

# High Rock Lake NMS Stakeholder Process

## Agriculture Technical Advisory Group

Report for the HRL Steering Committee

2/15/2023

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### *TAG Charge*

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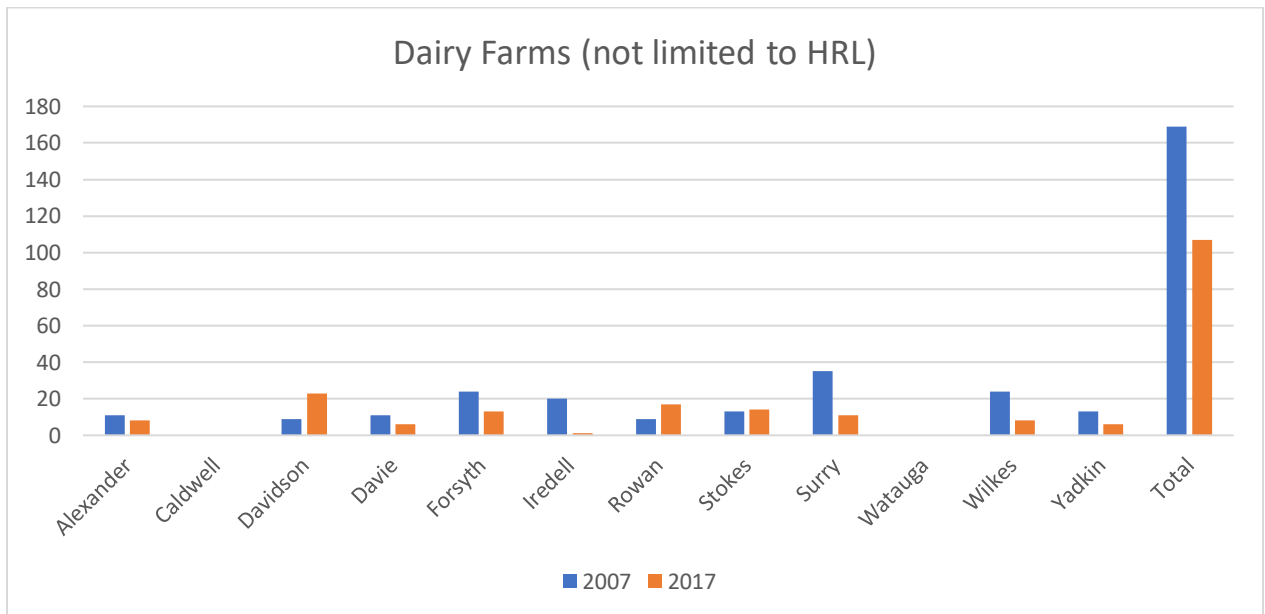
- What specific management improvements has your sector already implemented for nutrient control since 2006?
- What further nutrient reduction management steps can you take that would make sense? Consider both examples of more easily attainable and effective opportunities, as well as more long-term or challenging opportunities for your sector.

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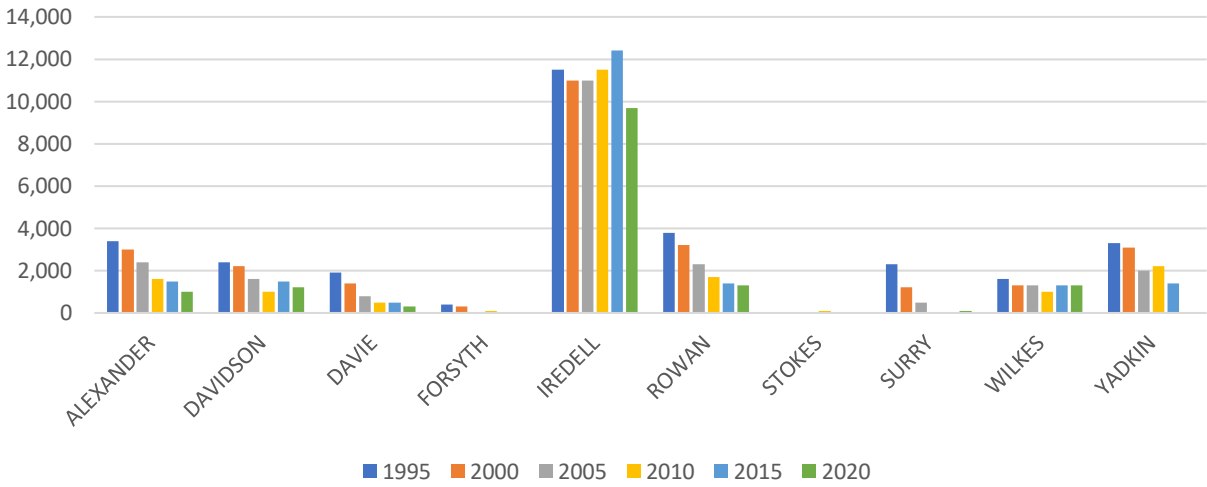
### *TAG Member Report*

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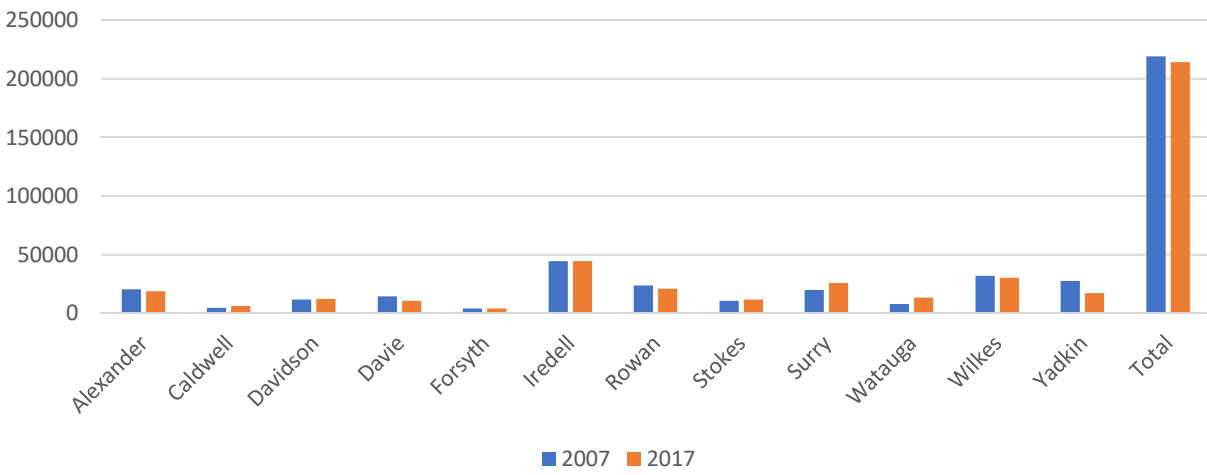
#### ANIMAL TOTALS



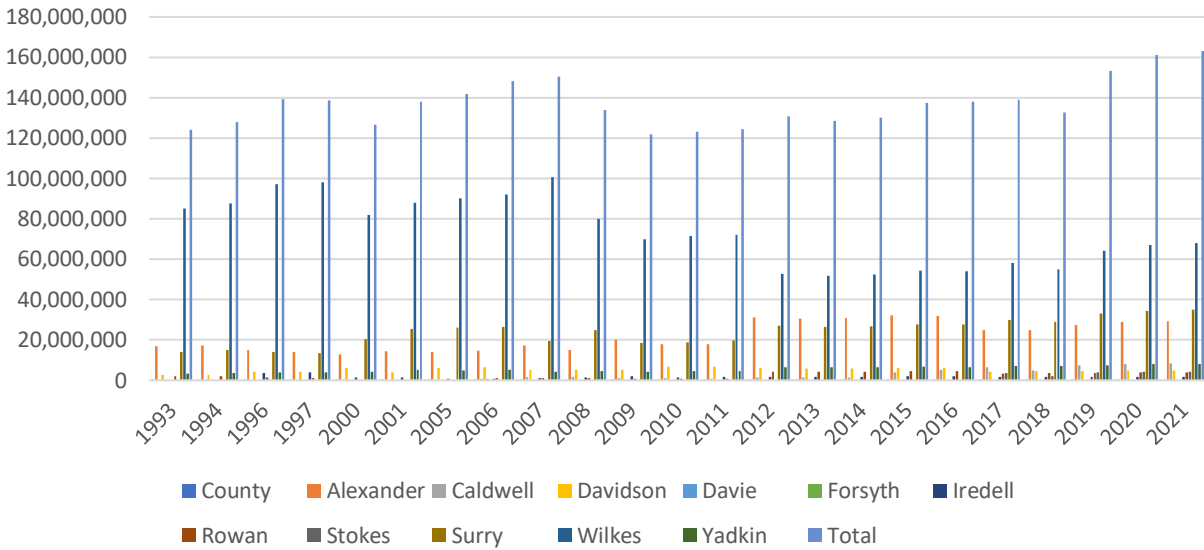
### Milk Cows Over Time (not limited to HRL)



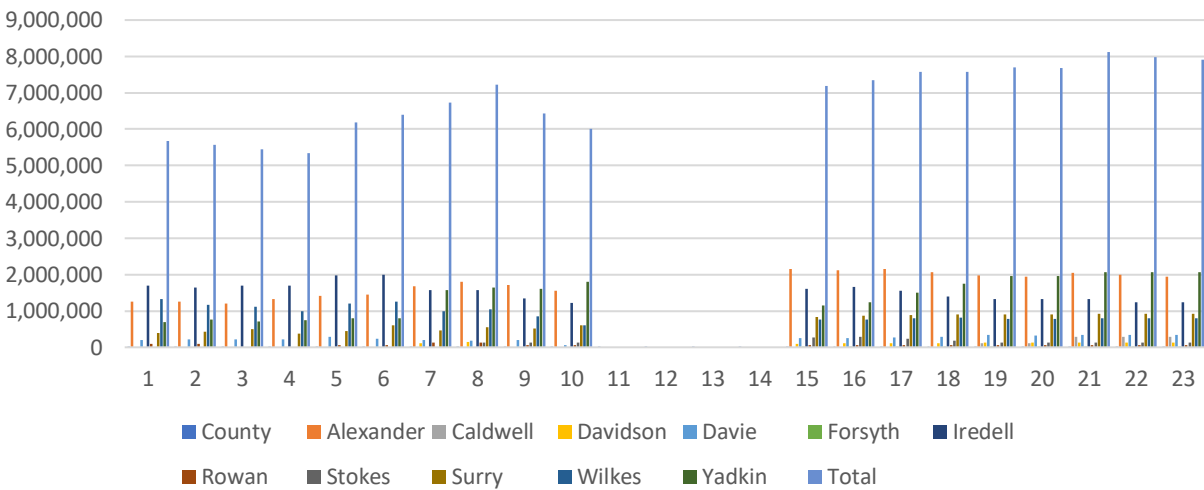
### Cattle Inventory (not limited to HRL)



### Total Broilers Produced (not limited to HRL)



### Total Layers+Pullets Produced (not limited to HRL)



### FERTILIZATION MANAGEMENT

Overall, agricultural land cover has fallen approximately 1.7% since 2006. Many large cropland producers have transitioned to precision nutrient management due to market forces and without cost share assistance. Precision nutrient management involves spatially variable fertilizer application based on high resolution GPS-derived data that concentrates applications only in the soil locations where a nutrient deficiency has been demonstrated. This kind of precision agriculture is data, time, and resource intensive, and so very few small producers have the capacity to implement or outsource such a program without significant financial incentive or assistance.

Tobacco production appears to have fallen considerably since 2006, and over that same time no-till and cover crop systems have been widely adopted across the watershed.

## **Future Steps**

Incentives are necessary to expand the operating footprint of existing precision nutrient management providers, and to encourage implementation of precision nutrient management by small producers. Education and technical assistance are necessary to inform small producers of proper nutrient management and yield/profitability optimization. Funding is necessary to establish public-private partnerships to help small producers overcome start-up hurdles and transition to precision nutrient management operations and to provide necessary technological infrastructure in rural areas. Equipment tax credits may help increase precision nutrient management roll-out and uptake. Training and education are necessary to inform producers about the importance of soil testing to identify macro and micronutrient needs.

All government and commercial entities in the watershed should be required or incentivized to complete nutrient management training. Nutrient management plans should be developed to inform producers about phosphorus loss problems in the HRL watershed. Certified nutrient management specialists should assist in verifying that N and P application targets are being met and not exceeded. Farmers whose soils show saturated levels of N and P should be notified.

## **PASTURE MANAGEMENT**

Pasture is the dominant agricultural land use in the HRL watershed. Approximately 38% of all Soil & Water Conservation Commission funded BMPs implemented in the High Rock Lake Watershed since 2006 were livestock exclusion systems. This represents the highest percentage of any single BMP.

## **Future Steps**

Producers should be educated on the cost effectiveness of livestock exclusion and appropriate stocking capacity. Effort should be made to exclude livestock from streams using both regulatory and non-regulatory approaches. Producers should be allowed to flash graze excluded areas.

Current federal and ACSP funding should be prioritized for livestock exclusion in the HRL watershed. Tax credits may be necessary for equipment purchases and easements to increase implementation of livestock exclusion systems. Technical assistance and alternative systems/approaches should be provided to producers on whose property exclusion systems are not feasible.

## **WASTE MANAGEMENT**

Overall poultry production has increased slightly over the watershed, largely due to larger houses being built and utilized. A trend in the number of birds in the watershed at a given point in time is less significant, which means that increases in poultry seem to be from more efficient production of flocks. Poultry litter is commonly applied as fertilizer in the watershed, though some counties/regions have more access to litter from producers than others. According to deemed permit requirements, poultry litter is applied to meet an agronomic application rate for nitrogen. In some circumstances, and due to the complex nutrient content of poultry litter, this means that fields with a nitrogen deficiency, but a surplus of phosphorus may continue to receive unnecessary phosphorus applications via poultry litter. Litter is routinely analyzed by producers so that it can be applied to meet agronomic targets.

Fields with close proximity to poultry houses and barns tend to receive more litter than fields that are more difficult to access.

## **Future Steps**

Poultry litter material (i.e. shavings) are becoming harder to procure, and broader economic trends are reducing the attractiveness of entering the poultry market. As a result, short-term growth in the industry is unlikely. Longer term growth is harder to predict, given the uncertainty of future market conditions. This tightening of the market, along with increases in commercial fertilizer prices, has resulted in high demand for litter and incentivized larger producers to transition to precision nutrient management in order to reduce waste.

TAG members recommend encouraging local markets for poultry litter in order to expand the distribution range of litter beyond nearby fields and toward areas with phosphorus-deficient soils. Litter testing by NCDA&CS is important and should be incentivized, and inspection and enforcement of waste utilization plans should be increased. Waste utilization and nutrient management plans should consider phosphorus limitations in the HRL watershed. Educational opportunities should be made available to communicate the costs and benefits of manure utilization (including biosolids) when compared to synthetic fertilizers. A more direct linkage between nutrient sources and sinks should be prioritized. These educational opportunities should be developed for and implemented in both rural and urban/suburban areas. Application setbacks from water bodies and highly erodible soils/areas are potentially needed.

## **CONSERVATION FUNDING**

Almost \$8 million in recurring and non-recurring state funding has been spent on SWCC BMP implementation in the High Rock Lake Watershed since 2006.

Federally-funded staffing levels are notably lower now than they were during the baseline period. Significant amounts of federal conservation funding are available, but NRCS routinely struggles to meet demand. Staffing levels limit their ability to develop and approve nutrient management plans for producers.

Wilkes Soil & Water Conservation District is currently participating in the National Water Quality Initiative (NWQI) program with NRCS and DEQ.

## **Future Steps**

A significant increase in infrastructure funding is expected to result in widespread lagoon closures across the state. There are fewer wet systems (e.g. swine, dairy, wet poultry) in High Rock Lake Watershed than in other parts of the state, but some remain.

Hiring of staff to support conservation funding initiatives is necessary, and the Soil and Water Conservation Commission's new Job Approval Authority process should be expanded to include more conservation staff. There are concerns that local conservationists are unable to run nutrient management software on government-issued computers and with limited rural broadband access. Funding is necessary to incentivize new farm-level best management practices or assist with the continuation of existing best management practices measures. Education and outreach should be performed to increase the adoption and continued utilization of no-till cultivation and cover cropping systems.

The NWQI, CLEAR30, and Wetlands Reserve Program (WRP) should be leveraged to direct funding and effort toward priority practices in more parts of the HRL watershed. Targeted education and outreach for the Conservation Reserve Enhancement Program (CREP) should be implemented in the HRL watershed, and soil rental rates under the program should be regularly reassessed. An increase in the CREP/CRP soil rental rate may be necessary to increase implementation in HRL as a result of the nutrient strategy. Tax credits may be necessary for increased buffer implementation at the watershed scale.

More certified nutrient management specialists are necessary, and cooperation with agencies outside of Soil & Water Conservation and NRCS will be necessary to increase nutrient management plan development and approval. A stronger talent pipeline between colleges and universities and local/state/federal government is necessary. More staff, including conservation planners, is necessary in local conservation offices. Both permanent and temporary staff are necessary.

#### INFORMATION AND DATA NEEDS

There is a need to verify how current tobacco production compares to historical production.

There is a need to field verify the extent to which poultry producers favor applying litter to certain fields over others.

There is a need to field verify the extent to which N rate application of animal waste and biosolids/residuals results in an exceedance of agronomic P rates.

**Response from Deanna Osmond's 2015 HRL Survey:** "About 40% of the fields that we sampled (677 fields) were fertilized with P. Of the fields that were fertilized with P, 14% were over fertilized, 29% needed fertilizer and received it, and 57% of the fields did not need P fertilizer.

There is a need to identify the proportion of producers currently utilizing precision nutrient management technologies and programs. This data could be gleaned from local businesses that perform soil sampling and nutrient application services.

There is a need to identify wetland acres that exist in the HRL watershed which could qualify for CREP/WRP protection.

There is a need to more closely monitor agricultural catchments to identify nutrient loading hot spots.

There is a need to determine feasibility of a funding pool to be financed by a small fee on drinking water systems which can be used for stream restoration, buffer conservation, and other practices that limit nutrient and sediment losses.