

WELCOME

to the
**Falls Lake
Regulatory Forum**

Hosted by 



Presenters

Forrest Westall

UNRBA Executive Director

Sig Hutchinson

UNRBA Chair

Jimmy Clayton

UNRBA Vice-Chair

Kenny Waldroup

Path Forward Committee Co-Chair

Terry Hackett

Board Alternate/Path Forward Committee

Michelle Woolfolk

Path Forward Committee Co-Chair

Supported by UNRBA Board and the Path Forward Committee

An aerial photograph of a large reservoir, likely a dam project, surrounded by dense forest. The water is dark blue, and the surrounding land is covered in green trees. A dam structure is visible in the lower right corner. A dark blue horizontal band is overlaid across the middle of the image, containing white text.

Your guidance is critical.

We need your engagement, cooperation, and suggestions.

Today's Agenda

Reexamination Briefing

- Now – 1:10 p.m.

Full-group Q&A

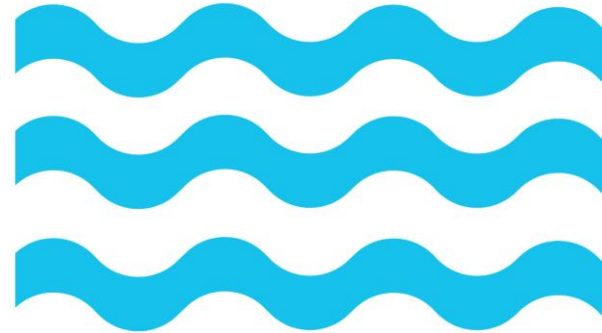
- 1:10 p.m. – 1:40 p.m.

Short Break

- 1:40 p.m. – 1:50 p.m.

Key Issue Roundtables

- 1:50 p.m. – 2:30 p.m.





The Punchlines

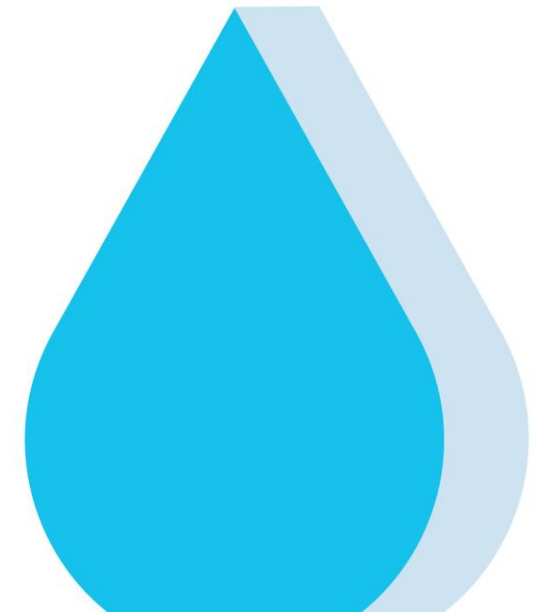
Prohibitively Expensive
Technologically Infeasible
Data and Model Uncertainty

Scientifically Sound Monitoring / Modeling
Consensus Building

Origin of the Rules

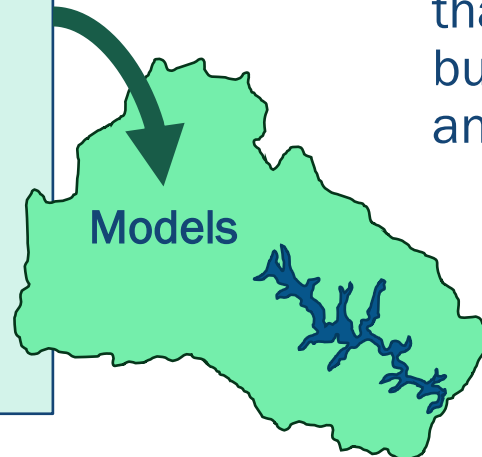


- 2002 - 2006
Chlorophyll-a exceeds the state's standard
- 2008
Falls Lake Listed as impaired
- 2010
UNRBA Consensus Principles
- 2011
State passes Falls Lake Rules



Chlorophyll-a

- Nutrient loading to the lake
- Internal nutrient loading in the lake
- Atmosphere / weather / rainfall / bathymetry
- Soils, land use, topography, depth, light
- Wastewater, storm events
- Sunlight, shape of the lake
- Retention-time, velocity



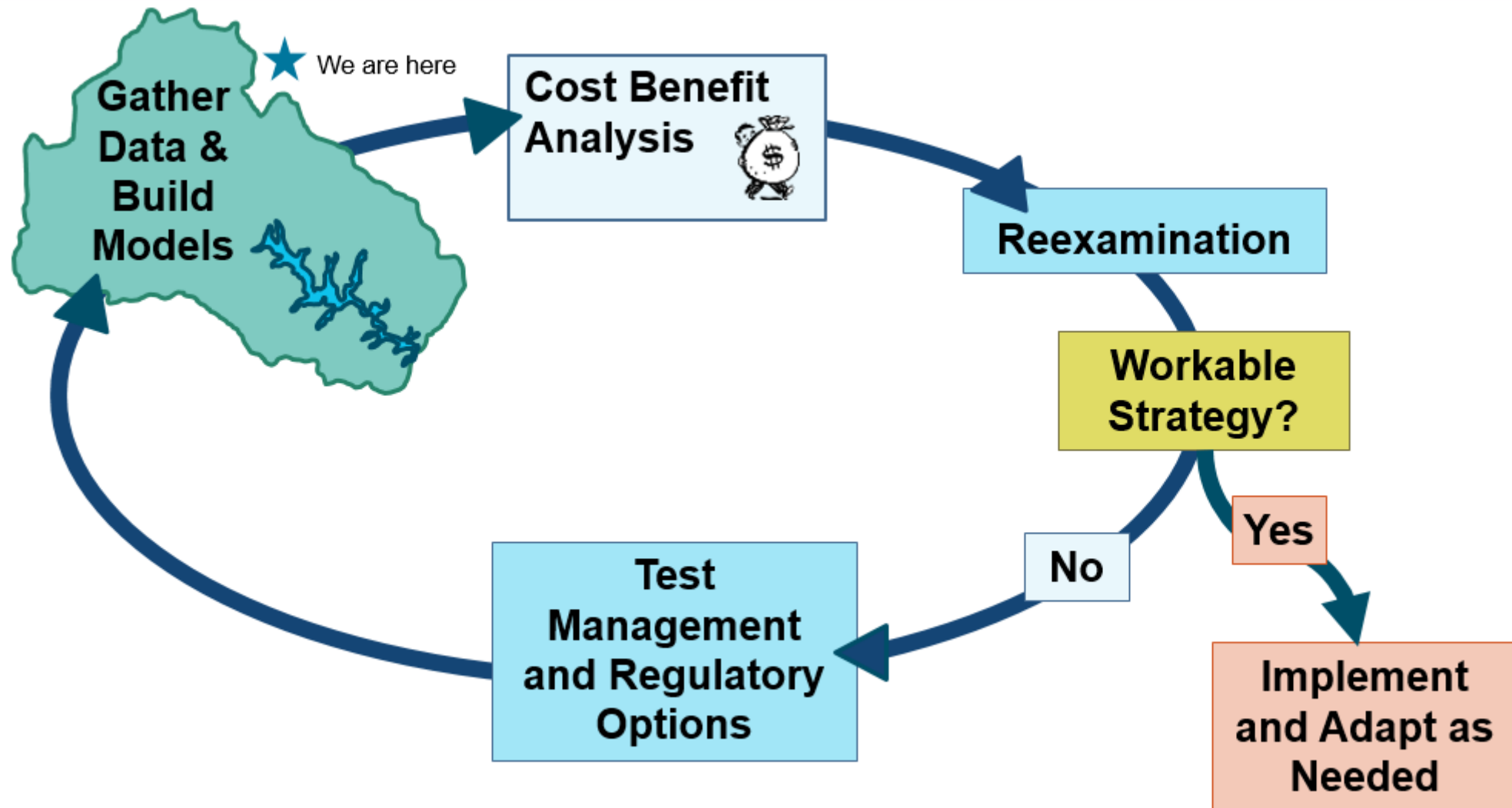
- In 2008, exceedances of the 40 $\mu\text{g}/\text{L}$ chlorophyll-a standard resulted in the lake being listed as impaired.
- Chlorophyll-a is the green photosynthetic pigment that plants use to harness sunlight to grow. Chlorophyll-a is also an indicator of the amount of algae in the lake.
- While high levels of algae can suggest the presence of too much nitrogen and phosphorous, the variables that control algal growth are not only highly complex, but they are also dynamic – changing between years and seasons.
- That is why water quality monitoring and modeling is required to evaluate the most effective and efficient opportunities for improving and sustaining the water quality of Falls Lake.

The Consensus Principles



- Consensus Principles were established by UNRBA members
- Resulted in language in the Rules that allowed for reexamination if certain steps were taken
- Provided the framework for the UNRBA re-examination process
- Parties agreed to the protection of Falls Lake as a drinking water supply

Framework for the Reexamination



Falls Lake Nutrient Management Strategy

Stage I: 2011 to 2024

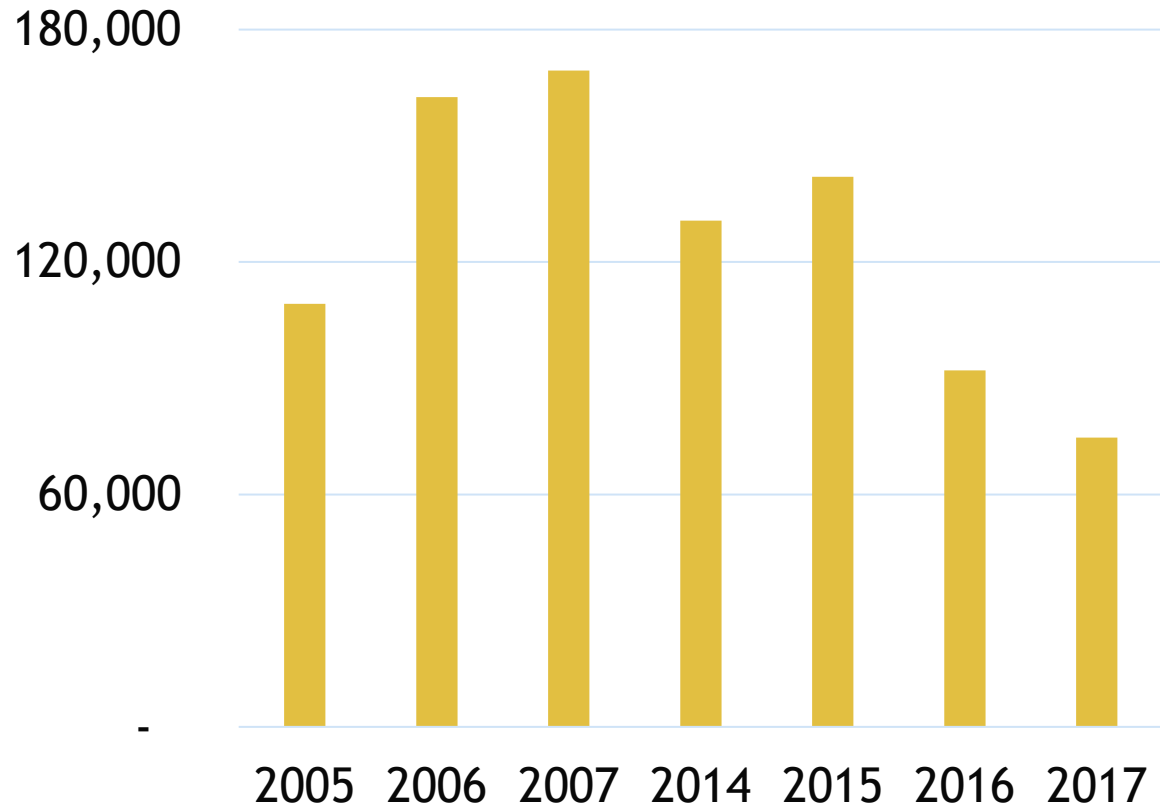
- Meet nutrient-related water quality standards in the lake below Hwy 50
 - Improve algae levels in the upper lake
-
- Lower nitrogen and phosphorus loading to the lake from all sectors
 - Prevent new development from increasing nutrient loading

Stage II: 2024 to 2041

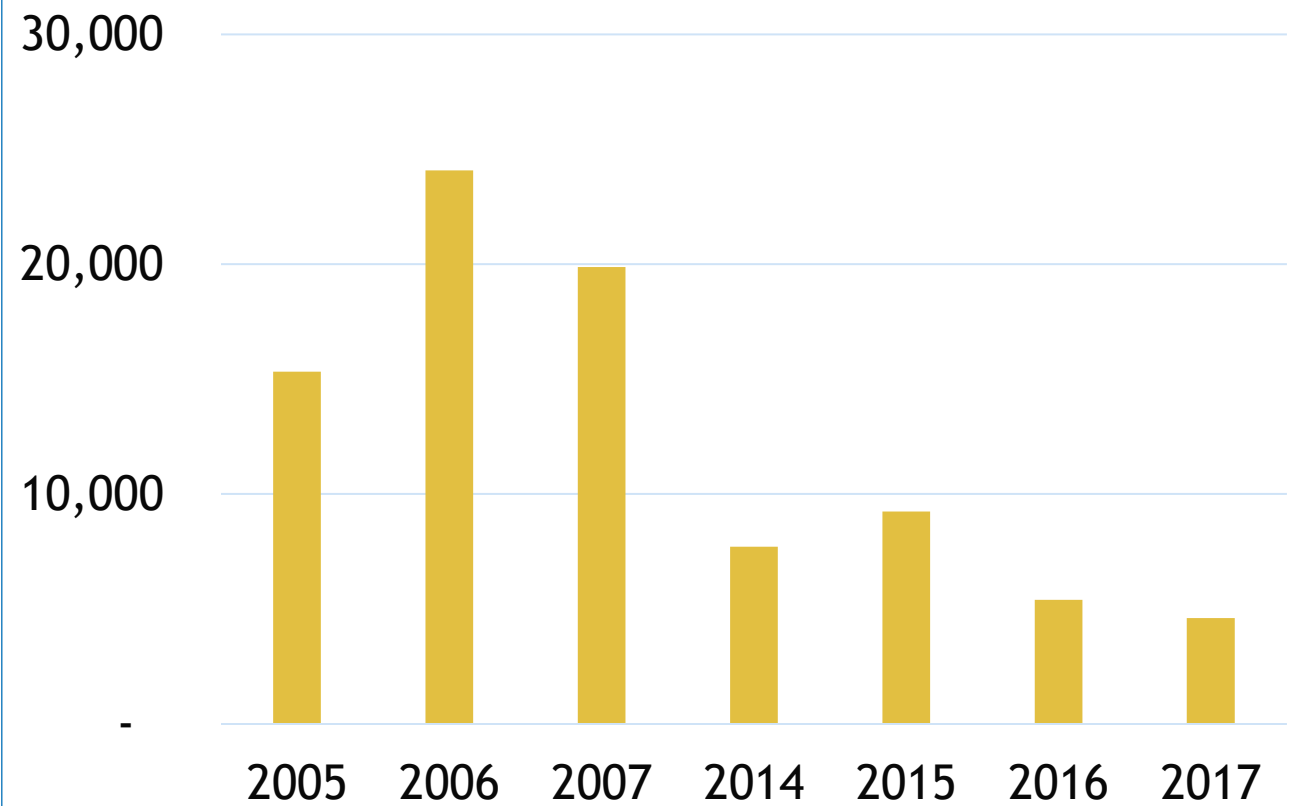
- Meet nutrient-related water quality standards in both the lower and upper portions of the lake
-
- Decrease nitrogen loading to the lake by 40 percent
 - Decrease phosphorous loading to the lake by 77 percent

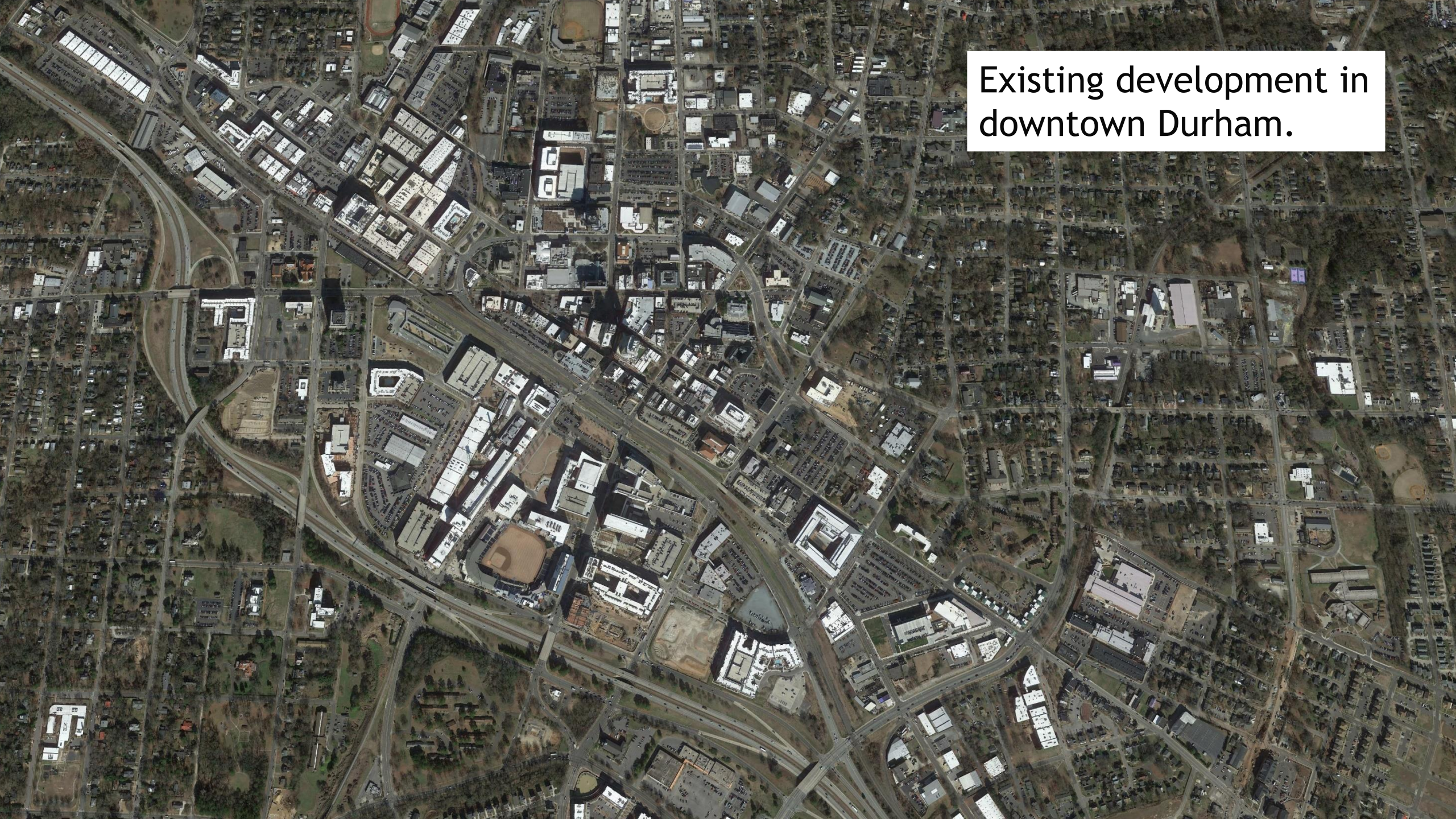
Visible Progress

**Nitrogen Loads from Major
Wastewater Treatment Plants
(pounds per year)**



**Phosphorus Loads from Major
Wastewater Treatment Plants
(pounds per year)**





Existing development in downtown Durham.

Reexamination Timeline

2011 to
2018

Successful investments in nutrient reduction throughout the basin improve water quality in Falls Lake



DWR approves modeling framework and procedures | UNRBA begins model set-up



UNRBA hosts two technical workshops and compiles data from stakeholders



UNRBA develops framework for Stage II Reexamination



DWR approves monitoring program | UNRBA begin monitoring in 2014 and finishes



NC General Assembly sets a 2023 end date for the reexamination process

Final Monitoring Report

Robust data for a scientifically informed alternative



Reexamination Timeline

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UNRBA develops framework for Stage II Reexamination



DWR approves monitoring program | UNRBA begin monitoring in 2014 and finishes in 2018

Program collects over 28,000 observations!



NC General Assembly sets a 2023 end date for the reexamination process

What's Next?

The role of jurisdictional leadership over the next five years

MODELING STREAM FLOWS AND LAKE LEVELS

2
0
2
0

Falls Lake
Regulatory Forum



Third Technical
Stakeholder Workshop



UNC Collaboratory
continues its Falls
Lake evaluation



UNRBA calibrates
models to observed
stream flows and lake
water levels



Communication and
support-building
continue

MODELING WATER QUALITY

2021

Fourth Technical Stakeholder Workshop



The UNC Collaboratory releases its first interim report on Falls Lake



UNRBA calibrates models to observed water quality in streams and Falls Lake



UNRBA begins reaching out to stakeholders to develop and vet potential replacement strategies for managing nutrients



Communication and support-building continue

COMPARING MANAGEMENT ACTIONS

2022

UNRBA uses models to compare nutrient management actions



UNRBA releases its Final Modeling Report



Communication and support-building continue



Watershed and lake models complete!

UNRBA submits models to DWR for review and approval.



Fifth Technical Stakeholder Workshop



The UNC Collaboratory releases its second interim report on Falls Lake

PROPOSING A NEW STRATEGY

2
0
2
3

UNRBA releases its draft strategy proposal



Communication and support-building continue



The UNC Collaboratory releases its final report on Falls Lake



Sixth Technical Stakeholder Workshop



UNRBA Water Summit on Nutrient Management Recommendations



UNRBA submits its recommendations to the EMC

REACHING CONSENSUS ON A STRATEGY ADOPTION PROCESS

2024

Communication and support-building continue throughout the basin



Revised strategy implementation steps begin!



Seventh Technical Stakeholder Workshop



Strategy adoption approach selected

Q&A Panel

Forrest Westall

UNRBA Executive Director

Sig Hutchinson

UNRBA Chair

Jimmy Clayton

UNRBA Vice-Chair

Kenny Waldroup

Path Forward Committee Co-Chair

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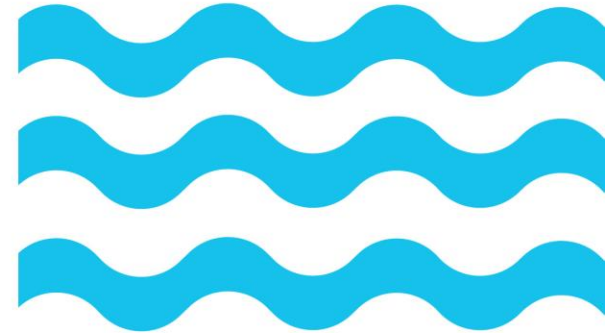
Path Forward Committee Co-Chair

Key Topics Roundtables



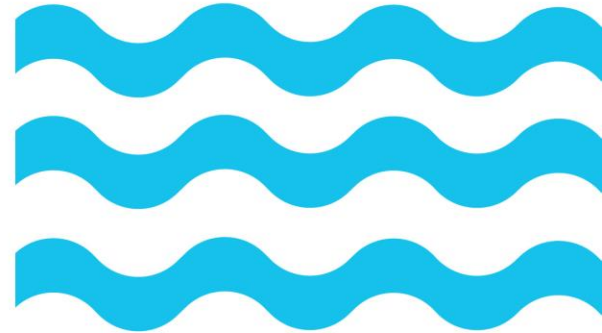
Ground Rules

- Focus on one conversation.
- Please contribute and share the available time with others
- Be specific. Use examples whenever you can.
- Conversation isn't commitment. Ask questions and test ideas. We will not hold you to your brainstorming.
- Do disagree; don't be disagreeable.



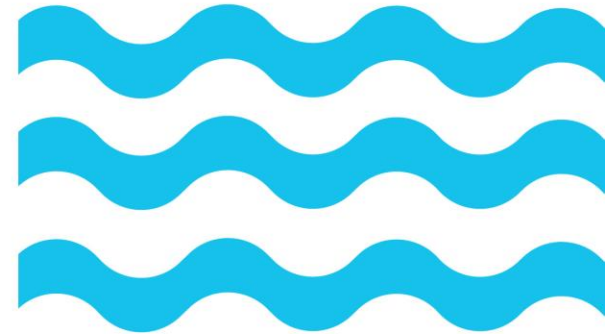
Topic 1

Do you have any questions about the reexamination that weren't addressed or fully answered during the Q&A session?



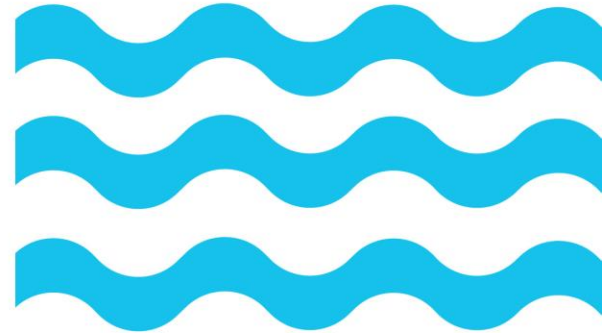
Topic 2

What type of support from the UNRBA would help you feel prepared to make decisions about nutrient management options?



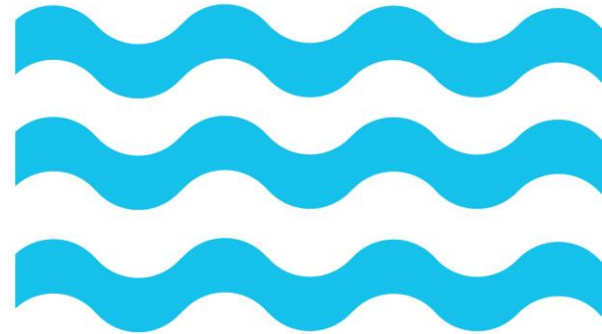
Topic 3

Does anything we talked about during the briefing concern you? Did we leave something out that's important to your jurisdiction?



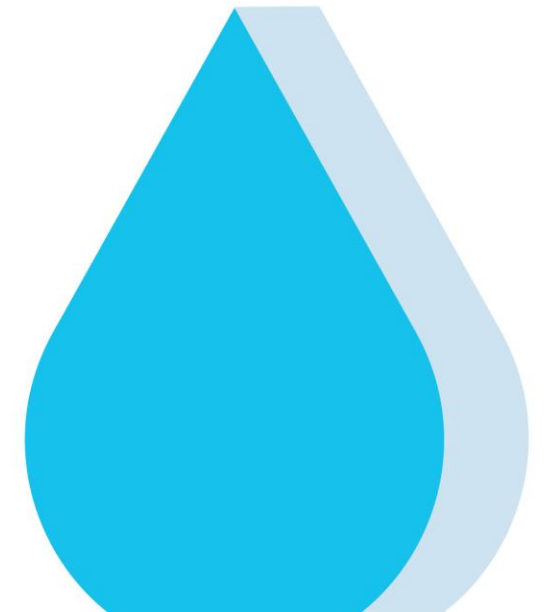
Topic 4

Can we do anything to support your efforts to communicate with your constituents about these issues?



Report Out

Key topics from each table





General Information:

UpperNeuse.org

Technical Information:

UNRBA.org

Contact Information:

Forrest R. Westall, Sr., Executive Director

forrest.westall@unrba.org

Nutrient Management Strategy Reexamination Milestones

2020 MODELING STREAM FLOWS AND LAKE LEVELS

- UNRBA hosts first Falls Lake Regulatory Forum to brief leaders on the status of Stage II re-examination
- UNRBA calibrates models to observed stream flows and lake water levels
- Third Technical Stakeholder Workshop - calibration of stream flows and water levels
- Communication and support - building consensus throughout the re-examination process
- UNC Collaboratory continues its Falls Lake evaluation

2021 MODELING WATER QUALITY

- UNRBA calibrates models to observed water quality in streams and in Falls Lake
- Fourth Technical Stakeholder Workshop - calibration of water quality
- UNRBA continues outreach to external stakeholders for input on potential replacement strategies
- UNRBA hosts the second Falls Lake Regulatory Forum for input on potential replacement strategies
- UNC Collaboratory releases its first interim report on Falls Lake and continues its Falls Lake evaluation
- Communication efforts and support-building continue

2022 COMPARING MANAGEMENT ACTIONS

- Watershed and lake models are fully calibrated
- UNRBA submits modeling files to DWR for review and approval
- UNRBA uses calibrated models to compare nutrient management actions:
 - How do actions in the watershed and lake affect the lake's water quality?
 - How feasible and cost-effective are different kinds of management actions?
 - Is the current chlorophyll-a standard for Falls Lake attainable?
 - Are regulatory alternatives warranted for this man-made water body?
- Fifth Technical Stakeholder Workshop – evaluation of management actions and technical feedback
- UNRBA hosts the third Falls Lake Regulatory Forum to receive feedback from leaders to guide direction of the revised nutrient management strategy
- UNRBA releases Final Modeling Report documenting model calibration and scenario evaluations
- UNC Collaboratory releases second interim report on Falls Lake - Falls Lake evaluation continues
- Communication and support-building continues

2023 PROPOSING A NEW STRATEGY

- UNRBA releases its draft strategy for nutrient management
- Sixth Technical Stakeholder Workshop - presenting revised strategy
- Communication efforts and support-building continue
- UNRBA hosts the fourth Falls Lake Regulatory Forum on the revised strategy
- The UNC Collaboratory releases its final report on Falls Lake
- UNRBA submits its recommendations to the EMC

2024 REACHING CONSENSUS ON A STRATEGY ADOPTION PROCESS

- Seventh Technical Stakeholder Workshop - update on the path to adoption
- Communication efforts and support-building continue throughout the basin
- Strategy-adoption approach selected
- Revised strategy implementation steps begin

Additional Resources and Contact Information

- **General Information:** <https://upperneuse.org/>
 - Home: the UNRBA and its mission
 - Falls Lake Rules, challenges, and successes
 - Developing a better strategy
- **Technical Resources:** <https://www.unrba.org/>
 - Meeting schedules, agendas, and materials
 - UNRBA monitoring program, quality assurance project plan, data portal, and monitoring reports
 - Nutrient credit program and tracking tool
 - Re-examination planning, modeling quality assurance project plan, stakeholder sessions
- **Contact Information:**
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 Phone: 919.339.3679
 Email: forrest.westall@unrba.org

UNRBA Board of Directors and Alternates (Date: 2/3/2020)

Member	Director	Alternate # 1	Alternate #2
City of Creedmoor	Neena Nowell	Del Mims	ND*
City of Durham	Javiera Caballero	Reginald Hicks	Michelle Woolfolk
City of Raleigh	Pending	Kenneth Waldroup	Carolyn Bachl
Durham County	Ellen Reckhow	Ryan Eaves	McKenzie Myers
Franklin County	Harry Foy	Scott Hammerbacher	ND*
Granville County	Owen Roberts	Barry Baker	Michael Felts
Orange County	Sally Greene	Jamezette Bedford	Wesley Poole
Person County	Jimmy Clayton	Lori Oakley	Kayla DiCristina
South Granville WASA	Scott Schroyer	Fred Dancy	ND*
Town of Butner	Bill McKellar	Mike Ciriello	Thomas Morrow
Town of Hillsborough	Jenn Weaver	Terry Hackett	ND*
Town of Wake Forest	Carrie Mitchell	ND*	ND*
Wake County	Sig Hutchinson	Melinda Clark	Matt Calabria

* ND = Not Designated