Stormwater Action Monitoring Quarterly Report July 1 through September 30, 2019

SAM accomplishments and key decisions reported for the quarter

- A SAM Booklet is now available from the SAM Coordinator and a printable version is on the SAM website. The SAM Booklet binds all the SAM fact sheets that were produced during the first permit term when SAM was launched. It's a tangible, colorful communication product for permittees and other stormwater stakeholders to have to reflect on the first four years of the Stormwater Action Monitoring program.
- The contract was signed to start the final Stormwater Work Group (SWG) approved Round 2 Effectiveness study to evaluate water quality benefits of small orifices on the underdrains of bioretention.
- Amended two contracts for the streams and mussel studies.

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

Table 1 shows the quarterly financial activities for each SAM account. Revenue for 2019 is due in December instead of August because 2019 is the first year of the new permit term. 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. Ecology's SAM management staff costs are listed separately for the quarter, and are proportionally applied to the individual accounts at the end of each state fiscal year (June). Ecology's indirect charges are applied to the individual SAM accounts quarterly.

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

Reported and projected income and expenditures	**Status and trends Puget Sound region**		**Effectiveness studies Western WA**		**Source ID Western WA**		**Admin Costs**
	Jul-Sept 2019	Oct-Dec 2019 *(anticipated)*	Jul-Sept 2019	Oct-Dec 2019 *(anticipated)*	Jul-Sept 2019	Oct-Dec 2019 *(anticipated)*	Ecology's Jul-Sept expenses
Balance at start of quarter	$1,142,105	$1,487,076	$2,824,732	$3,624,495	$654,551	$654,551	-
Revenues	$360,971	*$306,742*	$812,278	*$472,804*	$0	*$0*	-
Expenditures	$16,000	*$128,550*	$12,515	*$625,028*	$0	*$85,875*	$41,508
Balance at end of quarter	$1,487,076	*$1,665,268*	$3,624,495	*$3,472,271*	$654,551	*$568,676*	-
Encumbrances	$455,729	*$334,440*	$2,666,790	*$2,926,059*	$326,997	*$242,663*	-

SAM contracting activities

All contract scopes of work and amendments are reviewed and approved by both the PRO-C and Ecology, and are posted online to the SAM project pages. One new contract and two amendments were signed this quarter. The new contract for $214,480 with WSU-Puyallup will evaluate water quality benefits of small orifices on the underdrains of bioretention. No study contracts were closed this quarter. A USGS amendment added $117,600 for stream site evaluations and equipment and extended the timeframe to December 31, 2019. USGS provided matching funds of $10,000 to monitor continuous conductivity at 10 sites.

SAM summary by topic

Communications project

Association of Washington Cities (AWC) completed the first "SAM Booklet" that binds all the fact sheets to date in one document for use by all permittees and SWG Stakeholders. 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. The survey will be sent in the SAM Newsletter #8, which will also 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.

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. Washington Department of Fish and Wildlife (WDFW) is analyzing data from the second round of mussel monitoring and is getting ready to deploy mussel cages for the third round monitoring next quarter. The WDFW contract amendment covers the third round monitoring tasks. The USGS contract amendment covers watershed basin delineations, stream sampling site evaluation and continuous data logger deployment at 35 sites.

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 will wrap up this coming winter: bioretention studies on fungal amendments and capture of PCBs, and the bioretention blends alternative for no export of phosphorus. Four studies are beginning sampling: bioretention longevity, mulch options for bioretention, oyster shell retrofits in catch basins, and the individual tree hydrology project. The Redmond paired watershed study and the City of Olympia bioretention hydrology study need contract extensions as the current contracts expire in December 2019.

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 will conduct the municipal and state government interviews this quarter. A summary of the interviews and research are anticipated next quarter. The second project will update the illicit connection illicit discharge (IC/ID) field screening manual based on a literature review and surveys of municipal government staff. Next quarter Ecology anticipates a technical memo summarizing workshops, surveys, and queries of the illicit discharge detection and elimination database created as part of a prior SAM project.

SAM contract deliverable activity — Jul – Sep 2019

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

Communications	Deliverables approved Q3 2019	Anticipated deliverables Q4 2019
AWC	SAM booklet with 2013 permit term accomplishments	8th SAM newsletter and survey about stormwater managers' use of SAM communication products
Receiving water agreements	**Deliverables approved Q3 2019**	**Anticipated deliverables Q4 2019**
Marine mussels – WDFW	None	Mussel deployment confirmation
Watershed delineation and streams site selection - USGS	GIS file of watersheds for stream sampling points	GIS file of watersheds for nearshore sampling points
Source ID Contracts	**Deliverables approved Q3 2019**	**Anticipated deliverables Q4 2019**
IC/ID Manual Update – King Co	Tech memo summarizing workshops and survey	Semi-annual report, tech memo on 2014 IDDE query, Source ID subgroup meeting, and manual draft updates
Feasibility of regional spill hotline – King Co	Completed surveys and meeting with Ecology Water Quality and Spills Programs	Semi-annual report, tech memo on research & service options, Source ID subgroup meeting
Effectiveness study contracts	**Deliverables approved Q3 2019**	**Anticipated deliverables Q4 2019**
Paired watershed study – Redmond	Final WY2018 report and progress reports	None
LID bioretention hydrology performance (current 2012+ facilities) – Olympia	Site condition memo for vegetation and hydrologic data	Quarterly progress report, meet with SAM Coordinator
Effectiveness of bioretention soil to capture and treat PCBs – King Co	None Received	Semi-annual progress report and validation memo on all monitoring data
Field test of plants and fungi on bioretention performance – USFWS	None approved	Year 1 report on hydraulic, water quality, and toxicity monitoring
Bioretention Blends Study – King Co	Project Advisory Group meeting notes	Technical memos describing media components & blends, acute toxicity results, draft report and draft fact sheet
Longevity of bioretention toxicity prevention – USFWS	Report on chemistry and toxicology of bioretention soil media components	Report on chemistry of clean water effluent and WSU-Puyallup lab water

Hydrologic benefits of individual trees – WDNR	Final QAPP, list of equipment ordered, confirmation of instruments Installation with photos, successful instrument readings	Progress report
Oyster shell catch basin retrofits – King Co	Equipment purchases, preliminary flow data, semi-annual project report	First season data validation
Mulch choices for bioretention – WSU Puyallup	Draft QAPP	Final QAPP and installation photos
Orifice control for bioretention – WSU Puyallup	NA	Draft QAPP