

Evergreen StormH2O

PO BOX 18912 ♦ Spokane, Washington 99228 ♦ (509) 995-0557

MEETING AGENDA

Project: Stormwater Particle Size Distribution and Implications for BMP Effectiveness

Meeting Topic: TAC Meeting #3

Date & Time: March 28, 2023
9:00-11:00 am

Location: Teams Meeting

Attendees: Dana Deleon, City of Tacoma
Carla Milesi, University of Washington
Michael Henao, City of Pasco
Ani Jayakaran, Washington Stormwater Center
Erika Shaffer, Department of Natural Resources
Aimee Navickis-Brasch, Evergreen StormH2O
Mark Maurer, Evergreen StormH2O
Taylor Hoffman-Ballard, Evergreen StormH2O
Patrick Volsky, Evergreen StormH2O

DISCUSSION TOPICS

The slides in the agenda were reviewed and discussed with the TAC Members, the following are a summary of the key discussion points.

- **Characterize Sources**
 - There was discussion about the highest percent of particles being in the silt size range. Specifically, whether these results could be skewed or an artifact of sampling method due to how samples were collected (using an automated samplers and the size of the tube limit will the size of particles that can be collected.). It was suggested that the consultant separate the TAPE data from other data to see if we see any differences in the results. The consultant will also denote how the data was collected on the summary tables.



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- Another reason why silt size maybe the highest % range is it is suspended the longest in the water column where other sizes settle out sooner. It may just be based on physics.
- The TAC suggested including discussion in the final paper about the potential for skewed data from the sampler. Although the TAC was not aware of any studies that have tested whether PSD in silt size could be skewed because of automated sampler.
- There was a study about using wing samplers which has 4 different sample tubes at 4 different depths in the water column. Study looked at how that affected TSS results. The samplers were developed by UMN and they may also have been used by the Navy. A link to the study is below:
 - <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=fe8cff770470b24364ced1bff400147ce37c4e5e>
- Neither STEPP or TAPE are considering changing from the current sample collection methods.
- WSC has used different types of samplers in the streams to correct for bias. Consider reaching out to Herrera might also have some data on this topic. Contact USGS for info about thier samplers and how they collect sediment in streams.
- There was also discussion about what data to present. The TAC suggested using the arithmetic and geometric mean as well as the median. Also, a suggestion for using log normalize with mg/L to see if there are any differences.
- A TAC member suggested using a non-parametric Anova analysis as another method for comparing results to see if there is a difference between land use or basin area compared to PSD size ranges.
- For Basin Area:
 - Since there is limited basin area data, it was suggested that the consultant combine all land use data for analysis within each PSD range to see if there is a relationship.
- **BMP Effectiveness**
 - There was also discussion about what data to present. The TAC suggested using the arithmetic and geometric mean as well as the median.
 - The TAC suggested creating log normal data graphs to see if there is any relationship in the data.



- TAC members also indicated that they expect to see the highest removal in the highest PSD% category.
 - To better understand the PSD evaluated, the TAC suggested creating cumulative distribution curve to see what is making it to the BMP. Also consider breaking it up so that we have a graph with only Washington data and then only other states data and then a combine graph.
 - There is a new study from University of New Hampshire, their particle size tends to be coarser than our data although the data collection methods are the same. Could be a result of sanding. These results will be released from TACP in a month.
 - Consider creating a map that shows where the data is from.
- **General Comments**
 - The TAC had questions about whether there was anything that tied particle size to specific pollutants that bind together. The Consultant team explained that is in the literature search and what we found was mostly limited to nutrients and metals. The TAC suggested mentioning this data gap in the results.
 - The TAC also suggested that we look at the NURP study. They have information about PSD by pollutant. Which may support that if we target silt size pollutants, we could be removing a lot of pollutants that could be bound with it. May not have enough data from this study to test this.



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