



Stormwater Action Monitoring Quarterly Report July 1 through September 30, 2018

SAM accomplishments and key decisions reported for the quarter

- SAM contracted three new effectiveness studies this quarter to test 3 different BMPs.
- A SAM Symposium was held on September 13, 2018 for permittees to hear more about project findings and add-on efforts by SAM Puget Streams, Mussels and Nearshore receiving water studies leads and SAM staff.

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. Revenue is expected in the 3rd quarter (August) of each calendar year.

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)		
	Jul-Sept 2018	Oct-Dec 2018 <i>(anticipated)</i>	Jul-Sept 2018	Oct-Dec 2018 <i>(anticipated)</i>	Jul-Sept 2018	Oct-Dec 2018 <i>(anticipated)</i>	Ecology's Jul-Sept expenses	Jul-Sept 2018	Oct-Dec 2018 <i>(anticipated)</i>
Balance at start of quarter	\$1,395,556	\$1,651,754	\$4,449,713	\$4,757,983	\$671,835	\$720,571	-	\$6,186,499	\$6,752,684
Revenues	\$273,092	\$0	\$419,239	\$0	\$50,428	\$0	-	\$742,759	\$0
Expenditures	\$16,894	\$84,599	\$110,969	\$520,208	\$1,692	\$1,050	\$47,019	\$176,574	\$670,857
Balance at end of quarter	\$1,651,754	\$1,567,155	\$4,757,983	\$4,237,775	\$720,571	\$719,521	-	\$6,752,684	\$6,081,828
Encumbrances	\$199,384	\$114,785	\$3,657,307	\$3,614,854	\$355,023	\$353,973	-	\$4,211,714	\$4,083,612

*The permit extension year revenue is anticipated in August 2018, therefore these column headings reflect 5-year account totals (previous quarterly reports indicated 4-year totals). 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. This quarter three SAM agreements were signed totaling \$1,049,176 this quarter, bringing the total number to 15 SAM funded effectiveness studies.

SAM summary by topic

Communications project

Association of Washington Cities (AWC) completed two study fact sheets this quarter (Puget lowland streams and Puget Sound nearshore sediments) and initiated a survey to collect ideas and topics for future SAM studies to address problems or stormwater management information needs. The survey closes early next quarter.

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. This quarter, following the publication of the Puget Sound nearshore sediment data report last quarter, the SAM Scientist prepared a technical memoranda describing the spatial analyses for the urban Puget Sound nearshore sediment data. A second round of mussel study is ongoing, Washington Department of Fish and Wildlife (WDFW) completed the measurement of biological metrics and chemical analysis of mussel samples.

This quarter we also organized a Receiving Water Findings Symposium, held September 13 in Tacoma, to provide another opportunity for permittees to hear from the scientists on the first round findings from 2015-2016 monitoring of lowland streams and nearshore mussels and sediments in Puget Sound. The findings include a quantitative regional assessment of receiving water conditions, results of a risk assessment, and correlation of receiving water indicators with stressor variables.

The team of scientists that lead the receiving water continue to make progress on a unified study design for future SAM trends monitoring. A series of workshops is planned for spring 2019 to describe the most updated plan to permittees and other SAM stakeholders.

Effectiveness studies

SAM is monitoring the effectiveness of BMPs and management actions to reduce stormwater runoff destructive flow and transport of pollutants to receiving waters. There are 12 active SAM effectiveness studies, including the three new contracts signed this quarter. These three are with the Washington State Department of Natural Resources (WDNR) to evaluate the hydrologic benefit of individual trees for \$379,495, US Fish and Wildlife Service (USFWS) to evaluate the longevity of toxicity prevention by bioretention soil mix for \$396,076 and with King County to evaluate the water quality benefit of retrofitting catch basins with oyster shells for \$273,605. Next quarter, an amendment with Redmond to sample Water Year 2019 (October 2018-Sept 2019), and the first quarter of Water Year 2020 (Oct-Dec 2019) is needed to keep monitoring continuous.

Source Identification Projects

These SAM projects for source control and identification will improve detection and adapt our management solutions for pollutant sources to stormwater runoff. No new contracting actions this quarter.

SAM contract deliverable activity

July– Sept 2018

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

Communications	Deliverables approved Q3 2018	Anticipated deliverables Q4 2018
AWC	2 SAM factsheets, GIS story map outline, 5 th and 6 th SAM newsletters,	2 SAM factsheets (Bioretention hydrology performamnce & Receiving water synthesis), 3 videos, draft SAM booklet and communications kit
Receiving water agreements	Deliverables approved Q3 2018	Anticipated deliverables Q4 2018
Nearshore sediment – USGS	Publication of final report on the status of nearshore sediment chemistry (USGS). SAM scientist’s memo incorporated Option 2 results in the probabilistic framework. Microplastics pilot results in the report.	Closed.
Marine mussels – WDFW	Copy of datasheets with biological metrics for all retrieved mussel samples	Copy of invoices for chemical analysis, QA/QC checked chemistry data file, and progress report-presentation
Source ID Contracts	Deliverables approved Q3 2018	Anticipated deliverables Q4 2018
ICID Manual Update – King Co	None received	Two ICID workshops announcements for western WA
Feasibility of regional spill hotline – King Co	None expected	None expected.
Effectiveness study contracts	Deliverables approved Q3 2018	Anticipated deliverables Q4 2018
Catch basin (CB) inspection and maintenance – King Co	CB cleaning cost analysis and final TAC meeting notes. Draft report.	Final Report
Paired watershed study – Redmond	None expected.	WY2018 monthly progress reports.
Hylebos Creek in Federal Way, regional bioretention retrofit – King Co	None expected.	Draft and final report.
LID bioretention hydrology performance (pre2012 facilities) – Bellingham	Draft report.	Final report and draft fact sheet.

LID bioretention hydrology performance (current 2012+ facilities) – Olympia	Site criteria checklist and progress report.	Final site list and summary of selection process.
Effectiveness of bioretention soil to capture and treat PCBs – King Co	Monitoring progress for July-Dec 2017.	Validation memo on first year of monitoring data and draft database. Contract extension needed.
Field test of plants and fungi on bioretention performance – USFWS	Baseline column conditioning chemistry report as revised.	Baseline toxicity of column conditioning. Years 1 and 2 report(s) on hydraulic, water quality, and toxicity monitoring. Contract extension needed.
Rain Garden and bioretention protocol and survey – Puyallup	None received.	Version 2 training materials, tech memo, results V2 survey, plan for data, TAC meeting, social science survey, and V3 final protocol.
Bioretention Blends Study – King County	draft QAPP	Final QAPP, PAG meeting, WQ lab results with QC audits for 4 events/8 blends, WQ lab results 8 dosing events/8 blends, and saturated hydraulic conductivity results 8 blends.
Longevity of bioretention toxicity prevention – USFWS	Draft QAPP	Final QAPP
Hydrologic benefits of individual trees – WDNR	NA	Quarterly report, draft QAPP
Oyster shell catch basin retrofits – King County	NA	Semi-annual report, draft QAPP