



**Chesapeake Bay Program**  
**Wastewater Treatment Workgroup (WWTWG)**  
**Meeting Minutes**

Thursday, July 24<sup>th</sup>  
10:00 AM to 12:00PM

[Meeting Materials](#)

**Actions and Decisions**

**Decision:** The WWTWG approved the [June Meeting Minutes](#).

**Decision:** WWTWG voting members approved (pending finalization for absent members via email **by EOD Friday August 15th**) the proposed method for estimate the baseline exfiltration and edge of stream delivery of nitrogen and phosphorus from sanitary sewers in the Phase 7 model.

**Action:** Optional inputs for the sanitary sewer exfiltration model need to be provided by Feb 2026 at the latest to be included in Phase 7.

**Decision:** WWTWG voting members approved (pending finalization for absent members via email **by EOD Friday August 15th**) the sanitary sewer area (SSA) map.

**Action:** Jackie Pickford will share updated data on septic counts, population on septic, and population on sewer from the sewer/septic model. *Completed.*

**Decision (In Progress):** The WWTWG did not reach consensus on the sewer/septic model given some concerns on the counts and population data. Please review the [updated data](#) shared by Jackie and **provide, confirm, or update your vote on the sewer/septic model method by EOD Friday August 15th.**

**Decision:** WWTWG members reached consensus (pending finalization for absent members via email **by EOD Friday August 15th**) to not pursue SSO loads in the Phase 7 model, allowing for continued discussion about inclusion of available data in certain multiple tributary models.

**Action:** The CSO Small Group will meet again with the modeling team on July 30<sup>th</sup>. *Completed.*

**Action:** Please provide any updates from your jurisdiction on the [documentation](#) of state's perspectives for not pursuing the Boat Pump Out BMP by **EOD Friday Aug 1st**. The workgroup will be asked to finalize this in the [Aug WWTWG meeting](#).

**Meeting Minutes**

**10:00 Introduction and Announcements**

WWTWG Co-Chairs, Jamie Heisig-Mitchell, HRSD & Justin Carl, Alex Renew (10 min)

**Decision:** The WWTWG approved the [June Meeting Minutes](#).

10:10 **Sanitary Sewer Exfiltration** - Joseph Delesantro, EPA ORISE/CBPO (30 min)

Joseph [presented](#) the sanitary sewer exfiltration estimation method for the Phase 7 model for the WWTWG's approval, including background on the importance of this update for the model, the main elements in the estimation method, and rationales for those elements. Joseph highlighted one addition to the methods since the previous update of instituting a per capita flow cap to keep data for densely populated areas more in line with the conservative estimate approach. Finally, Joseph presented preliminary results for each state, DC, Baltimore, Henrico, Richmond, Lancaster, Norfolk, and watershed-wide. Workgroup members shared feedback on the method and next steps and reached consensus (pending follow-up email votes from absent members) to approve the method.

Discussion:

- Jeremy Hanson, CRC pointed out, in reference to the per capita flow cap, that with the change to Land-River Segments (LRSegs) for Phase 7, the impact on segments will be different than what is presented here.
  - Dave Montali, WVDEP clarified how the results with the per capita flow cap would likely change with the Phase7 LRSegs. Joseph added that as segments get smaller, the model will capture more of the smaller but denser downtown areas across watershed.
  - Joseph emphasized that the vote today is on the method, not the actual results, which will have to be updated with Phase 7 inputs.
- Lew Linker, EPA asked what the total loads being shown represent. Joseph clarified that the total loads are edge of stream and include attenuation, but not in-stream attenuation, so the actual loads delivered to the Bay would be lower.
- Dave asked whether the edge of stream load assumes that all systems are 100% gravity. Joseph confirmed.
- George Onyullo, DOEE shared that the method makes sense to him but the preliminary results from DC seem high and would need to understand these results more before voting in the affirmative on the method.
  - Joseph shared that the lbs/year for DC is very consistent with other areas, but when looking at the percentage of developed load it is high because the CAST-estimated developed load in DC is small. Changes in Phase 7 may make the DC developed load more consistent with other areas. Lew elaborated that this small developed load is due to DC's large area covered by capture/treat CSS controls.
  - George replied that he was satisfied with that understanding for approving the methods now, but would like to keep this in mind for reviewing the results with the new model going forward.
  - Dave added that, looking at the lower left figure, the consistency of that 1% for exfiltration as percent of total flow is consistent. That gives confidence in the numerator part of the percent developed load, so the other aspect, like other parts of model development, will be looked at later. He also emphasized the year of review as a place for the actual effect on loads from these methods to be assessed.
- Lew noted that by identifying these loads in cities, with DC as an example, it gives an opportunity to further knock down the loads that otherwise wouldn't be there. The loads can then be controlled by refurbishing sewer lines, e.g.

- Ivy Ozmon, HRPDC noted a desire to flush out the uncertainties that are inherent to this calculation and highlight how the optional inputs can change the load in the documentation so that in the year of review, we have the proper context for whether or not all of the factors are properly accounted for.
  - Joseph added that Clifton Bell, Brown & Caldwell shared similar comments via email.
- Bell Martinez da Matta, MDE asked whether the idea is that moving forward in the next phase of the model these assumptions can be tested and further research can refine the areas of uncertainty.
  - Joseph responded that that can definitely be included in the documentation, which will go to WWTWG for peer input, highlighting suggested improvements for Phase 8.
- Bel asked about the timeline for including the optional inputs in the model. Joseph responded that all inputs to the model are need by February 2026 at the latest, so these would not to be provided by then.

**Decision:** WWTWG voting members approved (pending finalization for absent members by email) the proposed method for estimate the baseline exfiltration and edge of stream delivery of nitrogen and phosphorus from sanitary sewers in the Phase 7 model.

Exfiltration Vol. = **Fraction exfiltration** \* **Annual system treatment volume (dry-weather)** \* **Geologic coef.** \* **Fraction gravity line** \* **(Fraction new or rehabbed\*Rehabbed coef.)**

Exfiltrated nutrient mass = Exfiltration Vol. \* concentration in raw WW (33 mg/L TN, 6 mg/L TP)<sup>1</sup>\***Soil Treatment** \* **GW Transmission**

**Workgroup Defined, Required State Provided Input, Optional State Provided Input**

**Action:** Optional inputs for the sanitary sewer exfiltration model need to be provided by Feb 2026 at the latest to be included in Phase 7.

10:40 **Septic/Sewer Model and Sanitary Sewer Area Map Update** – Jackie Pickford, USGS (30 min)  
 Jackie shared an [updated map](#) of sanitary sewer areas, which shows a 2020 and 2030 layer. Differences from Phase 6 include updated information from counties with more accurate data, and a final scale by using parcels instead of census blocks. Jackie then [presented](#) updates on the new estimation techniques for septic system counts, population on septic, and population on sewer. Parcels with buildings outside the sewer service area are included in the count of septic systems, with 1 septic system per developed parcel. Jackie presented comparisons of septic count estimates from local data, Phase 6, and Phase 7 at a county scale, including discussion of some “outliers” with larger discrepancies with local data. Finally, Jackie shared estimates of Population on Sewer and Septic for 2020. Workgroup members reached consensus (pending follow-up email votes from absent members) to approve the Sanitary Sewer Area map update, but the group did not reach consensus on the septic/sewer model given some concerns on the counts and population data. This data will be shared and the vote will be continued by email.

Discussion:

- Dave Montali asked for clarification on what the “local data” for septic counts by counties is from. Jackie confirmed it is any data received from jurisdictions, including septic connection permits. Dave noted their data for this is shaky, so not to weigh it too much in comparing how closely the model's estimates get to the local data.

- Dave asked to see back-casted septic counts for counties to see rate of change of septic systems over time, and to compare the estimates from Phase 7 with Phase 6 given previous models had overestimated septic counts and corrections were made.
  - Peter added that septic systems were back-cast and changed over time in Phase 6, as well, but the methodology was crude compared to Jackie's new methods.
  - Olivia shared a [graph](#) with trends over time for septic systems by county on the CAST website from Phase 6.
- Samuel Canfield, WVDEP mentioned that there were much larger swaths of land than what was provided and asked what impact that would have on counts. Jackie responded that most of those areas were not developed parcels (e.g. state forests) so they would not be captured as a septic system anyway.
- Melissa Kret, VDH asked how the final number for septic counts is determined when there is a discrepancy. Jackie responded that it is developed through the model, so any local “truth” data that is provided from localities is not used in the model, it is just shown as a comparison for gauging accuracy of the model results.
- Dave asked for clarification why for some counties (e.g. Jefferson and Berkeley counties) there are higher populations on septic with lower populations on sewer from Phase 6 to Phase 7 estimates.
  - Jackie responded that is probably due to the housing density of where those septic systems in Phase 6 were – if there was a high number of septic counts in a dense area in Phase 6 but that is more accurately mapped in Phase 7 it will be lower.
  - Dave responded that the confusion for these two counties is that it would be expected for more population to be on sewer than on septic, but that isn't the case for the new Phase 7 estimates.
  - Dave noted that with new development, it is usually sewer systems expanding.
  - Peter Claggett explained that in Phase 6 development was forecasted by adding a one mile buffer around the sewer service area in West Virginia and assuming any growth in that buffer would be on sewer. For Phase 7, they are implementing a “smart sewer expansion” across the watershed in directions where growth is most likely and in proportion to projected changes in population. This method is more conservative and precise.
  - Peter added that if the sewer service area remains static, it would only be an increase in septic back through time. The only change proportionally would be if there is a much faster decrease in urban population than rural population. Peter said they would look at it more once the back-cast is done.
- Steve Bieber, MWCOG asked what accounts for counties where the septic count decreased, but the population served by septic increased. Jackie explained it is probably due to a difference in where septic systems are accounted for between Phase 6 and 7. Because the sewer service area is different in Phase 6 and 7, then some areas that were counted as being septic in P6 are actually sewered with the updated data in P7. These septic counts might go down from P6 to P7, but if a new septic point is “moved” to an area with a higher population associated with the housing unit then the population would increase overall even with fewer septic counts.

- Dave reiterated that this was similar to the confusion and concern he shared earlier, and asked to have the back-cast data shared with the group. He shared that the process seems good, but would like to review those numbers before making a decision.
  - Jackie offered to share the draft back-cast numbers with the workgroup.
- Ivy Ozmon, HRPDC shared she would like the HRSD service area data update incorporated, when possible. Jackie responded new data cannot be put in now, but it can go in during the year of review if there is opportunity to do so then.

**Decision:** WWTWG voting members approved (pending finalization for absent members via email **by EOD Friday August 15th**) the sanitary sewer area (SSA) map.

**Action:** Jackie Pickford will share updated data on septic counts, population on septic, and population on sewer from the sewer/septic model. *Completed.*

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#### 11:10 **Small Group Status Updates** - Various (45 min)

##### SSO Loads – Jamie Heisig-Mitchell

- Jamie shared an update on the WWTWG's discussions on SSO loads. In the June meeting, the workgroup reviewed preliminary data from Maryland and Hampton Roads which showed SSO loads accounting for a very small percentage of the urban load. Also, there was limited availability of data from most jurisdictions, so a significant lift would be required to calculate SSO loads across the watershed. SSOs are illegal loads and cities with chronic SSOs are under state or federal order to control these loads already. When data availability improves over time, this could be explored for inclusion in a future phase of the model.
- Lew Linker asked whether in instances where SSO data is available (e.g. Baltimore), could it be included in multiple tributary models.
  - There were no objections from members to allowing this to be explored.
  - Bel Martinez da Matta, MDE responded that MDE would like to look into it a bit more and can come to the next meeting to discuss this.

**Decision:** WWTWG members reached consensus (pending finalization for absent members via email **by EOD Friday August 15th**) to not pursue SSO loads in the Phase 7 model, allowing for continued discussion about inclusion of available data in certain multiple tributary models.

##### • CSO Loads – Jamie Heisig-Mitchell

- The CSO Small Group met on Wednesday, July 16th with members from the CBP modeling and GIS teams to better understand what data they need the workgroup to validate.

**Action:** The CSO Small Group will meet again with the modeling team on July 30<sup>th</sup>. *Completed.*

- Boat Pump Out BMP – Ivy Ozmon

- No additional responses have been received from jurisdictions on the documentation of state's perspectives for not pursuing the Boat Pump Out BMP.

**Action:** Please provide any updates from your jurisdiction on the [documentation](#) of state's perspectives for not pursuing the Boat Pump Out BMP by **EOD Friday Aug 1st**. The workgroup will be asked to finalize this in the [Aug WWTWG meeting](#).

11:55 **Recap of Actions and Decisions** - Jamie Heisig-Mitchell (5 min)

12:00 **Adjourn**

**NEXT MEETING:** [Thursday, Aug 28<sup>th</sup>, 2025](#)

**Attendance:** *Jamie Heisig-Mitchell (HRSD), Petra Baldwin (CRC), Andrew Malmgren (LASA), Samuel Canfield (WVDEP), Olivia Devereux (Devereux Consulting/CBPO), Jackie Pickford (USGS), Melissa Kret (VDH), Dylan Burgevin (MDE), Jeremy Hanson (CRC), Zach Steckler (PADEP), Steven Bieber (MWCOG), Dave Montali (Tetra Tech/WV DEP), Jess Rigelman (CBPO Contractor), Bob Buglass (WSSC), George Onyullo (DOEE), Ellen Egen (AquaLaw), George Mwangi (DNREC), Victor Landis (PA DEP), Kevin Bronson (DNREC), Ivy Ozmon (HRPDC), Joseph Delesantro (EPA ORISE/CBPO), Bel Martinez da Matta (MDE), Shannon McKenrick (MDE), Sushanth Gupta (MWCOG), Dana Hales (EPA R3), Erica Duncan (VADEQ), Peter Clagget (USGS), Marel King (CBC), Megan Thyng (EPA CBPO), Lew Linker (EPA CBPO), Jun Fang (DC Water).*

#### **Acronym List**

BMP: Best Management Practice  
CSO: Combined Sewer Overflow  
CSS: Combined Sewer System  
GIS: Geographic Information System  
HRSD: Hampton Roads Sanitation District  
EPA: [U.S] Environmental Protection Agency

ORISE: Oak Ridge Institute for Science and Education  
SSA: Sanitary Sewer Area  
SSO: Sanitary Sewer Overflow  
WWTWG: Wastewater Treatment Workgroup  
USWG: Urban Stormwater Workgroup