

North Fork Rivanna TMDL TAC Meeting

Greene County Cooperative Extension Office

February 27, 2019

Meeting Attendees

Robert Brent (JMU)	Marilyn Smith (VA Master Naturalist, RCA)
Barbara Rich (Twin Lakes HOA)	Jason Devillier (Charlottesville Albemarle Airport)
Tara Wyrick (VDEQ)	Jon Lipinski (NRCS)
Bob Runkle (CSWCD)	Katie Shoemaker (3E Consulting)
Terry Beigie (Greene County Record)	Nesha McRae (VDEQ)
Sara Bottenfield (VDEQ)	Martha Ledford (VA Master Naturalist)
Julia Ela (RCA)	Rachel Pence (RCA)
Ashley Hall (Stantec for VDOT)	David Smith (VA Master Naturalist, RCA)
Jay Willer (Greene County Planning Commission)	

Meeting Summary

The meeting began with introductions followed by an update on dam rehabilitation activities from a representative of the Twin Lakes HOA. The dam rehabilitation process is 95% complete for Lake Shenandoah, and the HOA is waiting for final certifications and checks. The next step in the process will be removal of sediment from the basin, which is currently dry. This may impact sediment loading downstream on Quarter Creek. Nesha noted that this would most likely be the last Technical Advisory Committee meeting if the group got through all of the proposed content for the meeting, and that the next step in the process would be to hold a public meeting to present the draft plan to the public.

The group moved on to a review of the stressor analysis, which was discussed at the last meeting. Robert Brent provided a review of the results. Table 1 in the handout provided to the committee summarizes the results of the analysis and the TMDL targets for each subwatershed. Sediment was identified as the primary stressor in all of the streams along with phosphorous in Blue Run and Stanardsville Run. A participant asked why phosphorous was identified as a stressor in only these two streams. Robert explained that the process that was used looks at all of the available data that we have for these streams (about 80,000 individual data points for this watershed) and then analyzes it using the CADDIS approach from EPA using 17 different lines of evidence. Evidence from these two streams showed dips in dissolved oxygen, leading to the conclusion that phosphorous was a problem. Another participant asked whether there are numeric water quality standards for nutrients (nitrogen and phosphorous). Robert explained that Virginia does not have such standards for our streams, which makes the TMDL development process challenging when nutrients are identified as a primary stressor. However, there are some reference values that can be utilized in the process. A participant requested a copy of the benthic stressor analysis. Nesha will send it to her.

Robert moved on to describe the AllForX model that was used to set TMDL targets shown in the handout for each subwatershed. He explained that the model is used to compare all forested conditions in a watershed versus current conditions. A ratio or multiplier is created for each watershed based on these two conditions. VSCI scores are compared in a regression using this ratio. The general trend in this

regression is that stream health decreases as the multiplier increases. To set the TMDL target, we look at what the multiplier value is at a VSCI score of 60, which is the cutoff for impairment. Modeling results showed a target multiplier for sediment of 8, and for phosphorous, 3.3. A participant asked if you are comparing the watershed to completely forested condition, does this mean that the TMDL target is what we would expect to see under completely forested conditions? Robert explained that this is not the goal, just to reach the acceptable range with respect to the VSCI score. The all forested condition just allows us to establish a range of values from which to select an appropriate condition for the biological community. The group reviewed the results with respect percent reductions in sediment that are needed in each subwatershed. A participant asked why the overall sediment reductions are so variable for different for the different watersheds. Robert explained that acceptable sediment load estimates for each stream are based on the capacity of that stream to carry sediment without an impact to aquatic life. This makes the size of a watershed and receiving stream important, these factors result in variable sediment load estimates for different subwatersheds. Participants discussed how lakes and dams in the watershed are acting as sediment traps and reducing sediment downstream in some of these subwatersheds.

Robert noted that a reduction is not called for in the NF Rivanna itself based on AllForX model results. Robert explained that there is some level of uncertainty in modeling and that a margin of safety will be included in the model (10%) to account for this. However, even with this margin of safety accounted for, the reduction goals are still met in the NF Rivanna once reductions in upstream tributaries are accounted for in the model. Participants agreed with these results based on observations in the NF watershed and monitoring results over the years. The river appears to support a healthy benthic community some years and seasons, while results indicate impairment in other years and seasons.

Katie Shoemaker reviewed estimates of land disturbance acreages in the watershed and changes that have been made in these estimates since the last meeting. This includes the addition of disturbed acreage in the Quarter Creek watershed based on the dam rehabilitation projects underway, and a reduction of acreage in the Flat Branch watershed. It was explained that disturbed acreage in the watershed was overestimated due to a large project at the airport that was included in the query of land disturbance permits. This large project is not typical with respect to the extent of land disturbance that we would see at the airport. The group discussed the number of small construction projects under the VA Stormwater Management Program (VSMP) permit threshold (< 1 acre) that are ongoing in the watershed. These are typically very poorly managed in terms of erosion and sediment control. Participants discussed clearing practices on different types of developments (a small home versus a large commercial property) and how best to estimate the load of sediment coming off of those areas. One participant asked how factors such as distance from the stream and slope are considered in the model. Katie explained that the model is lumped and does not consider this fine level of detail in terms of spatial location of properties. A participant asked if HOA's can have requirements for homeowners in terms of land disturbing practices. The Twin Lakes HOA requires property owners to install silt fences due to problems with runoff during construction. They can require higher standards than those of the state, but not allow anything less. Concerns were expressed regarding how best to account for sediment coming from these smaller projects that would not be captured in a query of the VSMP database. Options to account for these projects were discussed including increasing the extent of "barren" acreage in the watershed, or by decreasing the effectiveness of erosion and sediment control best management practices applied to this land use. The group agreed that the assumed 85% sediment reduction efficiency of these practices should be reduced to account for some degree of lack of compliance on both large and small projects in the watershed. The

committee discussed options to reach out to property owners not required to obtain a permit for land disturbance and how best to encourage appropriate management practices. Recommendations can be made for outreach in the TMDL implementation plan that follows TMDL study development.

The group moved on to review reduction scenarios for each subwatershed. Nesha explained the general rationale used for three different scenarios that were applied to the watersheds. Scenario 0 is provided for downstream impairments to show cases where addressing impairments upstream appears to produce sufficient reductions to address downstream problems. Scenario 1 spreads the reductions out evenly between sources, and Scenario 2 includes the greatest reductions for the largest sources. A participant asked why the reductions in the scenario tables are higher than those shown in the summary table 2. Katie noted that these tables include the margin of safety for the TMDL. A participant asked about the difference between forest and tree land uses. Katie explained that these are based on the density of trees. It was noted that streambank erosion may be contributing more than what is shown for Stanardsville Run. The group decided on Scenario 2 for Stanardsville Run based on likelihood of success in implementation and associated costs. The same decision was reached for similar reasons in Blue Run and North Branch Preddy Creek. A representative from Culpeper SWCD was asked for their thoughts on focusing more on agriculture in these watersheds since it was identified as the greatest source. It was noted that if the funding is available, they can most often get the participation they are looking for in agricultural BMP cost share programs. A participant asked what the level of interest in these programs was like in this watershed. It was noted that the SWCD is more limited by funding than participation. Challenges to working with a large number of small residential properties on BMP implementation were discussed. These small scale residential stormwater BMPs are hard to locate suitable sites for, and are often poorly maintained. In addition, they are very costly considering the small acreage that they can typically treat. A participant asked whether implementation would be based on stream-by-stream reductions or the larger watershed as a whole. Nesha explained that implementation could focus on only a smaller part of the TMDL watershed to account for differences in land use.

A participant asked about barren land in the Preddy Creek watershed, land cover adjustments were made in this watershed to account for a previously barren site in the watershed. Participants discussed scenarios for Preddy Creek, it was noted that reductions for urban residential sources in scenario 2 were very low and the group could consider Scenario 1 in this case. A participant asked what harvested land use was, Katie explained that this was timber harvesting operation acreages. Scenario 2 was selected for Preddy Creek. The group reviewed the reduction scenarios for Flat Branch. A participant asked why the load from ISW permit acreages went down in the scenarios shown. Katie offered to follow up on this. *Follow up note: DEQ is working with contractors to determine the best approach to identify existing loads from Industrial Stormwater General Permit (ISW) it covered acreages. The difference that was observed in the table was based on estimating existing loads using associated loading rates for land uses included in facility acreage, while the TMDL load was estimated using a loading rate of 440 lb/ac, which is currently included in the draft ISW permit to be reissued this summer.* A representative for VDOT noted that they have an existing TMDL reduction goal in their MS4 permit for the Rivanna River watershed that is set at 58%. She recommended that we go with scenario 1 for the sake of consistency between the two TMDLs, since Scenario 1 included a 58% reduction in sediment from MS4 permitted acreage. As a result, Scenario 1 was selected for Flat Branch. Marsh Run was noted as being similar to Preddy Creek, and Scenario 2 was selected for similar reasons as those noted previously. The group discussed the two scenarios shown for Quarter Creek, which aren't too different. A watershed resident asked whether it made sense to keep

things even since there are many differences between the two scenarios. The biggest issue in Quarter Creek will be getting homeowners on board to make changes. Participants agreed on Scenario 2 for ease of implementation.

The group reviewed the data for Swift Run, which shows that if you addressed the goals in the upstream tributaries, you wouldn't need to do anything in Swift Run (shown in Scenario 0). Participants were concerned with the idea of not having any reductions for Swift Run. The group agreed that achieving all of the upstream reductions may not be possible, and thought that additional measures in Swift Run could offset those shortcomings. Nesha raised the possibility of larger margins of safety in Swift Run and the NF Rivanna (where the situation is similar with respect to reductions needed) to account for the upstream actions those scenarios rely on. Participants also felt that it was unfair to require reductions in the tributary streams but none for Swift Run/NF Rivanna, and were concerned about funding for implementation for those watersheds if no reductions were identified. The consensus was that the group would like to see some reductions planned for Swift Run and NF Rivanna. DEQ staff offered to check with EPA to see if different margins of safety could be used for different subwatersheds. A participant noted that as long as we capture activities already underway in the watershed, we can account for improvement. We could also assume a level of upstream reduction below the TMDL scenarios. DEQ and its contractors will determine the best way to achieve these adjustments and the group will have additional opportunities to give feedback when they review the draft TMDL during the public comment period.

Participants reviewed phosphorous reduction scenarios for Stanardsville and Blue Runs. They discussed P sources in the watersheds including overflows at pump stations. Other sources include fertilizers, septic, and P bound to sediment. A participant asked about how P would be reduced from impervious surfaces where no fertilizer is applied. Katie explained that it includes atmospheric P deposition that can be reduced by rain barrels and rain gardens that capture the initial runoff during precipitation events. The group agreed that Scenario 1 was preferable for Stanardsville Run in order to avoid very high reductions shown on urban land in Scenario 2, and chose Scenario 2 for Blue Run.

The group was comfortable with the public meeting as a next step, and Nesha explained that finalizing the TMDL document will take some time. Participants thought the Piedmont VA Community College building would be a good option again, and suggested checking planning commission, BOS, etc. meetings to avoid conflict (schools are on spring break the first week of April). A participant suggested a Holiday Inn meeting room, which would be closer to the Albemarle population. However, it is likely to have a cost associated with using any meeting facility at the hotel. Ruckersville Elementary School was identified as another potential location. Nesha noted that DEQ likes to highlight other activities that are going on in the watershed at these public meetings and asked for suggestions as to other potential presenters. One participant suggested getting local students involved, specifically the high school fishing club (Rhonda Howchins at Central Office of school system), FFA (ask Sarah Sharpe, VCE), and the AP environmental science class. The group discussed having a farmer speak about BMPs and RCA present their Rivanna River stream health report. It was noted that RCA has a mother daughter team who does monitoring on Preddy Creek, it could be neat to have them present together. VCE might be able to help with outreach on things like rain gardens and rain barrels.

A participant asked about how the TMDL is used/enforced. Nesha explained permitted sources have reductions incorporated into their permits, and nonpoint source reductions are voluntary. The next step will be to develop an IP to hopefully secure funding to implement them.

Nesha thanked participants for their input and the meeting was adjourned.