

# Regional Stormwater Monitoring Program

## 2016 Annual Report

May 2017



This is the second annual report from the Washington State Department of Ecology (Ecology) on implementation of the Regional Stormwater Monitoring Program (RSMP). RSMP is a collaborative program funded by more than 90 Western Washington cities and counties, the ports of Seattle and Tacoma, and the Washington State Department of Transportation. Stakeholders set priorities and provide funding and leadership on RSMP projects through the Stormwater Work Group (SWG). Ecology's administration of the program includes managing revenue and expenditures, contracts, projects, and communication of findings.

### Who are we?

RSMP is a collaborative, regional stormwater monitoring program uniquely designed to give feedback on the municipal stormwater National Pollutant Discharge Elimination System (NPDES) permits in western Washington.

The goal of RSMP is to improve stormwater management to reduce pollution, improve water quality, and reduce flooding. We do this by measuring stormwater impacts on the environment and evaluating the effectiveness of stormwater management techniques.

All jurisdictions large and small can benefit from RSMP projects that are designed to produce regionally transferable findings. All permittees can implement RSMP findings to protect lakes, rivers, local streams, and Puget Sound.

### A new name!

The Association of Washington Cities was hired to develop a communication strategy. We've decided on a new name, **Stormwater Action Monitoring (SAM)**, to better reflect the program goals.

Look for new products in 2017.

RSMP has three broad strategic categories where monitoring is targeted to answer stormwater management questions.

### **Receiving water monitoring**

How do we know if water quality is getting better or worse? In 2016 a mussels sampling data analysis began. The 2015 Puget Lowland streams and marine nearshore sediment sampling occurred in summer 2016. Nearshore bacteria data compilation was conducted and resultant data analyzed.

### **Effectiveness studies**

How well are required or innovative stormwater management practices working? Ten first round studies were underway in 2016 including 3 retrofit studies, 5 Low Impact Development studies, 1 operation and maintenance study, and 1 source control study. A second round of studies was solicited and 10 full proposals were received in December 2016.

### **Source identification**

What are the common sources of illicit discharges? Permittees' information about their Illicit Discharge Detection and Elimination (IDDE) program responses and investigations in 2014 was compiled and analyzed. A revised draft IDDE incident report form was created.

### **RSMP Communications**

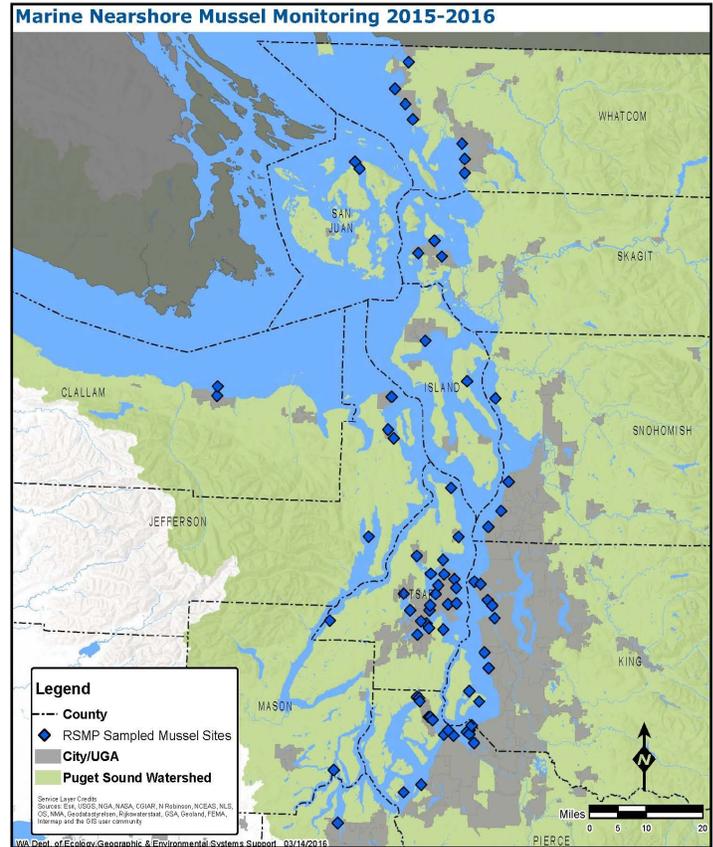
In early 2017 we will develop a communication strategy for RSMP, using the new SAM name, to share findings with stormwater managers, public works directors, agency managers, and city and county elected officials.



## Status & trends of receiving waters in Puget Sound

### Puget Sound Lowland Streams

King County, U.S. Geological Survey (USGS), and Ecology's Environmental Assessment Program (EAP) reviewed and analyzed the 2015 stream sampling data in 2016. Water and sediment chemistry data are in the Ecology EIM database. Benthos and periphyton taxa were received, and habitat metrics were generated. GIS analysis delineated watersheds draining to each site. Water quality index scores were calculated. Appropriate thresholds for comparing water and sediment quality and benthic index of biotic integrity (B-IBI) scores were identified. Comparison of conditions to explanatory variables and early findings were shared and discussed. A final report and with recommendations are expected by fall 2017.



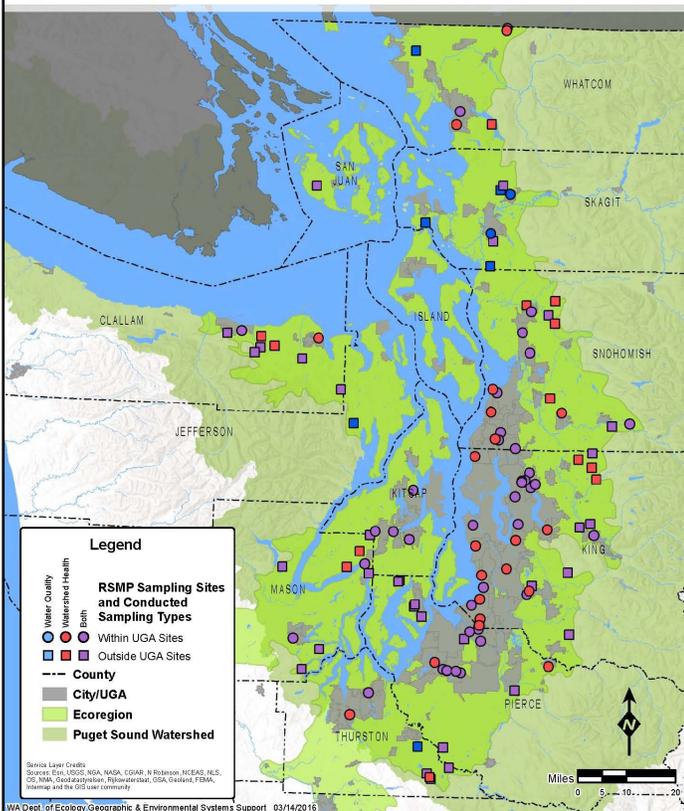
### Marine nearshore mussels

Mussel cages were retrieved by Washington Department of Fish and Wildlife (WDFW) in February 2016 at 38 of 40 RSMP sites and 33 externally sponsored sites. Cages at two RSMP sites were lost to storms. WDFW assessed mussel condition and mortality. National Oceanographic and Atmospheric Administration and King County labs tested tissue for metals and organic pollutants. WDFW is analyzing the results. A final report is due in spring 2017 and a second year of mussel sampling will begin in the fall.

### Marine nearshore sediment chemistry

USGS completed the Quality Assurance Project Plan (QAPP). USGS, Washington Department of Natural Resources, and King County conducted the sediment sampling at 43 sites during the summer and fall. Field data were delivered. Lab data are expected in early 2017 with a report to follow later that year.

Puget Sound Lowland Small Stream Sites, 2015



### Marine nearshore bacteria data analysis

EAP compiled existing bacteria indicator data from 27 of 78 contacted entities along permittees' Urban Growth Area (UGA) shoreline boundaries. The report will be published in early 2017.

## Effectiveness studies

Ten projects were active in 2016. Six projects that were contracted in 2015 continued progress in 2016; one was completed. Four more studies were contracted and began work in 2016. Several contract amendments were needed as the projects progressed to further phases. The scopes of work, amendments, and expected and approved deliverables are posted on the RSMP website.

### Study highlights from 2016

#### Bioretention facilities

- Hydrologic performance monitoring began at ten bioretention installations; a final report is expected in late 2017 (City of Bellingham).
- A draft literature review was completed for bioretention monitoring metrics (City of Puyallup).

#### Bioretention soil mixes

(U.S. Fish and Wildlife Service and Washington State University)

- A completed study shows filtering highway runoff through the “60/40” soil mix removes toxicity to Coho salmon adults and embryos.
- Pollutant removal by “60/40” soil mix with fungal amendments is being assessed.
- The soil mix is also being assessed for polychlorinated biphenyl (PCB) treatment. (King County)

#### Retrofits

- Monitoring is underway at sites in three urban retrofit “application watersheds,” two “references,” and two “controls.” It will continue through 2017 and beyond (City of Redmond).
- Highway stormwater retrofits along Echo Lake were monitored (King County).
- A regional stormwater facility retrofit project was monitored (King County).

#### Source Control (City of Lakewood)

The surveys of business inspection programs were conducted and data compilation and analysis are underway. The report is expected in 2017.

#### Operation and maintenance (King County)

A QAPP and draft survey was completed to assess catch basin inspection effectiveness. The survey will go out in early 2017 and the analysis and report will be done in 2018.

### More effectiveness studies are coming in 2017

Remaining RSMP effectiveness study funds will be allocated to new studies to be selected in 2017. New study proposal ideas were solicited in May 2016. Twenty one letters of intent were evaluated and resulted in ten final proposals in December 2016. In early 2017, Ecology engineers and SWG members will review the proposals. After a workshop in April, permittees will vote on the studies and the SWG will decide which studies to begin.



### Source identification

The City of Lakewood’s contractor, with assistance from an Ecology intern, compiled and analyzed the IDDE incident tracking reports for 2014 that were submitted in the permittees’ March 2015 annual reports to Ecology. The draft report was shared in fall 2016 and included a summary of the most common problems and recommendations for future data reporting, collection, and analysis. The final report is expected in spring 2017.



## Stormwater Work Group

Permittees, as well as state and federal agencies, provide funding and leadership on RSMP projects through the Stormwater Work Group (SWG), a formal stakeholder group. Ecology serves as the administrative entity that manages RSMP funds and executes RSMP contracts. The Pooled Resources Oversight Committee (PRO-C), a subgroup of the SWG, oversees Ecology's administration of the RSMP projects and budget. Both the SWG and the PRO-C have formal charters and their members represent stakeholder groups. All meetings are open to the public. Agendas and summaries are posted at the SWG webpage.

## Program management

Ecology continued to invoice participants and manage permittees' funding contributions toward RSMP for the 2013-2018 permit cycle. The total budget amounts are: about \$3.5 million for status and trends monitoring in Puget Sound receiving waters; about \$6.5 million for effectiveness studies and \$600,000 for source identification.

Since inception of the RSMP in March of 2014, a total of \$8,044,000 was encumbered for RSMP projects. A total of \$2,786,700 was spent in 2016 via a total of 32 agreements.

Five percent of the total 2013-2018 RSMP budget, or \$530,760, is set aside to cover Ecology's costs administering the program. Ecology is committed to the success of RSMP and has contributed over \$675,000 since 2010 to launch and manage the program.

### Special accommodations

*If you need this publication in an alternative format, call Ecology at 360-407-7140. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.*

## Get information and get involved

All RSMP contracts, scopes of work, deliverables, quarterly budget reports, and annual reports are posted at Ecology's webpage <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/rsmp/rsmp.html>. A fact sheet for each project will be published after the scientific work is completed.

The Stormwater Work Group meets five times per year. The meeting schedule and additional information are posted at <http://www.ecy.wa.gov/programs/wq/psmonitoring/swworkgroup.html>.

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### RSMP is funded by:

**Cities:** Aberdeen, Algona, Anacortes, Arlington, Auburn, Bainbridge Island, Battle Ground, Bellevue, Bellingham, Black Diamond, Bonney Lake, Bothell, Bremerton, Brier, Buckley, Burien, Burlington, Camas, Centralia, Clyde Hill, Covington, Des Moines, DuPont, Duvall, Edgewood, Edmonds, Enumclaw, Everett, Federal Way, Ferndale, Fife, Fircrest, Gig Harbor, Granite Falls, Issaquah, Kelso, Kenmore, Kent, Kirkland, Lacey, Lake Forest Park, Lake Stevens, Lakewood, Longview, Lynnwood, Maple Valley, Marysville, Medina, Mercer Island, Mill Creek, Milton, Monroe, Mount Vernon, Mountlake Terrace, Mukilteo, Newcastle, Normandy Park, Oak Harbor, Olympia, Orting, Pacific, Port Angeles, Port Orchard, Poulsbo, Puyallup, Redmond, Renton, Sammamish, SeaTac, Seattle, Sedro-Woolley, Shoreline, Snohomish, Steilacoom, Sumner, Tacoma, Tukwila, Tumwater, University Place, Vancouver, Washougal, Woodinville. **Counties:** Clark, Cowlitz, King, Kitsap, Pierce, Skagit, Snohomish, Thurston, Whatcom. **Ports:** Tacoma and Seattle. **State:** Washington Department of Transportation, Washington Department of Ecology, Washington Department of Agriculture, Washington Department of Fish and Wildlife. **Federal:** United States Geological Survey. **Business:** Penn Cove Shellfish, Cedar Grove.