Path Forward Committee Meeting
Butner Town Hall, April 4, 2023

Agenda

- Opening Comments, Agenda Review/Revisions
- Proposed Schedule Change for May PFC Meeting
- Modeling and Regulatory Support Status
- Developing Recommendations for a Revised Nutrient Management Strategy and a Petition for a Site-Specific Chlorophyll-a Water Quality Standard
- Approach for Developing the Modeling and Regulatory Support Contract and Scope of Work for FY2024
- Gathering Data from Local Governments to Support the Cost Benefit Analysis
- Communications Support
- Other Status Items
- Closing

Proposed Schedule Change for May PFC Meeting

Proposed Schedule Change for May PFC Meeting

- The Executive Director has discussed cancelling the May PFC meeting with the Co-Chairs.
- Preparation for the May Board meeting would be handled by email as discussed in the sections below.
- The Co-Chairs have agreed to this approach.
- The PFC will consider this change to the meeting schedule.

UNRBA's Approach to Developing a Revised Nutrient Management Strategy

UNRBA's Approach to Developing a Revised Nutrient Management Strategy

- Develop scientific information and data
  - Expanded monitoring data and extensive modeling
  - Evaluating reductions to meet the current standard and feasibility
  - Examining the appropriateness of the conventional source-control framework to meet water quality criteria
  - EFDC model estimates that meeting chl-a at I-85 would require an additional 50% reduction in TN – and not affect chl-a at the dam which has consistently been low since the 1980s
- Apply what we've learned to develop a revised strategy
  - Development of a draft concepts and principles document to inform the revised strategy (brainstorming and stakeholder input stage)
  - Expanding the partners (watershed, interested public, and users)
  - Dealing with the realities of the watershed – we cannot meet the chlorophyll-a criteria as currently applied no matter what changes occur in the watershed
  - Proposing a new paradigm using an innovative, long-term approach

Modeling and Regulatory Support Status

Watershed Model Report

- The watershed modeling report and appendices are being revised
  - Address MRSW and DWR comments
  - Include results of the watershed model sensitivity analyses and scenarios
  - Additional evaluations were requested during the March PFC meeting.
- Revised report will be provided to Forrest and Michelle for review in April
- Next, it will be distributed to the MRSW for review and additional comment
- Following refinements in response to the 2nd MRSW review, a clean version will be provided to the PFC for review and comment
- Following additional refinements, the report will be formally submitted to DWR
- The model executable, input files, and output files have already been provided to DWR

WARMF Watershed Model Scenarios

WARMF Sensitivity Analyses and Scenarios Evaluated

Short Name	Description/Purpose
UNRBA Study Period	Calibrated model for the UNRBA Study Period (2015-2018)
20% less rainfall	Simulate changes to delivered nutrient loading with less rainfall
20% more rainfall	Simulate changes to delivered nutrient loading with more rainfall
25% less atm dep.	Simulate changes to delivered nutrient loading with less atmospheric deposition which affects all land surfaces
25% more atm dep.	Simulate changes to delivered nutrient loading with more atmospheric deposition which affects all land surfaces
All Forest, study period rainfall	Simulate the lowest loading to Falls Lake that could **hypothetically** occur if human inputs were removed all land converted to forests
All Forest, study period rainfall, increased vertical conductivity	**Same as above with increased vertical hydraulic conductivity in the Ellerbe Creek subwatershed**
All Forest, 20% less rainfall	Same as above with less rainfall

Comparison of Delivered Loads to Falls Lake

- The following tables show the total loads delivered to Falls Lake from either the
  - Entire Watershed (~492 thousand acres)
  - Upper five tributaries (~316 thousand acres, 64% of area)
- Only the upper five tributaries were assigned load allocations in the Falls Lake Rules
- Allowable loads and baseline loads were based on year 2006 conditions (Falls Lake Rules)
  - Baseline loads based on observed flows and tributary water quality data from the five largest tributaries
  - 2006 was within the historic drought period, but that year had three very large storms and the total was close to the average amount for the watershed
  - Water quality observations used to set the load allocations reflect inputs of fertilizer, atmospheric deposition, and WWTP discharges present during the baseline period

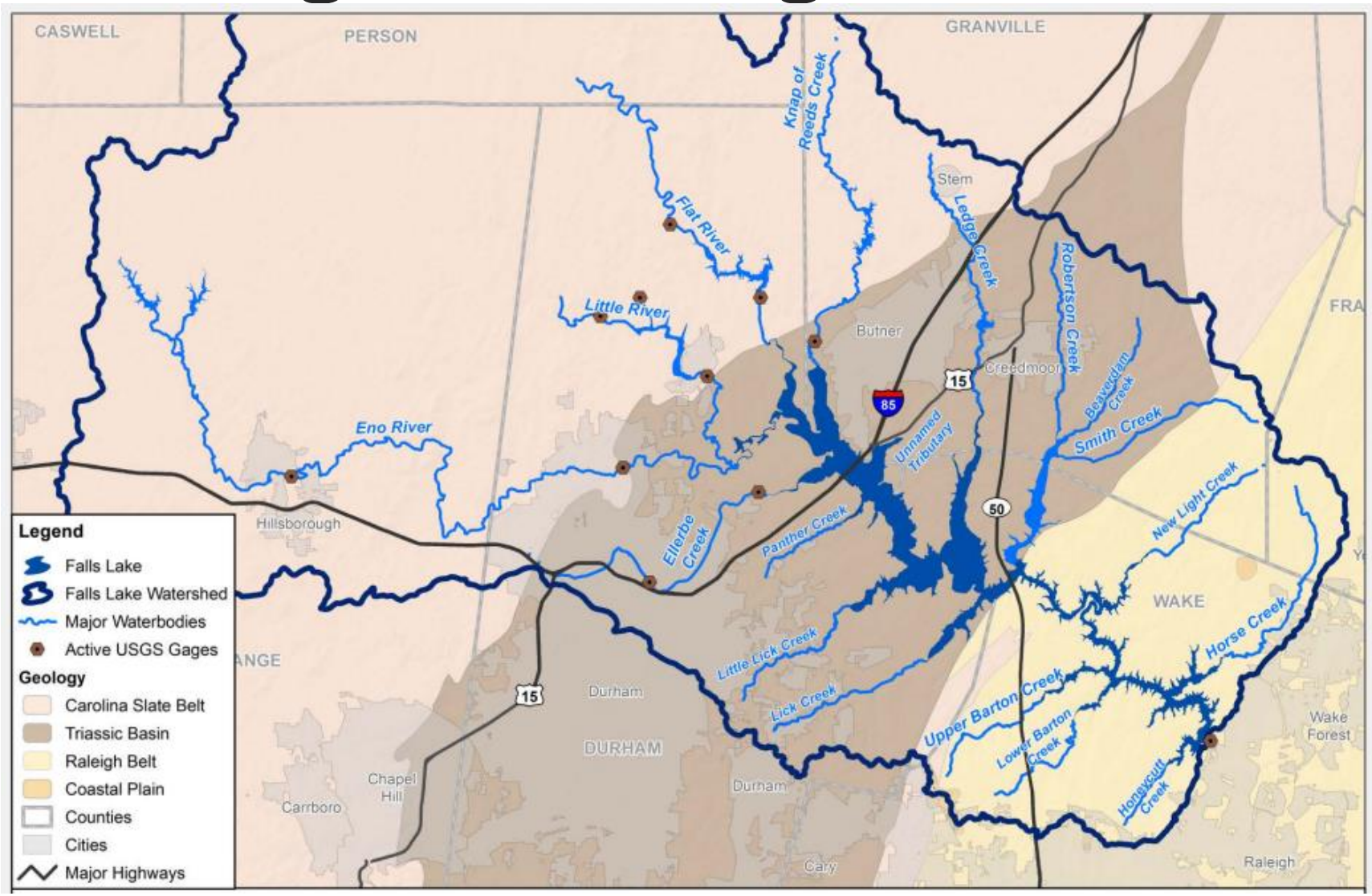
Scenario Variants (Table Columns)

- **Land uses** - 2015 to 2018, 2006, or "all forests and wetlands"
- **Rainfall** - average to wet based on the 6-hr precipitation inputs for the 2015 to 2018 model, dry to average rainfall where each of the 6-hr precipitation inputs is multiplied by 0.8, or very wet where each of the 6-hr precipitation inputs is multiplied by 1.2
- **Human inputs** (other than atmospheric deposition) - 2015 to 2018 inputs, 2006 inputs, or "none" to represent the "all forests and wetlands" condition
- **Rates of atmospheric deposition -** based on data collected near the watershed for 2015 to 2018, the 2015 to 2018 rates multiplied by 0.75 to represent 25 percent less atmospheric deposition, the 2015 to 2018 rates multiplied by 1.25 to represent 25 percent more atmospheric deposition, or the 2006 conditions inherently captured in the baseline tributary monitoring data.
- **Vertical hydraulic conductivity of urbanized catchments** – For the all forest/no human inputs scenario, hydraulic conductivities in Ellerbe Creek (more developed) were increased to match other catchments in the Triassic Basin (less developed)

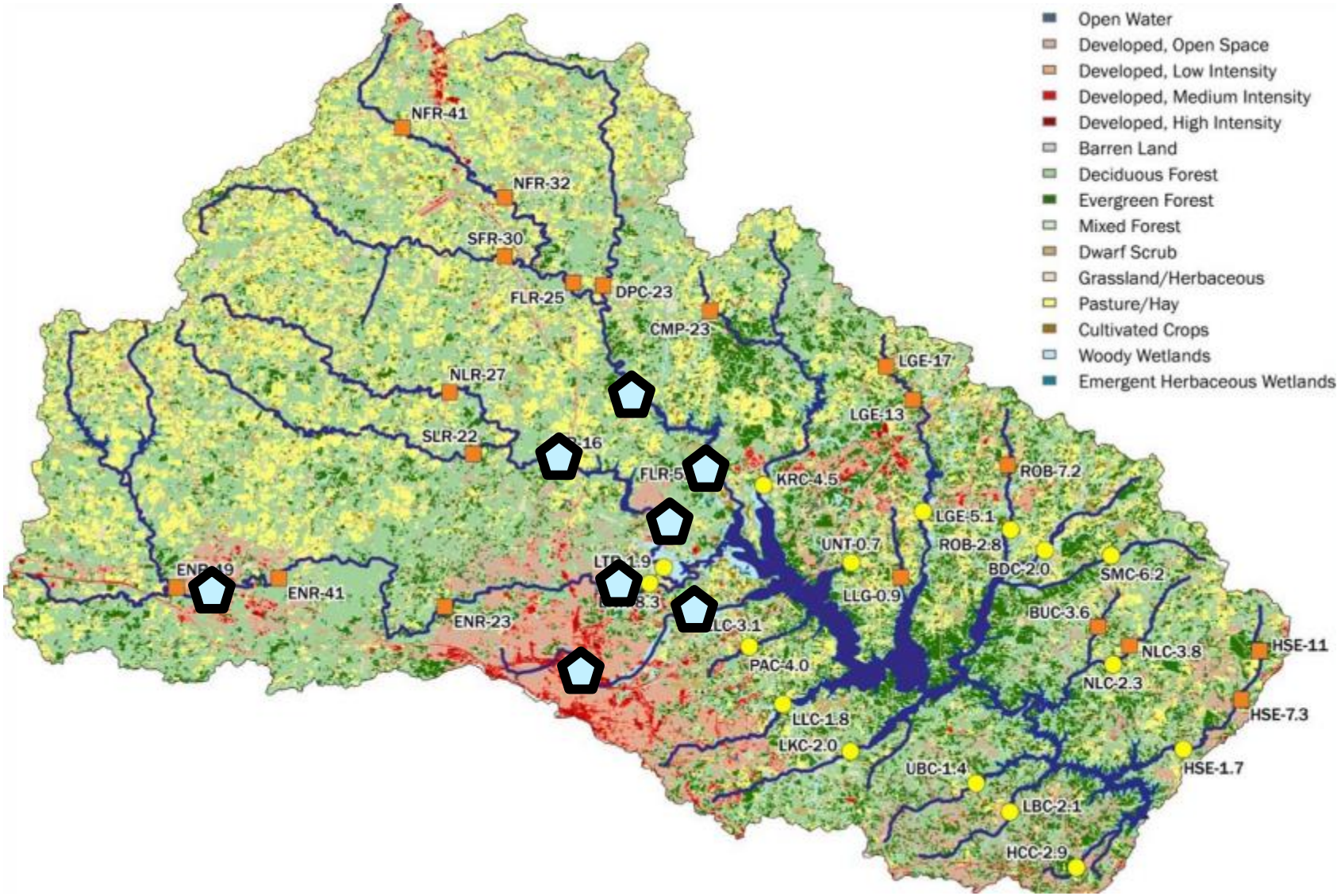
Scenario Variants Table

Short Name	Land use	Rainfall	Human Inputs	Atm. Dep.	Vertical hydraulic conductivity
UNRBA Study Period	**2015-18**	**Avg. to wet**	**2015-18**	**2015-18**	**Calibrated model**
25% less atm. dep	2015-18	Avg. to wet	2015-18	-25%	Calibrated model
25% more atm. dep	2015-18	Avg. to wet	2015-18	+25%	Calibrated model
20% less rainfall	2015-18	Dry to avg.	2015-18	2015-18	Calibrated model
20% more rainfall	2015-18	Very wet	2015-18	2015-18	Calibrated model
All Forest, study period rainfall	Forest	Avg. to wet	None	2015-18	Calibrated model
All Forest, 20% less rainfall	Forest	Dry to avg	None	2015-18	Calibrated model
All Forest, study period rainfall, increased vertical conductivity	**Forest**	**Avg. to wet**	**None**	**2015-18**	**Increased in Ellerbe Creek**

USGS Gages and Geologic Basin



USGS Gages and Land Use



Hydrologic Calibration Approach

- All catchments draining to a USGS gage were assigned the same vertical hydraulic conductivity
  - The majority of drainage area to each gage is in the same geologic basin
  - The majority of the land use is similar
  - Most of the urban area is low intensity, which is only 20 percent impervious
  - Previous work on soil improvement practices indicates after ~35 years, infiltration rates on developed areas approach pre-development
- Only the Ellerbe Creek gages contain a majority of urban land

Testing Revised Vertical Hydraulic Conductivities

- During calibration, vertical hydraulic conductivities in Ellerbe Creek were adjusted to match observed flows
  - Soil layer 1: 2.75 cm/d
  - Soil layer 2: 0.2 cm/d
  - Soil layers 3-5: 1.25 cm/d
- Other catchments in the Triassic Basin
  - Soil layer 1: 3.5 cm/d
  - Soil layer 2: 0.9 cm/d
  - Soil layers 3-5: 1.25 cm/d
- For this All Forest scenario, Ellerbe Creek vertical hydraulic conductivities were changed to match the other Triassic Basin catchments

Delivered Loads To Falls Lake for the All Forest Scenario with 2015 to 2018 Rainfall

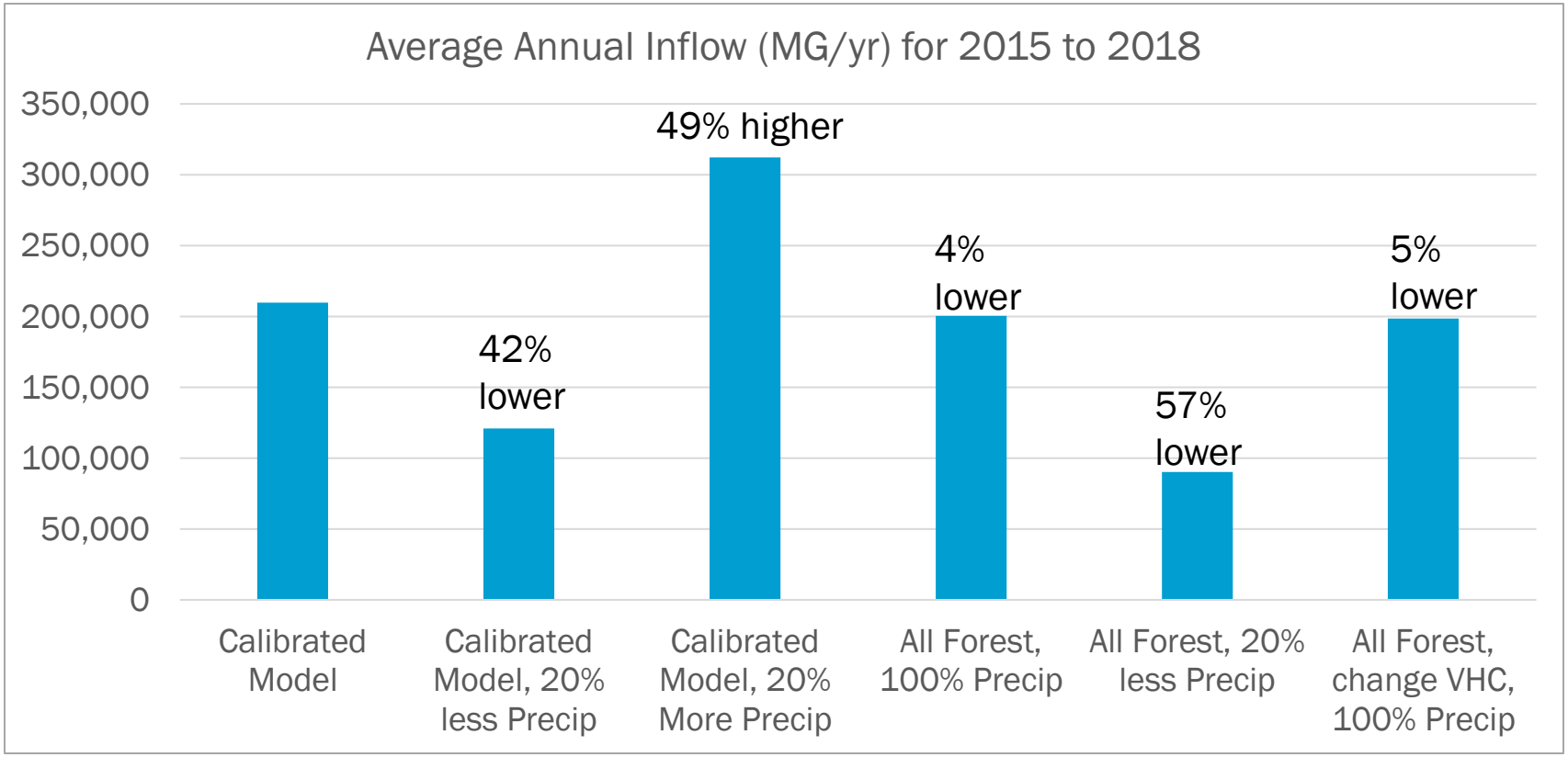
Parameter	Ellerbe Creek	Total Load
TN calibrated model	54,551	1,302,468
TN increase VHC in Ellerbe Creek	46,086	1,293,984
Percent Change	-15.5	-0.7
TP calibrated model	15,404	178,357
TP increase VHC in Ellerbe Creek	12,465	175,416
Percent Change	-19.1	-1.6
TOC calibrated model	536,087	11,685,365
TOC increase VHC in Ellerbe Creek	451,759	11,600,860
Percent Change	-15.7	-0.7

Ellerbe Creek is 3 percent of the drainage area to Falls Lake.

Comparison of Delivered Flows to Falls Lake

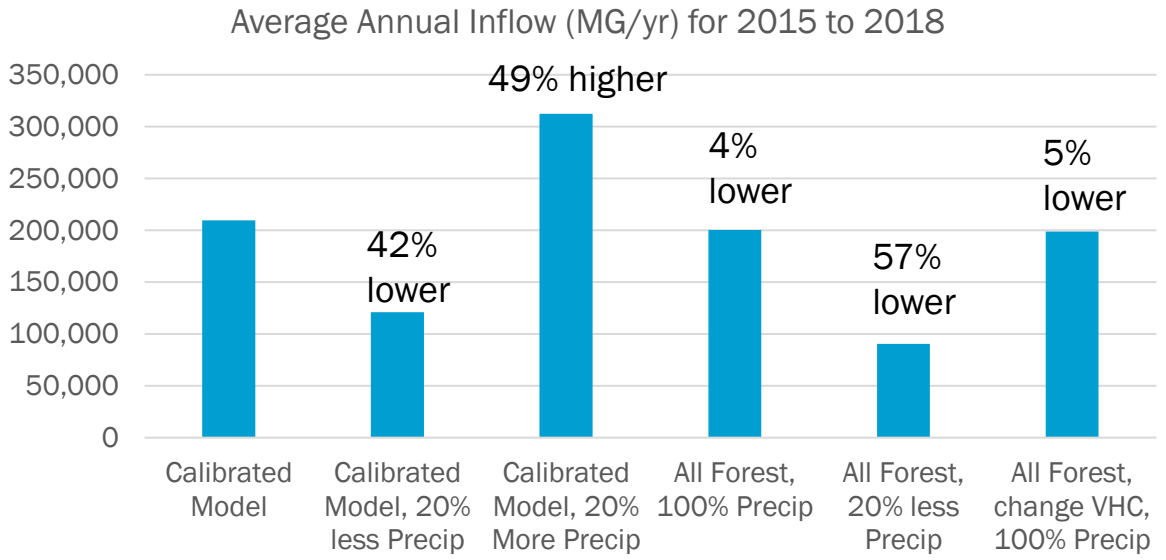
- During the March PFC meeting, information was requested on the delivered flows to Falls Lake for each scenario
- This information was extracted for the calibrated model and scenarios that changed either precipitation or land use

Comparison of Delivered Flows for Scenarios

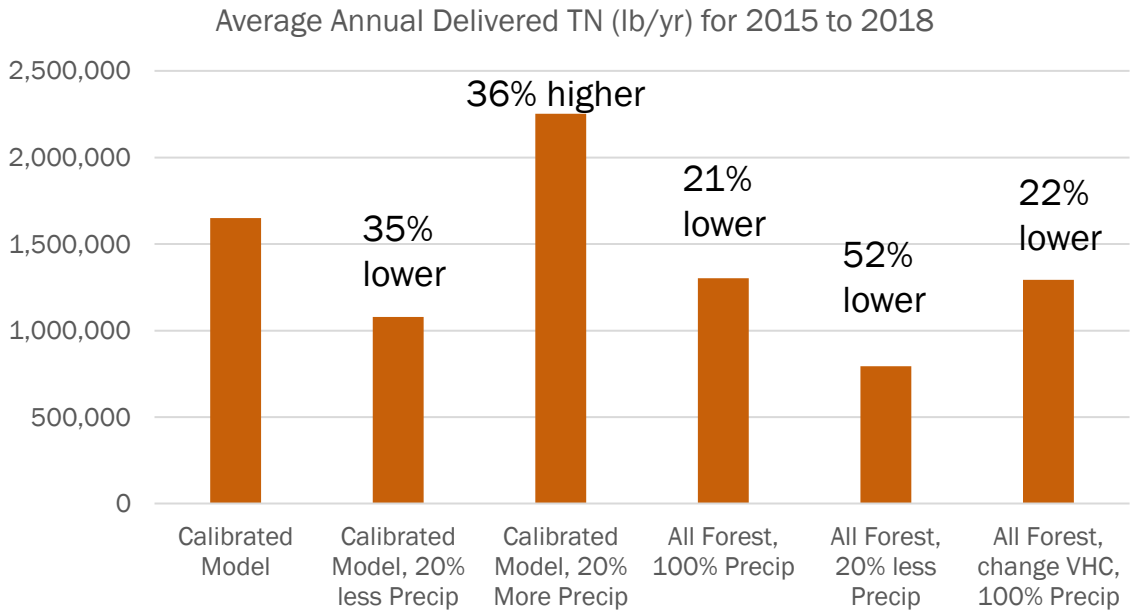


The change to vertical hydraulic conductivity (VHC) only applies to Ellerbe Creek subwatershed where VHC had been adjusted down relative to other subwatersheds in the Triassic Basin.

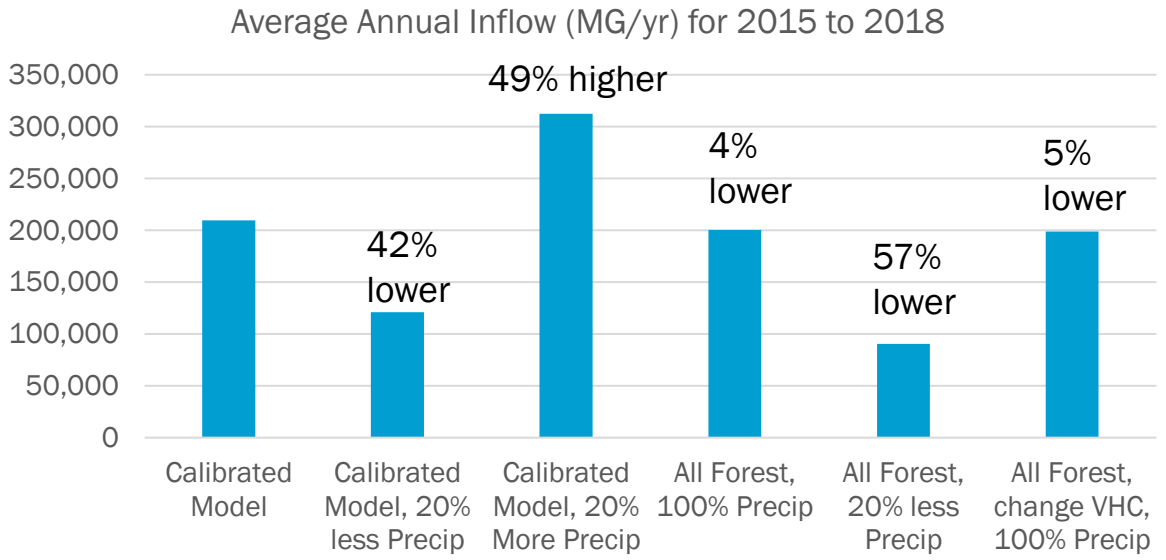
Delivered Flow



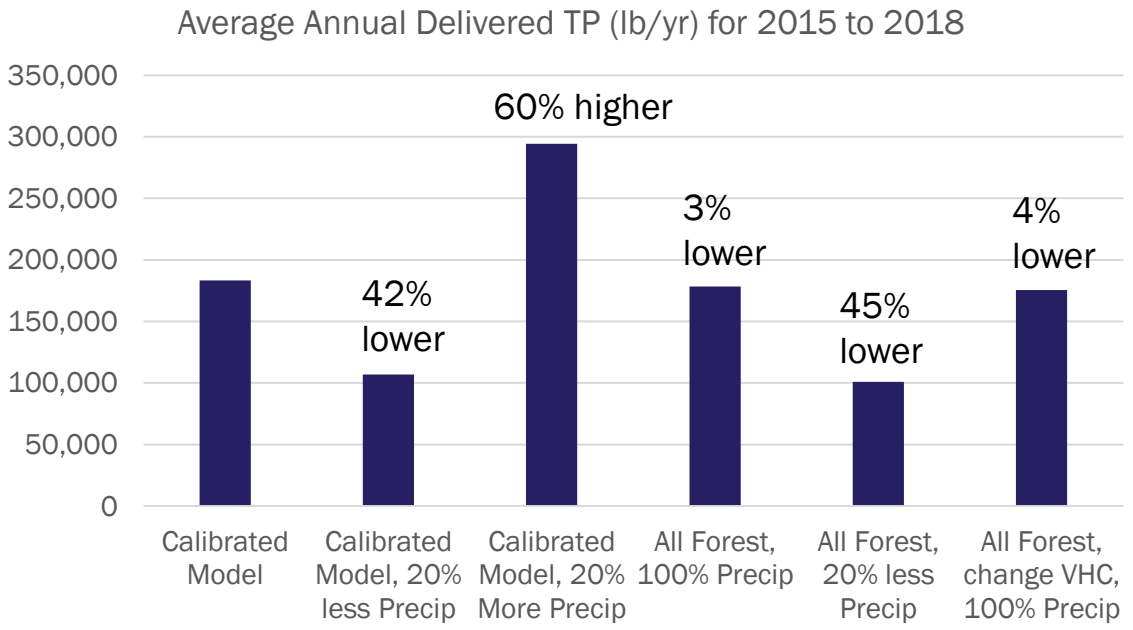
Delivered TN Load



Delivered Flow



Delivered TP Load

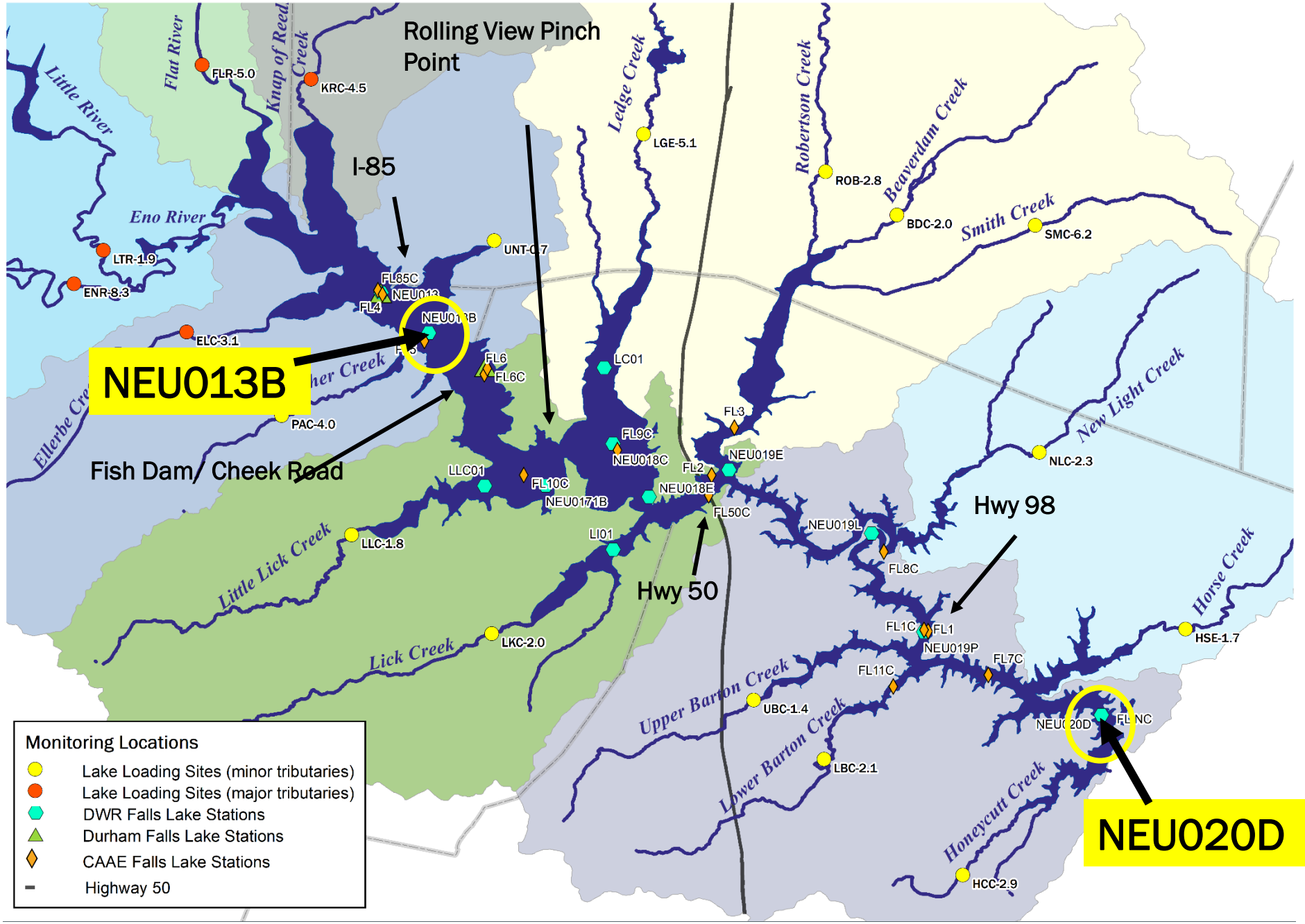


Key Findings from the Additional Watershed Analyses

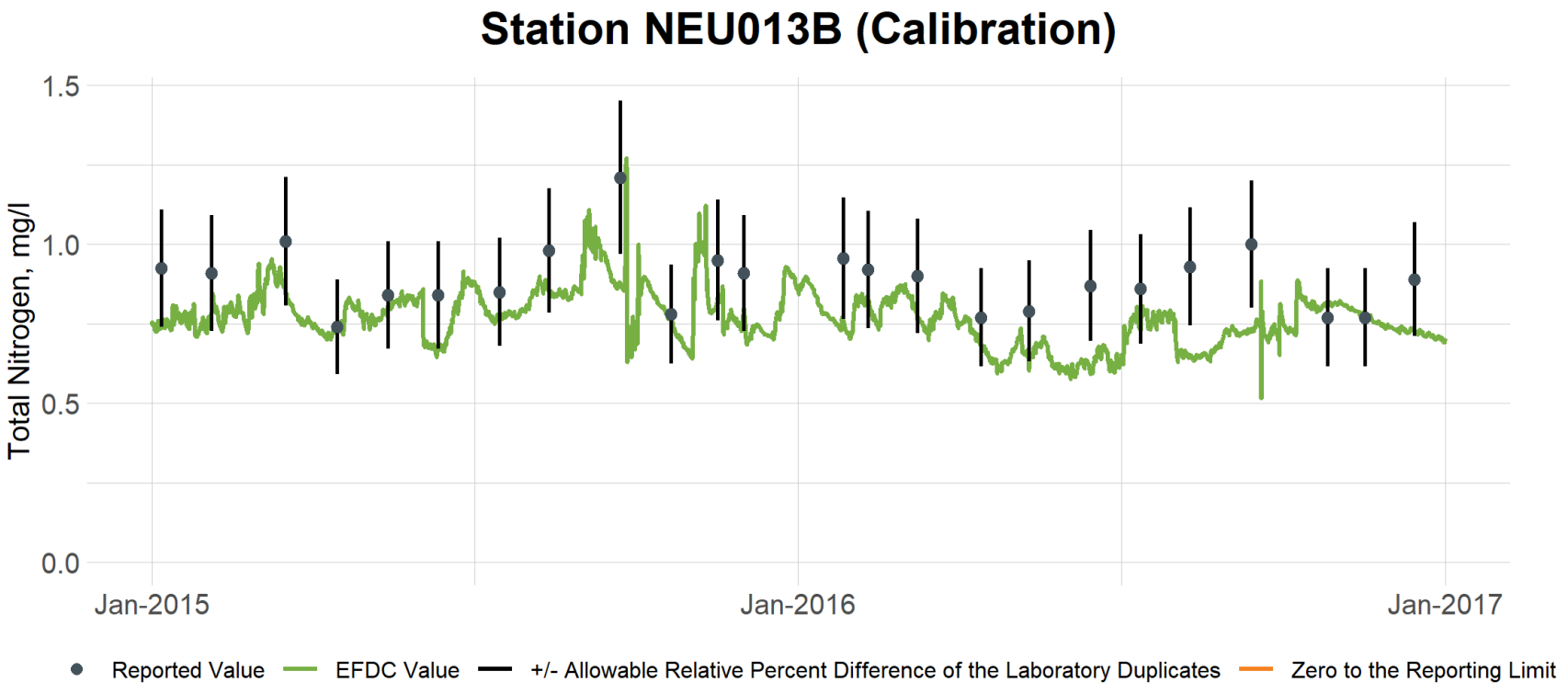
- The amount of impervious surface in the watershed is predominately in the Ellerbe Creek watershed
- Vertical hydraulic conductivities were adjusted in Ellerbe Creek during model calibration to match gaged flows
- Setting those more similar to other catchments in the Triassic Basin reduced loading for the All Forest scenario from Ellerbe Creek but does not significantly affect total delivered load to Falls Lake
- The amount of rainfall drives the amount of delivered flow for all scenarios
- Delivered flow drives delivered nutrient load

EFDC Lake Model Scenarios

Falls Lake Water Quality Monitoring Stations

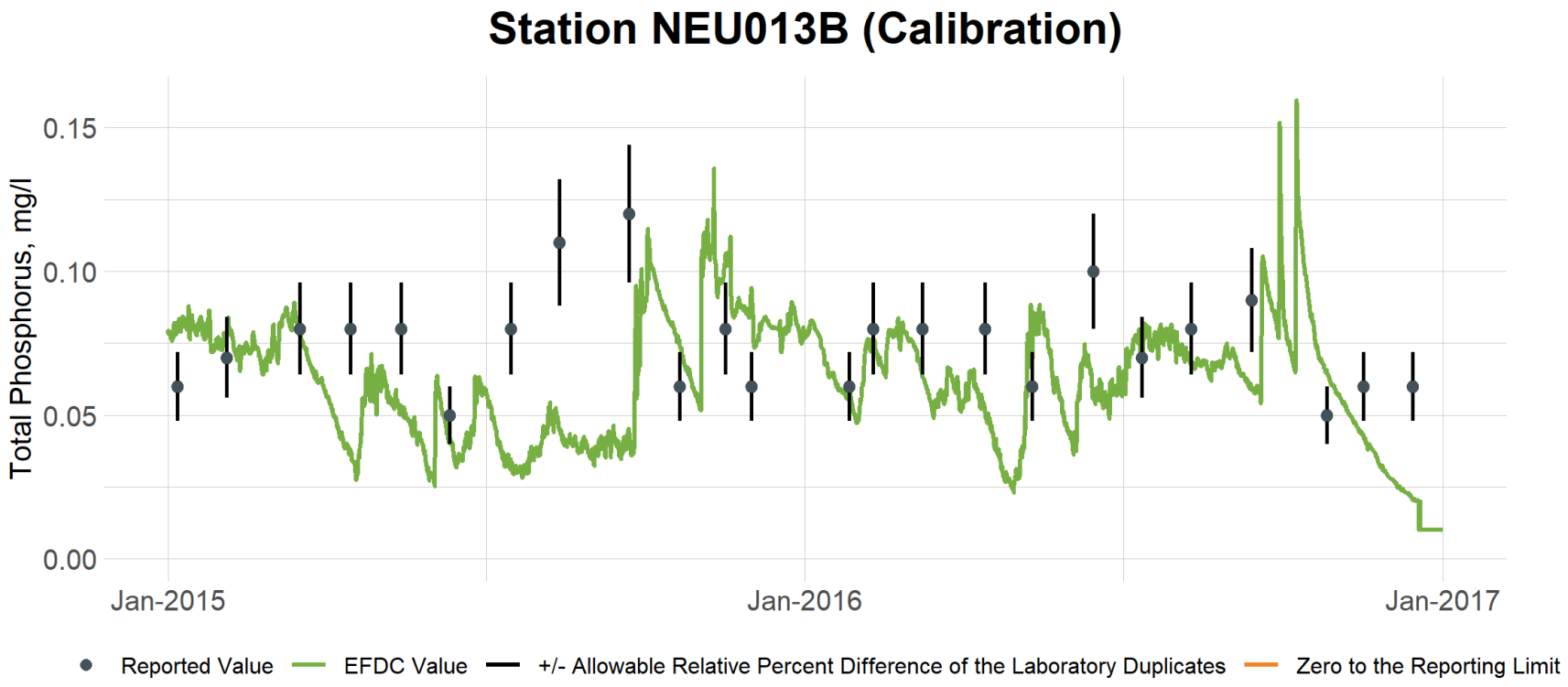


Model Calibration – TN @ NEU013B



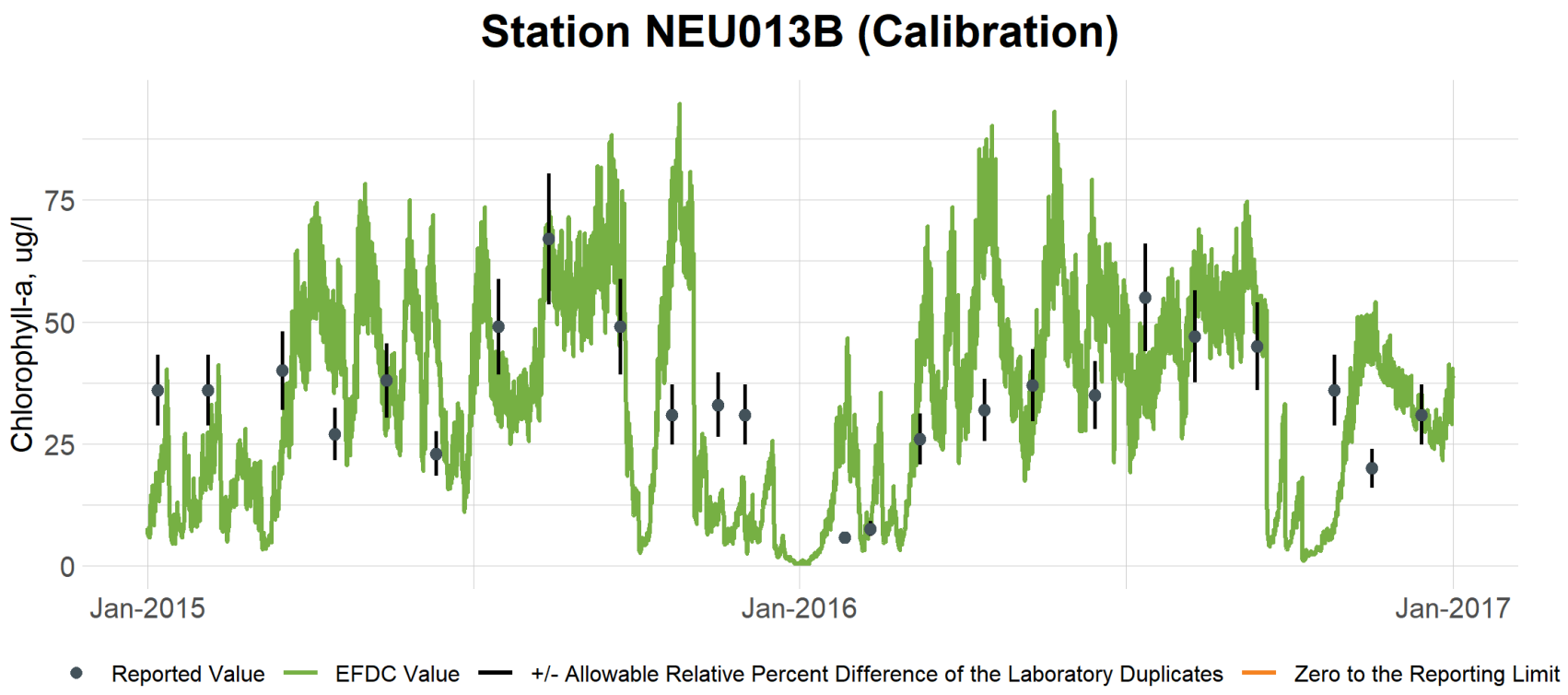
Parameter	Potential Photic Layer	# Pairs	Data Average (mg/L)	Model Average (mg/L)	RMSE (mg/L)	RSR (%)	pBias (%)
Organic N	10	24	0.788	0.598	0.230	170	-24.1
Nitrate	10	24	0.085	0.134	0.104	98	57.3
Ammonia	10	24	0.017	0.026	0.023	151	57.9
TN	10	24	0.890	0.759	0.161	160	-14.8

Model Calibration – TP @ NEU013B



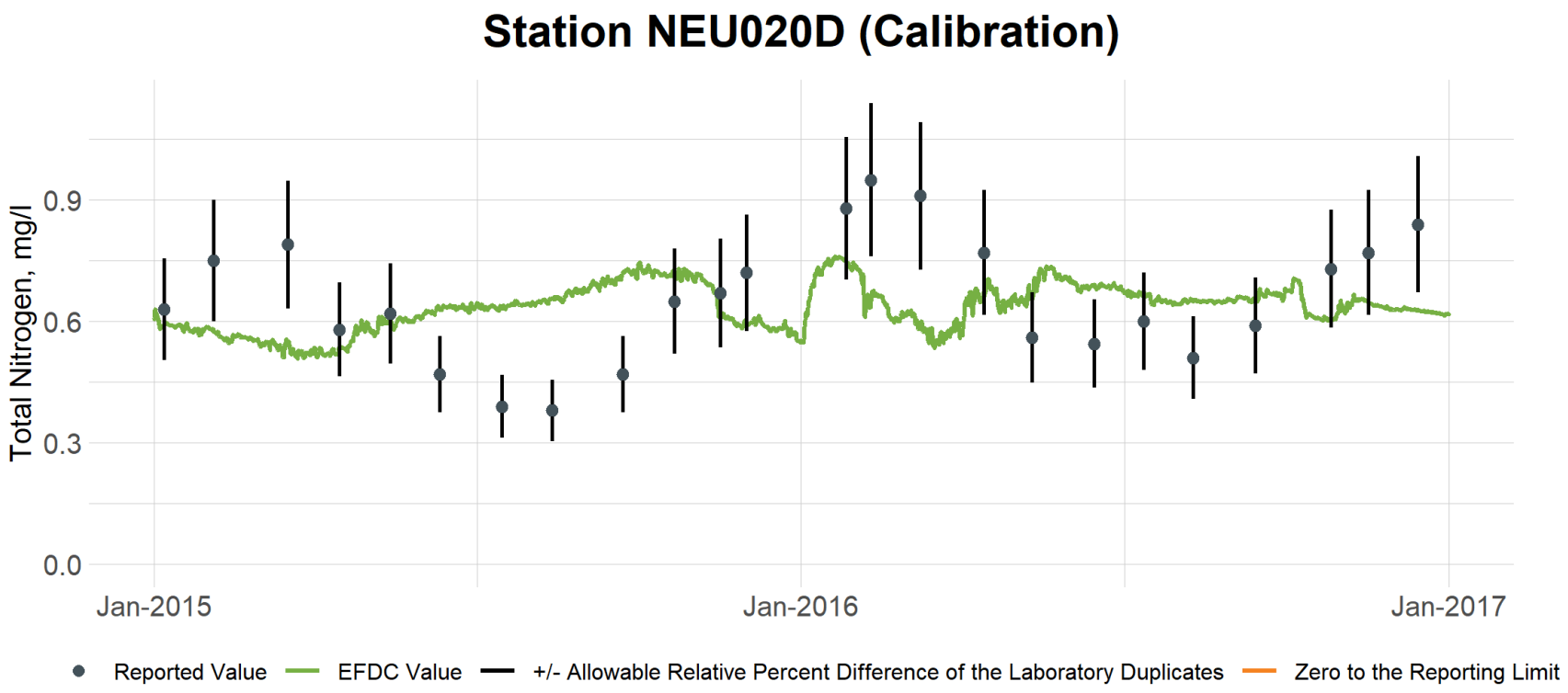
Parameter	Potential Photic Layer	# Pairs	Data Average (mg/L)	Model Average (mg/L)	RMSE (mg/L)	RSR (%)	pBias (%)
TP	10	24	0.075	0.061	0.031	184	-18.2

Model Calibration – Chlorophyll-a @ NEU013B



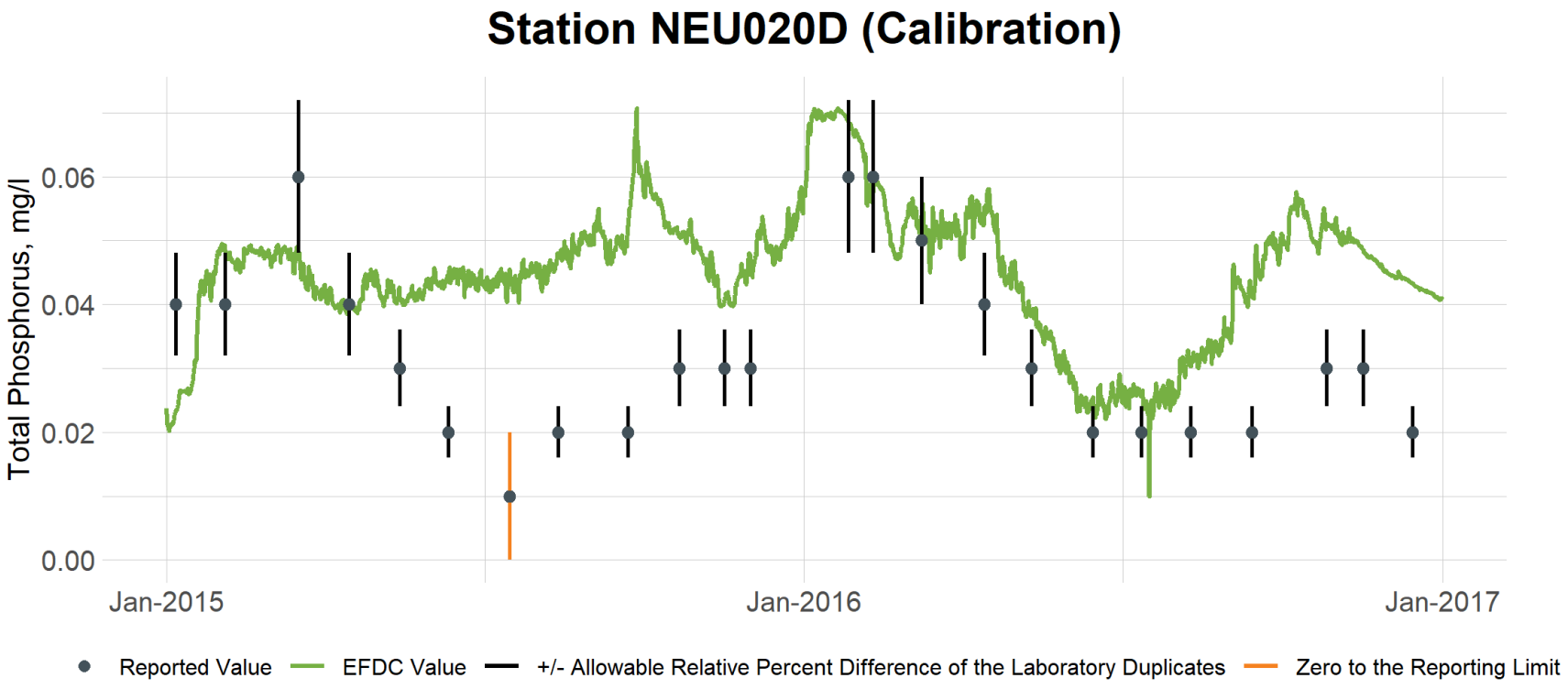
Parameter	Potential Photic Layer	# Pairs	Data Average (mg/L)	Model Average (mg/L)	RMSE (mg/L)	RSR (%)	pBias (%)
Chl-a	10	24	34.9	37.4	20.2	151	7.2

Model Calibration – TN @ NEU020D



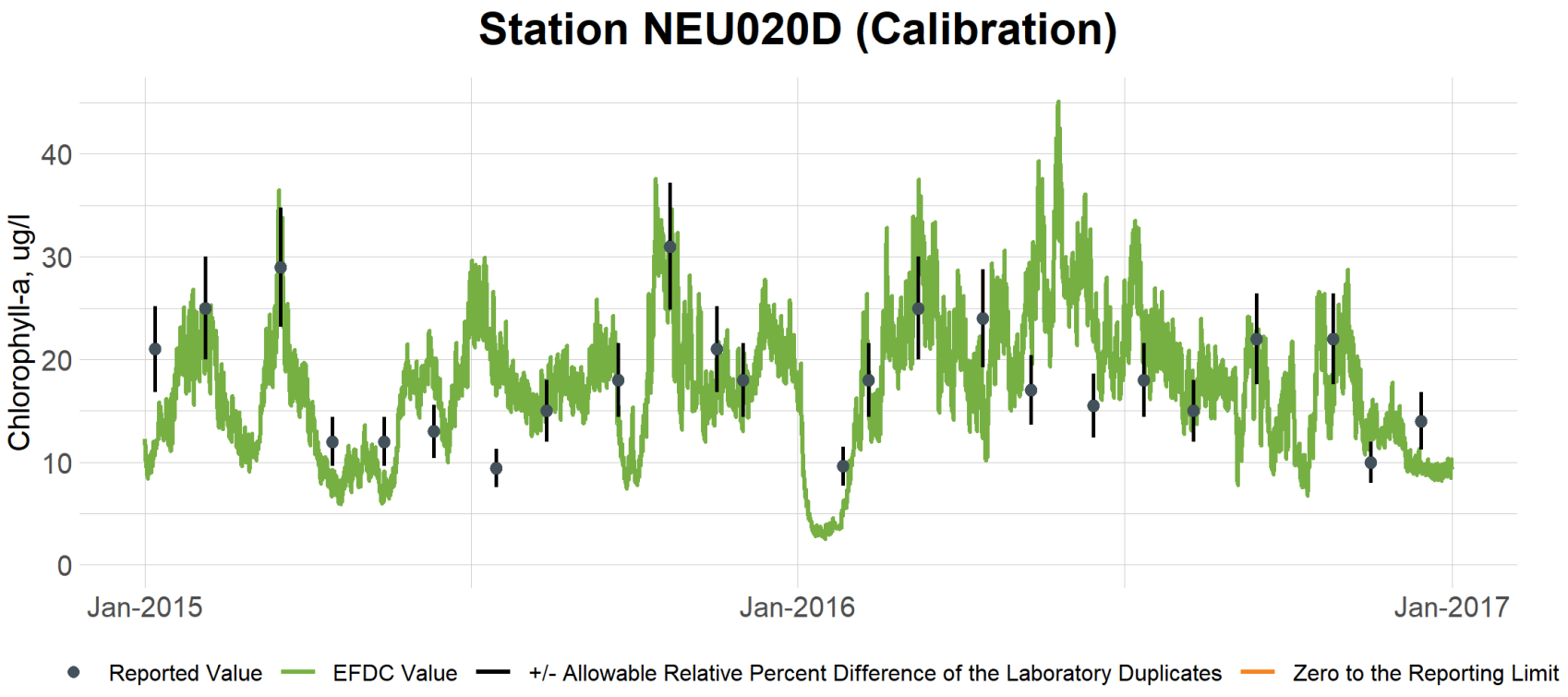
Parameter	Potential Photic Layer	# Pairs	Data Average (mg/L)	Model Average (mg/L)	RMSE (mg/L)	RSR (%)	pBias (%)
Organic N	8, 9, 10	24	0.529	0.583	0.117	154	10.2
Nitrate	8, 9, 10	24	0.078	0.036	0.088	102	-53.7
Ammonia	8, 9, 10	24	0.050	0.017	0.059	122	-66.0
TN	**8, 9, 10**	**24**	**0.657**	**0.636**	**0.172**	**111**	**-3.2**

Model Calibration – TP @ NEU020D



Parameter	Potential Photic Layer	# Pairs	Data Average (mg/L)	Model Average (mg/L)	RMSE (mg/L)	RSR (%)	pBias (%)
TP	8, 9, 10	24	0.032	0.045	0.018	127	39.0

Model Calibration – Chlorophyll-a @ NEU020D



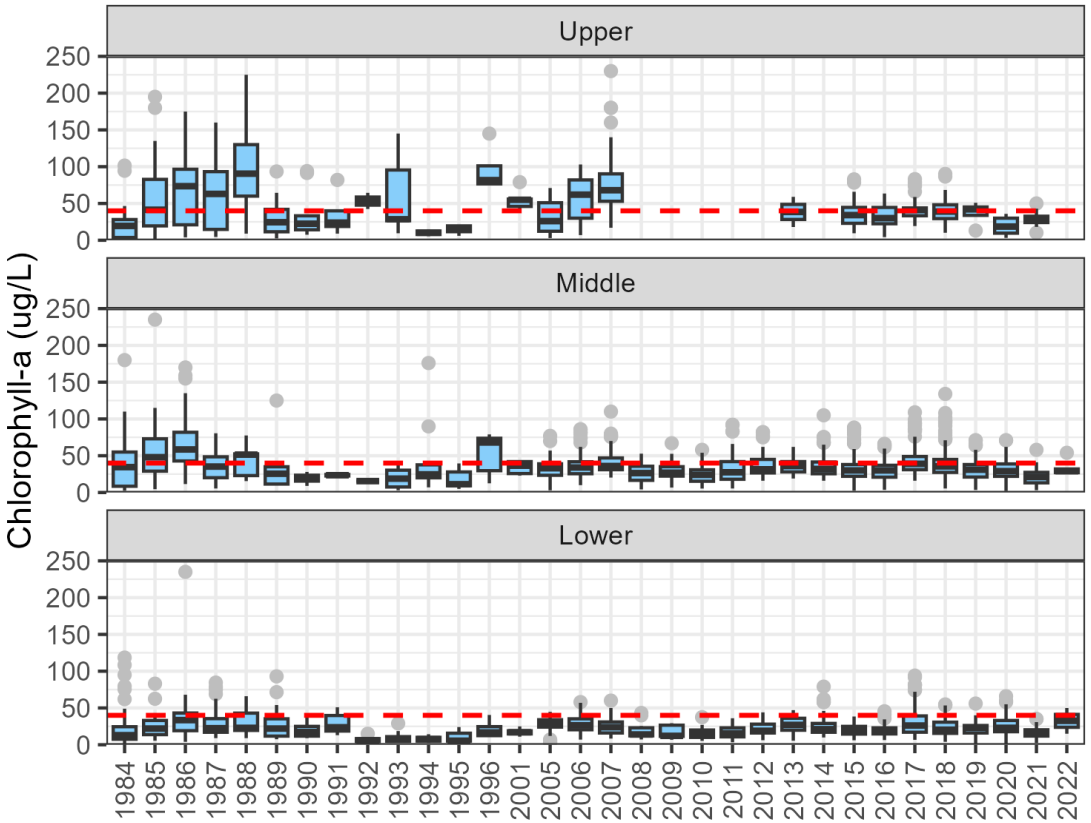
Parameter	Potential Photic Layer	# Pairs	Data Average (mg/L)	Model Average (mg/L)	RMSE (mg/L)	RSR (%)	pBias (%)
Chl-a	8, 9, 10	24	18.1	17.7	5.0	85	-2.2

Comparison of Chlorophyll-a Data

Chlorophyll-a data collected in the upper lake has historically been more variable than the middle or lower lake.

The middle lake has some variability and the lower lake has very little.

Even when chlorophyll-a concentrations were relatively high in the 1980s in the upper lake, the lower lake concentrations were very similar to concentrations from recent years.



EFDC Model – 25-year and 50-year runs

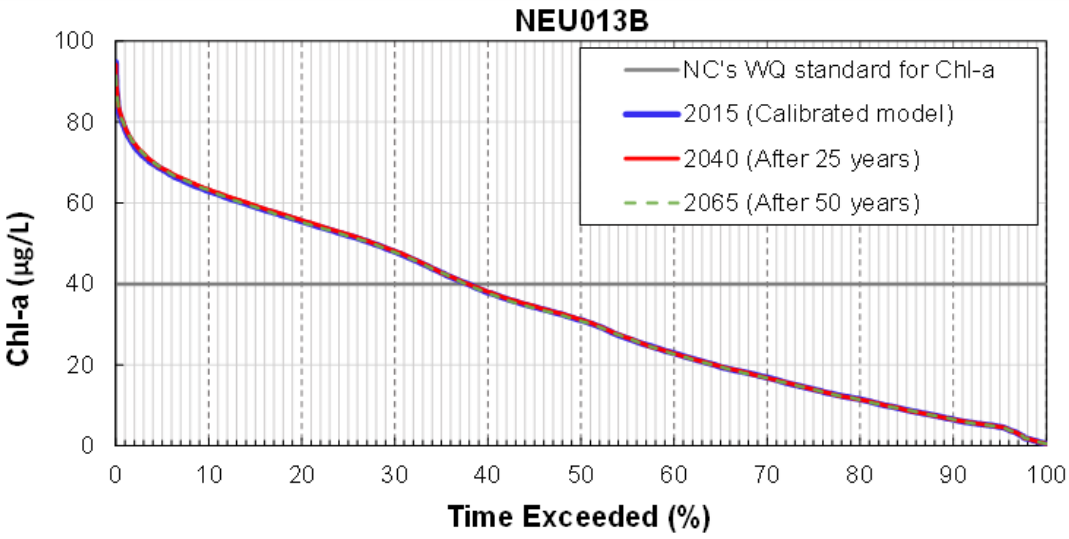
- As discussed by the PFC, the EFDC model was selected to evaluate running the model with 2015 to 2018 inputs for 25 and 50 years out (sediment diagenesis module)
- The purpose was to see if the chlorophyll-a would decrease over time due to improved (current) loading from the watershed and reduced N and P releases from sediments
- While the model does show some reductions in N and P releases from sediments, the chlorophyll-a concentrations were not significantly affected
- We still have 1.65 million pounds of N and 183,000 pounds of P entering the lake on average each year during this period
- This is a sufficient amount to sustain the algal population and the nutrients in the lake sediments
- These figures focus on changes to chlorophyll-a for the calibration years only (2015 and 2016) because these years had the best model fit to data

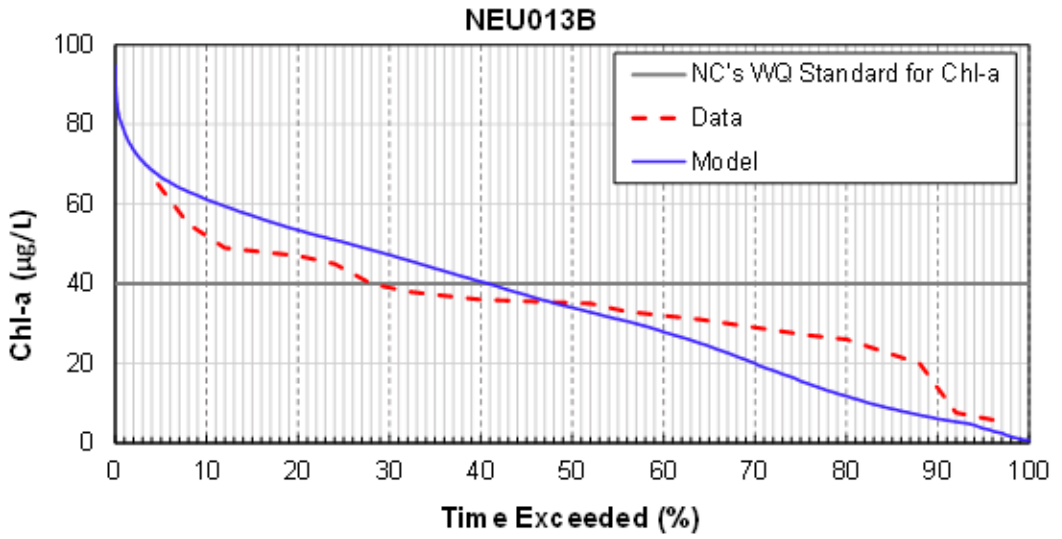
Chl-a Exceedance Curves (2015/16, 2040, and 2065)

The percent of time chlorophyll-a exceeds the 40 µg/L criterion does not change for these model runs

Upper lake station (13B) exceeds the criterion ~40 percent of the time for these scenarios (top figure)

The data would indicate percent exceedance ~30 percent of the time for 2015 to 2016 (bottom figure).



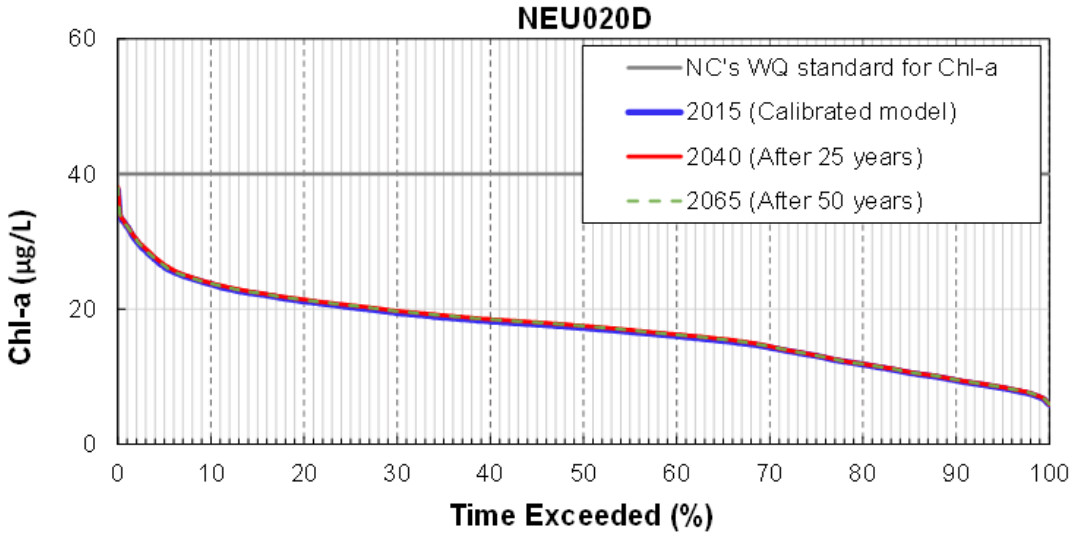


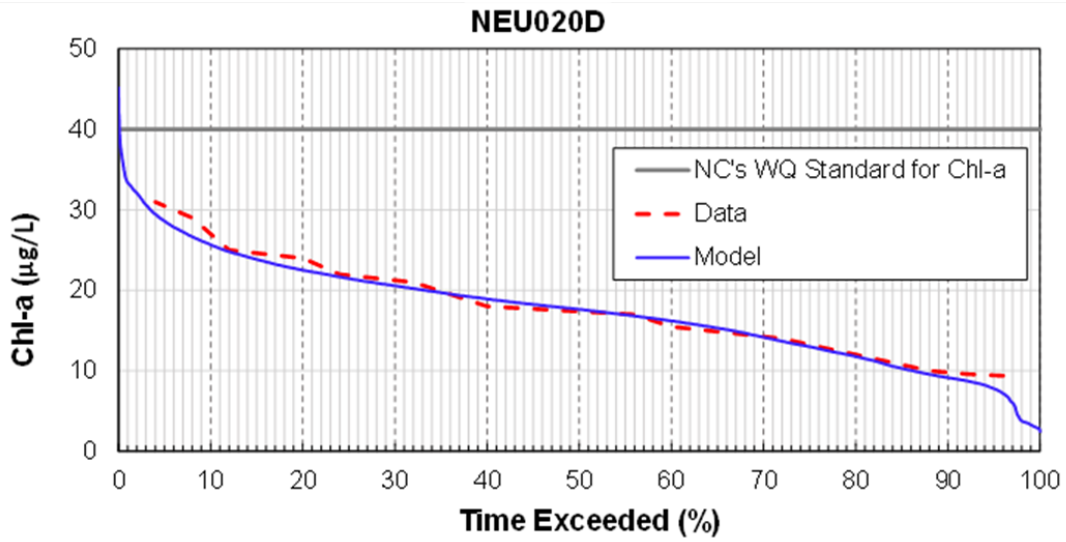
Chl-a Exceedance Curves (2015/16, 2040, and 2065)

The percent of time chlorophyll-a exceeds the 40 µg/L criterion does not change for these model runs

Lower lake station near the dam (20D) does not exceed the criterion in any of these runs (top figure)

Neither the data nor the model show exceedances for 2015 to 2016 (bottom figure).





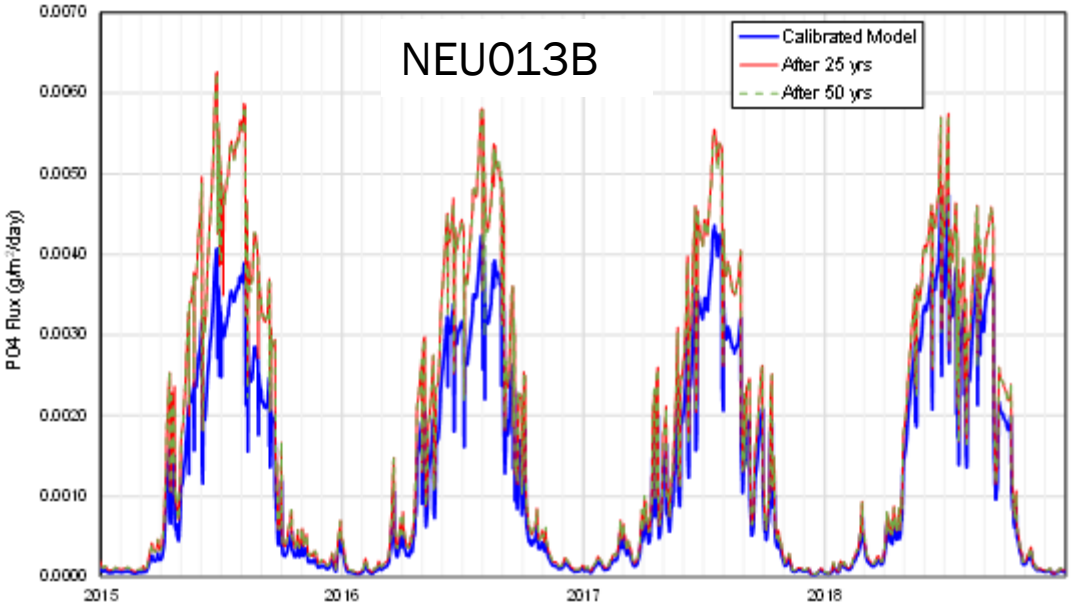
Phosphate Releases from Lake Sediments

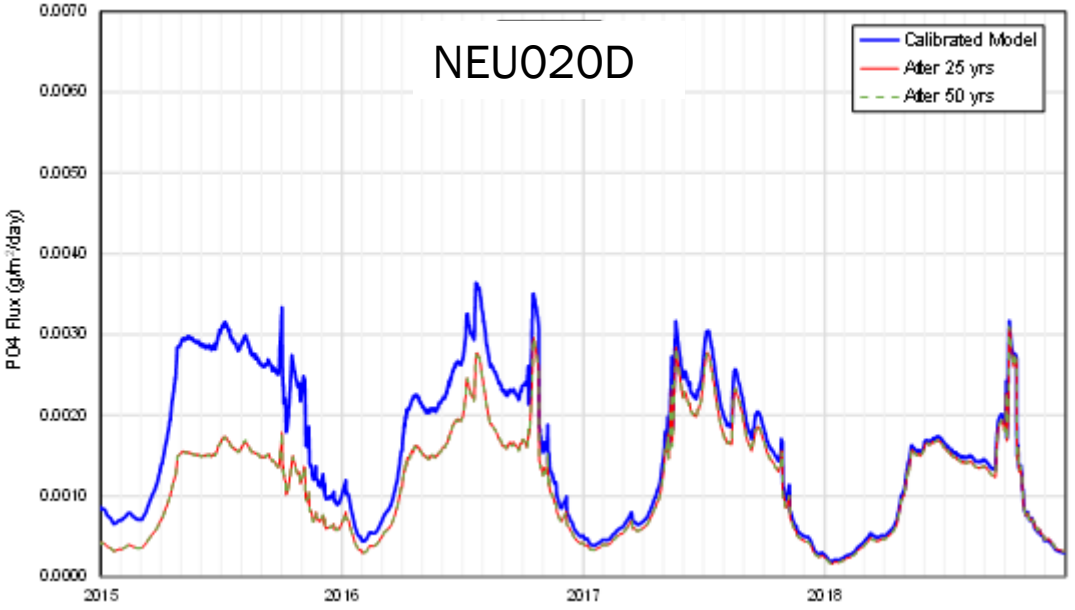
Running the model out 25 or 50 years results in

- Increased P fluxes from the upper lake
- Decreased P fluxes from the lower lake

Because a smaller PO4 sorption factor and larger diffusion coefficient were used for the lower lake compared to the upper or middle lake in order to simulate a relatively large PO4 flux at deep stations.

More P comes out of the sediments earlier in the lower part of the lake so rates go down over time. In the upper lake, less is released resulting in an accumulation over time and higher release rates for 25 to 50 years out.



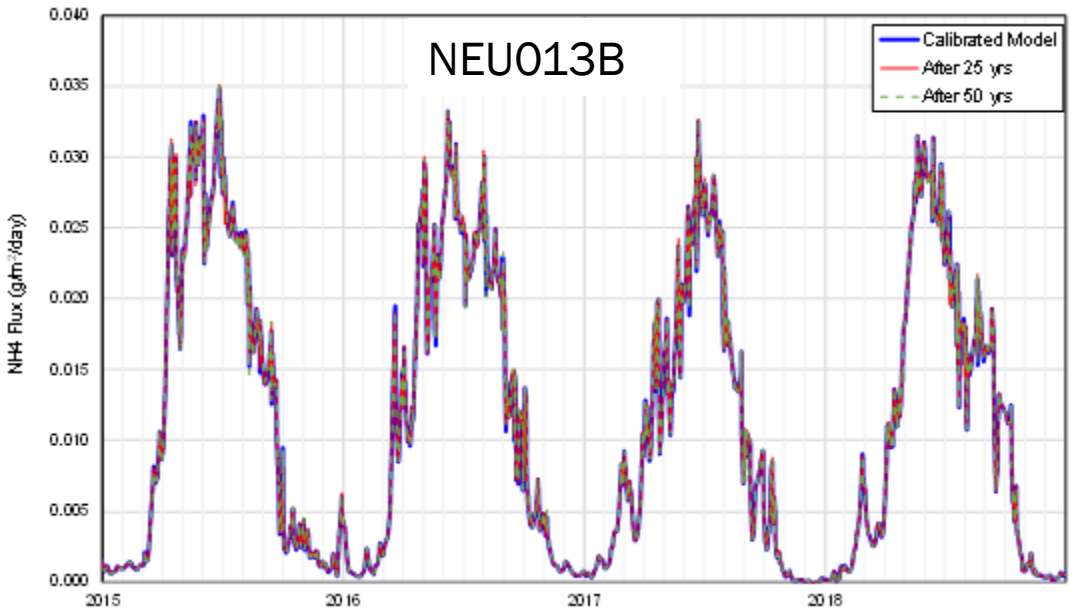


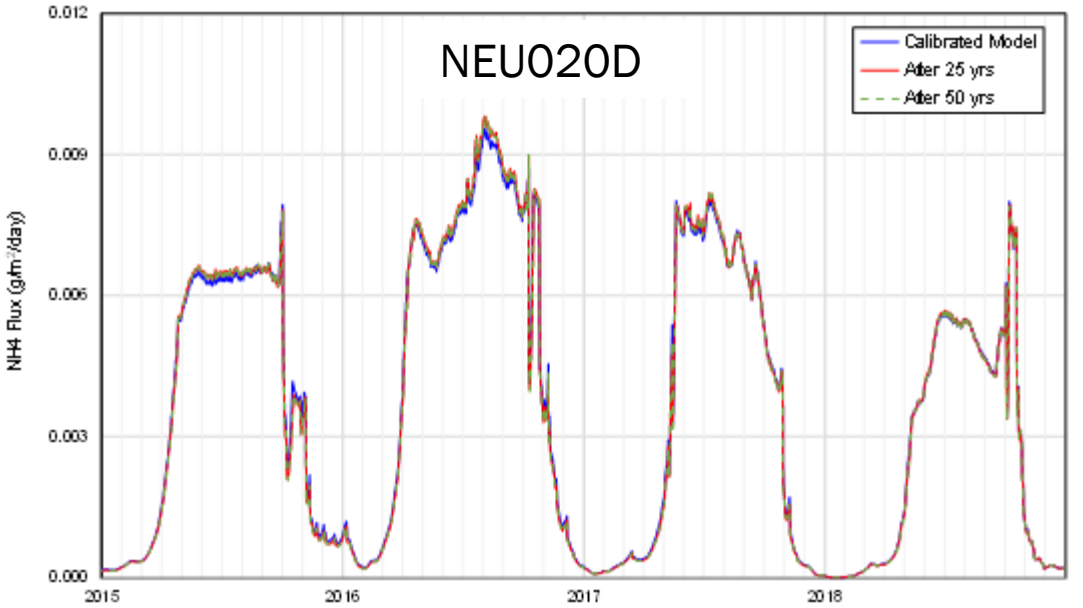
Ammonia Releases from Lake Sediments

There is very little change to the ammonia fluxes out of the sediments for the calibrated model or running the model out 25 or 50 years.

1.65 million pounds of N enter from the tributaries and atmospheric deposition to the lake surface.

This seems to maintain the ammonia releases from lake sediments and the simulation is generally in equilibrium with the current watershed inputs.





Load Reduction Curves

- As discussed by the MRSW, the EFDC model was selected to evaluate combinations of **total N and total P reductions from all of the tributaries** on the percent of time the chlorophyll-a criterion (40 µg/L) would be exceeded
- The following figures show these results in various ways
  - For station NEU013B (station included in DWR's modeling report)
  - All stations upstream or downstream of Highway 50
- These results are impacted by the final model calibration
  - The EFDC model predicts more sensitivity to N reductions than P reductions
  - On average, the model typically underpredicts N and overpredicts P (we have more P in the water on average than observed)
- These figures focus on changes to chlorophyll-a for the calibration years only (2015 and 2016) because these years had the best model fit to data

Load Reduction Curve for NEU013B

Exceeds the 40 µg/L:

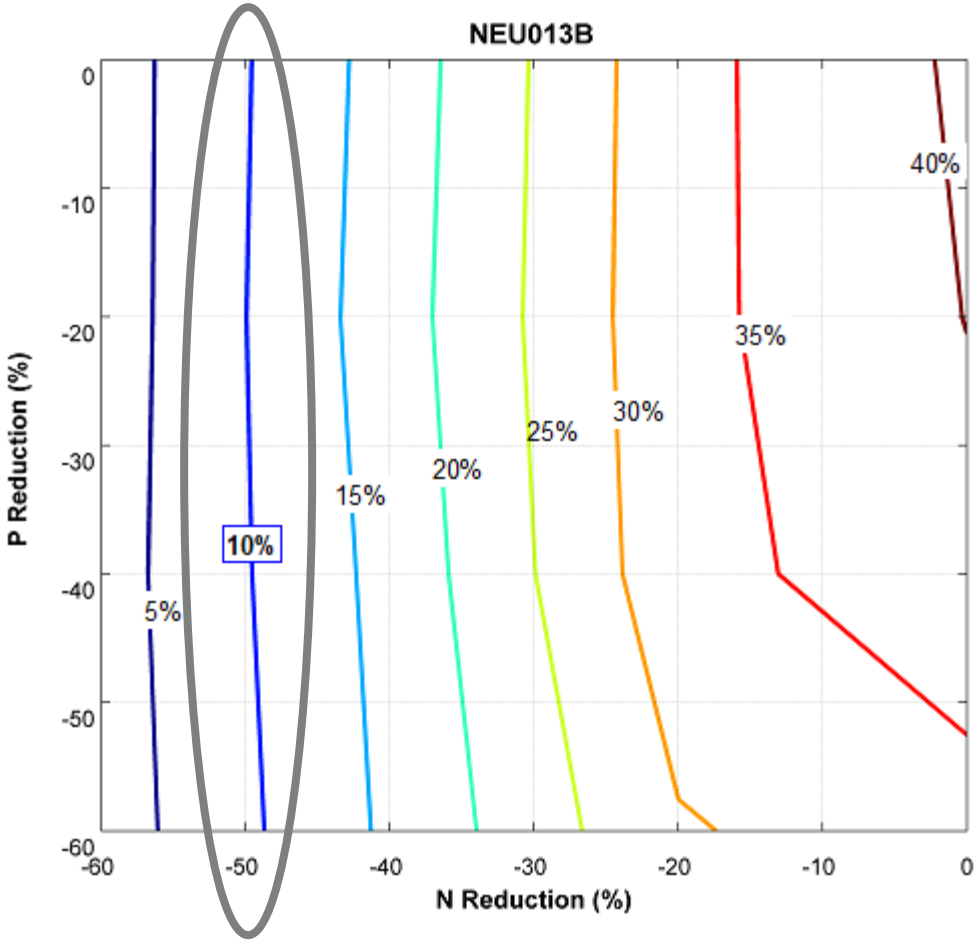
- ~40 percent of the time (model)
- ~30 percent of the time (data)

To achieve 10 percent exceedance (model)

- ~50 percent reduction in total N relative to 2015/16 levels
- P reductions were not important at this level of N reduction
- P reductions were more important for N reductions up to 15 percent, but were not able to achieve 10 percent exceedance

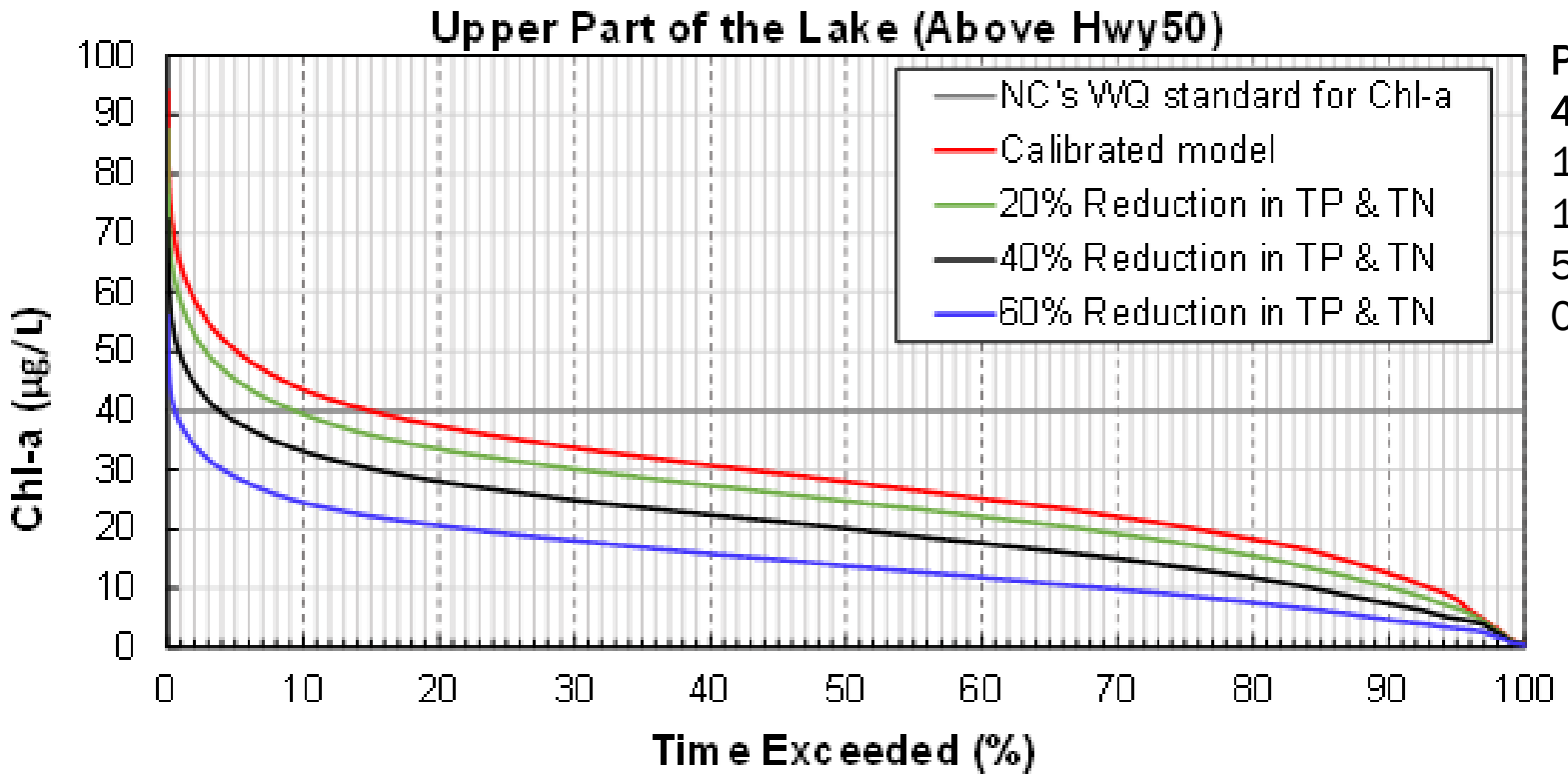
Model calibration was relatively good at this station: TP pbias -18%, TN pbias -15%, and chlorophyll-a pbias 7.2%

Upper lake receives most of the flow and load and resuspends and transfers most of the P.



Percent Exceedance Curves for Upper Lake for Load Reduction Scenarios

- Evaluates combinations of N and P reductions from all tributaries
- Evaluates percent exceedance for **all DWR stations in the upper lake**



Percent time 40 exceeded:

15%

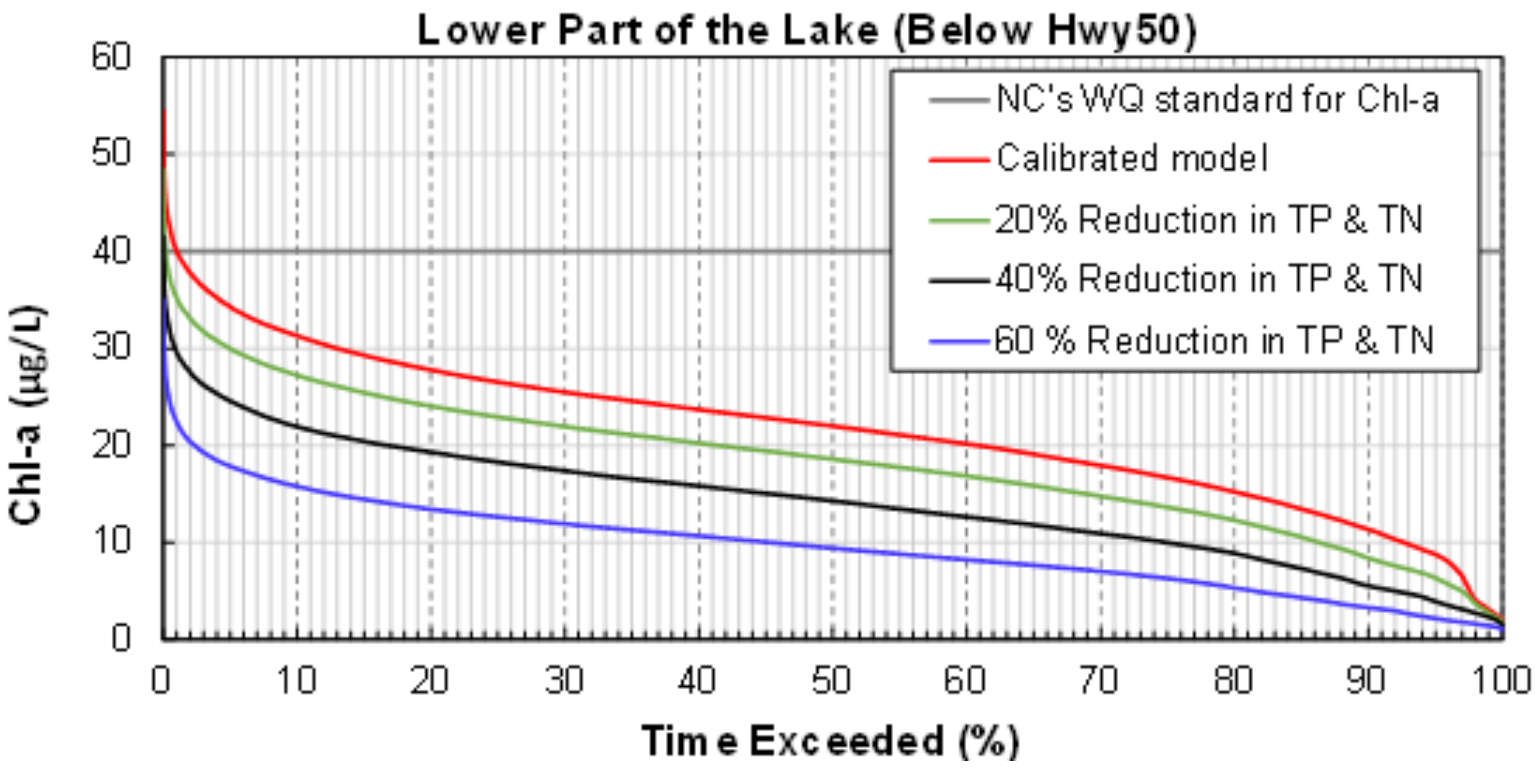
10%

5%

0%

Percent Exceedance Curves for Lower Lake for Load Reductions

- Evaluates combinations of N and P reductions
- Evaluates percent exceedance for **all DWR stations in the lower lake**



Percent time 40 exceeded:

1%

0%

0%

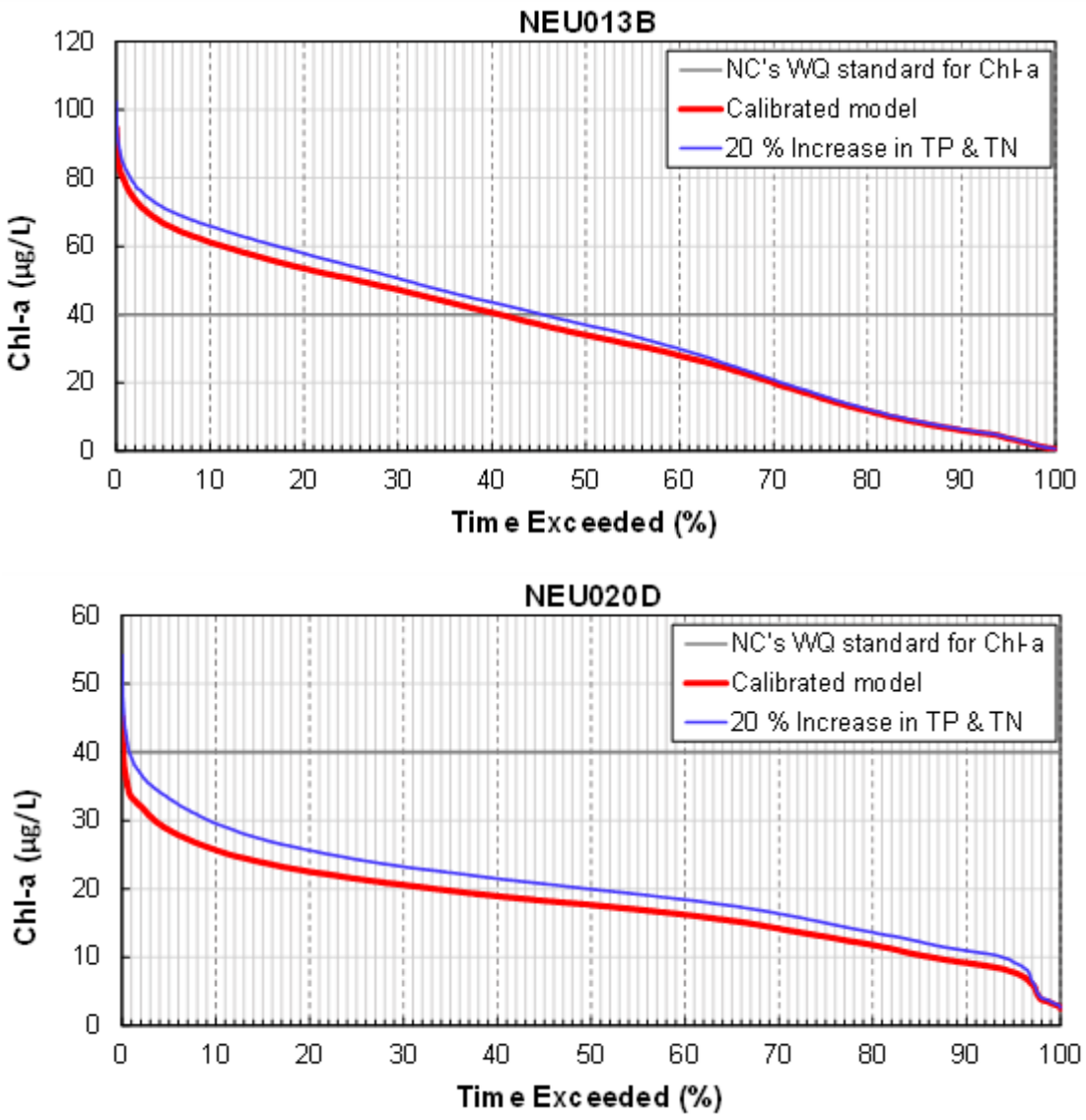
0%

Load Increase Scenario

The EFDC model was also used to simulate the impacts of **increased N and P loading from the tributaries by 20 percent.**

At station 13B (upper lake), time exceeded increases to 45%

At station 20D (near dam) time exceeded increases to 1%



Key Findings from EFDC Lake Model Scenarios

- Current levels of watershed nutrient inputs are sufficient to
  - Sustain algal growth and chlorophyll-a concentrations at the stable levels observed over the past decade
  - Maintain nutrient release rates from sediments
- Achieving less than 10 percent exceedance of the chlorophyll-a criterion at station NEU013B is simulated to require a 50 percent reduction in nitrogen relative to 2015/2016 conditions
- Achieving this reduction in chlorophyll-a in the upper lake will not affect percent of time chlorophyll-a is exceeded in the lower lake
- Lower lake chlorophyll-a has been and will likely continue to be stable in time, even with a 20 percent increase in N and P

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
- Plan to bring correlations to the PFC in June

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 ahead of this meeting for review
  - Main discussion items are listed on the following 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

Development of Principles and Concepts for a Revised Strategy

- Based on the discussions during the November, December, and January PFC meetings, a very preliminary draft concepts and principles document was submitted to the PFC for review on March 1st to
  - Move from slides into a draft document
  - Garner further discussion and questions that need to be addressed as we move toward the final document
- Several positive comments were received as well as requests for clarification and additional information
- Some topics were commented on by several reviewers or noted as a point of discussion for the PFC
- These main discussion items are described on the following slides for further discussion and input

Addressing equity – who and at what level of effort

- Complex process - many different aspects of how the strategy impacts the jurisdictions and the people in the watershed.
- Requires additional discussion before it can be addressed more comprehensively in the document.
- The draft discusses some of the aspects of the concept as applied to the nutrient management strategy.
- Can we use EJSCREEN to evaluate locations of projects so that underserved communities can participate in beneficial projects/programs and make sure that clean-up activities are not over-represented in underserved communities?
- EPA FCA tools may provide additional justification for regulatory relief
- The UNRBA has been addressing equity since it came into existence. The dues are an effort at being “equitable”
- Each jurisdiction carries most of the responsibility for making sure that their cost to comply is fair and equitable to their citizens.
- In proposing a revised strategy, equity issues need to be identified, evaluated, and acknowledged broadly in the overall application of a regulatory effort.

Whether or not sub-impoundments in the watershed should be included in the Falls Lake strategy or have separate management strategies if listed as Category 5 waters

- 4b is an option, but only DWR can determine that.
- The most recent 303(d) puts those impoundments as Category 5 requiring a separate TMDL or management strategy
- These sub-impoundments are mostly in rural and wooded watersheds.
- They are going on the list because they exceed the chlorophyll-a criterion.
- Separate management plans/TMDLs for these sub-watershed impoundments will likely cross jurisdictional boundaries.
- There may be some benefit in adjusting basic watershed management in specific sub-watershed impoundments where more directed action would improve water quality specifically for an identified sub-impoundment, but it will make things more complex.
- Input from the jurisdictions using the sub-impoundments will be important as will the input from the jurisdictions draining to those impoundments.

Addressing potential expansions at major and minor WWTPs

- See placeholder for potential future expansion considerations.
- So far operators have indicated that additional load reductions are not feasible at the major facilities, so we indicated that technologies would continue to be tracked and addressed as part of adaptive management.
- There is room for improvement at the minor facilities, but local governments may not be able to fund upgrades without legislative changes per Dan. The minors also contribute a very small fraction of the load to the lake (~1% of TN and ~ 0.2% of TP)
- Some of these minor WWTPs are at mobile home parks and will not have the funding mechanisms to upgrade these plants
- Expansion of existing WWTPs can be dealt with through "maintenance" of loading
- Some projections of when the major plants anticipate running out of currently permitted capacity would be helpful. If well beyond the 25-yr re-evaluation, we can anticipate or at least hope for technological advancements and deal with the issue as part of the adaptive management framework of a revised strategy.

How is the Watershed Organization (WO) different that the UNRBA? How would dues change?

- The WO concept has been left "non-specific" so that a decision can be made on where to "house" this WO.
- The most efficient action may be to “redefine” the UNRBA and include this as a function as we did for the Compliance Group Committee for the IAIA.
- As far as dues are concerned, those need to “follow” the new strategy.
- If a WO is put in place with some limited delegation from DWR/EMC, there will continue to be administrative costs and potentially support activities like additional monitoring and management of the compliance system--to whatever degree the UNRBA/WO decides.
- This concept should not result in dues going up and more likely they would go down in the short term.
- However, as the "look back" deadline starts to get closer (say within 5 years of the lookback deadline, year 20, if we use 25), then additional technical assessment work would be needed. This evaluation should be a "joint" effort with DWR, but it makes sense for the WO to be very engaged in that effort.
- One option to create a WO is to modify the Bylaws and the UNRBA would take on the role as the WO.

How would we work with private landowners like farmers or owners of large tracts of land?

- We included this to open the door to cooperation with private owners that could be funded by the jurisdictions or share funding for projects.
- This would include farmers and other large landowners as well as commercial and institutional owners.
- This is just a general reference to opening doors for projects that would not necessarily require the jurisdiction to acquire a project site.
- Such actions, to be counted, would need a long-term (or perpetual) agreement for the property owner to maintain a practice and, as needed, allow the jurisdiction to have access to maintain it. Additional details needed for sure.
- The credits come from investment in projects by the Tier 1 members (e.g., stream restoration projects).
- It is the basic idea of expanding participation and cooperation without adding any regulatory burden. How “credit” is distributed is an issue that will have to be determined.

Has the PFC discussed this concept of Tier 2 members?

- Yes, we discussed this at the November 2022 PFC meeting in the context of agriculture's involvement.
- We discussed ahead of that meeting with representatives from agriculture and the set of revised strategy bullets shared with the PFC and the Board includes the concept.
- Expanding the opportunity to discuss potential cooperation within the watershed has been a key part of how to move the strategy into a new framework. More discussion is needed and the concept of using "tiers" needs to be evaluated further, but the idea of removing regulatory silos and promoting more integrated management efforts has been discussed.
- This preliminary draft document is the formal consideration of including this concept in the recommendations for a revised strategy.

If Tier 2 members don't have specific requirements, why do they need to maintain their own tracking?

- This was a request from the representatives of agriculture. They are required under the rules to do extensive tracking of crop types, fertilizer application rates, best management practices, etc.
- Funding has been drastically cut for these efforts. They want to maintain their own tracking and would appreciate financial support to maintain the staff levels needed.
- This could be a beneficial activity as an eligible investment as this tracking includes fertilizer application rates, best management practices, etc.
- It isn't necessary to limit Tier 2 to members that do not have specific requirements. It is going to be necessary to allow potential "members" to define their level of participation in any WO. Some may want to keep specific "requirements," but still be at the table for discussions within the WO. There are several components of membership as it exists in the current UNRBA that will limit the potential of others to "join" the WO. To provide for the kind of collaboration and coordination that greatly expands inclusion, membership requirements will have to be flexible.

Would the general public be a Tier 2 member?

- This is an open question. We will want to think about how to bring in others to the WO process. We have some ideas, but we are not wanting to be too specific until we can discuss with potential participants. This draft opens that door.
- So far these discussions have been focused on including representatives from ag or DOT or similar, but the concept can be applied to others.
- Expanding the opportunity to discuss potential cooperation within the watershed has been a key part of how to move the strategy into a new framework.
- More discussion is needed and the concept of using “tiers” needs to be evaluated further, but the idea of removing regulatory silos and promoting more integrated management efforts has been discussed.
- This preliminary draft document is the formal consideration of including this concept in the recommendations for a revised strategy.

If Tier 1 is funding and getting financial credit and Tier 2 are tracking N and P credits, this sounds like double counting.

- Under the revised strategy, compliance would only be based on investment. Nutrient reductions would be tracked as supplemental information. Ag maintains their tracking and accounting tools for ag lands now, and they would like to continue this role moving forward.
- This is similar to our current IAIA reporting template. There are columns that list investment, and that is compared to the minimum investment amount to determine compliance. There are also columns for N and P reductions, but they aren't compared to any requirement because we are using investment as the requirement. It is still good information to track moving forward.
- This proposal does not assign an investment requirement to ag due to the specific characteristics of ag in this basin. Ag would also not be assigned an N and P reduction requirement. But in the initiative to improve water quality, these credits using their tools would continue to be tracked.
- DWR will want to avoid "double counting," so we are going to have to work on this concept to clarify.

What potential changes to the Rules will be needed?

- Explicitly state that local governments and utilities in the watershed not required to treat loads from unmanaged, natural areas?
  - Not sure that this is necessary. If a jurisdiction wants to "treat" loads from unmanaged and natural areas, why not? E.g., algal flow-way
- Allowing local governments to fund upgrades at private/minor wwtps?
  - If you are going to spend money on SCM retrofits treating runoff from private land, how is funding a private (albeit some are private utilities managed by the Utilities Commission) WWTP for doing "more" in removing nutrients not a potential "practice?" Clearly there would have to be legal agreements.
- Addressing how compliance is assessed/the changing assessment units over Falls Lake over time
  - The 303(d) methodology is not a rule, it is a policy. The UNRBA has made many efforts to secure changes to how 303(d) is applied to Falls Lake. The level of monitoring data and number of stations coupled with the extensive understanding we have of this watershed and lake clearly justifies the application of a site-specific 303(d) assessment for the lake. We should continue to try and get DWR to change this. Ultimately, the most straight-forward approach is to propose and adopt an appropriate site-specific criterion that includes specific assessment methods.

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

- April 2023
  - Discuss preliminary document describing concepts and principles
- May 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

Approach for Developing the Modeling and Regulatory Support Contract and Scope of Work for FY2024

Approach for Developing the Modeling and Regulatory Support Contract and Scope of Work for FY2024

- At the March 15, 2023 Board Meeting, the Board approved the proposed budget for FY2024 which would maintain the budget at the current FY2023 level.
- The UNRBA will be working on its recommendations for a revised Nutrient Management Strategy during the first half of the next fiscal year (FY2023-2024) and will need funding for Modeling and Regulatory Support.
- Additionally, we anticipate feedback from DEQ/DWR about our recommendations and close coordination with the agency as they plan their actions leading up to a readoption of the Falls Lake Rules.
- There will be additional scenarios and modeling support to address DWR questions and to assist them in moving forward as quickly as possible on a revised strategy.

Approach for Developing the Modeling and Regulatory Support Contract and Scope of Work for FY2024

- Since this support will be something of an unknown, we are preparing a contract for FY2024 that will include specific support, but with a significant component of the budget in reserve so we can respond to more specific needs as they emerge (regulatory support, policy development, etc.)
- The Executive Director will work with the project manager on a draft contract and scope of work for FY2024.
- Following review by the Co-Chairs, a revised draft contract and scope of work will be provided to the PFC who will be asked to provide comments and edits via email.
- A final draft will be developed for review and discussion at the June PFC, and the PFC will consider a recommendation for submittal to the Board at their June meeting.

Gathering Data from Local Governments to Support the Cost Benefit Analysis

Gathering Data from Local Governments to Support the Cost Benefit Analysis

- An important component of the re-examination is understanding the costs of past and possible future actions in the watershed as well as the benefits
  - Nutrient load reductions
  - Improvements in lake water quality
- At the February PFC meeting we discussed the types of data and information we are seeking to initiate this process
- Please email initial information to amatos@brwncald.com and ashley@brindlecreek.com and copy Forrest.Westall@mcgillassociates.com.
- Structured data requests will follow after existing data and reports have been reviewed and compiled.

Communications Outreach and Preparation

Communications Outreach and Preparation

- Continued engagement with DWR and Collaboratory researchers (meeting planning underway)
- WRRI Falls Lake Session - debrief
  - 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.
- **The Executive Director would like to begin scheduling presentations at the local government's Board and Council meetings to discuss the recommendations for a revised nutrient management strategy over the next 6 months.**
- Planning a press release on the Neuse River of the Year for the upper part of the watershed following event details from American Rivers
- BC communications staff have been identified to support development of press releases and videos (videos from WRRI are being edited now)

Other Status Items

Ongoing Items

- More intensive outreach and stakeholder engagement and management of expectations and resources—A lot to do between now and recommendations in 2023
- Ongoing DEQ/DWR Items
  - Continued engagement with staff and leadership
  - Building agreement with timeline for EPA outreach
  - MOA
  - Neuse Watershed Model Information Session – Delivery Factors for WWTP—Update provided by John Huisman

Future Meetings as Currently Scheduled:

Falls Lake Symposium: April 19, 2023, all day
(start and end times to be determined)

Next BOD Meeting: May 17, 2023, 9:30 AM to Noon

Next PFC Meeting: June 6, 2023, 9:30 AM to Noon
(No PFC is planned for May pending today's decision)

Closing Comments
Additional Discussion