

# Path Forward Committee Meeting Butner Town Hall with Remote Access November 1, 2022



# Agenda

- Opening Comments, Agenda Review/Revisions
- PFC/MRSW Meeting Time
- FY2024 Budget Discussion
- Review Year 1 Summary Report for Interim Alternative Implementation Approach (IAIA) for Approval by Compliance Group Committee (CGC)
- Modeling Status
- Implementation Plan and Stakeholder Engagement for High Rock Lake
- Developing Recommendations for a Revised Nutrient Management Strategy and a Petition for a Site-Specific Chlorophyll-a Water Quality Standard
- Communications Support
- Other Status Items
- Closing

# **PFC Meeting Time**

# PFC Meeting Time

- A poll was distributed to the PFC members to consider alternate meeting times
- No alternate meeting times worked for the entirety of the PFC; i.e., each alternative had one or more PFC members that would not be able to attend
- PFC discussion

# **FY2024 Budget Discussion**

# FY2024 Budget Discussion

- Most of the modeling and scenario development will be completed by June 2023 (this fiscal year)
- The UNRBA is proceeding toward developing its recommendations by the end of 2023 (1<sup>st</sup> half of FY2024)
- Additional external stakeholder review (e.g., EPA Region 4) and subsequent modeling will likely occur in FY2024
- Developing draft recommendations and responding to DWR input on the recommendations will be an important component of FY2024 as well as other stakeholders
- For budget planning, the Executive Director recommends maintaining the current funding level for modeling, regulatory support, and communications support
- [PFC discussion](#)

# **Review Year 1 Summary Report for Interim Alternative Implementation Approach (IAIA)**

## Review Year 1 Summary Report for Interim Alternative Implementation Approach (IAIA)

- Implementation of the IAIA began July 1, 2021
- Year one of the program ended June 30, 2022
- Press releases were developed for the UNRBA and the jurisdictions (template)
- Annual reports from participants reflecting first-year investment commitments were submitted to DWR to assess individual compliance
- Copies were provided to the UNRBA CGC for summary reporting
- The Executive Director will provide a cover letter and a final summary tables to the CGC for review and approval
- [Preliminary draft summary tables follow](#)



# Summary of Participant Reports Received

Participant Reports Submitted	Total funds allocated (cash and in-kind)	Commitment
Wake County	\$ 1,973,493	\$ 88,968
City of Raleigh	\$ 1,745,485	\$ 466,081
City of Durham	\$ 960,268	\$ 337,587
Orange County	\$ 342,878	\$ 161,943
Durham County	\$ 148,394	\$ 133,300
Person County	\$ 114,394	\$ 114,394
Granville County	\$ 100,453	\$ 100,453
Town of Hillsborough	\$ 41,871	\$ 34,221
Town of Butner	\$ 23,393	\$ 23,393
City of Creedmoor	\$ 16,926	\$ 16,926
Town of Stem	\$ 11,605	\$ 11,605
<b>Total</b>	<b>\$ 5,479,159</b>	<b>\$ 1,488,871</b>

Based on reports received thus far, all IAIA participants have met or exceeded their commitment levels. We anticipate submittal of the two remaining jurisdiction reports to also show compliance based on discussions.

# Summary by Project Type from Reports Received

Project Type	Total funds allocated (cash and in-kind)
Land conservation	\$ 3,951,898
Green infrastructure and other best management practices (BMPs)	\$ 964,729
Stormwater control measures (State-approved SCMs)	\$ 218,121
Illicit discharge detection and elimination	\$ 152,377
Administrative costs associated with the participation in the IAIA	\$ 148,394
Programmatic measures	\$ 21,338
Stream and riparian buffer restoration and enhancement	\$ 14,074
Projects and activities that focus on flooding that have an associated water quality benefit	\$ 4,846
Projects in greenways and parks with water quality and quantity benefits	\$ 3,383
<b>Total</b>	<b>\$ 5,479,159</b>

# Modeling Status

# Watershed Model Report Status

- The draft WARMF watershed modeling report was distributed to the MRSW on June 30, 2022
- We have received comments from several MRSW members including DWR in July and August
- Modeling team is compiling and addressing comments in a revised report to be submitted to the PFC
- Following PFC review and input, the report will be finalized for submittal to DWR for their formal review along with model files
- Delivery of the watershed model files has not yet occurred
  - The WARMF Lake model is part of the complete package and is not final
  - The new GUI (underdevelopment) will be needed to run the full model with all functionality
  - Plan to schedule a training workshop with DWR and others interested in running the model once the new GUI is ready and the lake model is calibrated (November/December)

# WARMF Lake Model Status

- During the October 4<sup>th</sup> MRSW meeting, the modeling team presented the latest calibration of WARMF Lake
- The model was set up to allow segment-specific modeling rates to allow for unique settling, algal growth, and reaction rates
- Based on input from subject matter experts, the modelers tested lake-wide rates for nitrification, organic matter decay, bed diffusion, and algal growth
- For bed diffusion rate, two different rates were needed if average sediment depth was less than or more than 3 cm
- A final calibration will be presented to the MRSW during the meeting this afternoon

# EFDC Lake Modeling Status

- During the May and August MRSW meetings, the modeling team presented comparisons of observed biovolume and chlorophyll-a data in Falls Lake and discussed calibration challenges
- Modeling team has continued to discuss model calibration with subject matter experts and DWR modeling staff
  - September 26, 2022 (with DWR and SMEs)
  - October 13, 2022 (with SMEs)
- Further refinements have been made and sensitivity analyses are being conducted
- We have scheduled a meeting with DWR on November 17<sup>th</sup> to discuss a final calibration and will present the calibration to the MRSW on December 6<sup>th</sup>

# Lake Reporting Status

- The modeling team is continuing to draft sections and appendices of the lake modeling report.
- We will work with subject matter experts and DWR regarding time series comparisons to observed data
- Current focus is on responding to comments on the watershed modeling report

# **Implementation Plan and Stakeholder Engagement for High Rock Lake**



# Implementation Plan and Stakeholder Engagement for High Rock Lake

- The first stakeholder meeting was held on September 29, 2022
- The process is anticipated to take approximately 2 years to develop draft rules
- The Executive Team will track this process and provide updates to the UNRBA as needed

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

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

- The UNRBA has been meeting with DEQ and DWR leadership to discuss coordination efforts to
  - Finalize the models
  - Develop a revised nutrient management strategy
  - Develop a petition for site specific criteria
- DWR will identify a contact for standards development
- The UNRBA will continue to work with other stakeholders on these items as well
- The subject matter experts continue to evaluate other State's site-specific standards for chlorophyll-a and nutrient-related standards
- Coordinate with Dr. Marty Lebo to integrate his work into the statistical modeling and regulatory support efforts

# Timeline for Developing Recommendations for a Revised Nutrient Management Strategy

- November and December PFC meetings - discuss **PRELIMINARY DRAFT** concepts
- February and March 2023 PFC meetings - discuss administration, reporting, and partnering options
- By March or April 2023 - draft concepts document
- Expanded stakeholder engagement would begin in the spring
- Draft program document by late summer
- Stakeholder workshop in Fall 2023 to review a final draft
- Legislation requires that the NC Policy Collaboratory submit their final Falls Lake report by December 2023
  - We would like to provide our report to the Collaboratory for reference before they finalize theirs
  - Legislation also indicates that information from other groups also should be submitted by December 2023
- DWR to begin rule making within 6 months/no later than December 2024 which would begin their stakeholder process
- DWR anticipates rules readoption by 2026/2027

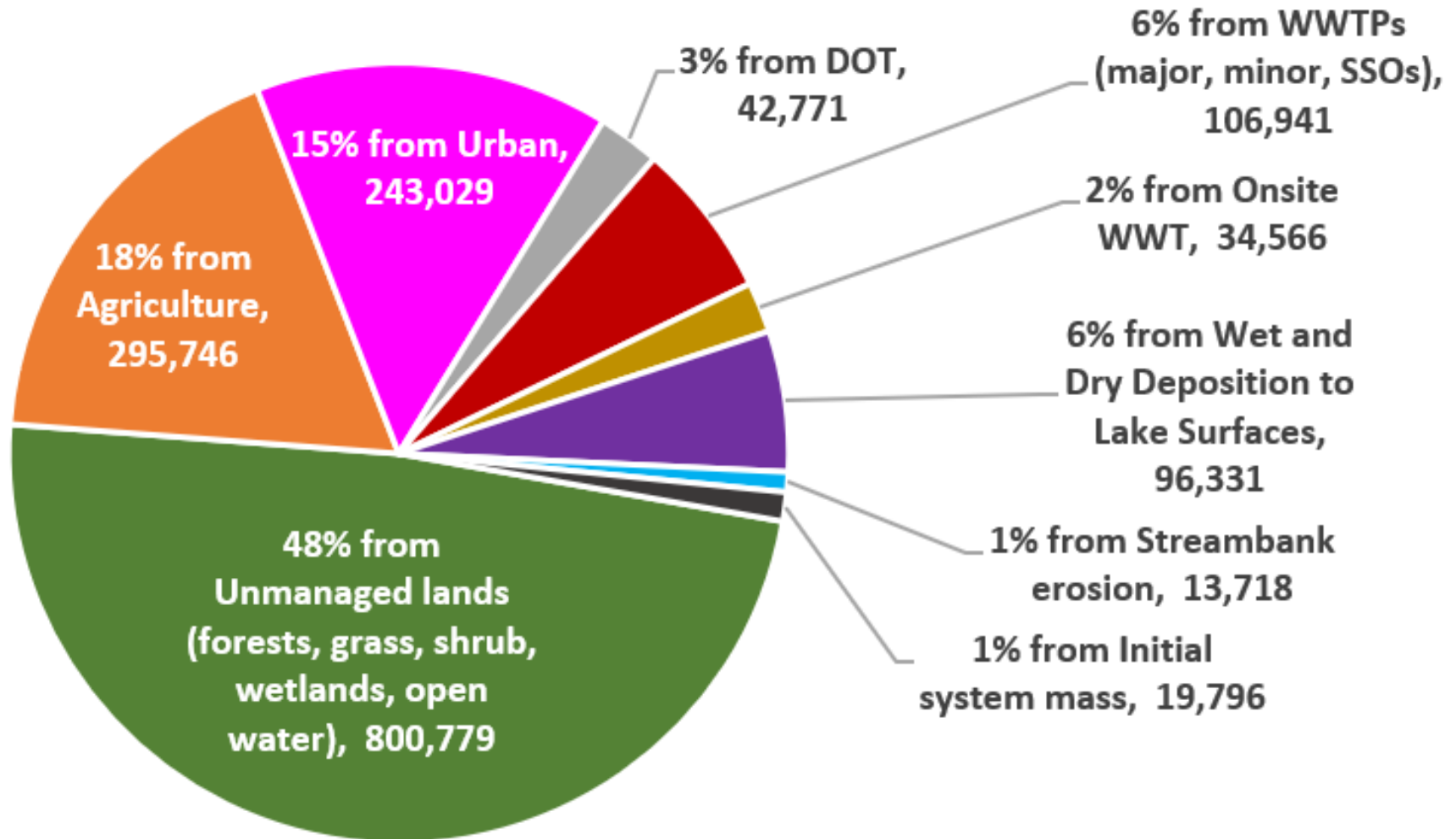
# Basis for Concepts and Current Intent

- Preliminary concepts gathered from discussions and input from internal and stakeholder stakeholders
  - Executive Director and Co-chairs of the PFC
  - Scenario Screening Workgroup and its subgroups
  - MRSW, PFC, UNRBA Board members
  - Workshop/symposium/regulatory forum participants
- Discussions based on scientific studies and evaluations
  - Findings from the UNRBA's Monitoring Program
  - Results of the watershed modeling effort
  - Ongoing development of the lake models
  - Support and development of the IAIA
  - Research efforts to date from Collaboratory funded projects
- Current intent
  - Frame the concepts, alternatives, and considerations that have been identified to this point
  - Evolve as input from other stakeholders is received

# Key Findings from Monitoring and Modeling Studies

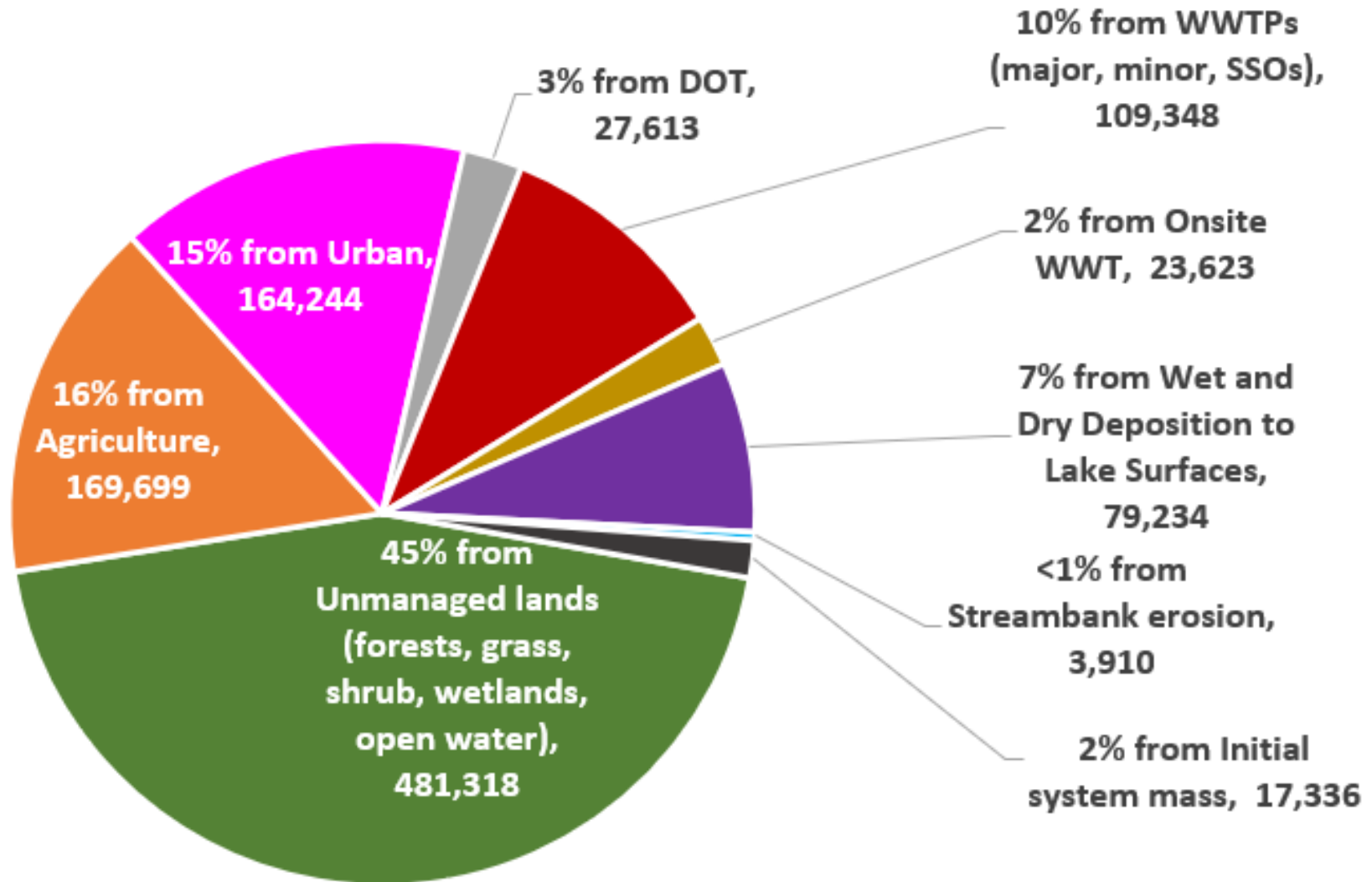
- 75 percent of the watershed is unmanaged land; these areas contribute approximately  $\frac{1}{2}$  of the nutrient load to Falls Lake in average to wet years
- Major wastewater treatment plants have significantly reduced nutrient loading (24% for TN and 69% for TP)
  - Now contribute less than 6 percent of the nutrient load to Falls Lake during average to wet conditions and less than 10 percent during dry to average conditions
  - Little room for additional improvements with current technology
- Water quality in Falls Lake is significantly affected by very large storm events and USACE lake operations
- Soils in the watershed and lake store and cycle nutrients for decades
- Atmospheric deposition contributes  $\frac{1}{2}$  the nitrogen input to the watershed
- Agricultural best management practices, reduced production acres, and fertilizer optimization leave little room for additional reductions
- Over 350 existing development retrofits implemented in the watershed;
- Bill Hunt et al. (2012) indicates if ALL potential existing development retrofits identified in the Ellerbe Creek watershed were implemented (\$16 million capital and \$7 million annual maintenance costs), it would only reduce nitrogen loads by ~10 percent and phosphorus loads by 25 percent
- New development rules have been in place since 2012

# Sources of Delivered Total Nitrogen Load (1.65 million pounds per year – average to wet hydrologic condition)



Based on the UNRBA study period (2014-18)

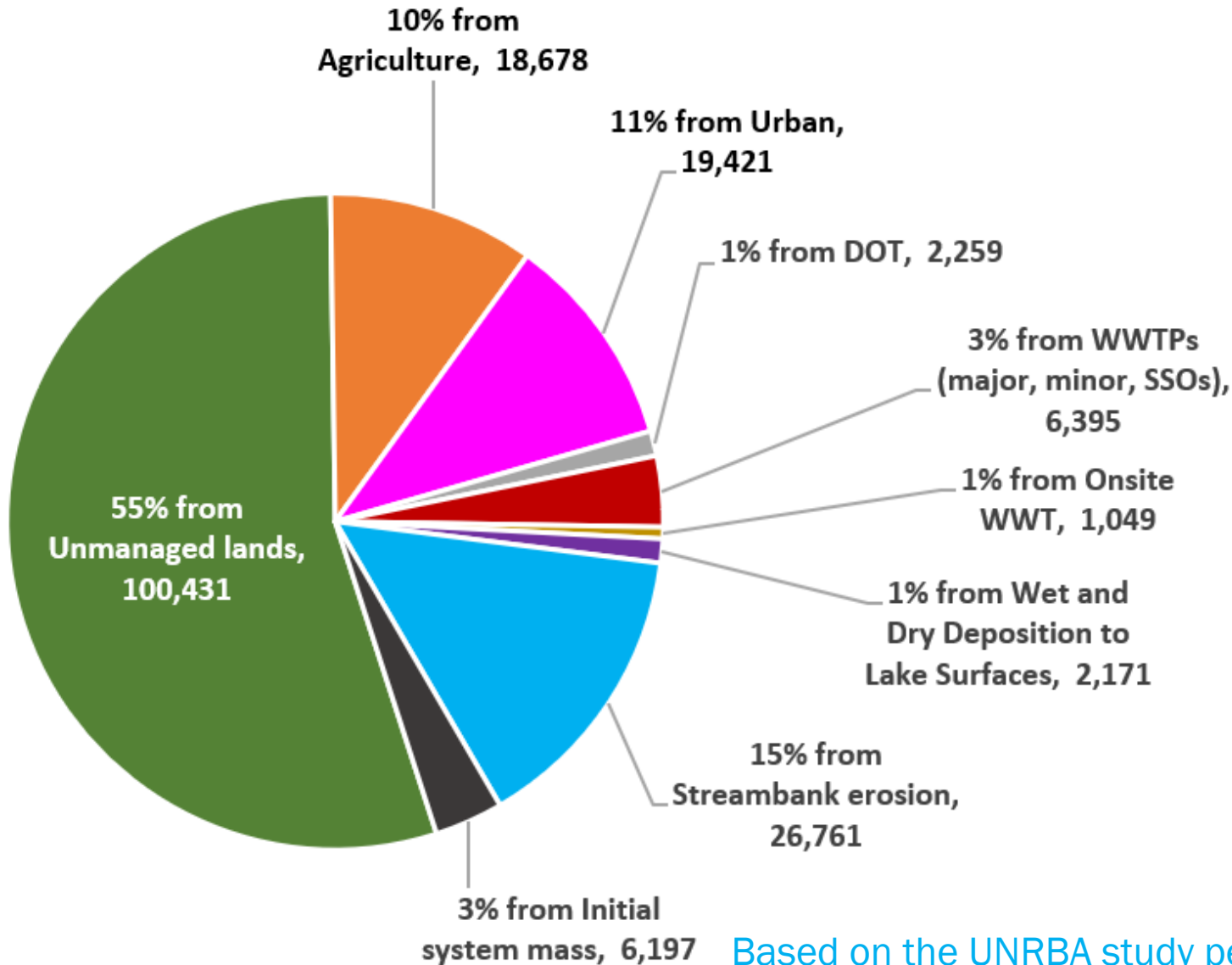
# Sources of Delivered Total Nitrogen Load (1.08 million pounds per year – dry to average hydrologic condition)



20% less precipitation applied to UNRBA study period results in 35% less TN to the lake.

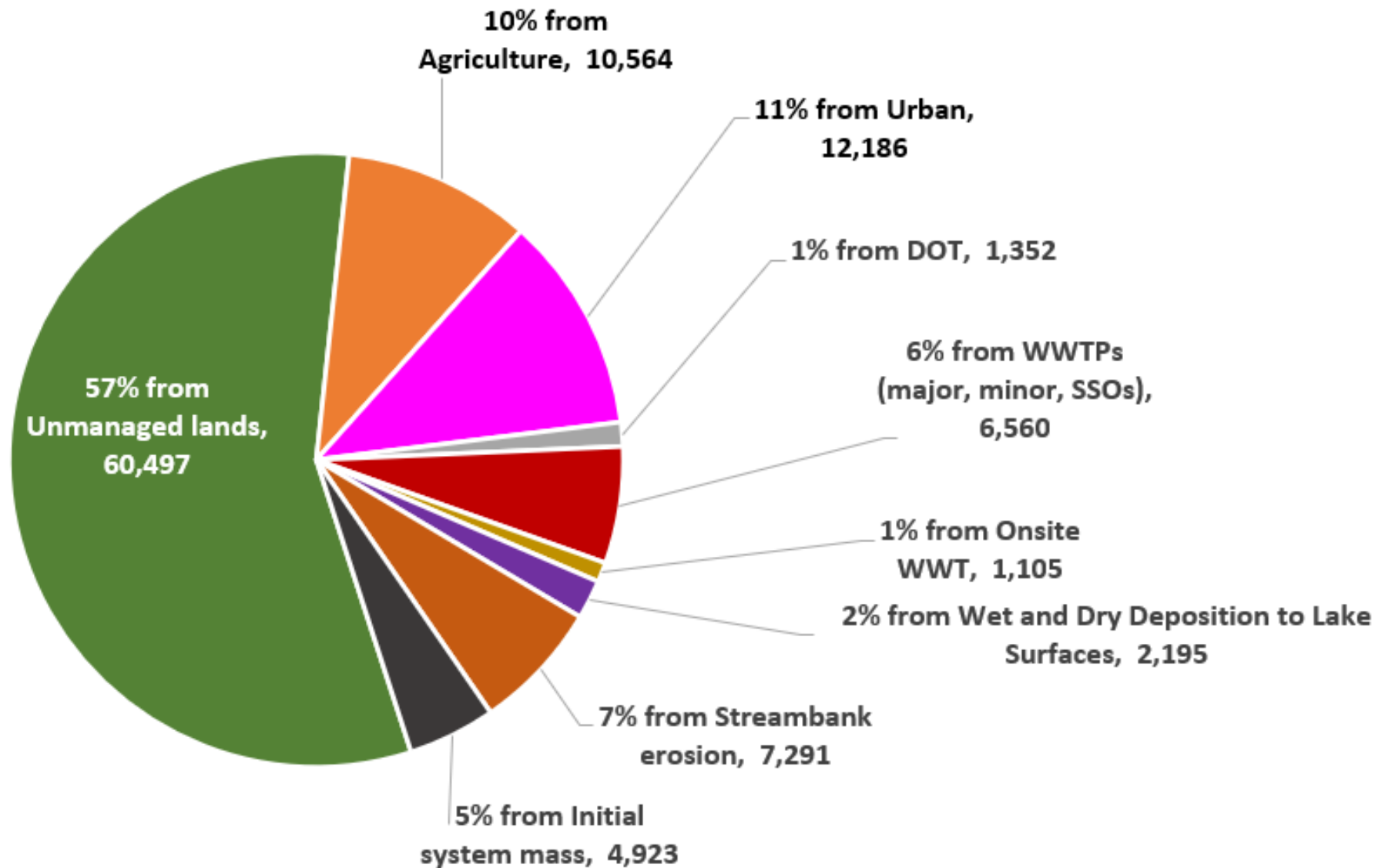


# Sources of Delivered Total Phosphorus Load (184,000 pounds per year - average to wet hydrologic condition)



Based on the UNRBA study period (2014-18)

# Sources of Delivered Total Phosphorus Load (107,000 pounds per year – dry to average hydrologic condition)



20% less precipitation applied to UNRBA study period results in 42% less TP to the lake.

# Evolving Principles for a Revised Strategy

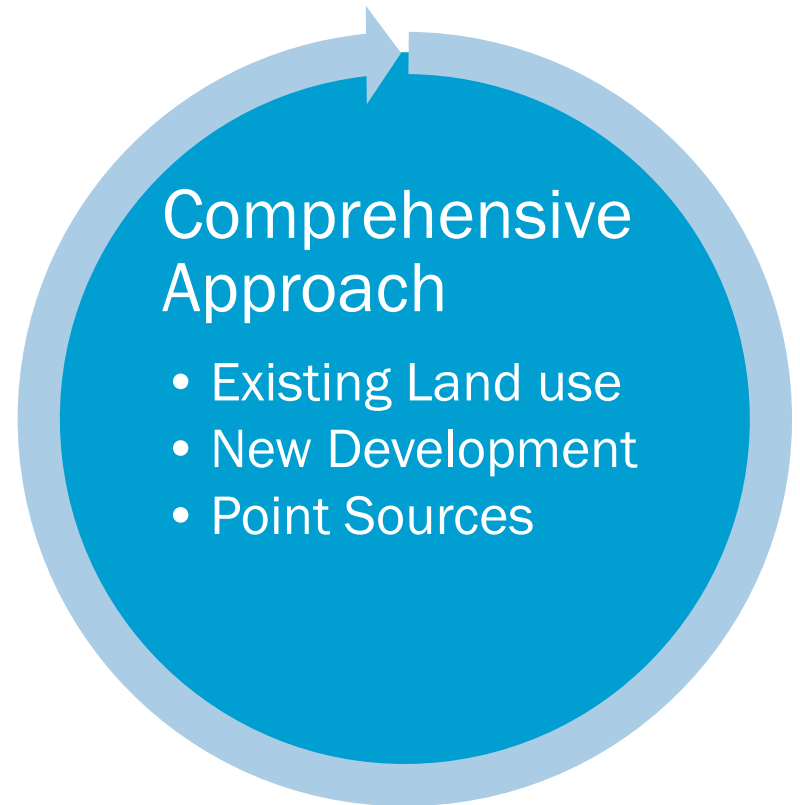
- Embrace a systems approach focusing on right-sized solutions
- Create an adaptive program with look-back period
- Continue to build on the excellent cooperation and collaboration provided by the stakeholders – avoid silos
- Expand types of voluntary participants (ag, minor WWTPs, etc.)
- Allow tiered participation (those with quantifiable requirements versus potential partners like agriculture)
- Focus on whole watershed health and local implementation
- Develop a fair and equitable program
- Build on the IAIA, tracking compliance by investment levels and tracking nutrient reductions as supplemental information
- Address environmental and social justice issues
- Consider sustainability, energy reductions, and other water resource benefits in addition to nutrient reductions

# PFC Discussion Plan

- Planning two consecutive PFC meetings to discuss the preliminary concepts and sources addressed
  - November 1<sup>st</sup> – start discussing existing land uses
  - December 6<sup>th</sup> – continue discussing existing land uses, new development, and point sources
- Meeting slides include all topics for context and reference
- January or February – incorporate feedback from PFC meetings/comments and discuss concepts document

# Arenas of Action

- Existing land uses
  - Urban development
  - State and Federal lands
  - Institutions
  - Stream bank erosion/restoration
  - Agriculture
  - Forest management
  - Atmospheric deposition and climate resilience
  - Sanitary sewer overflows (SSO)
  - Onsite wastewater treatment systems (OWWS)
- New development
- Point Sources



# Arenas of Action **PFC Discussion**

- Type meeting notes here

# Comprehensive Approach to Nutrient Management

Implement a program using the principles of IAIA

Include eligible practices and a process to expand practices

Expand membership to include other groups/sectors (voluntary)

Set duration of the revised strategy with a specific “look-back period” to evaluate progress and adapt the strategy (e.g., 20 years)

Allow projects and investment across all arenas of action

Provide a mechanism for doing “joint” projects across organizations and sources (e.g., DOT, agriculture)

# Comprehensive Approach to Nutrient Management

## PFC Discussion

- Type meeting notes here



# Urban Development, State and Federal Lands, and Institutions

- Expand education activities to address SCM maintenance
  - Target HOA Boards and other SCM owners (address long-term issues)
  - Include jurisdictions that do not have permitted education requirements
- Coordinate to fund retrofits for existing and re-development
  - Possibly provide incentives to owners to encourage participation
  - Potentially pay for retrofits and take over inspection and maintenance, but the ownership would not change (e.g., Hillsborough dry ponds)
- Improve HOA management and maintenance
  - Provide funding for upkeep of SCMs
  - Evaluate development bonds for SCMs as a funding source for maintenance and repairs
- Improve existing stormwater infrastructure
  - Inspection and maintenance
  - Outflow management

# Urban Development, State and Federal Lands, and Institutions **PFC Discussion**

- Type meeting notes here

# Agriculture – Current Status and Approach

- Acres in production have declined 44% from 2006 to 2018
- Feasible reductions have been implemented in the watershed (based on the work of the SSG and several meetings organized by the NC Department of Agriculture with local Districts)
- Components recommended for continuation by agriculture
  - Continue tracking production acreages and fertilizer applied
  - Continue funding cost share programs and tracking participation
  - Continue funding Soil and Water Conservation District projects and local technical assistance and tracking support (i.e., staffing)
  - Encourage Voluntary Agricultural Districts and farmland preservation (allows for Enhanced Voluntary Agricultural Districts to protect farms from development for 10 years); farmers voluntarily enroll

# Agriculture – Potential Partnering

- Preliminary recommendation is that agriculture not have a quantifiable requirement under a revised Falls Lake strategy
- Those with requirements (e.g., local governments) for quantifiable actions or investment commitments could support agriculture by contributing additional funds above and beyond existing investment commitments at program outset to support
  - Agricultural best management practices, projects, equipment, materials
  - Local technical assistance, grants, and tracking support
- When projects have a method for quantifying nutrient reductions, agriculture would track these projects and reductions in their reporting (nutrient reductions would be supplemental reporting information if an IAIA approach is used)
- Agriculture may want to track joint projects and agriculture-only projects separately
- Expanded outreach: provide support to agricultural representatives (Farm Bureau and local Districts) to gauge farmer interest in these concepts

# Agriculture PFC Discussion

- Type meeting notes here

# Forestry

- Sixty percent of the watershed is forested, and atmospheric deposition provides continual inputs of nitrogen, phosphorus, and carbon
- High precipitation and destructive storms increase nutrient export
- Potential project types (based on work of SSG)
  - Stream, wetland, buffer restoration/enhancement
  - Floodplain expansion
  - BMPs: Stream crossing, haul roads, and temporary skid trails
  - Consideration of water usage by tree species in forestry management
  - Nitrate capture/denitrification following large, destructive storms
  - Controlled burns, harvesting, forest management, vegetation management (native/non-native)
  - Phytoremediation (using plants to clean up contaminated environments)
- Land use with multiple owners will complicate implementation
- Allow members with quantifiable actions to provide funding for best management practices and projects including forest preservation
- Expanded outreach: NC Forestry Association, Forest Landowners Association

# Forestry PFC Discussion

- Type meeting notes here

# Streambank Erosion

- Approximately 15 percent of the total phosphorus load to Falls Lake comes from streambank erosion (UNRBA WARMF model)
- High precipitation events increase peak flows and nutrient and sediment loads
- Potential project types (direct and indirect)
  - Stream, wetland, buffer restoration/enhancement
  - Floodplain expansion
  - Green infrastructure/infiltration devices
  - Climate sustainability projects
- Land use with multiple owners will complicate implementation
- Allow members with quantifiable actions to provide funding for best management practices and projects including stream restoration



# Streambank Erosion **PFC Discussion**

- Type meeting notes here

# Atmospheric Deposition and Climate Resilience

- Atmospheric deposition affects all land uses and waters and provides continual inputs of nitrogen, carbon, and phosphorus
- Larger storms deliver higher loads in shorter periods
- Potential projects
  - Encourage tree planting adjacent to busy streets and highways; see Forest-Friendly Codes and Ordinance Worksheet
  - Encourage air pollution reduction technologies for point source and vehicle emissions
  - Encourage public transportation and green energy sources
  - Encourage climate resiliency projects at potentially large nutrient discharge sources (e.g., wastewater treatment plants)
  - Improve flood preparedness communications (e.g., operations at watershed impoundments)
- Allow members with quantifiable requirements to provide funding for best management practices and projects that mitigate atmospheric deposition and climate change

# Atmospheric Deposition and Climate Resilience

## PFC Discussion

- Type meeting notes here

# Wastewater-related, Distributed Sources

- These represent a very small portion of load to Falls Lake, but can affect its tributaries more significantly
- Potential projects to address sanitary sewer overflows (SSO) and sewer exfiltration
  - Continue to reduce volumes reaching the stream
  - Identify and repair potential issues
- Potential projects to address onsite wastewater treatment systems (OWWS) including discharging sand filters (DSF)
  - Continue to reduce failure rates, inspect and repair malfunctioning systems, prioritize inspections in older neighborhoods, provide grant programs to subsidize homeowner costs for new systems/repairs, etc.
  - Address issue of expanding sewer that may reduce the number of onsite systems but will increase development intensity and impervious surfaces
  - Address regulatory issue with State-issued new permits for DSF
- Allow members with quantifiable actions to provide funding for best management practices and projects

# Wastewater-related, Distributed Sources

## PFC Discussion

- Type meeting notes here

# Point Sources (Major and Minor)

- Define Best Practical Technology and calculate allocations based on currently permitted flows
  - Major WWTPs are currently operating at BPT based on work of the SSG
  - Several of the minor facilities have also achieved significant reductions from the baseline period
- Potential projects (based on work of the SSG)
  - Two of the minor facilities are not achieving effluent concentrations comparable to the others; consider funding assistance for system upgrades
  - Consider constructed wetlands to polish effluent from minor facilities
- Explore potential to incorporate minor facilities into a joint compliance framework to allow jurisdictions to support funding improvements, upgrades, polishing steps, etc.

# Point Sources (Major and Minor) **PFC Discussion**

- Type meeting notes here

# New Development

- Leave requirements as under the current Strategy/Rules
- Address the issue of families being able to subdivide land to heirs without stormwater permits
- Consider local government UDO changes that allow flexibility in implementing beneficial practices and activities
  - Incentivize green infrastructure, disconnected impervious services, soil improvement, low maintenance lawns, etc.
  - Revisit soil improvement practice with DEMLR: currently creditable only for existing development but most beneficial for new development
  - Adopt policies allowing treatment within street rights of way or other easements
  - Encourage/partner/incentivize larger regional SCMs that could treat upstream existing development as well as new development
  - Improve information transfer from developers to HOA Boards
  - Build from benefits of current jurisdictional approaches
    - Current inspection programs are efficient
    - City of Durham now has the authority to assess penalties
    - Coordinate workshops to provide education about existing programs that work well



# New Development **PFC Discussion**

- Type meeting notes here

# Ideas Discussed but Not Included

- Ideas discussed (based on stakeholder discussions)
  - Convert stormwater systems into true utilities
  - Place SCMs under the jurisdiction of the county/city/town and transfer the system to the local government so HOAs are not tasked with maintaining them
- Issues identified/reasons for not including
  - There are thousands of existing SCMs with new ones added regularly
  - Stormwater programs are already underfunded
  - Increasing taxes and fees is often challenging
  - Even with an increased budget, the number of staff needed at the local stormwater programs to manage all systems is unmanageable
  - Current programs (inspections, education, maintenance, enforcement) are the most efficient way to handle SCMs

# Ideas Discussed but not Included

## PFC Discussion

- Type meeting notes here

# Other Considerations for Future Discussions

- Administrative frameworks if an expanded IAIA approach is used (e.g., watershed organization with expanded membership and membership tiers)
- Governance and decision making, particularly with partners (e.g., a committee led by agriculture would make decisions about projects affecting agriculture)
- State authority with delegation to organization for implementation
- Regulatory limitations and opportunities—define level of delegation
- Development of the revised strategy
  - Timeline
  - Stakeholder outreach and input
- Identify other streams and impoundments in the watershed as covered by the strategy
  - These waters should not be considered Category 5 waters in future Integrated Reports and should not require separate, additional management strategies

# **Communications Outreach and Preparation**



# American Rivers Announces the Neuse River as the 2022 National River of the Year



October 17, 2022

# Communications Outreach and Preparation

- Continued engagement with DWR
- Planned workshops and symposia
  - WARMF Model Training with UNRBA and DWR
    - Winter 2022
  - UNRBA Technical Stakeholder Workshop (see next slides)
    - Winter 2023
  - Workshop with local government communications staff
    - Spring 2023
  - Workshop with DWR/NC Policy Collaboratory/NGOs
    - Spring 2023
  - Joint symposium with NC Policy Collaboratory
    - Summer 2023
  - Stakeholder workshop to discussed final draft strategy
    - Fall 2023
- Recent staff changes at member local governments highlight the need for UNRBA engagement from multiple staff across the levels of each local government.
- 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.

# 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 Meeting Protocols

# Future Meeting Protocols

- The Executive Director will continue to track conditions and coordinate changes as needed.

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

**Next BOD Meeting: November 16, 2022, 9:30 AM to Noon**

**Next PFC/MRSW Meeting: December 6, 2022, schedule to be determined**

# Closing Comments

## Additional Discussion