



Stormwater Action Monitoring Quarterly Report October 1 through December 31, 2019

SAM accomplishments and key decisions reported for the quarter

- Permittees unanimously decided to participate in SAM for the 2019-2024 permit term, the only exception was City of Tacoma who will conduct their own effectiveness and source identification monitoring.
- Amended three contracts this quarter, Redmond Paired Watershed Study, Olympia’s Bioretention Hydrology, and the SAM communications project with Association of Washington Cities
- The USGS evaluated the next set of stream sampling sites and deployed continuous data loggers at the selected 35 sites.
- WDFW deployed mussel cages at the 41 SAM sites with 1 Penn Cove reference site and approximately 40 more at their partner sites.

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

Table 1 shows the SAM budget for each account for the whole program. Revenue for 2019 is expected in December instead of August for the first year of the new permit (2019). The Pooled Resources Oversight Committee (PRO-C) approves encumbrance of SAM funds. Encumbrances in excess of projected revenues are due to projects that span multiple years. Projected expenditures for the next quarter are based on anticipated approved deliverables and invoices and an estimate of Ecology’s expenses. Indirect charges are applied quarterly to the individual accounts while SAM management staff costs are applied proportionally at the end of each fiscal year.

Table 1. Quarterly summary of revenues, expenditures, encumbrances, and available funds for each SAM account.

Reported and projected income and expenditures	Status and trends		Effectiveness studies		SIDIR		Admin Costs (Qtr)*
	Oct-Dec 2019	Jan-Mar 2020 (anticipated)	Oct-Dec 2019	Jan-Mar 2020 (anticipated)	Oct-Dec 2019	Jan-Mar 2020 (anticipated)	Ecology’s Oct-Dec expenses
Balance at start of quarter	\$1,487,076	\$1,670,366	\$3,624,495	\$3,732,874	\$654,551	\$602,842	-
Revenues	\$306,890	\$0	\$472,673	\$0	\$0	\$0	-
Expenditures	\$123,600	\$42,322	\$364,294	\$536,575	\$51,709	\$108,563	\$58,618
Balance at end of quarter	\$1,670,366	\$1,628,044	\$3,732,874	\$3,196,299	\$602,842	\$494,279	-
Encumbrances	\$332,129	\$1,054,594	\$3,173,591	\$2,637,016	\$275,289	\$166,726	-

*Ecology’s SAM management staff costs are listed separately for the quarter, and will be proportionally applied to the individual accounts at the end of the fiscal year.

SAM study solicitation process

Based on decisions made by permittees as of December 1, 2019, the anticipated revenue for the 2019-2024 permit term is approximately \$1.4M for Effectiveness and Source ID, \$750K for Puget Sound Status and Trends, and \$136K for Lower Columbia Status and Trends, annually. A third round of project solicitation will kick-off in January next quarter to gather a new set of SAM Effectiveness and Source Identification studies.

SAM contracting activities

All contract scopes of work are reviewed and approved by the PRO-C and Ecology are posted online. Three amendments were completed this quarter. The communications assistance contract with Association of Washington Cities (AWC) was extended one year to provide continued support on SAM products for \$22,003. AWC expenses are paid proportionally from all three SAM accounts per PRO-C recommendations. The Redmond contract added 2 years and \$871,095 to conduct stream monitoring in 2020. The Olympia contract was extended by one year with no additional funds.

SAM summary by topic

Communications project

Association of Washington Cities (AWC) prepared SAM Newsletter #8 and opened the 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. The survey closed at the end of November.

Receiving water projects

SAM monitors the impacts of stormwater runoff in urban and urbanizing areas in the Puget Sound nearshore and small stream environments. A third round of mussel sampling is ongoing. Mussel cages were successfully deployed to 42 sites in October. Scheduled retrieval dates are in late January 2020. USGS completed watershed delineation process for nearshore master points as preparation of adjusted future study design starting 2021. For stream monitoring in 2020, water level loggers were successfully deployed at 33 sampling sites and 2 reference sites. Conductivity meters purchased by USGS match fund were deployed at 10 sites. The USGS watershed delineation and site evaluation contract ends on December 31, 2019. A new 3-year contract with USGS is under development to conduct streams monitoring under the new design, early estimates are for \$250K per year.

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 10 active effectiveness studies. Three studies are wrapping up their final deliverables: bioretention fungal amendments, bioretention capture of PCBs, and the bioretention blends alternative for no phosphorus. Four other studies are sampling: bioretention longevity, mulch options for bioretention, oyster shell retrofits in catch basins, and the individual tree hydrology-monitoring project. The Redmond paired watershed study and the City of Olympia bioretention hydrology evaluation on cells designed after the 2012 stormwater manual update both received contract extensions.

Source Identification Projects

SAM projects on source control and source identification will improve detection and adapt our management solutions for pollutant sources in stormwater runoff. There are two active source identification projects. The spill hotline feasibility study is writing up the interviews and research summary this quarter. The second project to update the illicit connection illicit discharge (IC/ID) field screening manual is expected to provide a draft updated manual next quarter.

SAM contract deliverable activity

Oct – Dec 2019

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

Communications	Deliverables approved Q4 2019	Anticipated deliverables Q1 2020
AWC	8 th SAM newsletter announcing survey of permittees wishes for SAM communication products	Draft SAM fact sheets for the low phosphorus bioretention blend
Receiving water agreements	Deliverables approved Q4 2019	Anticipated deliverables Q1 2020
Marine mussels – WDFW	Draft QAPP amendment List of volunteer groups Mussel deployment site location Mussel deployment confirmation Mussel deployment datasheets from all monitoring sites	Final QAPP amendment Retrieval datasheets from all monitoring sites
Watershed delineation and streams site selection - USGS	GIS file of watersheds for nearshore sampling points Final sampling site list and email confirmation of level logger deployment	Completed
Source ID Contracts	Deliverables approved Q4 2019	Anticipated deliverables Q1 2020
ICID Manual Update – King Co	Semi-annual report, tech memo on 2014 IDDE query, Source ID and subgroup meeting	Draft and final updated ICID manual, schedule for upcoming trainings
Feasibility of regional spill hotline – King Co	Tech memo on research & service options, Source ID subgroup meeting	Draft and final interview research summary report
Effectiveness study contracts	Deliverables approved Q4 2019	Anticipated deliverables Q1 2020
Paired watershed study – Redmond	Water year 2019 water, sediment, and physical data	Water year 2019 biological data to PSSB and hydro data to KC database
LID bioretention hydrology performance (current 2012+ facilities) – Olympia	Tech memo on hydrologic design of each bioretention site in study	Quarterly progress report
Effectiveness of bioretention soil to capture and treat PCBs – King Co	Validation memo on all monitoring data, and draft report	SWG presentation, semi-annual progress report, and final report

Field test of plants and fungi on bioretention performance – USFWS	Year 1 report on hydraulic, water quality, and toxicity monitoring	Year 2 report on hydraulic, water quality, and toxicity monitoring, and SWG presentation
Bioretention Blends Study – King County	SWG presentation, tech memos describing media components & blends, acute toxicity results, draft & final report and draft fact sheet	Completed
Longevity of bioretention toxicity prevention – USFWS	Report on chemistry of clean water effluent and WSU lab water	Progress report
Hydrologic benefits of individual trees - WDNR	Quarterly report, Email confirming successful instrument readings	Quarterly report
Oyster shell catch basin retrofits – King County	NA	Semi-annual project report Preliminary Flow & Analytical Data First Season Data validation
Mulch choices for bioretention - WSU Puyallup	Final QAPP	Installation photos
Orifice control for bioretention - WSU Puyallup	None received	Draft and final QAPP