



# Stormwater Action Monitoring Quarterly Report April 1 through June 30, 2019

## SAM accomplishments and key decisions reported for the quarter

- Encumbered two new contracts; Mulch Choices for bioretention effectiveness study with WSU Puyallup, and Watershed delineation for SAM status and trends (streams and nearshore) sites with USGS.
- Amended two contracts: King County fungal study for bioretention, and WDFW for a third round of mussel monitoring.
- The SAM Coordinator and several SAM study leads presented on projects at MuniCon in April.
- Published the 2018 Annual Report by Ecology on SAM administration.
- Built a new SAM Communication webpage to find all SAM communication products including the factsheets, videos, pictures, About SAM presentation, and an interactive story map on bioretention.
- Received the prioritized list of topics from SWG for SAM studies in the 2019-2024 permit term.

## SAM budget for the previous quarter and anticipated in the next quarter

Table 1 shows the SAM budget for each account and for the whole program. Encumbrances in excess of projected revenues are for projects spanning multiple years. The total balance and anticipated expenditures for the coming quarter include Ecology’s expenses. SAM program management charges and indirect are applied quarterly. Table 1 of this quarterly report shows the last snapshot of cash flow for the 2013-2019 permit term for the RSMP/SAM accounts. In 2019, revenue is expected in December instead of August for the first year of the new permit (2019), and the 4-year account totals will not be known until the letters of commitment are sent to Ecology in December 2019.

Table 1. Summary of revenues, expenditures, encumbrances, and available funds for each SAM component

Reported and projected income and expenditures	Status and trends (*5-year total: \$4,530,880)		Effectiveness studies (*5-year project total: \$7,874,040)		SIDIR (*5-year project total: \$846,570)		SAM total (*5-year project total: \$13,251,670)		
	Apr-Jun 2019	Jul-Sept 2019 <i>(anticipated)</i>	Apr-Jun 2019	Jul-Sept 2019 <i>(anticipated)</i>	Apr-Jun 2019	Jul-Sept 2019 <i>(anticipated)</i>	Ecology's Apr-Jun expenses	Apr-Jun 2019	Jul-Sept 2019 <i>(anticipated)</i>
Balance at start of quarter	\$1,610,603	\$1,499,054	\$3,894,979	\$3,738,681	\$710,380	\$708,107	-	\$5,745,089	\$5,425,924
Revenues	\$0	\$0	\$0	\$0	\$0	\$0	-	\$0	\$0
Expenditures	\$111,549	\$41,149	\$156,298	\$623,570	\$2,274	\$46,750	\$49,045	\$319,165	\$776,469
Balance at end of quarter	\$1,499,054	\$1,457,905	\$3,738,681	\$3,115,111	\$708,107	\$661,357	-	\$5,425,924	\$4,649,455
Encumbrances	\$71,121	\$154,833	\$2,880,633	\$2,484,745	\$342,558	\$297,349	-	\$3,294,312	\$2,936,926

\*These column headings reflect 5-year account totals for the 2013-2019 permit cycle. The Pooled Resources Oversight Committee (PRO-C) approved encumbrance of these funds.

## SAM contracting activities

Contract scopes of work reviewed and approved by the PRO-C and Ecology are posted online. Two amendments were approved by PRO-C and the contracts signed this quarter. The USFWS study on fungal amendments in bioretention due date was extended one year to allow for sampling this spring and complete the final report, no

addition costs incurred. Also, the mussel monitoring contract with WDFW was amended to add the third round monitoring for winter 2019-2020 for \$279,858.

PRO-C approved two new scopes of work this quarter. One effectiveness study on mulch choices for bioretention for \$191,497 and contracting is complete. The second was for the SAM streams study with USGS for \$32,000 to delineate the watersheds around the random sites for both the Puget lowland stream sites and the Puget nearshore sites. Two effectiveness studies were completed and contracts closed this quarter: catch basin cleaning effectiveness study by King County and the Rain garden and bioretention assessment protocol development by the City of Puyallup. The catch basin project had \$1,787.18 in unspent funds that returned to the SAM Effectiveness studies account.

Next quarter, the SAM Coordinator will begin developing the request for study proposals based on the SWG's recommended list of priority topics for SAM studies and projects.

## **SAM summary by topic**

### **Communications project**

Association of Washington Cities (AWC) completed three more Fact Sheets, an adaptable PowerPoint presentation explaining SAM, and a comprehensive interactive data story summarizing SAM bioretention study findings. Next quarter the communications assistance contract with AWC will be extended one year to provide continued support on SAM products for \$22,003. Also next quarter, SAM will publish a "booklet" that includes all the fact sheets from completed studies during this 2014-2019 permit term in one document. SAM Newsletter #8 will cover a variety of communication products on SAM including those that were completed this quarter and are now available on the new SAM communications webpage. The SAM Communication Advisory Committee will meet to discuss a fall 2019 survey of stormwater managers about their communication needs and the types of products that will be most helpful to them in communicating with the public and elected officials.

### **Effectiveness studies**

SAM is monitoring the effectiveness of BMPs and management actions to reduce stormwater runoff destructive flows and transportation of pollutants to receiving waters. There are nine active effectiveness studies. Four studies are wrapping up their sampling phases this spring and summer: two bioretention studies on fungal amendments and capture of PCBs, the bioretention blends alternative for no phosphorus, and the bioretention hydrology evaluation on cells designed after the 2012 stormwater manual update. Four other studies are preparing for their sampling phase in the upcoming wet season: bioretention longevity, mulch options for bioretention, oyster shell retrofits in catch basins, and the individual tree hydrology-monitoring project. The Redmond paired watershed study is ongoing, wrapping up the third year's report.

### **Source Identification Projects**

SAM projects on source control and source identification will improve detection and adaption of our management solutions for pollutant sources in stormwater runoff. There are two active source identification projects. King County's project to host a stakeholder process for the Spill Hotline Feasibility Study formed a Technical Advisory Committee from members of the SWG Source Identification subgroup, spill response staff from state and local levels and other key stakeholders. Regional knowledge and recommendations were collected via a survey sent April 8, 2019 on the SAM listserv and 10 interviews conducted of municipal and state spill report/response staff in consideration of a new spill hotline. Next quarter will involve systems research on existing hotlines. King County's Illicit Connection and Illicit detection (IC/ID) Manual will present to the SWG Source Identification subgroup next quarter on proposed updates to the ICID manual based on feedback from the two workshops and online survey results.

## Receiving water projects

SAM is monitoring and assessing the impacts of stormwater runoff in urban and urbanizing areas in the Puget Sound nearshore and small stream environments. A second round of mussel sampling is ongoing, conducting data and statistical analysis, and the third round volunteer coordination will begin next quarter for winter 2019-2020 sampling.

USGS is delineating the watershed to the approximately 25,000 GRTS generated random sites in the Puget Nearshore and Puget lowland streams study frames. The deliverables are anticipated next quarter. SAM staff are working to implement the SAM streams monitoring of the next 35 sites in the new design. This involves selecting and evaluating sampling sites and getting water level data roughly one year in advance of the WHM sampling summer. An amendment to the USGS scopes of work to conduct site evaluation and deploy water level loggers at the 35 stream sites will undergo PRO-C review next quarter.

## SAM contract deliverable activity

Apr – Jun 2019

Project activities, contracting actions and meetings are summarized under each SAM category in this section.

<b>Communications</b>	<b>Deliverables approved Q2 2019</b>	<b>Anticipated deliverables Q3 2019</b>
AWC	3 SAM factsheets (Regional facility effectiveness, Rain garden Protocol, & Catch basin cleaning), Bioretention story map, and presentation	8 <sup>th</sup> SAM newsletter and final SAM booklet with 2019 permit term accomplishments; draft survey of stormwater managers' communication needs
<b>Receiving water agreements</b>	<b>Deliverables approved Q2 2019</b>	<b>Anticipated deliverables Q3 2019</b>
Marine mussels – WDFW	Copy of invoices for chemical analysis, QA/QC checked chemistry data file, and progress report-presentation	Data submittal to EIM
<b>Source ID Contracts</b>	<b>Deliverables approved Q2 2019</b>	<b>Anticipated deliverables Q3 2019</b>
ICID Manual Update – King Co	None received	Semi-annual report, tech memo(s) summarizing workshops and survey, 2014 IDDE query, and subgroup meeting
Feasibility of regional spill hotline – King Co	Biannual progress report and draft questionnaire	Completed interviews and surveys

<b>Effectiveness study contracts</b>	<b>Deliverables approved Q2 2019</b>	<b>Anticipated deliverables Q3 2019</b>
Paired watershed study – Redmond	All remaining WY2018 data deliverables and draft report	Final WY2018 report
LID bioretention hydrology performance (current >2012 facilities) – Olympia	Site condition geotechnical memo	Site condition memo for vegetation and interim project meeting
Effectiveness of bioretention soil to capture and treat PCBs – King County	None expected	Semi-annual progress report and validation memo on all monitoring data
Field test of plants and fungi on bioretention performance – USFWS	None received	Baseline toxicity of column conditioning. Year 1 report on hydraulic, water quality, and toxicity monitoring
Bioretention Blends Study – King County	Semi-annual progress report	Project Advisor Group meeting notes, 3 tech memos describing tests of the media blends (Task 4), acute toxicity tests, and chemistry matrix for developing specifications with QC for max 6 media components
Longevity of bioretention toxicity prevention – USFWS	Final QAPP	Report on chemistry and toxicology of bioretention soil media components
Hydrologic benefits of individual trees - WDNR	Draft QAPP	Final QAPP, Progress report
Oyster shell catch basin retrofits – King County	Final QAPP, Post QAPP to KC project website	Equipment purchases, Preliminary flow data, semi-annual project report
Mulch choices for bioretention - WSU Puyallup	NA	Draft QAPP and installation photos