

Benthic TMDL Study on Deep Run, Dover Creek, & Upham Brook Watersheds Located in Henrico & Goochland Counties & the City of Richmond

Community Engagement Meeting #2 Summary

February 29, 2024 @ 2:00 PM

VA DEQ-PRO Training Room, 4949-A Cox Rd., Glen Allen, VA 23060

Attendees: 24

Craig Lott – VDEQ	Matias Pineiro – VDOF
Deana Williams – Henrico	Mike Shaver – VDEQ
Denise Moyer – VDEQ	Ralph Tuck – WRA
Harris Wolfe – Hanover	Randy Kiah – Reynolds Community College
Jeff Woodward – WRA	Robin Wilder – Henrico
Jennifer Palmore – VDEQ	Rodney Newlin – VDOF
Jonathan Lyle – Goochland Co.	Sean Kellogg - Henrico
Katie Shoemaker – WSSI	Stacey Sovick – SWCD Henricopolis / Resident
Keith Burgess – Monacan SWCD	Stephen Dombroski – WSSI
Kelley West – VDEQ	Stephen Jasenak – VDOF
Krista Tetrick – Schnabel Engineering	Tamara Doucette – DWR
Lauren Kohout – WRA	Tom Dunlap – JRA

Section 1. Welcome & Introduction – Power Point

- Staff members and project partners were introduced.
- Community members went around the room and introduced themselves.
- An overview of aquatic life impairments, study watersheds and station locations in Henrico and Goochland Counties, and the City of Richmond was provided (Figure 1).
- An overview of the stressor analysis in limited detail was provided (but referenced the material on the DEQ website) and a review of the probable stressors: sediment and phosphorus.
- An overview of “What is a TMDL?” was provided: It is the total maximum daily load of a pollutant that a stream can handle and still meet the water quality standard. The goal is to take the existing load and reduce it to something the stream can handle called a TMDL endpoint.

Section 2. Pollutant Source Assessment - Handout

Land Cover

Land use/cover by watershed was provided on the handout and followed by discussion (Figures 2 to 4). The land use/cover dataset was updated from the 2016 VGIN VLCD to the 2017/2018 Chesapeake Bay Program (LULC) dataset. Land use/cover charts showing the breakout of each watershed and percentages was provided (Table 1, Figures 5 to 6).

Since construction sites are not shown as barren on the Chesapeake Bay Program land use data layer, how will they be addressed in the model? Construction is accounted for during the modeling process by

summarizing the active Construction General permits and distributing the load over the length of the permit.

Can construction be captured as developed pervious land use? It can, but construction permits are temporary so during the modeling process the Construction General permits will have calculations with loading amounts for each permit as a model input assuming an 85% efficacy of sediment removal.

Residential Septic Systems

The counts of known septic systems were provided on the handout and followed by discussion (Table 2).

Question from handout - Is there any additional information available on septic systems, septic failures, and/or straight pipes in the watershed?

In Dover Creek, how did you determine the number of septic systems? It is based on VDH data provided to DEQ. Community members suggested that DEQ look at the Goochland County GIS because every single family home should have a septic since no sanitary lines are available. On the County GIS, each parcel will tell you if there are buildings on it. It was also mentioned that some homes might be older and not in the dataset and some may have two septic systems because of additional structures, but this is not the norm. WSSI noted that often data isn't readily available for running analyses (i.e. it's through a link within the shapefile, not natively in the GIS attributes).

Question from handout - Do the numbers of known septic systems in each subwatershed seem close? Dover septic system count may be low. Some community members were surprised at how high the septic system count is for Upham Brook. WSSI responded that most of the septic tanks are in the North Run watershed. Community members thought maybe Henrico County and City of Richmond could provide maps and counts for verification.

Question from handout - Does the 3.3% failure rate for septic systems seem reasonable for these watersheds? A Community Member noted that they could talk to some contractors to check on home and septic ages, and septic failure rates in the Dover Creek watershed and perhaps tweak the current assumed 3.3% failure rate based on that information. WSSI expressed interest in information about the study watersheds, specifically areas with predominantly older or newer homes where the assumed failure rate might not apply.

Permitted Sources

Permitted sources were provided on the handout and followed by discussion (Tables 3 to 7).

Industrial Stormwater general permits

Mixed concrete general permits

Potable water treatment general permit

MS4 areas- City of Richmond, Henrico, JSRCC, VDOT

Construction General permits are listed by watershed

Question from handout - Are there any permitted sources that we are missing?

What about the Deep Run potable water treatment plant? Do they discharge? The facility currently does not discharge but has a permit for filter backwash.

Someone noted there was a sudden influx of cloudy water that raised the water surface elevation during a sampling event on one occasion. The emptying of a privately owned pool was suggested as a possibility. DEQ was not able to confirm the source.

Question from handout - Do the acreage estimates for construction-related disturbance seem reasonable?

How were the construction permits acreage estimates calculated? A permit is obtained for each site and an estimate is made regarding the start, finish, and amount of land area to be disturbed. It's an average based on a snapshot of permits at the time the dataset was pulled. It involves estimating the acreage to be disturbed over time and using an average annual acreage based on the extent of disturbance to estimate the average acreage disturbance. The trends can help figure out a rolling average. This process provides an estimate of the long-term trend of construction disturbance area in the watershed.

The barren land use was brought up again. The land use dataset limits barren lands in this study to a quarry, but we have variables that came from other studies when overlaid on top of the soil types, slope and elevations to gives us a per acre loading rate which was used for permits.

DEQ uses a minimum of 2% of the watershed for development for watersheds that do not have any construction general permits to account for future growth.

Question from handout - Are you aware of any stormwater or sanitary sewer overflows that have occurred from 2000 to now?

Did we include any SSO's that were reported to DEQ? Yes, this information was queried from the DEQ database and provided to the contractor.

Are stormwater control measures achieving 85% reductions? Where does the 85% BMP removal efficacy assumption come from? The Chesapeake Bay model assumes that if sediment reduction protocols are done correctly, an 85% reduction rate is expected. The assumption is that any permit is meeting the conditions of the requirements, assuming the sediment controls are being repaired as needed.

Estimated Existing Pollutant Loads

Existing Sediment and Phosphorus loads based on the previously discussed land use/cover were provided on the handout followed by discussion. (Figures 7 to 13, Tables 8 to 14).

Best Management Practices (BMPs)

Existing BMPs were provided on the handout to ensure credit for prior work completed in the watershed and followed by discussion (Table 15).

Looking at Dover Creek, did you use DCR's database to pull the BMP summary? Is this for a specific year or multiple years? Info in the chart is everything that is active. It's based on the dates of the BMP lifespan.

The label for Table 15 states that BMP data was between 2000 and 2003, should it say between 2000 and 2023? Yes, thank you, this has been corrected.

How does the project estimate that 4% of the Dover Creek watershed is impervious because it seems high for this watershed? Community members suggested that you can see on the map that most of the impervious area is in the upper end of the watershed and they also mentioned roads, buildings, and covered riding arenas. *The Community Member also noted if the study area is only 4% impervious then why is the total phosphorus load so high and requested if we could please double check the loading rates for phosphorus?* WSSI will double check the model information for the total phosphorus loading rate from impervious land use and the estimated percent load reduction (1.4%) for Dover Creek as well.

Section 3. TMDL Modeling Approach - Handout

The sections titled: TMDL Modeling Approach and Inputs, Hydrologic Calibration and Validation, and Setting Sediment and Phosphorus Reduction Targets were provided on the handout and followed by discussion (Figures 14 to 18, Table 16).

All Forest Load Multiplier (AllForX) Endpoint Approach

An example AllForX load multiplier approach was provided (Figure 19).

The AllForX sediment (5.9) and phosphorus (5.0) multiplier was provided on the handout and followed by discussion (Figure 20 to 21, Table 17 to 19). According to the AllForX regression, the sediment ratio should be around 5.9 to have a healthy stream with VSCI scores above 60.

Are the dots without labels in the regression table part of it? Those are comparison stations that are outside the study area. There were many watersheds provided by DEQ for the AllForX comparison but in this case a lot of comparison watersheds were removed since they need at least 3 VSCI scores to run these regressions.

How do we plan for responsible development, and generate a useful TMDL, knowing that a watershed like Dover Creek will inevitably transition from forest and agriculture into residential and other developed land uses? Planning is important in the development of communities, not just the 2- or 4-year plan but the 10- and 20-year plans. Localities have a lot of responsibilities and need to balance what residents/constituents want with environmental/regulatory responsibilities. It often boils down to, "How badly do we (the residents) want the water to be clean and available for our uses like aquatic life, recreation, swimming, fishing, etc.?" This was demonstrated by the success of the Lynnhaven Bay shellfishing area which managed to push a lot of implementation quickly, make significant improvements, and get delisted before an Implementation Plan (IP) could even be developed, after having spent more than 75 years on the impaired waters list ([Total Maximum Daily Loads \(TMDLs\) at Work in Virginia: Lynnhaven River \(epa.gov\)](#)). It was also noted that a good TMDL is somewhat flexible by design to handle some future growth and natural variations. We take the target value then add a 12% margin of safety for growth and natural variations. The TMDL is designed to handle some future growth, but please let us know if a large future development is imminent. It will be helpful in this stage. The TMDL opens grant funding to help as well.

DEQ staff mentioned revisions will be made based on what was obtained from the meeting, referenced the project timeline, and are looking forward to holding the next Community Engagement Meeting to discuss load reduction scenarios, followed by a final Public Meeting and comment period, and submittal of the TMDL report to the State Water Control Board and EPA for approval. In closing, there was a final reminder that if you know anyone who would be interested in the study, please let them know and help DEQ get in contact with them. Thank you.