



## SAM Newsletter #13 - September 2022

*Collectively improving stormwater management*

### Catch up on recently completed SAM projects

- [SAM Fact Sheet #25: The Effects of Mulch on Stormwater Treatment and Maintenance Effort in Bioretention Systems](#)  
This study evaluated the role of mulch in bioretention performance, weeding, and plant survival. Mulches, all three types, preserve bioretention soil moisture and aid plant survival in the summer, help cut weeding time by half and limit nitrogen export from soil. Arborist chips and nugget mulches help retain the most water in bioretention cells. Project details can be found in the completed studies on the [SAM Effectiveness studies website](#).
- [SAM Fact Sheet #26: Measuring Individual Tree Water-use in Mature Native Species in the Pacific Northwest to determine their Benefits for Stormwater](#)  
This study gathered high quality water budgets on individual mature native trees in Washington State. Stormwater designs may be able to reduce the size of Flow Control BMPs if they retain mature trees and apply 'tree credits' per SWMM BMP T5.16/F6.62. Retaining mature trees is an LID strategy that may be underutilized. Evergreen and deciduous trees captured or slowed stormwater by intercepting and transpiring 44-65% of rainfall. For more project details on this completed project and the current project, same tree species just much younger, see the [SAM Water budget of individual local tree project website](#).
- [SAM Fact Sheet #27: 2019-2020 Nearshore Mussel monitoring survey in the urban nearshore of Puget Sound](#)  
Monitoring long term in several key environments such as the marine nearshore will help us determine if conditions are getting better despite population growth as building codes and stormwater management improves in the areas adjacent to the nearshore. The winter 2019/2020 monitoring survey was the third and final survey under this 'UGA' study design and provides the first opportunity to evaluate changes in contamination of nearshore biota residing inside the urban growth areas (UGAs) of Puget Sound. PAHs, PBDEs, and DDTs had significantly lower central tendency concentrations in mussels from this third survey (2019-20) than the prior two surveys, yet the spatial extent of impact is unchanged in Puget Sound. See [SAM's status and trends of the Puget Sound nearshore website](#) for more on this long-term study.

### NEW SAM studies underway

Three new projects from the Round 3 Solicitation are now underway and you can follow their progress on their dedicated project webpages. The last Round 3 project is a literature study on the replacement and lifecycle costs of permeable pavements compared with standard impervious pavements (FP4) and will get started in 2023.

- [Evaluation of Best Management Practice Maintenance Conditions](#)  
The city of Bellevue, in collaboration with Aspect Consulting, will evaluate the maintenance thresholds or conditions for stormwater Best Management Practices (BMPs). They will provide their findings in a white paper for permittees on how to adjust BMP maintenance efforts to maximize overall environmental outcomes to meet permit requirements.
- [Stormwater particle size distribution & BMP effectiveness](#)  
This project is a literature review to gather up-to-date information on particles and contaminants in stormwater, and the best management practices to capture and treat them.
- Pre-2005 bioretention infiltration performance - SAM website ready soon  
This project will conduct a controlled field study of infiltration rates of old bioretention facilities (pre-2005) and provide key performance information and maintenance thresholds on these facilities over time.

### Preparing to launch the Round 4 SAM study Request for Proposals

The Stormwater Work Group will decide in November 2022 which stormwater topics to have the next round of SAM Effectiveness Studies address. A draft study selection topic list was recently shared. Ecology's SAM Coordinator is planning to open the request for proposals in January 2023. See more of the proposal timeframe at the main SAM webpage [www.ecology.wa.gov/SAM](http://www.ecology.wa.gov/SAM).

**Stormwater Action Monitoring (SAM)** is a collaborative, regional stormwater monitoring program that is funded by more than 90 Western Washington cities and counties, the ports of Seattle and Tacoma, Washington State Department of Transportation, and the US Navy.