HIGH ROCK LAKE NUTRIENT STRATEGY DEVELOPMENT

ALL STAKEHOLDER MEETINGS | SEPT 29, 2022, 1-3 & 6-8 PM

Session Overview

On September 29, 2022, the Division of Water Resources (DWR) held two All Stakeholder meetings in Yadkinville, North Carolina, to kick off the High Rock Lake Nutrient Strategy Development process. To maximize participation, DWR offered the same meeting twice, first from 1 – 3 pm in the afternoon and then again from 6 – 8 pm in the evening. A total of 82 stakeholders participated in the two meetings.

Session Outcomes

As a result of this meeting, stakeholders:

1. Received information regarding the ongoing nutrient issues that impact the water quality and ecological health of High Rock Lake and limit the lake's use by the surrounding population and citizens of the state.
2. Provided input as the community who will potentially be impacted by regulations to control
3. Reviewed the statutory obligations to address the water quality impairment and the plan for developing a reasonable and effective regulatory strategy that will help achieve long-term water quality improvement in High Rock Lake for all users.
4. Signed up for technical workgroups and steering committee.

See Appendix A for a full list of the leadership team and meeting participants. See Appendix B for the meeting agenda.

Summary Notes

Welcome & Why we are here

Joey Hester, Nutrient Strategy Coordinator with the Division of Water Resources (DWR), welcomed participants and thanked them for coming. He introduced himself and his supervisor Rich Gannon as the primary contacts for the projects. Mr. Hester emphasized the wide range of stakeholders in the meeting and shared the overall goals of the process, noting that the intent is to go beyond writing rules. There's more to be gained from rulemaking than simply regulating and being regulated.

Mr. Hester elaborated, emphasizing these key points:

1. Engage stakeholders in watershed planning: we hope that this platform can also serve as a space for coalition building and innovative planning for the future of water resources in your communities.
2. Draft rule language to reduce nutrient loading to High Rock Lake: We intend to draft rules to reduce nutrient load into High Rock Lake. All the stakeholders here live or work in what's called a watershed. By that measure, we are all responsible for taking ownership over its future and putting rules in place that level the playing field for all nutrient contributing activities that impact the health of the reservoir.
3. Prioritize and enable creative and innovative solutions that meet the needs of residents: We hope this conversation will enable creative and innovative solutions to High rocks problems and we hope these solutions meet not only the needs of the lake ecosystem but also the needs of the people who depend on these resources to work and live.
4. Reduce nutrient loading in a fair, reasonable, and proportionate manner: We intend to reduce nutrient loading fairly, reasonably and proportionately.
5. Ensure that High Rock Lake continues to be fishable and swimmable: We intend for these rules to protect upstream surface water resources in such a way that by helping reduce the inputs to High Rock Lake itself.
6. Protect drinking water supplies along the Yadkin River: We're simultaneously helping to keep drinking water clean and treatment costs low for communities along the main stem of the Yadkin River and beyond.

Working Agreements

Facilitator Maggie Chotas welcomed everyone and introduced the following working agreements to the group:

- Begin and adjourn on time
- One speaker at a time
- Listen for understanding
- Say what you need to say while making room for others to say what they need to say
- Embrace a learning mindset
- Be mindful of assumptions and ask questions
- It’s okay to disagree . . . please do so respectfully
- Share your own perspective and respect the perspectives of others

Maggie also shared the “parking lot” space where participants were invited to post comments or questions throughout the meeting.

See Appendix C for a copy of the working agreements.

Opening Exercise – Who's in the Room

To highlight the overall make-up of participants, Facilitator Will Dudenhausen asked participants to "raise their hands" if they were:

- an elected official or representative
- someone who uses High Rock Lake recreationally
- someone who uses High Rock Lake professionally
- part of agricultural or forestry around the Lake/watershed
- lives in or near the Lake/ watershed
- involved in water or wastewater industries
- involved in stormwater management
- part of an industry near the Lake/watershed
- part of an advocacy community relating to the Lake

Table Talk #1: Introductions & Hopes for High Rock Lake

Will Dudenhausen introduced the next activity. At individual tables, each participant introduced themselves, explained what brought them to this stakeholder meeting, and discussed one hope they have for High Rock Lake and its watershed.

These are the collected **themes** from each of the groups' discussions:

1. Develop solutions to reduce sediment and nutrients and maintain High Rock Lake's quality
2. Better understand the derivative of the excess nutrients
3. Create a lake that can be safely recreationally used and a resource for drinking water
4. To be able to educate people about how to mitigate pollution entering High Rock Lake
5. Develop relationships between stakeholders from different backgrounds
6. Equitable distribution of responsibility in development of a new nutrient plan
7. A process that allows for transparency, flexibility, and achievement of clear and attainable goals
8. Working together to make the Lake that supports all who use it

See Appendix E for the first table talk worksheet, and Appendix F for themes that emerged from the table talk discussions.

Diving deeper into the lake's condition

Joey Hester provided the overview of High Rock Lake. For the complete set of slides presented, please see the DWR Presentation file from All Stakeholder Meeting #1 at the NC DEQ website[1].

[1] https://deq.nc.gov/about/divisions/water-resources/water-planning/nonpoint-source-planning/high-rock-lake-nutrient-management-strategy#meeting-materials

A summary of Mr. Hester's presentation follows.

<u>High Rock Lake has been eutrophic since at least the 1970s</u>

- Problems date back many decades
- Freshwater Piedmont reservoirs naturally tend to accumulate pollutants and High Rock has been a state of over enrichment since at least the 1970s and probably earlier

<u>First impaired for chlorophyll-a in 2004</u>

- The dam was constructed in the late 1920s but wasn't formally designated as violating the Chlorophyll-A water quality standard until 2004. That designation triggered the regulatory compliance process that brings us here today

<u>Lake is currently impaired for chlorophyll-a, pH, and turbidity</u>

- Chlorophyll-A is a measure of excessive algal production
- PH is correlated with algal production
- Turbidity clouds the lake so that limited sunlight is available for algal growth, which tends to, in High Rock Lake specifically, push the blooms further down into the lower reaches
- Once the sediment falls out and the water calms down, light is accessible again and the algae production kicks back into high gear
- Problems facing the lake are concentrated in the upper reaches of the river, but they continue to impact the lake ecosystem all the way down to the dam where chlorophyll A and pH impairments persist

<u>Summer phosphate limits are in place for 3 wastewater treatment plants in Abbotts Creek</u>

<u>Persistent algae blooms in every season except winter</u>

- DWR staff has noticed that in recent years, algal blooms take place annually during spring, summer, and fall
- From 2020 data we see that Chlorophyl-A remains elevated in most of the lake except the uppermost main stem of the Yadkin River
- The PH impairment occurs in the lower reaches where algae production is most intense and the turbidity impairment shifted into the upper reaches of some of the lake's territories, but didn't seem to be a problem in the main part of the lake in the 2020 assessment
- The fluctuations show how the environmental variability may impact sediment around the lake, but throughout the years, algae production has remained persistently and problematically high

- Going back to the 1970s, roughly 3/4 of the lake has seen Chlorophyll-A levels have consistently surpassed the 40 microgram per liter statewide standard in every monitoring report

Lyngbya wollei

The algae bloom that has generated the most attention lately is Lyngbya wollei. Mr. Hester included some facts:

- Blue green algae (cyanobacteria) that forms thick black mats at the surface
- Roots to the bottom, but can trap gases that cause it to dislodge and float to the surface
- Causes aesthetic and recreational problems in the lake
- Generates an unpleasant, musty smell
- It's thick and heavy duty and can even get caught in boat propellers
- Reduces surface oxygen exchange
- Can produce several different kinds of aquatic toxins
- No documented illnesses caused by Lyngbya wollei in humans or pets
    - It's exceedingly difficult to pinpoint the cause of illness to algae – by the time you get back into the water, the toxins could have diluted or fluctuated
- Can augment high pH which eliminates competition

Mr. Hester shared photos taken at High Rock Lake this past summer, highlighting that the algae are generally confined to shallower areas but don't necessarily need to grow from the bank outward. Unfortunately, people using the Lake risk accidentally consuming the toxic algae. Pictures of the lake included one documenting algae growth not far from children swimming at the Lake.

Mr. Hester showed three images of the Lake taken over the course of an hour, noting that the sedimentation greatly increased within this short period of time. While this nutrient management strategy is not designed to deal with sedimentation directly, many standard recommendations for stormwater management dovetail nicely with more rigorous management of sediment-laden runoff.

Mr. Hester also showed an aerial image from Google maps. This image showed that the sediment-laden runoff impact on High Rock Lake is visible from far away.

Public & Environmental Health Impacts

High Rock Lake's issues also pose a potential ongoing threat to public and environmental health. Some of its acute problems have captured the attention of local residents and news outlets.

Mr. Hester shared three stories relating to the **health impacts of the lakes**:

- This first story involves a group of lakeside landowners whose shallow bay is silting in to such a great extent that they can no longer use their boats to reliably access other areas of the lake.
- The second story involves a major fish kill from 2009 which was widely reported across the state. Fish kills result from explosive algal growth, which then causes a rapid depletion of nutrient availability, a subsequent algal die-off, widespread decomposition of settling algal biomass, and consumption of available oxygen in the water column wherein fish suffocate en masse.
- The third is a report of a dog that unfortunately passed away less than 12 hours after swimming in High Rock Lake. It's important to note that while DWR cannot conclusively link any pet death or human illness to algal toxins in High Rock Lake, it's also difficult to rule algal toxicity out as a culprit in situations like this one.

<u>Nutrients and Algae</u>

- Like other plants, algae need only a few major components to grow: sunlight, water, carbon dioxide, nitrogen, phosphorus, and potassium, in addition to small quantities of other elements.
- When the rate of delivery of these major nutrients is significantly higher than the rate at which the ecosystem can break them down, excess production of short-lived aquatic algal species is stimulated.
- Nitrogen and phosphorus are ubiquitous across the biosphere and can be delivered to surface waters via stormwater runoff, wastewater, animal waste deposition, decomposition, erosion, precipitation, and surface-groundwater exchange. Some of these inputs vary throughout the year, and some vary with different environmental conditions, but all of them are regular contributors to an over-abundance in lakes like High Rock.
- Nitrogen and phosphorus behave very differently.
- Nitrogen forms are generally water soluble – dissolved into rainwater, stormwater, and groundwater and move freely wherever there is water transfer.
- Phosphorus is a much stickier molecule that tends to bind to sediment particles.
- A majority of phosphorus is delivered to waterways when it's bound to sediments that are liberated via upland and streamside erosion, as well as via resuspension of benthic sediment along the beds of streams and rivers.
- Management of stormwater, erosion, sedimentation, and nutrients tend to overlap and simplify our available options for watershed scale nutrient management.

Water Quality Status

- Chlorophyll-a concentrations routinely exceed 50 ug/L. However, there is no clear long-term trend. (SAC 2020)
- Fecal coliform levels appear to have increased in recent years since 2014, particularly from Swearing Creek, Town Creek, Grants Creek, and the mainstem Yadkin and since 2018 in the South Yadkin River which merges with the Yadkin mainstem approximately 5 miles above the lake. (Yadkin-Pee Dee Basin Plan 2022)
- In-situ phytotoxin tracking indicated microcystin, anatoxin, and cylindrospermopsin were present much of the summer. Bulk water analysis indicated toxin concentrations were below action limits or health advisory concentrations. (SAC 2020)
- Dissolved oxygen concentrations are relatively high. (SAC 2020)
- Surface water pH is consistently high during the summer and correlates with high chlorophyll-a levels. (SAC 2020)
- Sources closer to the lake below the upper Yadkin mainstem station (South Yadkin River and Grant Creek watersheds) have increased nitrogen contributions to HRL in recent years. (Yadkin-Pee Dee Basin Plan 2022)
- There is no clear long-term trend in phosphorus contribution to HRL.
- W. Kerr Scott Reservoir is also seeing elevated levels of chlorophyll-a. (Yadkin-Pee Dee Basin Plan 2022)

Spatial Dynamics in Nutrient Loading

Mr. Hester shared images of spatial dynamics in nutrient loading and emphasized the following key lessons:

- A lion's share of the inputs to the lake are delivered from the mainstem of the Yadkin River, which gives us a sense of how important managing upstream flows will be for controlling algal growth in High Rock Lake.
- Communities and landowners in the upper reaches of the watershed as far west as Blowing Rock, Wilkesboro, and Statesville, as far north as Surry and Wilkes County, and as far east as Winston-Salem and High Point must take an active role in limiting their impact on receiving waters.
- As precipitation rates change in the future, communities will have an increasingly important role in managing stormwater runoff not only to limit pollutant delivery to the lake, but also to assist with flood management for downstream neighbors.
- The health of High Rock Lake very much depends on all of us working together.

Big Picture Status

Mr. Hester zoomed out to share the following overall big ideas:

- High Rock Lake continues to support a healthy fishery for crappie, catfish, white perch, and largemouth bass.
- The dam provides hydroelectric power for surrounding communities.
- Annual recreational use of High Rock Lake is estimated at over 1.4 million recreational days (but likely this number should be higher).
- High Rock Lake has 365 miles of shoreline, which is roughly the distance from Yadkinville to New Jersey.
- As a fishing and swimming resource it's important that we carefully manage pollution inputs to the lake to ensure these uses continue.
- There are nine drinking water intakes on the Yadkin and South Yadkin Rivers, which means many thousands of people rely on this lake for drinking water.
- The condition of the lake affects everyone in the watershed, and so too will its restoration.

Questions from participants:

Session 1

1. *Will notes will be shared from this presentation?*
    a. All documents and meeting materials will be posted on the Division of Water Resources website[2].
2. *Caldwell County is not included in the Watershed map on the website. Should I be here?*
    a. The model may have excluded Caldwell County, but it does affect the watershed. We are hoping people from Caldwell County will be part of the dialogue, and we do intend for the strategy itself to cover the entire watershed all the way up into the Blowing Rock and the Caldwell County basin.

Session 2

1. *When the dam was built, it was built to serve a purpose. How far back do you have records?*
    a. Records from the 1970s show High Rock Lake was one of the most eutrophic lakes in the state. The dam was built in eutrophic since at least the 70s and probably the 30s and 40s. That's what tends to happen with freshwater reservoirs as soon as you build it, it's going to collect all that stuff. That's just the nature of it. The dam was built in 1927 and it was probably already eutrophic in the 30s and 40s. In the last 20 years it's gotten out of bounds. At this point, we want to at least keep it from getting worse.

[2] https://deq.nc.gov/about/divisions/water-resources/water-planning/nonpoint-source-planning/high-rock-lake-nutrient-management-strategy

2. *There's a lot of development happening around the Lake and the same thing is happening all the way up the river. If you go back to the 1920s through the 1950s, it was primarily agriculture. Now there is a lot of development with green lawns and septic systems, as well as golf courses. It used to be just a weekend lake. Now probably 75% of the residents are there all the time.*
    a. This strategy will try to tackle everything. We're going to handle stormwater issues. Generally septic systems do pretty well, as long as they are properly installed and maintained. There is not any one source that's driving the problem, but all of them together.
3. *Who manages the Lake now?*
    a. Cube Hydro is the entity that operates the dam now. It used to be ALCOA, then an intermediary.
4. *When was the last time it was dredged behind the dam?*
    a. Not sure.
5. *Has the sedimentation rate increased in the last decade? Do you have numbers for that?*
    a. I could dig back into some historical data that we have to try and paint a better picture, but generally, High Rock Lake has a fairly quick residence time. A drop of water that makes it to the top in Falls Lake in Raleigh, for example, stays there for up to three-four months. In contrast, at High Rock Lake, it's around three weeks. It's moving fairly quickly through the system.
6. *Is the sediment so deep it's like a cache basin and that's where the nutrient enrichment comes from?*
    a. Not with nitrogen, but with phosphorus that's part of it. Phosphorous tends to stick to soil particles and so it can be delivered with soil and sediment. Nitrogen is different in that dissolves throughout the system, evaporates and eventually rains back down in nitrogen gas. One thing I've talked about with some of the soil water folks is that if we can deal with erosion, we'll also be helping the phosphorus issue. If we can deal with stormwater flows, if we can slow the water down, if we can decrease the amount of sediment being delivered, we might start managing some of the phosphorus being delivered. So in that way, sediment is contributing to the nutrient issue at its heart.

       It's also worth keeping in mind that if a huge flow event comes through the Lake, it resuspends sediments and stirs phosphorous back up into the water column, making it available for the algae to produce on all over again. The algae could have been there for a long time – say 50-70 years. In sum, sediment is certainly a big piece of this puzzle.

7. *Having population centers close to the water is a big problem. When it rains, we're prone to flooding now because of all the asphalt and it rains so much in a short period of time. Four years ago the flooding was going to bankrupt us. What can we do about that?*
    a. We're going to try to tackle stormwater. We're bringing in local governments, county governments, municipalities – folks who are already dealing with the flooding issue. If we can start planning this process and discussing how we manage stormwater everywhere, then we'll get some of the nutrient benefit that comes along with it. As we have more conversations and look at the link between stormwater and nutrients, we can figure out solutions for flooding and tackle where do we go from here. How do you put something in place that's going to help us manage flood waters in a more intelligent way.

Table Talk #2: Reactions & Questions

Monica Veno, DSC Facilitator, introduced the second table activity and asked participants to discuss their immediate reactions to the information presented about High Rock Lake, any questions that surfaced, and topics upon which they would like to learn more.

The following **themes** emerged:

<u>Immediate reactions to the information shared about High Rock Lake?</u>

- Comprehensiveness and accuracy of data – some positive and some skeptical
- This is a long-standing problem
- Climate questions
- The role of sediment
- Cost and conservation of land
- Correlation between the population and the problem
- Approach to the problem

<u>Questions the presentation raised</u>

- How this will affect the business community in the watershed
- The impact on the community
- Distribution of the problem – in both cause and effect
- Local health departments and local government engagement
- Current state tests and regulations
- Timeline for improvements
- Questions about data and sources
- Managing the algae
- Impact of people and residential property
- Sediment and erosion

Topics for more information? To learn more about?

- More data
- More information about current rules and the rulemaking process

See Appendix G for the worksheet for the second table talk, and Appendix H for themes and questions that surfaced from that discussion.

Nutrient Sources and Management Needs

Mr. Hester presented information about nutrient sources and management needs:

Background

- North Carolina has developed Nutrient Management Strategies for the Chowan River Basin, the Neuse Basin, Tar-Pamlico Basin, Jordan Lake Watershed, and Falls Lake Watershed.
- Strategies include various kinds of wastewater discharge limits, buffer protections, stormwater controls, and agricultural nutrient loss reductions.
- The Clean Water Act was first passed in 1972 and has been amended several times since then. It charges states to set water quality parameter standards to protect uses of surface water resources, designate a water body impaired when those parameters are exceeded, develop a restoration plan to reduce pollutant inputs, monitor implementation of that plan, and eventually with enough successful work on the part of stakeholders, de-list the water body because it has come back into compliance.
- It's important to note that ***the ultimate goal of this nutrient management strategy is to bring High Rock Lake back into compliance with water quality standards***.

State-level regulatory authorities guiding this process

There are also several state-level regulatory authorities that are guiding this process today:

- 1978 – Chlorophyll-a criterion: 40ug/L (10/90)
    - 2022 – High Rock Lake site-specific criterion: 35ug/L seasonal geomean (1 year in 3) *(pending EPA approval)*
- 1997 – Clean Water Responsibility and Environmentally Sound Policy Act – EMC shall:
    - Set reduction goals for nutrient-impaired waters
    - Establish plans with "fair, reasonable, and proportionate" reductions from point and nonpoint sources
    - Adopt rules for above, and to implement total maximum daily load (TMDLs)
- 2010-2016 – modeling to set point/nonpoint source goals for N, P and guide wasteload allocations for dischargers

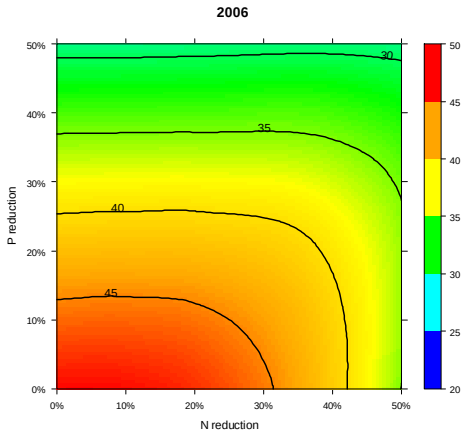
Models

There are lake and watershed models to simulate the problems and potential solutions:

- Lake & Watershed Models were developed starting in 2010 after intensive water quality monitoring
- Lake model produces a "curve" that isolates reduction thresholds

The models create reduction curves that will help guide this process. An example follows:

35ug/L seasonal geomeanchl-a standard



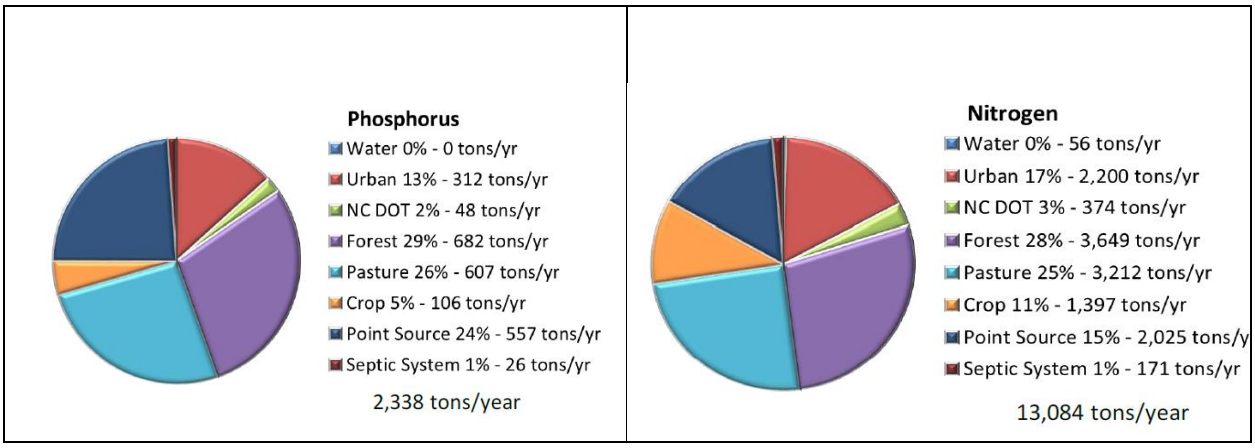
38% Phosphorus Reduction

37% Nitrogen Reduction

For the complete set of slides, please see the presentation on the DWR website[3]

<u>Annual Nutrient Loading</u>

From Tetra Tech 2012:



Mr. Hester explained the following caveats:

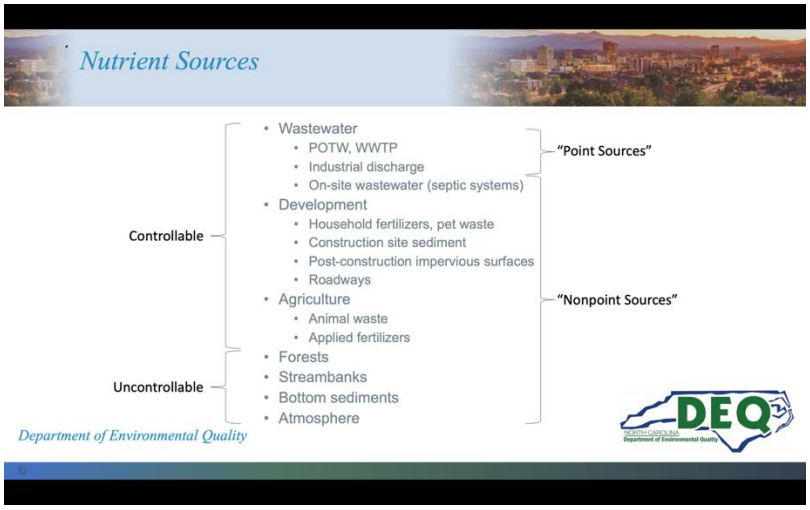
[3] *https://deq.nc.gov/about/divisions/water-resources/water-planning/nonpoint-source-planning/high-rock-lake-nutrient-management-strategy#meeting-materials*

1. These contributions will vary with precipitation rates. Severely wet years will likely shift the contribution away from point sources and toward nonpoint sources. Severely dry years will likely do the opposite.
2. The overall loading contribution of each source depends fundamentally on the amount of the watershed land area that's influencing it. Pastured agriculture has, for example, a land footprint that's significantly greater than the land footprint of cropland agriculture.
3. High Rock Lake Watershed is approximately 55% forested, which helps explain why forest lands contribute over a quarter of all nutrient loading, but one would also *expect* it to contribute that kind of amount based on the amount of land it occupies.

The ***goal of this strategy is NOT to reduce these slices to zero, because in some cases nutrient sources cannot be completely eliminated, they simply need to be reduced to a more optimal range based on their expected influence and the cost of control.***

Mr. Hester also reviewed the general types of permits issued by DWR in the watershed.

<u>Nutrient Sources</u>



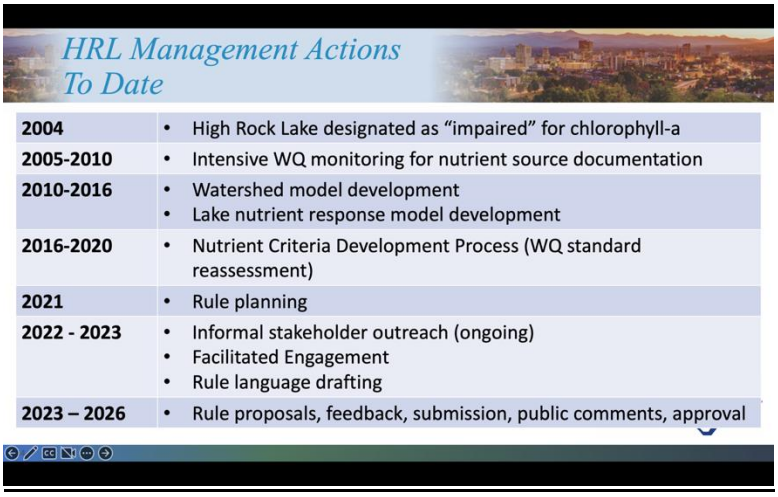
- The nutrient strategy must set out to manage the overall nutrient loading to the lake by strategically addressing the part over which we actually have influence.
- Uncontrollable sources may complicate the path forward, but we hope the nutrient strategy can be adaptable enough that we allow for a certain amount of variability in these areas while still achieving our water quality goals.

Watershed Source Status Changes (2000 – 2022)

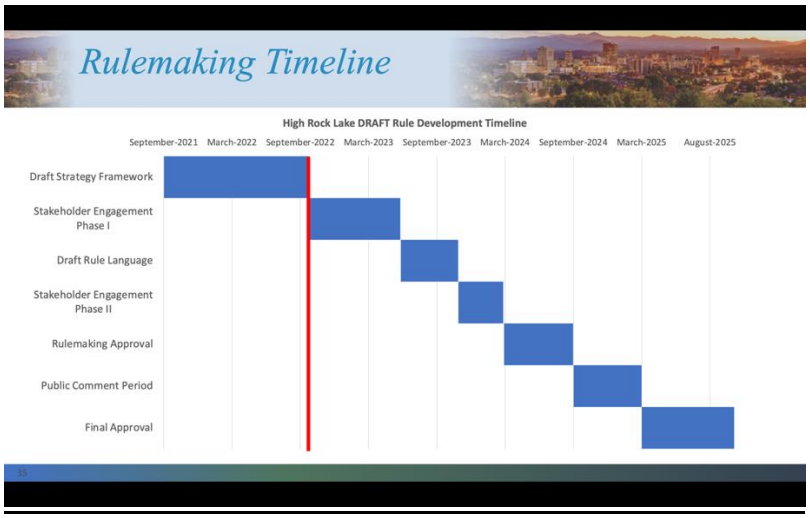
The following key points were explained:

- Population growth is occurring primarily in the Winston-Salem, Salisbury, and Statesville areas.
- Fourteen local governments are currently required to comply with federal stormwater permitting requirements.
- Poultry houses are being built at a rapid pace, but many older houses are also being decommissioned.
- Poultry numbers are generally falling in the overall HRL watershed but increasing in Alexander and Yadkin Counties. Poultry numbers remain highest in Wilkes County.
- Dairy and pastured cattle numbers are falling across the watershed. Most dairy production occurs in Iredell County.
- A small but significant decline in agricultural (-1.7%) land cover is compared to a small but significant increase in developed (+2.5%) land cover.

High Rock Lake Management Action to Date



Rulemaking Timeline



We are aiming for the rules to have enforcement dates in 2025 – 2026.

Integrated Watershed Management – One Water Approach

Mr. Hester provided information about One Water Approach:

- The One Water approach uses an innovative framework guides stakeholders to begin thinking about how their economic, environmental, and social goals intertwine when it comes to managing the multiple points of interaction we have with the water landscape.
- Traditionally we tend to think about wastewater, drinking water, recreational water, stormwater, groundwater, and irrigation water as separate fields and topics.
- We're starting to see an emerging consensus that points to these fields being integrated back together so that we appreciate the ways that each part is interrelated with the others.
- The One Water movement is grassroots and depends on stakeholders taking an active approach to watershed planning that extends far beyond what we, as regulators, can accomplish.

Questions and comments from the participants:

Session 1

1. *When will the regulations be in place? Are those regulations set?*
    a. Hopefully the regulations will be in place by 2025/ 2026. This stakeholder engagement process is designed to give recommendations to future regulations, without any preconceived notions.

b. Mr. Hester explained that DWR has done this four times before, but we are interested in finding a better way forward with the input from stakeholders. We want you to be part of determining the next step forward. At the end of the day, this is *your watershed, your community.* We all have a common goal of cleaning the water.
c. Mr. Dudenhausen added that the DSC team is here to make sure all voices are heard and that this is an engaging, fair collaborative process.

2. *Will the slides be available as well?*
    a. All meeting materials, including the PPT slides, will be available at the DWR website.
3. *Tell us a success story. Is there a lake that has come off the impaired list?*
    a. From the Neuse and Tar Pamlico regulations, put in place in the late 1990s, we did see some meaningful reductions. We saw good activity in the Upper Neuse wastewater dischargers that went above and beyond their wasteload allocations; so they did achieve meaningful reductions. Climate change did throw a wrench in this process, unfortunately. Precipitation patterns changed, and suddenly we get more intense downpours of rain.
    b. The short answer is yes; there have been some meaningful achievements, but it is a long, long road. This problem won't be solved in 2, 5, or 10 years. We might not get there anytime soon, but we need to know we are moving in that direction.
4. *If I'm a poultry producer, I feel like there is a target on my back. A golfer wouldn't feel that way.*
    a. Mr. Hester explained that he is sensitive to this concern. It's a picture we have to paint to start the conversation. Golf courses are certainly part of the problem. When it comes to controllable and uncontrollable sources, we have some tough decisions as regulators. We are starting with this picture of nutrient contributions to that lake. This is what it is, and these are all the things that are contributing to the problem. Over the next 18 months, we will work as stakeholders to figure out what we can do to address this problem. The development and urban world are also contributing. We will have to work diligently to figure out what is achievable in the long term. This has to be a collaborative discussion and effort moving forward.

Session 2

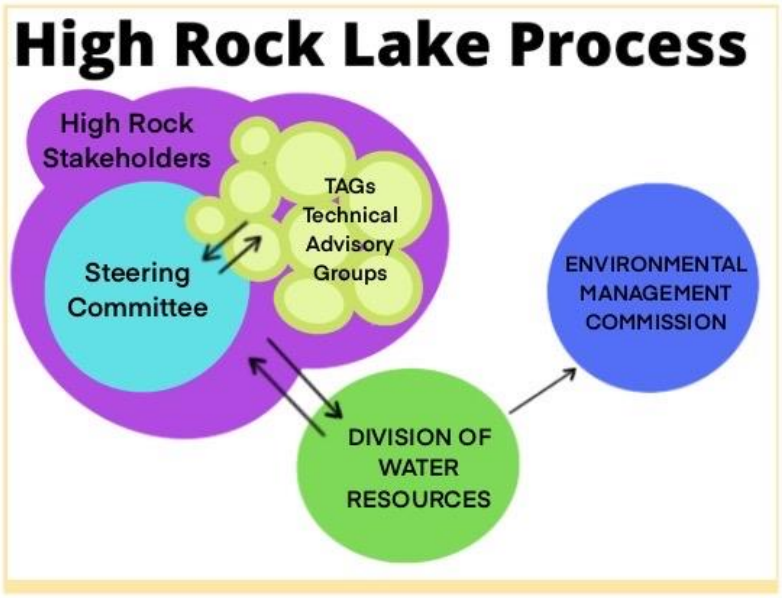
1. *You say you're mandated by the Clean Water Act – is that different than the Waters of the USA?*

a. Waters of the USA is a subsection that tells you where water boundaries are with ditches and streams. It determines what is regulated by the Clean Water Act.

2. *How much of the algae problem could be related to global warming?*
    a. We saw some accomplishments based on the Tar-Pam and Neuse rules back in the early 2000s, then the curve turned. We had really intense double-digit inch rainstorms that washed everything out into the rivers. That is swamping our signal and is complicating whether we can see if there's an achievement. We're going to have to think about this not just with nutrient management, but the fact that a lot of rain can come all at once, not over a few days. We don't get the quiet, saturating soaking rain anymore. You get a torrential downpour over six hours -- we get it all at once. We have to start talking about resiliency and that connects to the One Water dialogue.
3. *How do you regulate that?*
    a. Try to manage your stormwater structures to be bigger and handle floodwaters. Forests are soaking a lot in, but they can't handle everything and adaptation will have to be part of the conversation. We can start talking about when these developed areas come in, how they manage that flow. It's not going to be easy and will take time. We're encouraging Cube Hydro to come to the table as a stakeholder. They are managing the dam and lake levels and we want this to be a part of the discussion when they plan.

4. *To clarify - by modifying the water flow you can decrease the concentration?*
    a. It's possible. They have a lake level they have to maintain. I don't know if changing the flow regime will do much for algal concentrations; you still have to manage inputs. But I would like for them to start thinking about ecological concerns. There's a concept called ecological flow, which is usually for the downstream community because they need to figure out how much needs to come out to maintain a healthy river to support aquatic organisms, but there's no reason we can't talk about that on both sides of the system.

Stakeholder Engagement Process overview image



About This Process

Facilitator Maggie Chotas reviewed the overall purpose of this process, which is to identify the most mutually satisfactory set of draft regulations that will achieve the objective of reducing nutrient inputs to High Rock Lake over time.

In this 15 – 18-month process, stakeholders will have the opportunity to:

1. Gain a deeper understanding of the water quality need; the state's legal mandate to act; and the components of a strategy considered necessary to improve water quality.
2. Work together and with DWR to develop draft proposals for fair, reasonable and proportionate strategies to reduce phosphorus and nitrogen inputs into the High Rock Lake watershed, & to provide a report with proposals to DWR for recommended rulemaking.

Ms. Chotas also presented the overall structure for this process and the teams stakeholders are invited to join. For the purposes of meeting process objectives, stakeholders are organized into three types of interdependent groups, each with a different charge and level of responsibility: All Stakeholders, the Technical Advisory Groups (of which there are four), and the Steering Committee.

For more detailed information on the constitution, composition, methods, and meeting schedules of each of these respective groups, see the Charter located in Appendix D.

Process Flow and Timeline

How you can be a part of this effort & next steps

Laura Swartz, DSC Facilitator, asked participants to reflect on all the material presented and consider at what level they would like to engage in the process and to share their preferences on cards provided. Participants were also given the opportunity to share names of additional people who should participate in this process. Furthermore, the participants were asked to submit an anonymous survey to share feedback on the meeting.

All meeting materials, presentations and recordings will be available on the Division of Water Resources website at https://deq.nc.gov/about/divisions/water-resources/water-planning/nonpoint-source-planning/high-rock-lake-nutrient-management-strategy#meeting-materials

See below for results from the anonymous survey.

Closing

Joey Hester expressed appreciation for participant engagement and reiterated that this process can only move forward with stakeholder participation. This is your watershed, your community. We want the regulations to reflect your needs.

Mr. Hester also reminded participants to sign up for the DWR listserv and reach out to him directly with any questions.

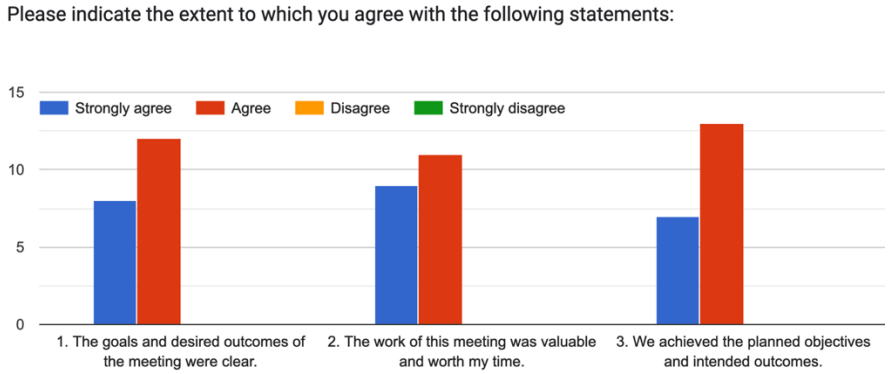
High Rock Lake Nutrient Strategy Stakeholder Meetings – September 29, 2022 Evaluation Data Summary

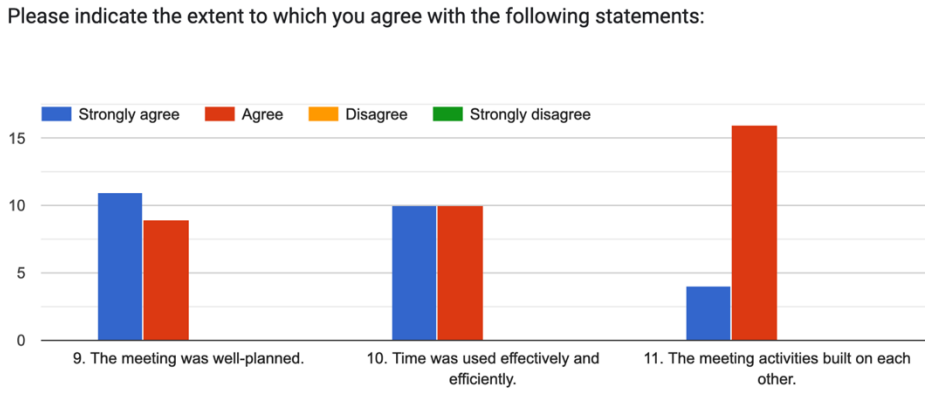
Meeting participants were encouraged to complete a confidential evaluation to share feedback about the meeting to support continuous improvement. Of the 82 meeting participants, 20 (24%) completed confidential surveys to share reflections and feedback.

	Professional	Community Member	Both
Coalition Members Did you attend the Stakeholder Meeting in your professional capacity or as a community member?	63% (12)		36% (7)

	Strongly agree	Agree	Disagree	Strongly disagree
Outcomes				
1. The goals and desired outcomes of the meeting were clear.	40% (8)	60% (12)		
2. The work of this meeting was valuable and worth my time.	45% (9)	55% (11)		
3. We achieved the planned objectives and intended outcomes of this meeting.	35% (7)	65% (13)		
Planning and facilitation				
1. The meeting was well-planned.	55% (11)	45% (9)		
2. Time was used effectively and efficiently.	50% (10)	50% (10)		
3. The meeting activities built on each other.	20% (4)	80% (16)		

Evaluation Data in Chart Form





Comments Summary

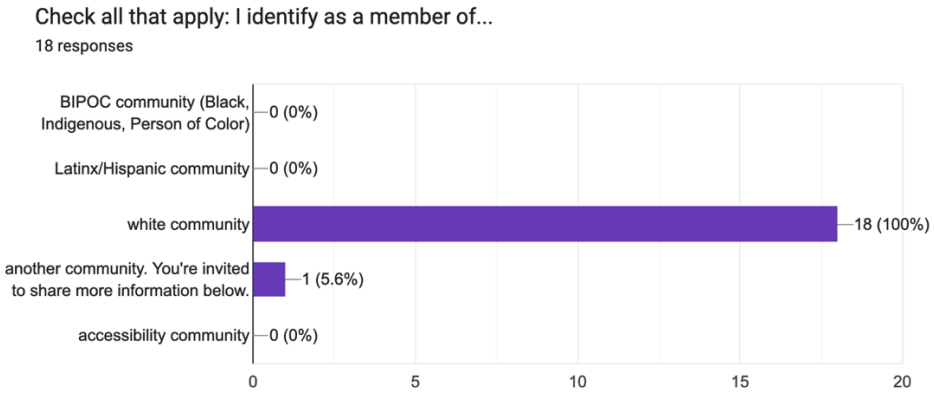
Were there 1-2 things that you felt the convening did well?

- Presentation of material in understandable fashion
- Good general overview and process layout
- Giving people opportunity to ask questions
    - Answering questions thoroughly and compassionately
- Flow was very good

Anything you would have changed about this meeting?

- Provide more information on potential solutions
- More time for questions
- Chance to hear names and introductions of folks in the room
- Some information was presented in worst case scenario. Lots of inferences of impacts without appropriate data to back them up
- More time on One Water approach
- More time for the meeting – a lot of information was covered in a short period of time

Demographic Information



Sector Information