

Welcome to the SAM Priorities Workshop

Dana de Leon, City of Tacoma
SWG Chair
February 27, 2019





Stormwater Action Monitoring (SAM) is

Collaborative

Regional

Funded by permittees in Western Washington: 91 cities, towns, counties; 2 ports; WSDOT

Funded in-kind by Ecology, WSDA, USGS, Redmond, Penn Cove Shellfish, Cedar Grove, hundreds of mussel monitoring volunteers

SAM's goals:

To improve stormwater management, reduce pollution, improve water quality, and reduce flooding by measuring stormwater impacts on the environment and evaluating the effectiveness of stormwater management actions

Regulatory Context for SAM and How SAM Works

Karen Dinicola, SWG Project Manager
Ecology's Policy and Technical Lead Stormwater Adaptive Management
February 27, 2019



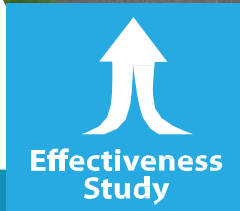
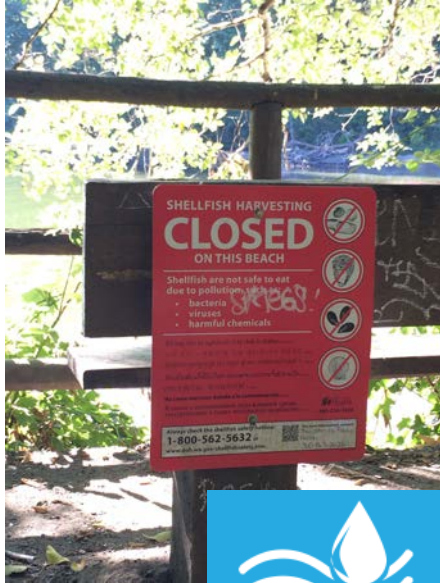
SAM is a new approach

- Replaces monitoring by individual MS4 permittees that was
 - Compliance focused
 - Complicated and expensive
- Permittees requested a different approach
- PCHB agreed
- Huge effort to launch and maintain



Investigations to answer key questions

- Are we protecting receiving waters?
- Are conditions getting better or worse?



- What works and under what conditions?
- How can we better address common problems?

So many things we might monitor...

Who gets to decide?

Habitat conditions
Hydrolog
Toxics, metals, nutrients
BMPS
Land uses, development practices
Bacteria, pathogens
SWAMP
Spills and illicit discharges
infrastructure
activities
CSO events
Road, parking
LAKES
Groundwater



Everyone gets to weigh in

- Stormwater Work Group is SAM's Steering Committee
 - Sets priorities
 - Sends recommendations to Ecology
 - Selects and approves studies
 - Formal oversight process



Permittees choose to either:

- Pay into the cost-share fund for SAM, or
- Conduct individual monitoring

Decisions about SAM's priorities and study selection take place *outside* of the permit

Annual SAM payments completely fulfill permit monitoring requirements in S8

Freedom from the shackles!

- 
- Diversity of topics
 - Mix of short- and long-term projects
 - No timeframes or ceilings
 - Many studies are longer, larger than typical grant projects
 - Multi-year studies can be done in phases
 - Share interim findings

Context for Next Rounds of SAM Effectiveness and Source ID Studies

Brandi Lubliner, SAM Coordinator
February 27, 2019



Context begins with review

- There was a lot of process from 2008-2014
- 170 ideas reduced to 22 topics
- Literature review on the 22 topics
- SWG meetings, workshops like today's
- Synthesis papers on top 6 ES topics
- SAM (then RSMP) launched in the permit
- Solicited 2 rounds of study proposals
- SWG has approved 17 ES studies and 4 SI projects
- Completed studies and SAM Fact Sheets




SAM
Stormwater Action Monitoring

Project Title
Business Inspection Stormwater Source Control & Maintenance Study

Lead Entity
City of Lakewood
Partner
Aspect Consulting LLC, Cadco Inc.

Study goals
This study looks were to compile and analyze data from permittees' business inspections to identify:

- Which types of businesses are inspected
- What best management practices (BMPs) are implemented
- What BMPs need improvement
- Which business types need follow-up to ensure they are properly implementing BMPs and
- Other factors that make stormwater source control inspections effective.

Stormwater management problem
Businesses with activities that can potentially cause stormwater pollution need to consider the time and effort, the use of stormwater source control and treatment BMPs. Some business sectors with high potential for pollution also have substantial employee turnover and seasonal staff. It can be hard to train or re-educate and maintenance of BMPs, resulting in potential runoff entering the stormwater system. Stormwater management costs effectively can differ for these businesses, presented either from their own investment choices, from the fact that they are not likely to be taxed, and the most needed and most available.

Project findings
The study gathered seven business stormwater management practices in western Washington. More than 47,000 inspection records were analyzed from 42 businesses. Categories of source control stormwater BMPs, and the other water features, the 27 types of businesses are the same as other commercial business categories. The most common business types inspected were:

- **Auto/boat** vehicle sales, repair, maintenance, transportation, and detailing
- **Food/bev** food stores, restaurants, food production, and hotels, and
- **Land usage** construction, recreation, and landscaping.

Inspection frequencies ranged from eight to 30 months. The auto/bev category had the most frequent inspections and it also had the most follow-up inspections. Except for auto/bev, inspection and reporting are the most frequent, covering 80 percent of all inspections, 90 percent of all follow-up inspections.

Other issues identified included:

- Many businesses types are not required to have inspections, and follow-up inspections are not required.
- Some businesses types are not required to have inspections, and follow-up inspections will have less impact on the follow-up for later to pursue BMP implementation or to pursue small environmental compliance.

2014 Source ID Topics → 3



- Analyze illicit discharge data
 - Use the data to set priorities for developing new approaches
- Source ID methods & priority
 - Build on Field Screening Manual
 - Create or update online library
- Analyze illicit discharge data
 - Phase I and II permittees' 2015 IDDE data analyzed
- Source ID methods & priority
 - Feasibility study for a regional spill hotline
 - Update and new field screening methods to the Illicit Control and Illicit Discharge manual
 - Risk based approach to business source control (needs a lead)

What has been learned?

- Illicit Discharge Detection and Elimination (IDDE)
 - In 2015 - Annual Report responses and Local Source Control data compiled
 - 2900 incidents from 78 western WA permittees
 - Most for vehicle spills and accidents
 - Response time fairly quick 1-3 days where reported
 - Recommendations to standardize reporting



Source ID methods & priority



- 2 Active Studies:
 - Feasibility of a regional spill hotline number
 - Survey going out soon
 - Updated IC/ID Manual
 - IC/ID = Illicit detection and illicit discharge
 - “how to” for field screening and new videos
 - Upcoming workshop to participate on March 4th
 - Risk based approach to business source control (not active, needs a lead)



2014 Effectiveness Topics → 6



- Source Control
 - Temporary erosion control
 - Businesses inspections
 - O&M
 - Pollution Prevention
 - BMP Retrofits
- Source Control
 - Small businesses inspection from permittee perspective
 - O&M
 - Catch basin inspection & cleaning
 - BMP Retrofits
 - Regional facility in Federal Way
 - Highway retrofit at Echo Lake
 - Multiple basins retrofit in Redmond
 - Oyster shell retrofit in catch basins

What are we learning about business inspection and catch basin cleaning effectiveness?



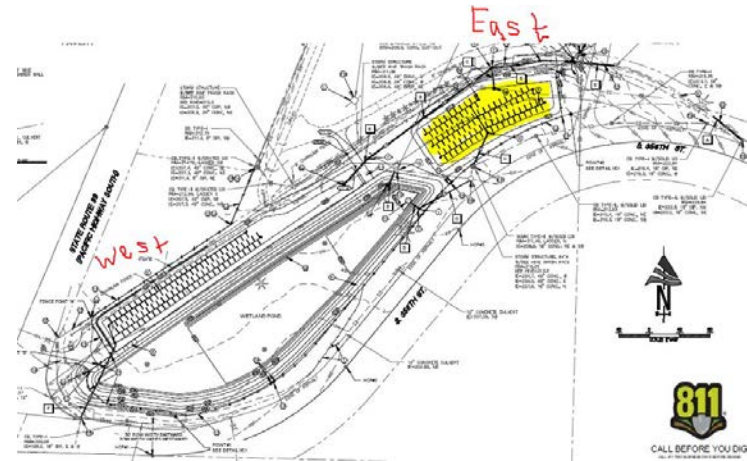
What was learned?

- Source control at businesses (47,000 inspection records categorized)
 - “Auto/boat” was most frequently inspected and most follow-up inspections
 - Recommendations for inspection prioritization and standardization of record keeping
- Catch basin cleaning & cost (8 of 28 jurisdictions data used)**report avail, SAM factsheet soon*
 - A smaller and incomplete database was built due to a lack of participation and quality records.
 - Recommendations for permittees to re-evaluate the alternative schedule option, and to transition to digital data management for cost efficiency.



4 SAM studies on Retrofit Effectiveness

- 3 completed studies
 - Redmond Paired Watershed Study – Getting Started
 - Stormwater treatment and flow control added to Hwy 99 at Echo Lake in Shoreline, WA.
 - Regional facility expanded for treatment and flow control in the NF Hylebos Creek headwaters in Federal Way, WA *report avail, SAM factsheet soon
- Active study
 - Adding oyster shell bags into catch basins for additional water conditioning and treatment.



What was learned?

- Some retrofit study findings:
 - Bioretention scales well tiny to large
 - But; extra depth for bioretention soil mix is good for organics treatment but bad for nutrient export
 - Check your inlets - curb cuts might be undersized and flow is getting into retrofit
 - Filterra and bioretention treatment are not the same for dissolved metals and phosphorus
 - Treatment trains work, but order is important when trying to limit nutrient export from bioretention
 - A longer timeline is needed to quantify receiving water benefits from retrofits

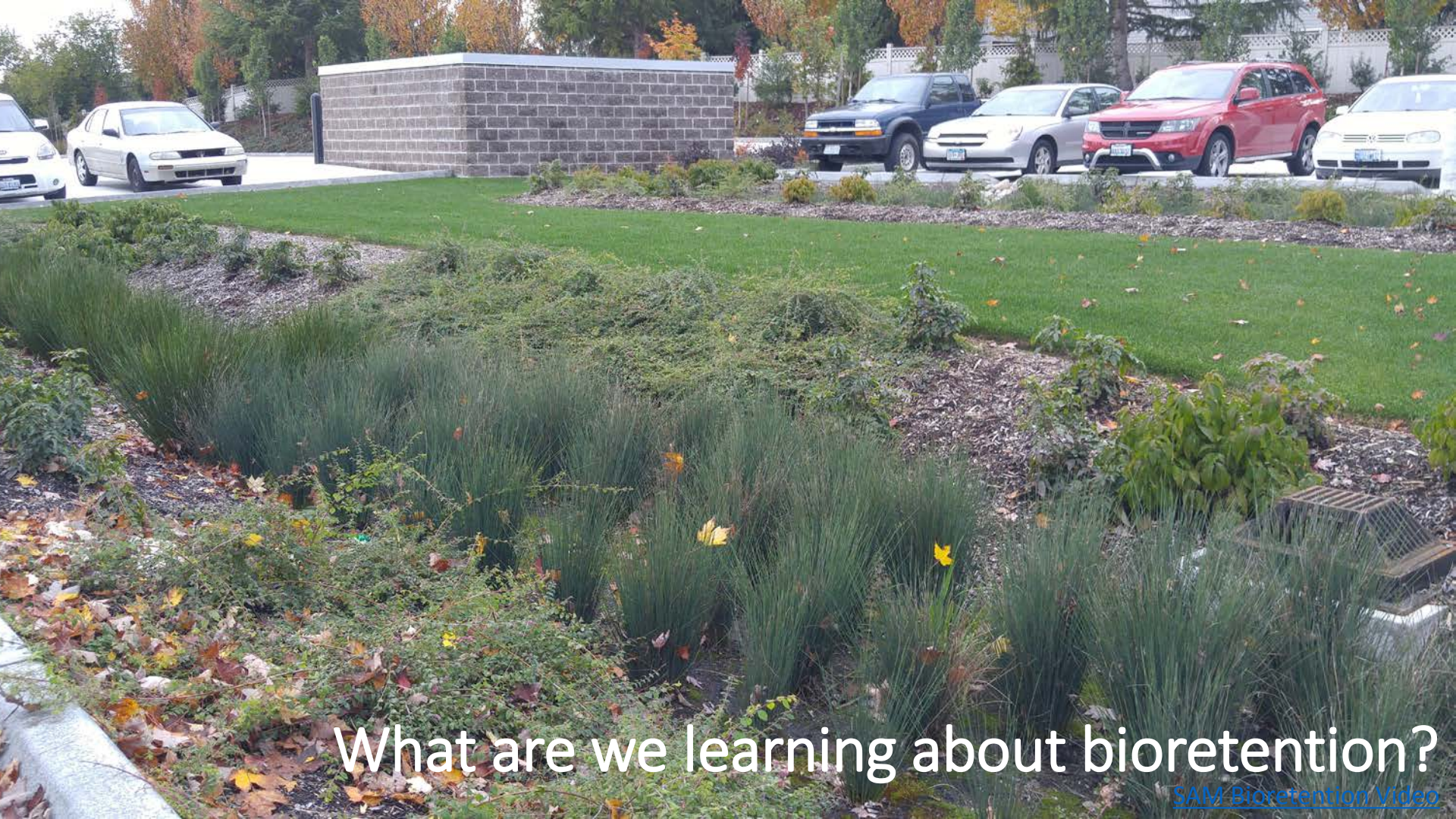


2014 Effectiveness Topics

→ 11



- Low Impact Development
 - Benefits to receiving waters
 - Long term performance
- Low Impact Development
 - Individual tree hydrology (1)
- Bioretention
 - Hydrologic performance (2)
 - Toxicity reduction and longevity of protection (2)
 - Amendments (fungi, mulch) (2)
 - Alternative soil blends (1)
 - PCB sequestration (1)
 - Assessment protocol for bioretention & raingarden function (1)
 - Orifice control for treatment (1)



What are we learning about bioretention?

How to recommend good study topics

Don McQuilliams, City of Bellevue
SWG Effectiveness Subgroup Chair

Melissa Ivancevich, City of Shoreline
SWG Source ID Subgroup Chair

February 27, 2019



What makes a good study or project?

- Answers a specific question
- Provides actionable information
 - For permittees to apply in their Stormwater Management Programs, and/or
 - For Ecology to apply in the stormwater manual or permits
- The necessary data are readily available or reasonable to collect
- Findings apply to region or other sites
- The timeframe is appropriate
- Can be a “white paper” or compilation/review of existing information





Table Discussion #1

Education and Outreach

20 minutes for this discussion



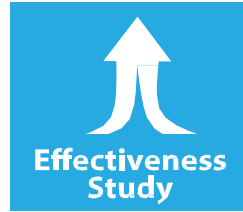


Table Discussion #2

LID, Structural BMPs, Retrofits

20 minutes for this discussion



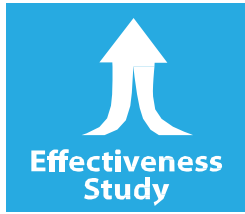


Table Discussion #3

Construction, O&M



20 minutes for this discussion



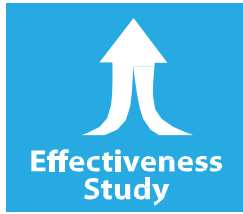


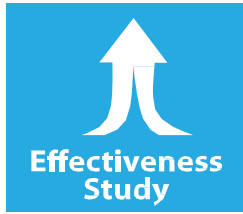
Table Discussion #4



Source Control, Source ID, IDDE

20 minutes for this discussion





Report out



What's Next?

- SWG will use feedback from today to compile a set of draft recommendations
 - Draft package will be completed at March 20 meeting
 - SWG Caucuses will discuss
- Final decisions at June 5 SWG meeting
- RFP in winter 2019-2020
 - More workshops to review proposals



More information

SWG webpages sites.google.com/site/pugetsoundstormwaterworkgroup

- SWG meeting dates, agendas, and materials
- SWG and SAM listserv signup links

SAM webpages ecology.wa.gov/SAM

- Final project reports and Fact Sheets for each finished project
- SAM annual reports and quarterly budget reports



Lunch Break

We'll resume at 1:00

