

# Steering Committee Meeting #2

December 1, 2022 / 9-11 am / via Zoom

## Purpose

1. Begin to understand HRL model and ask questions of modelers
2. Further explore the charge to the Steering Committee
3. Further develop the charge to the TAGs, with deadlines.

## Goals

1. Understand and agree to the overall charge of the Steering Committee
2. Become more familiar with the *Reduction curve model analysis using proposed Water Quality Criteria for High Rock Lake*
3. Finalize the initial charge to the TAGs

## Participants

### Steering Committee members:

Andy Allen  
Allie Dinwiddie  
Danica Heflin  
Julie Henshaw  
Bill Kreutzberger  
Grace Messinger  
Grady McCallie  
David Saunders  
Judy Stalder

Joey Hester, DWR  
Rich Gannon, DWR  
Pam Behm, DWR modeler  
Jing Lin, DWR modeler  
Maggie Chotas, Facilitation team  
Laura Swartz, Facilitation team

## Meeting Summary

### **Presentations Given**

- Steering Committee Charge (Joey Hester, DWR)
- Question & Answers for the Modelers (Pam Behm and Jing Lin, DWR modelers)
- Finalizing the charge to the TAGs

## Key Points

- Developing TAGs was intentional and not intended to silo groups. TAGs are a practical way to gather information from like-minded groups.
- Rules must regulate individuals and individual source types
- The Steering Committee is responsible for:
  - Setting overall reduction goals for each source
  - Address and redistribute uncontrollable source reductions
  - Agree on which sources will be regulated
  - Agree on recommended actions for non-regulated sources
  - Establish implementation timelines
  - Decide whether to include watershed above W. Kerr Scott reservoir
- Overview of the High Rock Lake model -
  - Revised by the EPA several times
  - Originally done by TetraTech in 2012
  - Multi-year process
  - W. Kerr Scott was excluded from the model, because it was not impaired previously and WQ data above dam
  - 2006 proposed as baseline year for the model
  - Compliance point proposed at YAD152C
  - Y axis is P reduction; X axis is N reduction
  - The model works best when both P and N are reduced
- The Steering Committee decided to revise the charge to the TAG, and include phased questioning.

## Key Questions

- *What are the model limitations for the Curve model?*
  - Model has had calibration uncertainty
  - Model has uncertainty with permutations
  - The curve represents algal responses to various nutrient load reduction scenarios (as it was in 2006)
- *What can/can't the model predict when we focus reductions exclusively on one nutrient and ignore the other completely?*
  - This question relates to how much uncertainty is in the model. The model is EPA approved and it is well calibrated.
- *The curves do not include a factor of safety (to account/correct for model uncertainty) correct? →*
  - That is correct. This is just model output.
- *What lake behaviors would we expect from exclusively focusing on one nutrient?*
  - This is not a model question.
- *Is it feasible to assign a nitrogen reduction target to one source category and a phosphorus reduction target to another?*
  - Yes, but you have to meet the total target chosen. The watershed model will need to be examined closely if we are only addressing particular sources and not others.
- *Would the division entertain further revisions to the lake or watershed model?*
  - Bringing it up to the current time period is not a feasible task because there is insufficient monitoring post 2010
  - It might be possible to revise the model inputs, depending on what that means.

- The model is still representative of the lake, according to Pam Behm.
- *The reduction totals described do not line up with the curve itself. Can you explain the narrative statement that specifies reduction requirements?*
  - It is not the combination of the two. It is one or the other, and that is spelled out in Jing's memo.
  - The narrative of 50/37 being on the curve was faulty representation (correcting from last meeting). Either one of those by itself hits the curve. Doing both that much would go beyond needed redux.
- *Why is the watershed model not run for the area above W. Kerr Scott Reservoir?*
  - Lack of information, and lack of data.
  - We would love to have endless data about the entire watershed, but there are some gaps in our understanding. That was a good confident boundary condition at the time.
- *If those models are adjusted how would that affect the timeline of this NMS process?*
  - That depends on the scope of the adjustment. Pam explained that there is work needed to simulate reducing x% for one source or another. It has no effect on the existing lake curve.
  - Joey mentioned that it might be possible to use the watershed model for different projections.
- Grady McCallie made a comment that he is much more interested in management actions that can be taken. Not in favor of going back and modifying the models.
- *Grady: What do you think changes have been made to the watershed since models done? Qualitatively what direction do we think things have shifted the models results v. quantitative estimates.*
  - *From the Chat - Grady's list of changes in the system since 2006: \* longer growing season; \* increased atmospheric CO2 concentrations; \* intense rain events driving loading; \* increase in impervious surface; \* volume of poultry waste disposed in the watershed; \* more benthic sediment.*
  - Joey, Rich, Pam and Jing will all have to tackle these issues. Joey suspects there are more intensive hydrograph fluctuation.
  - Rich Gannon noted that this issue has definitely been studied and documented further east. There is likely more erratic growing seasons since the models were made. We are seeing larger percentage of annual loading to estuary/ lake from large, flooding storms. Along with impervious increases in watershed, both subject to controls and not, this is the biggest concern on the changes front.
    - Pam added this is a big area of focus in the modeling world.
- Bill K added that we will need updated models to do adaptive management. We may want to start planning for that now to go in parallel to NMS development and implementation.
- *David S. asked will we also do a cost-benefit analysis as part of this?*
  - The cost of modeling/ management tools pales in comparison to what compliance costs will be. Joey will need help to write the fiscal analysis.
- The EPA standards staff is still figuring out the most recent EPA criteria guidance for the lake.
- Failing sewer systems are also a concern, because of fecal inputs from stormwater.

## Decisions

- **The Steering Committee decided to incorporate phases into the updated TAG charge.**
- **The Steering Committee decided to make the initial part of the TAG charge a focus on self-assessment for each of the groups.**

## What's Next / Action Items

1. **The Steering Committee will see an updated draft and give feedback. Joey and Rich will take all feedback and finalize the Charge to the TAGs.**
2. **This Steering Committee will meet again in person in Winston Salem on Tuesday, February 28, 2023, from Noon - 3 pm.**

## Important Documents

- The Curve Memo - officially, "Reduction curve model analysis using proposed Water Quality Criteria for High Rock Lake" by Jing Lin, Modeling and Assessment Branch, Water Planning Section, NC DWR
- Updated TAG Charge document