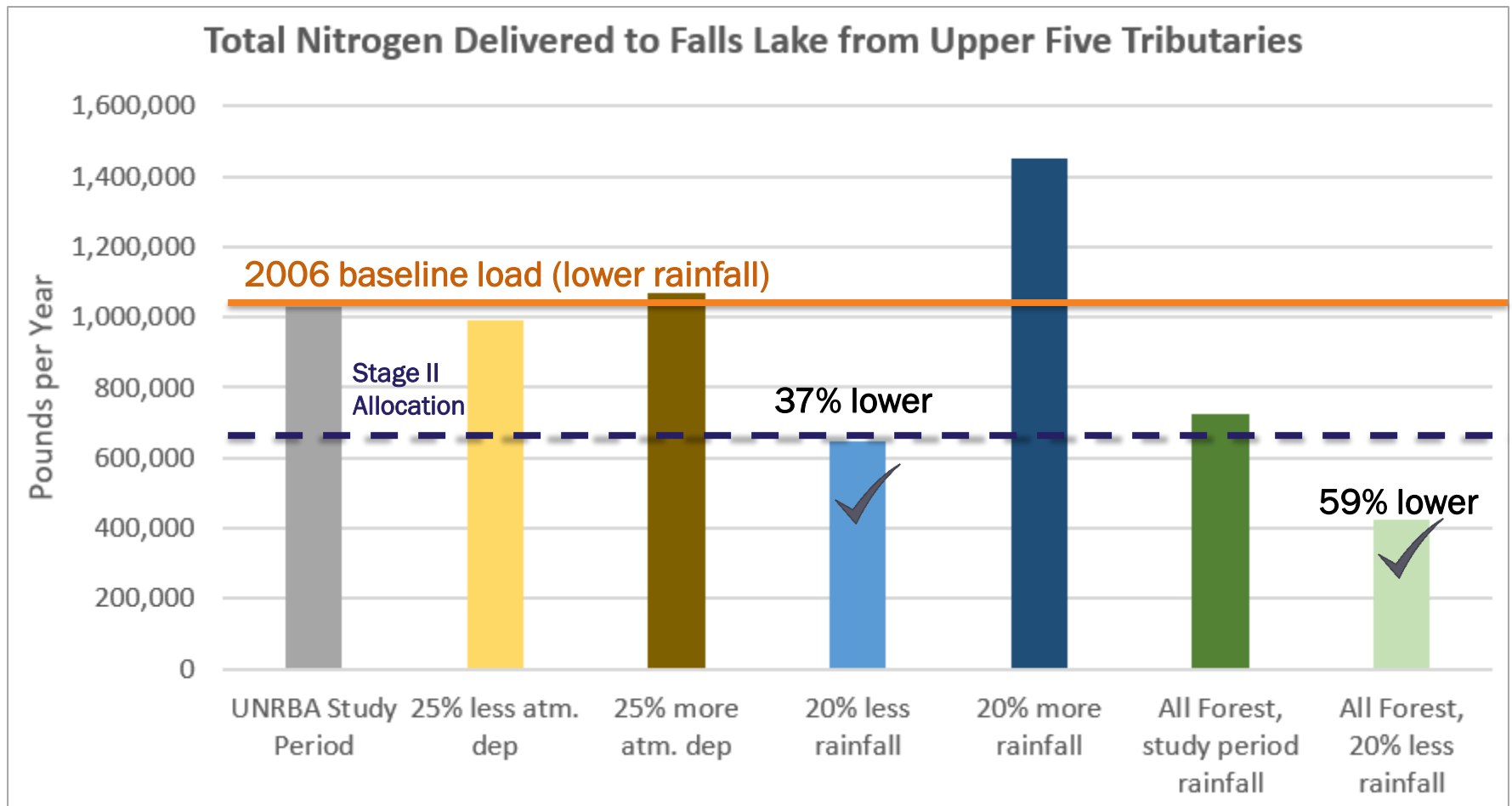
2015 to 2018 rainfall:

- 25% less TN
- 3% less TP

20% less rainfall:

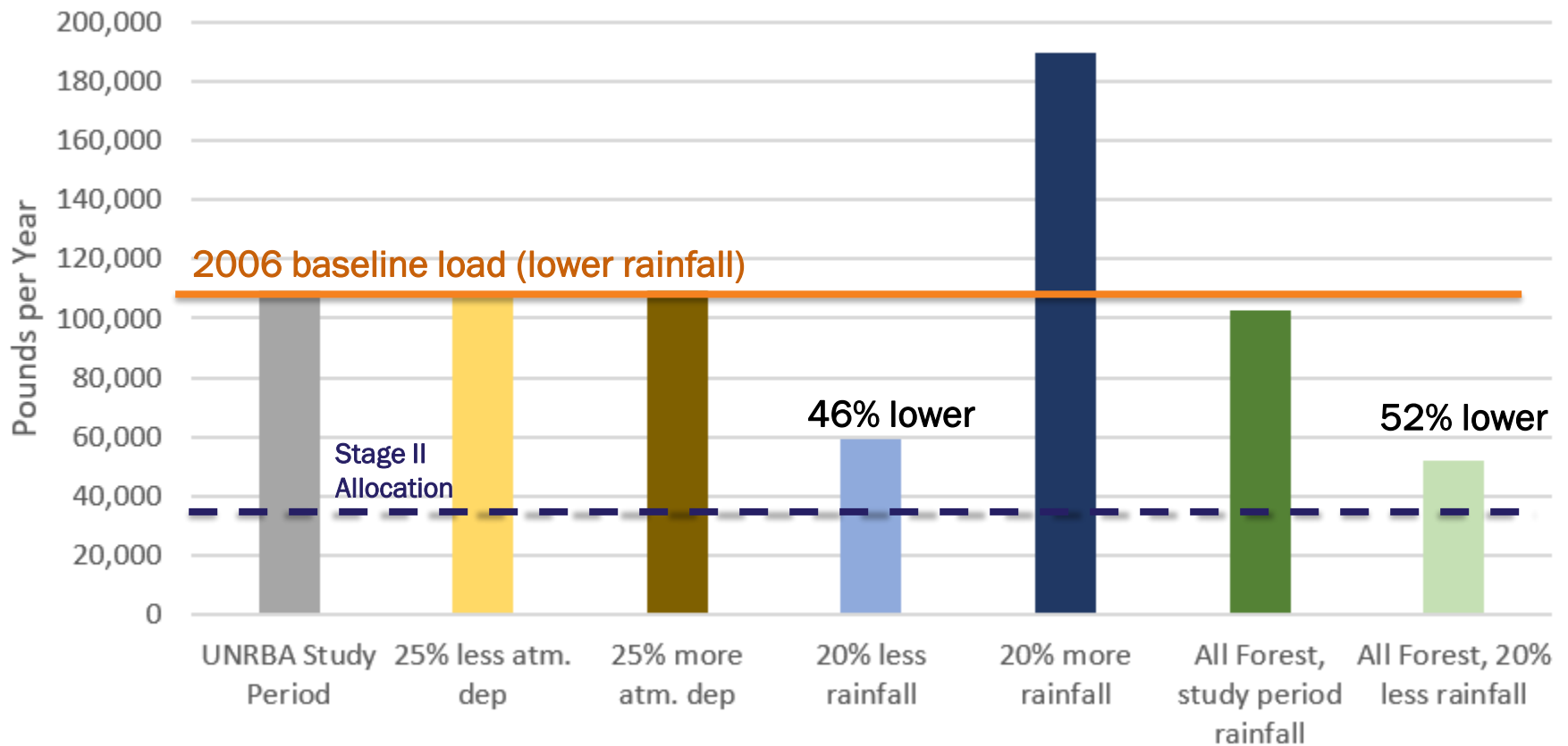
- 52% less TN
- 45% less TP





- As a result of improvements in the watershed, loads during the UNRBA study period were similar to baseline loads despite having higher rainfall
- With 20% less rainfall, the current watershed activities would meet the Stage II allocation
- All forest with 2015 to 2018 rainfall does not meet the Stage II allocation
- All forest with lower rainfall does meet the Stage II allocation

Total Phosphorus Delivered to Falls Lake from Upper Five Tributaries



- As a result of improvements in the watershed, loads during the UNRBA study period were similar to baseline loads despite having higher rainfall
- No scenario meets the Stage II Allocation for TP, not even the hypothetical conversion of all land to forests and removal of human inputs.

Key Findings from the Watershed Analyses - Loading

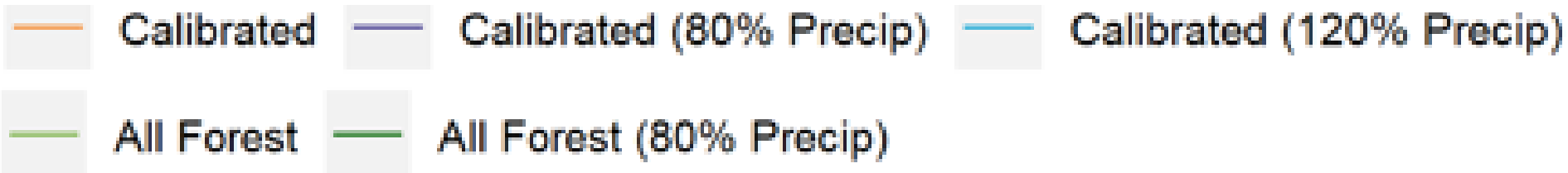
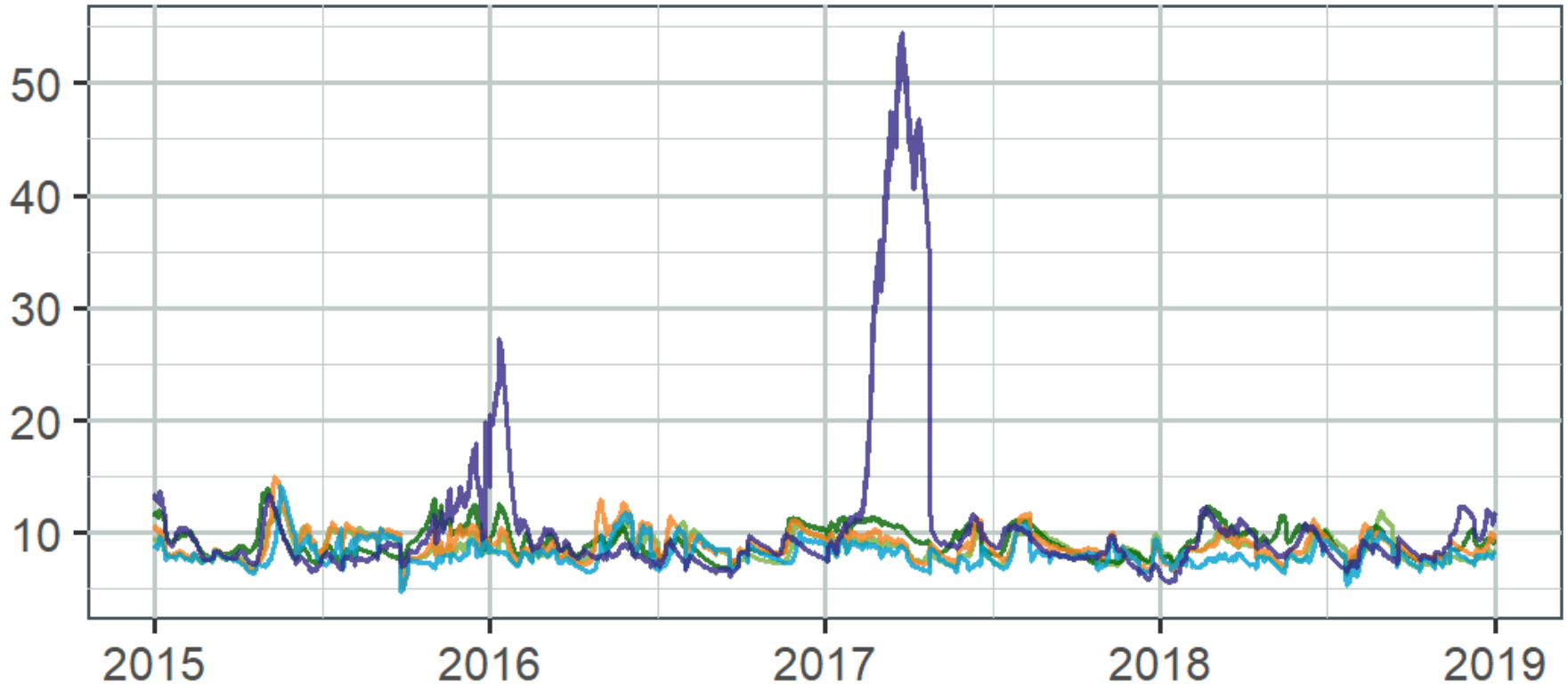
- The driver of delivered loading to Falls Lake is hydrology
- Under average to wet rainfall (like 2015 to 2018)
 - Even the hypothetical removal of humans with instant land conversion to forests does not achieve Stage II allocations for either TN or TP
- For dry to average rainfall (similar to 2005 to 2007)
 - TN loads have achieved Stage II allocations
 - Stage II allocations for TP are not feasible
- The Stage II allocations in the Rules are not feasible and did not consider the hydrology of the baseline period (historic drought)

Comparison of Lake Water Quality Among Scenarios

- The [March PFC](#) slides show simulated lake water quality
 - Three Segments (Segment 1 with zoomed in images)
 - TN, TP, TOC, chlorophyll-a
- Today, we will look at TOC and chlorophyll-a in Segment 1 as examples of the figures
- Many interacting processes are affected by scenarios
 - Accumulation of nutrients and timing of washoff events
 - Processes in upstream impoundments
 - Less rainfall
 - Delivers less wet deposition
 - More stagnant conditions in Falls Lake
 - More thermal stratification in the summer
 - Greater importance of nutrient releases from lake sediments

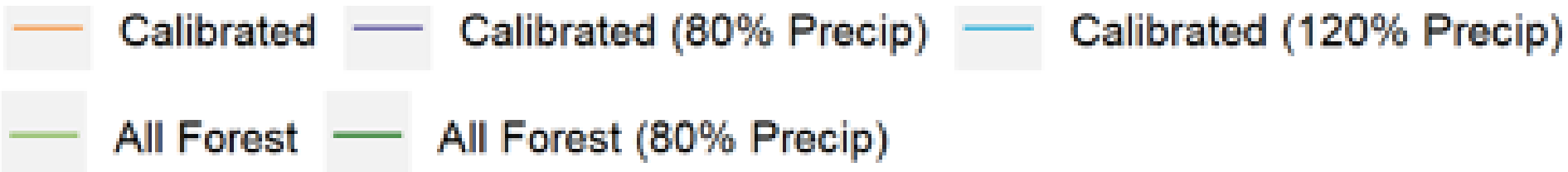
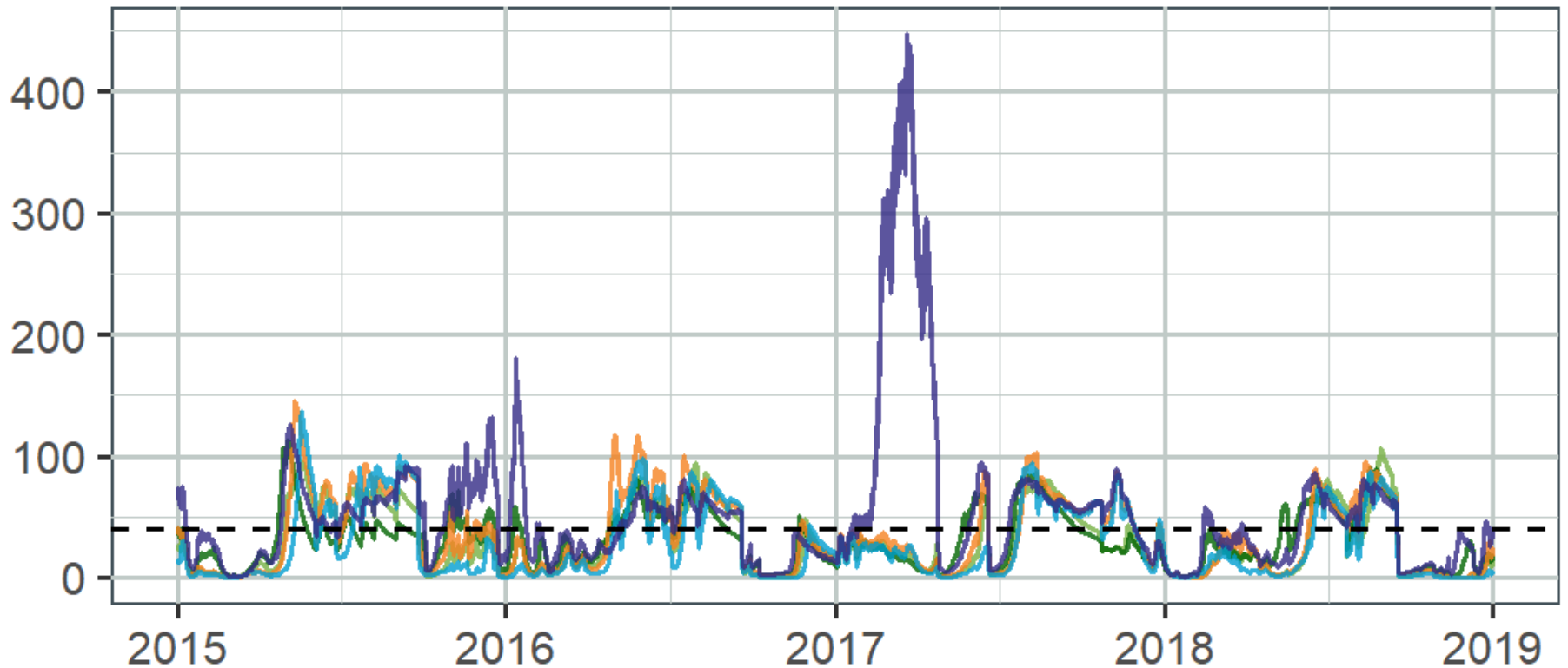
Total Organic Carbon (mg/L) – WARMF Lake Scenario Comparison

Segment 1



Chlorophyll-a ($\mu\text{g/L}$), WARMF Lake Scenario Comparison

Segment 1



Preliminary Findings from WARMF Lake Analyses

- None of the modeling scenarios will meet the chlorophyll-a criterion in Segment 1 upstream of I-85
- Segment 1 is particularly sensitive to rainfall
- Scenarios affect water quality differently at various times and locations
- Exceedances of 40 $\mu\text{g}/\text{L}$ chlorophyll-a decrease in the downstream direction

Statistical/Bayesian Modeling Status

- The modeling team has conducted an extensive effort to compile, merge, review, and format datasets for the statistical model.
- The Technical Advisors Workgroup (TAW) met in February to review the last three data sets and categorization
- The third-party model reviewers have reviewed the input datasets and categorization
- The modeling team is exploring correlations among the datasets now for review by the TAW and third-party reviewers
- Plan to bring correlations to the PFC in April and May

Lake Model Reporting Status

- The modeling team is continuing to draft sections and appendices of the lake modeling report.
- The lake modeling report will include technical appendices for each lake model
- Sections of the draft lake model report will be reviewed by the MRSW in late spring 2023
- We have worked with the MRSW and subject matter experts on time series comparisons to observed lake data

**Developing Recommendations
for a Revised Nutrient
Management Strategy and a
Petition for a Site-Specific
Chlorophyll-a Water Quality
Standard**

Development of Principles and Concepts for a Revised Strategy

- During the [November](#), [December](#), and [January](#) PFC meetings, the PFC discussed concepts and principles under consideration for inclusion in the UNRBA's recommendations for a revised Falls Lake Strategy/Revised Falls Lake Rules.
 - Used to develop a preliminary draft document that describes the concepts and principles.
 - Provided to the PFC for review
 - Outline follows on the next slides
- The development of principles and concepts for review and approval by the PFC will lead to specific recommendations for revised rules.
- The UNRBA will continue to work in cooperation with DEQ and DWR to consider specific rule modifications, the revised strategy, and petition for site-specific chlorophyll-a standard
- The UNRBA and other stakeholders have identified an expanded list of stakeholders to begin reaching out

Outline of the Draft Document (Sections 1-3)

Executive Summary

(will be developed after comments are received on the initial draft)

1. Background and Supporting Information
 - A. History of the Reservoir and the Falls Lake Rules
 - B. Regulatory and Statutory Requirements, UNRBA Response, and Limitations of the Current Management Approach
 - C. Adaptive Management Provision--Reexamination of the Rules
 - D. Key Findings from the Monitoring and Modeling Studies
 - i. UNRBA Monitoring Program
 - ii. UNRBA Watershed Modeling
 - iii. Lake Water Quality Modeling
 - E. Stakeholder Involvement
 - F. Stage I Existing Development Interim Alternative Implementation Approach (IAIA)
 - G. Development of the UNRBA Recommendations for a Revised Management Strategy
2. Guiding Principles for a Revised Strategy
3. Nutrient Reduction Opportunities

Outline of the Draft Document (Sections 4-7)

4. Comprehensive Approach to Nutrient Management
 - A. Site-Specific Chlorophyll-a Standard
 - B. Urban Development, State, Federal, and Institutional Lands
 - C. Opportunities for Partnering on Agricultural Lands
 - D. Forest Lands
 - E. Streambank Erosion
 - F. Atmospheric Deposition and Climate Resilience
 - G. Distributed Wastewater Sources
 - H. Point Sources (Major and Minor)
 - I. New Development
 - J. Ideas Discussed but Not Included
5. Program Administration
 - A. Structure of the Watershed Organization
 - B. Investments
 - C. Duration
 - D. Reporting
 - E. Compliance Determination
6. Status of the Concepts and Principles Document
7. References

Petition for Site-Specific Chlorophyll-a Criteria and Evaluations of Legal Approaches

- The subject matter experts continue to evaluate other State's site-specific standards for chlorophyll-a and nutrient-related standards.
- Dr. Marty Lebo continues to integrate his work into the statistical modeling and regulatory support efforts.
- The modeling efforts will also inform development of an appropriate, attainable site-specific criteria
- The legal group met after the January Board meeting to discuss options for a pathway to a revised strategy and the development of a site-specific standard proposal/petition

Timeline for Developing Recommendations

- **March 2023**
 - Discuss preliminary document describing concepts and principles
- **April 2023**
 - Discuss correlations of statistical model data inputs
- **Spring 2023**
 - Expand stakeholder engagement
 - Meet with DWR and EPA
- **Summer 2023**
 - Propose legislation as needed; update draft recommendations package
- **Fall 2023**
 - Stakeholder workshop to review a final draft document
 - Provide our report to the Collaboratory for reference
- **December 2023 - Legislative requirements for Submittals**
 - NC Policy Collaboratory final Falls Lake report
 - Submittals from other groups (UNRBA)
- **DWR to begin rule making within 6 months/no later than December 2024**
 - DWR to begin their stakeholder process
- **DWR anticipates rules readoption by 2026/2027**

Continued engagement with Collaboratory researchers

Coordination with DEQ

- The UNRBA has been meeting with DEQ and DWR leadership to discuss coordination efforts to finalize the models, develop a revised nutrient management strategy, and develop a petition for site specific criteria.
- Plans are under development on how to coordinate with DEQ and EPA on our general objectives for a revised strategy and a site-specific standard.
- DWR has hired a standards coordinator that replaces the former coordinator who retired. As a result, we anticipate the Division will identify a contact for us to work with on developing the site-specific standard recommendation/petition.
- The UNRBA will continue to work with other stakeholders on these items as well.

Stakeholder Engagement

- We have reached out to other regulated stakeholders, specifically agriculture, DOT and forestry, to provide input and participate in these discussions.
- We will expand this outreach to include stakeholders impacted by all aspects of the current rules, including
 - General public (in coordination with member staff)
 - Other state and federal facilities
 - Development community (new development rule)
 - Farmers and landholders
 - USACE
 - County Health Departments
 - EPA
 - NC Attorney General and Administration
 - EMC Water Quality Committee

Potential Statutory and Regulatory Revisions

- As the UNRBA works to develop its recommendations for a revised strategy and a site-specific standard, it will be necessary to consider potential statutory and regulatory revisions that will allow a more flexible watershed management approach.
- This will involve some legal and legislative actions that will require coordination with the agency and the Legislature.
- The Executive Director is authorized generally to undertake these activities; however, it is requested that the Board reaffirm this authorization considering that outreach to the agency and legislators will be necessary during the current Long Session of the General Assembly.
- The Executive Director will continue to seek assistance from the Legal Group and the UNRBA's Advisory Attorney as approaches are considered and evaluated
- We request that the Board vote to note this ongoing authorization.

Communications

Communications Outreach and Preparation

- Continued engagement with DWR and Collaboratory researchers (meeting planning underway)
- WRI Falls Lake Session
 - March 23, 2023
- Joint symposium with NC Policy Collaboratory
 - April 19, 2023
- Workshop with DWR/NC Policy Collaboratory/NGOs
 - Late spring/early summer 2023
- UNRBA Technical Stakeholder Workshop
 - Fall 2023
- Regulatory forum to discuss rules revision process
 - Spring 2024
- Recent staff changes at member local governments highlight the need for UNRBA engagement from multiple staff across the levels of each local government.

Communications Outreach and Preparation

- The Executive Director will continue to reach out to local government staff to identify needs and support staff with implementation of the IAIA Program and participation in developing the revised nutrient management strategy.
- Planning a press release on the Neuse River of the Year for the upper part of the watershed following event details from American Rivers
 - The Board suggests including the Year 1 IAIA Report and the 2022 UNRBA Status Report as part of this release
- BC communications staff have been identified to support development of press releases and videos
- Discussions at the March 7th PFC meeting identified several priorities for increasing communication to the general public about the UNRBA, specifically including the IAIA, and the upcoming decisions on a revised strategy.

Ongoing Discussions/Issues

Ongoing Discussions/Issues

- Intensive workgroup activity and management of expectations and resources—A lot to do between now and recommendations at the end of 2023
- Ongoing DEQ/DWR Items—MOA, Neuse Watershed Model Information Session / Delivery Factors for WWTP, etc.—we plan to address in our follow-up meetings with DEQ/DWR

Closing Comments

**Next UNRBA Board Meeting is Scheduled
for May 17, 2023
Butner Town Hall 9:30 AM to Noon**