



Stormwater Action Monitoring Quarterly Report April 1 through June 30, 2022

SAM accomplishments and key decisions reported for the quarter

- Completed the effectiveness study on mulches for bioretention, final report and [SAM Fact Sheet](#). Mulches play an important role in preserving the soil moisture for plant survival and suppressing weeding maintenance times and reducing nitrogen export.
- Signed two new contracts with Washington State Department of Natural Resources (DNR); extending the hydrology project to smaller trees, and a new literature review project on the size, content and treatment of particles carried in stormwater.
- USGS was extended 3 years to conduct the SAM Puget Sound lowland streams long-term monitoring.

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

Table 1 shows the SAM budget for each account. Revenue is expected in August each year from 2020 thru 2024. 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	Puget Sound status and trends		Lower Columbia status and trends		Effectiveness studies		Source ID Projects		Admin Costs (Qtr)
	Apr-June 2022	Jul-Sept 2022 (anticipated)	Apr-June 2022	Jul-Sept 2022 (anticipated)	Apr-June 2022	Jul-Sept 2022 (anticipated)	Apr-June 2022	Jul-Sept 2022 (anticipated)	Ecology’s Apr-Jun expenses
Balance at start of quarter	1,993,671	ND	74,661	ND	4,503,585	ND	260,696	ND	
Revenues	41,906	ND	9,160	ND	37,892	ND	0	ND	
Expenditures	129,089	ND	0	ND	447,591	ND	81,910	ND	29,287
Balance at end of quarter	1,906,488	ND	83,821	ND	4,093,886	ND	178,786	ND	
Encumbrances	2,706,856	ND	276,143	ND	2,644,624	ND	159,050	ND	

ND – Not done. These fields were not estimated at the time and would not make sense to calculate in hindsight.

SAM contracting activities

All contract scopes of work are reviewed and approved by the PRO-C and Ecology are posted online. The following contracting activities occurred this quarter:

- Signed new or amended Apr-June
 - USGS’s Puget Small Streams (PSS) study was amended in May for \$1,055,100 to cover the annual sampling for next 3 years.
 - DNR’s Individual tree hydrology project - phase 2 was signed in June \$213,389.
 - DNR’s Particle Size Distribution study was signed in May for \$128,422.

SAM summary by topic

Communications

Routine deliverable and contracting updates to SAM website. Mulches was completed this Quarter and a SAM Fact Sheet was published.

Receiving water projects

SAM monitors the impacts of stormwater runoff in urban and urbanizing areas in the Western Washington small streams and nearshore environments. There are two active stormwater receiving water monitoring in Puget Sound region and one stream monitoring in Lower Columbia region. Key updates are:

- WDFW, the Nearshore Mussel study lead, gave a presentation summarizing the study findings of first three rounds of monitoring using old study design at the May SWG meeting. The final status and trends report (2016-2020 monitoring) will be published in fall 2022.
- Lower Columbia Urban Streams (LCUS) project will finish up the Water Year 2021 annual report next quarter.

Effectiveness studies

SAM studies determine the effectiveness of operational or structural BMPs, maintenance and management actions, and outreach efforts to reduce stormwater runoff and transport of pollutants to receiving waters. There are 9 active effectiveness studies at the end of this quarter. Key updates are:

- A new SAM project (led by Bellevue) to provide a white paper (survey + data review) and recommendations for permittees to improve BMP maintenance efforts is under review with an anticipated start in early 2022. The final report for the Individual Tree Hydrology, led by DNR, is now available.
- A new SAM project with DNR was started this quarter to produce a literature review on the size of particles in stormwater, the potentially bound contaminants, and effectiveness of a range of treatment approaches (FP1).
- Scope of work development is underway with the City of Olympia was contracted to conduct a controlled field study of infiltration rate of old bioretention facilities (pre-2005) and provide key performance information these facilities over time and maintenance thresholds (FP8).

Source Identification Projects

SAM projects on source control and source identification will improve illicit discharge detection and adapt our management solutions for pollutant sources in stormwater runoff. There are two active projects.

- King County's Mobile Business project has worked with the Department of Revenue to pull business listing information to help jurisdiction identify mobile business types from business license data.
- WSU's Business Source Control completed the draft online guidance manual; see [WSU's project page](#) or the [SAM \(Ecology\) project page](#).

SAM contract deliverable activity

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

Receiving water agreements	Deliverables approved Q2 2022	Anticipated deliverables Q3 2022
Marine mussels – WDFW	Confirmation of mussel sites and retrieval	None until Q4

Marine mussels (older design) – WDFW	Final presentation to SWG	QA QC'd dataset, data entry to EIM, final report outline and report
Puget small streams – USGS, Manchester lab, Rhithron lab	Draft sampling site list for WY2022	Q2 and Q3 quarterly reports, Final report_2020
Lower Columbia urban streams- Clark County	Quarterly report, Continuous data upload, flow metrics calculation from continuous data	Draft 2021 Report, Q1-Q2 semi-annual progress report, Continuous data upload
Source ID Contracts	Deliverables approved Q2 2022	Anticipated deliverables Q3 2022
Improving business source control programs – WSU	Final online guidance manual and quarterly report	Quarterly report, draft business inspection training agenda and curriculum
Mobile business source control – King Co	TAC meeting notes, quarterly report, tech memo of survey results,	draft and final tech memo of business listings, draft and final IDDE mobile businesses data analysis report and database
Effectiveness study contracts	Deliverables approved Q2 2022	Anticipated deliverables Q3 2022
Paired watershed study – Redmond	None received	WY 2021 draft and final report, TAC notes.
Longevity of bioretention toxicity prevention – WSU Puyallup	Progress report 5	Progress report 6, presentation to SWG, draft interim report, and draft SAM fact sheet
Hydrologic benefits of individual trees - WDNR	Final report, data file, new agreement for 2-yr study extension	Draft SAM fact sheet, draft QAPP amendment, instrument installation
Mulch choices for bioretention - WSU Puyallup	Draft SAM fact sheet	Closed
Orifice control for bioretention - WSU Puyallup	Progress report 4 and 5	Progress report 6, Modeling study plan
Evaluating stormwater education and outreach program - WSU	Quarterly status report, TAC#4, revised synthesis of nationwide tools, website tool operational, survey of testing web tool, and transition plan,	Quarterly status report, TAC#5, annotated bibliography, draft checklist and report template for guidance, findings white paper, SAM fact sheet, and training manual
Improving ditches and maintenance – WSU-Puyallup	Semi-annual report	WQ portion of project on hold, looking for new sites
BMP maintenance condition-City of Bellevue	TAC meeting notes, progress report	permittee survey, draft and final literature review BMP maintenance,
Hydraulic conditions of old bioretention facilities- City of Olympia		Sign Contract