



Stormwater Action Monitoring Quarterly Report October 1 through December 31, 2022

SAM accomplishments and key decisions reported for the quarter

- WDFW published the [results of the 2019-2020 Puget Sound mussel monitoring survey](#), and this old design contract was closed.
- Chelsea Morris was hired as the new SAM scientist in December.

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)
	Oct-Dec 2022	Jan-Mar 2023 (anticipated)	Oct-Dec 2022	Jan-Mar 2023 (anticipated)	Oct-Dec 2022	Jan-Mar 2023 (anticipated)	Oct-Dec 2022	Jan-Mar 2023 (anticipated)	Ecology’s Oct-Dec expenses
Balance at start of quarter	2,364,031	ND	211,128	ND	5,473,133	ND	155,341	ND	
Revenues	0	ND	0	ND	0	ND	0	ND	
Expenditures	29,494	ND	50,140	ND	30,775	ND	0	ND	25,818
Balance at end of quarter	2,334,536	ND	160,988	ND	5,442,358	ND	155,341	ND	
Encumbrances	2,369,023	ND	226,003	ND	3,203,711	ND	135,605	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 Oct-Dec
 - WDFW contract covering all work on the old-mussels survey design was completed and the remaining \$40,666.40 left in the account was returned back to the Status and Trends account.
 - WSU Orifice amendment 2 signed in December 2022 extending the contract to July 2023.
 - Ecology added their own funds to the SAM Redmond project, amendment 6, to add toxic chemicals testing to the street sweeping effectiveness evaluation.
 - Ecology added their own funds to the SAM WSU-Bioretenion Longevity project, amendment 2, to add three water years of stormwater dose experimentation, including chemical analysis, hydraulic conductivity, and toxicity assessment (zebrafish and coho salmon) at the end of each water year.

SAM summary by topic

Communications

Routine deliverable and contracting updates to SAM website.

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, published the final status and trends report (2016-2020 monitoring) in September, <https://wdfw.wa.gov/publications/02345>.
- Puget Sound and Lower Columbia stream monitoring, led by USGS and Clark County respectively, completed sampling for water year 2022 at the end of September. Monitoring for water year 2023 started October 1.

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 8 active effectiveness studies at the end of this quarter. Milestones for several projects include:

- Modeling study plan for the WSU led Orifice control of bioretention project.
- Survey summary on Municipal stormwater operations and maintenance programs in the Bellevue led SAM project evaluating BMP maintenance of ponds, vaults, trenches, and tanks.
- Near completion on the Behavior Change Evaluation Guidance project led by WSU, the project will close next quarter. The checklist and template for writing reports is complete (Deliverable 5.6).

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. Milestones of the two active projects:

- Mobile Business project made great progress on deliverables including analysis of the Department of Revenue’s Business Listing Service.
- All four of the Business Source Control Inspection trainings were completed this quarter and were well attended.

SAM contract deliverable activity

Table 2: SAM’s contracts, end dates, and deliverable activity.

Receiving water agreements	Deliverables approved Q4 2022	Anticipated deliverables Q1 2023
Nearshore mussel monitoring – WDFW	<u>Final report and SAM fact sheet</u> on 2019-2020 monitoring.	None expected
Puget small streams – USGS, Manchester lab, Rhithron lab	None received	Quarterly reports for WY22 Q3 Q4 and WY23 Q1 Q2, Data upload for 2021 and 2022, Final 2020 report, Draft of Final 2021 report
Lower Columbia urban streams - Clark County	2022 sampling completeness, Equipment installation confirmation , Continuous data upload	Semi-annual progress report, Data upload for 2022, Draft of Final 2022 report

Source ID Contracts	Deliverables approved Q4 2022	Anticipated deliverables Q1 2023
Improving business source control programs – WSU (Sept 2023)	Draft business inspection training materials and conducted 4 business inspection trainings.	Quarterly report and presentation at MuniCon
Mobile business source control – King Co (Dec 2023)	draft tech memo of business listings, progress report.	TAC meeting notes, final tech memo of business listings, Pilot Program in King Co plan and outreach materials, draft best practices for multi-jurisdiction coordination
Effectiveness study contracts	Deliverables approved Q4 2022	Anticipated deliverables Q1 2023
Paired watershed study – City of Redmond (Sept 2025)	Three WY2022 monthly progress reports	WY 2021 draft and final report, WY 2022 remaining progress reports, Opti Pond WY 22 discharge estimates
Longevity of bioretention toxicity prevention - WSU Puyallup (Nov 2024)	None received, contract amended	Progress report 6
Hydrologic benefits of individual trees - WDNR (Aug 2024)	Draft QAPP amendment	Final QAPP amendment, bi-annual report, equipment installation
Orifice control for bioretention - WSU Puyallup (Dec 2022)	Modeling study plan and contract extended	Draft modeling study report
Evaluating stormwater education and outreach program - WSU (Feb 2023)	Final annotated bibliography, D5.4 (draft and final checklist and report template for guidance), D5.5 pilot test summary, D5.6 final checklist and report template and checklist, Draft white paper, draft SAM fact sheet and draft guidance manual	Final quarterly status report, final white paper, SAM fact sheet, and reporting guidance template. Project will be completed.
Improving ditches and maintenance - WSU Puyallup (Sep 2024)	None received.	Draft and final QAPP for vegetation aspect of study.
BMP maintenance condition - City of Bellevue (Apr 2024)	Survey results memo and questions for Ecology staff	Progress reports, draft and final lit review on O&M, tech memo on Ecology responses
Hydraulic conditions of old bioretention facilities - City of Olympia (Jul 2023)	None received.	Contact amendment (dates only), Subconsultant and progress report, TAC kickoff meeting, Draft and final QAPP, Site selection
Lit review of particles in stormwater & treatment -WDNR (Nov 2023)	None received.	Status updates, Literature synthesis, Data sources and summary tables, White paper outline and flow charts, Draft and final white paper, Draft fact sheet