Round 4 SAM Topic Survey Results

Topics with over 40% of the votes cast in the category – Grouped

MAINTENANCE:

1. 52% What is the minimum maintenance frequency for bioretention required to achieve full benefits of the facilities?
2. 42% What is the range of options to address spills on permeable pavement, and what are the most effective and lower cost methods?
3. 44% Informed by a white paper, do a controlled field study to evaluate maintenance thresholds required in the SWMMWW
4. 44% Develop or modify a model to predict catch basin accumulation for predicting maintenance frequencies

6PPD

5. 73% Study existing BMPs (gray or green) to verify capture or treatment of 6PPD and 6PPD-quinone
6. 51% Identify new BMPs that effectively reduce 6PPD and 6PPD-quinone
7. 49% Fill gaps on physicochemical for environmental fate and transport of 6PPD and 6PPD-quinone
8. 61% Study street sweeping and/or line cleaning to get more information about 6PPD and 6PPD-quinone removal

BMP EFFECTIVENESS

9. T*hese two are similar and related to some below that were added in open ended questions:*
    - 58% Conduct a cost analysis of all BMPs, including cost to construct and cost to maintain
    - 67% Create a matrix comparing the effectiveness, costs, constructability, and maintainability of BMPs.
10. 56% Quantify the habitat and other benefits and reduced O&M provided by mature vegetation in stormwater ponds. Are we still getting the pollutant removal? What are the tradeoffs?

PERMIT

11. 53% Fill gaps on benefits of retrofitting, restoration of riparian buffer, property acquisition, removal of impervious surfaces, floodplain reconnection or other actions used address stormwater runoff not otherwise required in S.5.C
12. 63% Make permit annual report questions better for quantifying data for regional learning.

OTHER

13. 47% What are the most effective approaches to source control for bacteria? In what situations do E&O, IDDE, and O&M activities most effectively address bacteria problems?

New Suggestions from Open Ended Questions:

14. *These 2 are very similar:*
    - Study on crumb rubber artificial turf fields. Are there pollutants of concern in runoff?
    - Study to determine if runoff from artificial turf fields is a water quality issue.
15. Examine land uses upstream of sites showing low/no instream toxicity...
16. *These two are related:*
    - Environmental impacts of using consumer products (e.g., driveway or roof cleaner, surface cleaners, fungicide) per label? (and relationship to prohibited/conditionally approved discharges)
    - Question: Are retail products a conditionally allowable discharge per the permit if instructions are followed? Problem: There are various consumer products that are meant to clean or eliminate some nuisance. These products are applied and then washed off by the user, or flushed off by rain, often discharging to drainage systems with no intent to do harm. The project (white paper?) would 1) look to clarify the municipal permit stance on tons of retail products used throughout the region that likely impact downstream water quality, and 2) look to identify the scale of this concern. Many products are commonly applied to surfaces to clean dirt, oil stains, moss, or slippery ice. These products are commonly applied to driveways, roofs, sidewalks, buildings, etc. Product labels rarely explain to the consumer the need to prevent discharge to storm drains. On a national scale, these types of products should better explain preventing discharges to storm drains.
17. Pressure washing surfaces that lead to storm drains is a common cleaning practice throughout Washington. The permit is clear on prohibiting pollutants typically generated by this activity. What is not clear is what are the most effective BMPs for many variable situations and how can effective implementation be demonstrated to encourage compliant pressure washing activities. Ineffective or a lack of pressure washing BMP use is very common. A study that identifies appropriate BMPs and how to use them effectively in the variable situations that you find at different sites could help to better establish regional compliance consistency for both regulators and contractors. Pressure washing can generate a lot more pollution than most realize who are not familiar with the activity. (*This has relevance for PCB pollution prevention guidance*.)
18. Pretreatment sediment bays for bioretention *(Need more specifics-monitoring, white paper, survey?)*
19. Cost effectiveness and functional effectiveness for a wide range of WQ BMPs and "partial BMPs" - i.e. enhancing existing ditches via small-scale retrofits to increase infiltration and treatment via amended soil. *(Modeling approach?)*
20. What do we know about the impacts of homeless camps on aquatic resources? What programs have been successful in managing debris, fecal matter and stream side erosion control? *(White Paper?)*
21. What are the best options for hybrid regional meetings? What technology is there that could be shared region wide for jurisdictional use? Benefits include keeping vehicles off the road, staff and money savings, how much does this save what are the accumulated benefits?

22. *These two are related:*
    - Regional synoptic monitoring study to characterize emerging pollutants in stormwater, including 6-PPDQ, PFAS/PFOS, and others. This is captured somewhat in some of the options (e.g. monitoring) under 6-PPD Subgroup plus related AdHoc Recommendations.
    - Some of the 6-PPD topics could be combined into one study. An example is identifying hotspots, related modeling and sources of 6PPD.
23. Likewise with the LID and O&M Carryover topics. An example is a study or white paper that includes evaluation of O&M in stormwater ponds (pre- and post-1991) and a controlled field study that includes evaluating habitat."
24. SAM fund a study to test the effectiveness to remove 6PPD and 6PPD-q and PCBs from stormwater runoff. *(Similar to 5. and 6. above.)*
25. *These two are related:*
    - Research Micro- and nano- plastic contamination in Stormwater BMPs
    - Research Micro- and nano- plastic contamination in street sweepings (follow on to current SAM project, white paper?)
26. *New Idea not in survey: How can Strategic Asset Management be used to better track and maintain stormwater infrastructure? What's been working for those using this tool, what resources needed, how could knowledge be shared?*

SAM STUDY IN PROCESS OR COMPLETED

1. To inform prioritization and inventory of the source control program, which types of inspected businesses are out of compliance most often? (SAM Business Source Control Study)
2. Measure the effectiveness of a behavior change campaign (e.g. pet waste) in reducing pollutants (e.g. bacteria) in receiving waters. *(SAM Behavior Change Study))*
3. Training resources/videos to help NPDES permittees provide consistent and relevant resources to staff and comply with permit training requirements for specific activities and topics (Several videos funded by SAM and others housed at WA Stormwater Center)

NOT BEST FOR SAM EFFECTIVENESS/SOURCE ID FUNDS *{Initial thoughts on why idea grouped here}*

1. These two are similar: {Much bigger than stormwater adaptive management studies, SAM.}

-Get manufacturers to take cradle to grave responsibility for all products and packaging
-Get manufacture to do cradle to grave and look at fate and transport of products of concern.

2. These are all related to vermiculture: {Not likely to be allowed due to nutrient content for most stormwater BMPs. May only be an additive in these situations because nutrient management is done by WWTP after use.]

-Running tests with vermi-based water treatment systems used in other chemical treatment facilities in WA State.
-Using "vermisubstrate" generated by 'nonchemical,' vermi-based WWTP for in-situ treatment of contaminated soils impacts by contaminated stormwater.

-Fund a study to test if vermiculture substrate effectively reduce 6PPD and 6PPD-q in stormwater runoff. Studies already show that this substrate is highly effective pretreatment

process for removing PCBs and other metals from wastewater before discharging to the sanitary sewer.

3. Comparison of the cost effectiveness of regional facilities as compared to disbursed stormwater facilities {*site specific, hard to compare costs regionally because in most studies land costs (and how much they vary) are excluded. Also, regional facilities meet the same modeling design standard as smaller site-scale facilities (e.g. 91% runoff treatment). Without land and knowing they meet the same standard, what specific study question is being answered: is it the material and labor costs between a single regional facility and the equivalent amount of smaller facilities. Could be a white paper exercise to survey design and consulting firms.}*

4. Literature review and/or study to identify the distance(s) from phosphorus-sensitive receiving waters HPBSM should be used (rather than BSM), when bioretention is used to meet the SWMM requirements for new development and redevelopment. Results should be used to inform the SWMMs/Permits. {*Ecology's HPBSM Emerging Guidance allows the use of HPBSM in bioretention facilities near phosphorus-sensitive waters, within 1/4mile, whereas the standard BSM is not allowed if discharging to surface waters)*

5. Evaluate the effectiveness of SAM's status and trends monitoring program to tease out the MS4 contribution signal from the other contributing discharges. {SAM's S&T are long term effectiveness studies to measure MS4 signal from natural variability and to some decree climate changes in the nearshore and small streams. SAM's MS4 funds are not appropriate for other permits or discharges.}

6. Evaluate the cost/benefit of redirecting a portion of SAM funds to fund local monitoring efforts that can advance the understanding of managing stormwater, finding sources of and preventing pollution, improving management guidance, and minimizing impacts to water quality? {*Not a SAM study request.}*

7. Study North Creek and Swamp Creek TMDL historical sampling data across jurisdictions to do watershed tracing of sources and propose targeted actions for improvements. {*TMDL effectiveness is a smaller watershed receiving water question and SAM was designed for the broader PS regional S&T or LCUS S&T.}*

Possible Studies for SAM Leverage: Discuss? {Ecology may beat SAM to some BMP studies on 6PPD-q treatment and would like to follow up on some of these ideas}.

City, county, state, port, or other stormwater permittee answers:

Yes

Yes, we are testing stormfilter media (ZPG and CSF) for 6PPDq removal efficiency on low, medium and high volume roads. So far we have only seen modest reductions in 6PPDq concentrations.

For profit organization answers:

"Yes, two. Some of the and business licensure process

1. Effectiveness study: Stormwater BMP Maintenance Conditions Evaluation.

Carryover idea: controlled field study of BMP O&M practices.

2. Source ID study: Mobile Business Stormwater Source Control.

Carryover idea: how can business licensure support proper waste handling (and source control)."

No, but there are facilities operating now that could be monitored to establish BMPs

Non-governmental organization answers:

Yes. Bioretention planters under elevated roadway downspouts

State, Federal, or Tribal government answers:

Not sure

Possibly. We have a couple of novel compost-amended biofiltration swale designs under study.