

Regional Stormwater Monitoring Program Quarterly Report

For Oct 1 through Dec 31, 2015

RSMP accomplishments and key decisions reported for the quarter

- Field crews completed data collection for the first round of small streams status and trends. Monitoring was completed at 59 sites for monthly water quality and 85 sites for summer habitat, sediment and biota.
- WDFW and volunteers deployed mussel cages at the 40 randomized marine nearshore locations. WDFW also coordinated for an additional 33 sites sponsored by multiple organizations and local governments.
- A list of programs to contact for marine nearshore bacteria data was compiled, and 85 contacts initiated.
- USGS is developing the scope of work for marine nearshore sediment monitoring in summer 2016.
- The first six effectiveness studies continue to produce study designs and deliver monitoring results. Scopes of work for four new studies are under development.
- A draft memo and meta-analysis of permittees' illicit discharge detection and elimination (IDDE) incident tracking reports in the Permit and Reporting Information System (PARIS) was completed.

RSMP budget for the previous quarter and anticipated for the coming quarter

Table 1 shows detail for each RSMP component and for the whole program. Encumbrances in excess of projected revenues will be for projects spanning multiple years. Ecology's program administration expenses are limited to 5% of the total RSMP revenue and are not separately accounted for by the three RSMP components; indirect charges are applied quarterly. The total balance and anticipated expenditures for the coming quarter include Ecology's administrative expenses.

Table 1. Summary of revenues, expenditures, encumbrances, and available funds for each RSMP component

Reported and projected income and expenditures	Status and trends (4-year project total: \$3,638,710)		Effectiveness studies (4-year project total: \$6,299,238)		SIDIR (4-year project total: \$677,250)		RSMP total (4-year project total: \$10,615,198)		
	Oct-Dec 2015	Jan-Mar 2016 <i>(anticipated)</i>	Oct-Dec 2015	Jan-Mar 2016 <i>(anticipated)</i>	Oct-Dec 2015	Jan-Mar 2016 <i>(anticipated)</i>	Ecology's July-Sept administration expenses	Oct-Dec 2015	Jan-Mar 2016 <i>(anticipated)</i>
Balance at start of quarter	\$944,743	\$587,149	\$2,942,124	\$2,887,168	\$338,628	\$338,628	-	\$4,350,950	\$3,909,938
Revenues	\$0	\$0	\$0	\$0	\$0	\$0	-	\$0	\$0
Expenditures	\$357,594	\$454,086	\$54,956	\$627,346	\$0	\$30,029	\$28,462	\$441,012	\$1,131,461
Balance at end of quarter	\$587,149	\$133,063	\$2,887,168	\$2,259,822	\$338,628	\$308,599	-	\$3,909,938	\$2,778,477
Encumbrances	\$937,048	\$762,962	\$2,114,154	\$3,642,293	\$107,255	\$77,226	-	\$3,158,457	\$4,482,481

RSMP Activities

Status and Trends Monitoring

The RSMP Coordinator is managing the small streams monitoring and data management; King County is leading the multi-agency team of scientists to analyze the streams data. Washington State Department of Fish and Wildlife (WDFW) is managing the nearshore marine monitoring project. The U.S. Geological Survey (USGS) is leading the nearshore sediment monitoring project. The Ecology/Washington Dept. of Health BEACH coordinator is conducting the marine nearshore bacteria data compilation and analysis project.

Small streams water quality and watershed health

The sampling phase of the RSMP small streams status and trends monitoring effort was completed in December. In total, 85 sites were sampled once in the summer for Watershed Health (habitat, stream benthos, and sediment chemistry), and 59 sites were sampled monthly in 2015 (Jan-Dec) for water quality (conventional parameters, nutrients, metals and PAHs). All chemistry data is undergoing review and will be uploaded to EIM in early 2016. Stream benthos data will be uploaded in summer 2016.

Marine mussel contaminant monitoring

WDFW deployed the marine mussels at 40 randomized sites for RSMP sampling in late October and early November. The cages will be retrieved in February 2016 and the mussels processed for laboratory analysis.

Marine nearshore sediment chemistry

USGS will lead the summer 2016 nearshore sediment sampling team and will finalize the Quality Assurance Project Plan (QAPP) for sampling and analysis. Contract scopes of work are under development.

Nearshore bacteria

BEACH Coordinator is gathering bacteria indicator data from all responsive Puget Sound-wide organizations, universities, tribes, conservation districts, and local and state governments. The list of contacts was delivered, and more than 85 contacts have already been made.

Effectiveness Studies

Active studies

- USFWS provided final PAH treatment data and are working on the final report for bioretention soil mix toxicity reduction study.
- Redmond delivered a final QAPP and began flow monitoring for the urban watershed retrofit study.
- King County delayed submittal of the QAPP for the Federal Way Hylebos study. They are gathering flow data and learning the hydrograph to plan future sampling. The final QAPP should be delivered in the coming quarter.
- King County is actively monitoring the smaller highway retrofit BMPs at Echo Lake, and making adjustments based on evolving understanding of site conditions.
- Lakewood has delivered progress reports, a draft study design, and draft surveys for property and business owners for the business inspection source control study. A final study design and surveys will be delivered in the coming quarter.
- Bellingham delivered a draft QAPP for the LID hydrologic performance study. The final QAPP is expected, and monitoring should begin, next quarter.

Future studies

Three effectiveness study agreements are expected to be completed in the coming quarter:

- USFWS assessment of plant and fungi impacts on performance of bioretention soil mix. This project will locate the 55 gal mesocosms in a new location identified cooperatively with WSU and WSDOT.
- King County will also work with USFWS and WSU to use the same 55 gal mesocosms to study PCB treatment/sequestration in the bioretention soils. King Co will have a separate agreements for their sampling and analyses.
- Puyallup regional protocol for assessing rain garden effectiveness: scope of work was finalized.

King County is developing a draft scope of work to assess catch basin inspection effectiveness, that agreement is not expected to be completed until the following quarter.

A second round of RSMP effectiveness studies will be solicited in early 2016. The process will include technical review in advance of a workshop, followed by permittee voting.

Source Identification Information Repository (SIDIR)

Lakewood's consultant compiled all of the IDDE data in PARIS submitted by permittees in March 2015 and presented an initial summary of the data and meta-data analysis to the SIDIR subgroup in December. The next stage of the project is to populate a database with the data and conduct an analysis to identify patterns in illicit discharges and permittees' responses. The findings will inform methods and approaches and prioritize source control effectiveness studies.

RSMP contracts and agreements

Three agreements/modifications were finalized this quarter with the following partners:

- Internal agreement between Ecology Water Quality Program and Environmental Assessment Program to have the BEACH Coordinator to gather bacteria indicator data from all responsive Puget Sound-wide organizations, universities, tribes, conservation districts, and local and state governments.
- Redmond's agreement for the paired urban watershed retrofit effectiveness study was amended to add \$265,680 for hydrologic monitoring starting in October. Another amendment in early 2016 will add additional funding for water quality monitoring.
- The Lakewood and Bellingham agreements were adjusted to change (extend) due dates for deliverables for their effectiveness studies, with no change to the contract amounts.

In the coming quarter, Ecology expects to complete agreements with:

- Amendments to agreements with King County and USGS for analysis of the streams data for a total of approximately, and new agreements with Ecology EAP and Puget Sound Partnership (PSP) totaling approximately \$280,000 to conduct RSMP streams analysis.
- Amendments to agreements with Bellingham to begin monitoring bioretention facilities and Redmond to add water quality monitoring to all paired watershed study sites totaling \$1,379,112.
- New agreements with USFWS, Puyallup, and King Co for three effectiveness studies totaling \$776,373.

RSMP deliverables received in the previous quarter

Deliverables sent to the RSMP Coordinator are reviewed, approved and posted to the RSMP website <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/rsmp/rsmp.html>

Status and Trends

- Field and lab deliverables for streams monitoring from July through September. The water quality sites and an additional 26 sites had samples collected for sediment metals, PAHs, PCBs, and flame retardants, as well as watershed health (habitat and benthos) samples. All samples were sent to the lab.
- Map of the mussel cages marine nearshore locations where deployed.
- Table of intended contacts for gathering marine nearshore bacteria data.

Effectiveness Studies

- Bioretention treatment summary for PAHs, in the USFWS bioretention toxicity reduction study.
- Final QAPP for Redmond's paired urban watershed retrofit effectiveness study, installation of hydrology monitoring equipment, and initiation of data collection.
- Draft QAPP for Bellingham's LID hydrologic performance study, and progress reports.
- Draft study design and survey for Lakewood's business source control study, and progress reports.
- Draft and final memo summarizing baseline Echo Lake water quality, early flow sampling, and progress reports for King County's study of Echo Lake Highway 99 retrofits.
- Progress reports for King County's study of Hylebos BMP retrofits in Federal Way.

RSMP deliverables expected in the coming quarter

Status and Trends

- Field and lab data deliverables for stream WQ monthly monitoring from October through December.
- Caged mussel retrieval at the marine nearshore sites and processing for laboratory analyses.
- Initial data compilation report for marine nearshore bacteria.

Effectiveness Studies

- Final report and presentation from USFWS on the bioretention toxicity reduction study.
- Final QAPP and initiation of monitoring for the Bellingham LID hydrologic performance study.
- Location descriptions and deployment of water quality monitoring equipment in the paired basin retrofit study.
- Technical Advisory Committee meetings, final study design and surveys for Lakewood business source control study.
- Draft QAPP for USFWS plant and fungi performance study in bioretention mesocosms
- Draft QAPP for King County study on PCB treatment/sequestration in bioretention mesocosms.
- Final QAPP for King County Hylebos BMP retrofit study and early flow sampling on the retrofitted pond and bioretention cells.
- Field sampling and progress reports for King County Echo Lake Highway 99 retrofit study.

SIDIR

- Populated IDDE incident tracking database.

RSMP issues that need to be resolved or for which stakeholder input is desired

The laboratory analyzed stream sediment samples for flame retardants, resulting in an unexpected \$103,000 charge to the RSMP. This issue was to be discussed at Stormwater Work Group and Pooled Resources Oversight Committee meetings in January 2016. Fortunately there is ample contingency in the status and trends monitoring budget to absorb this cost without sacrificing other work.