



Pooled Stormwater Monitoring

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Is stormwater management working?

Where, and why or why not?



Our pooled regional monitoring program



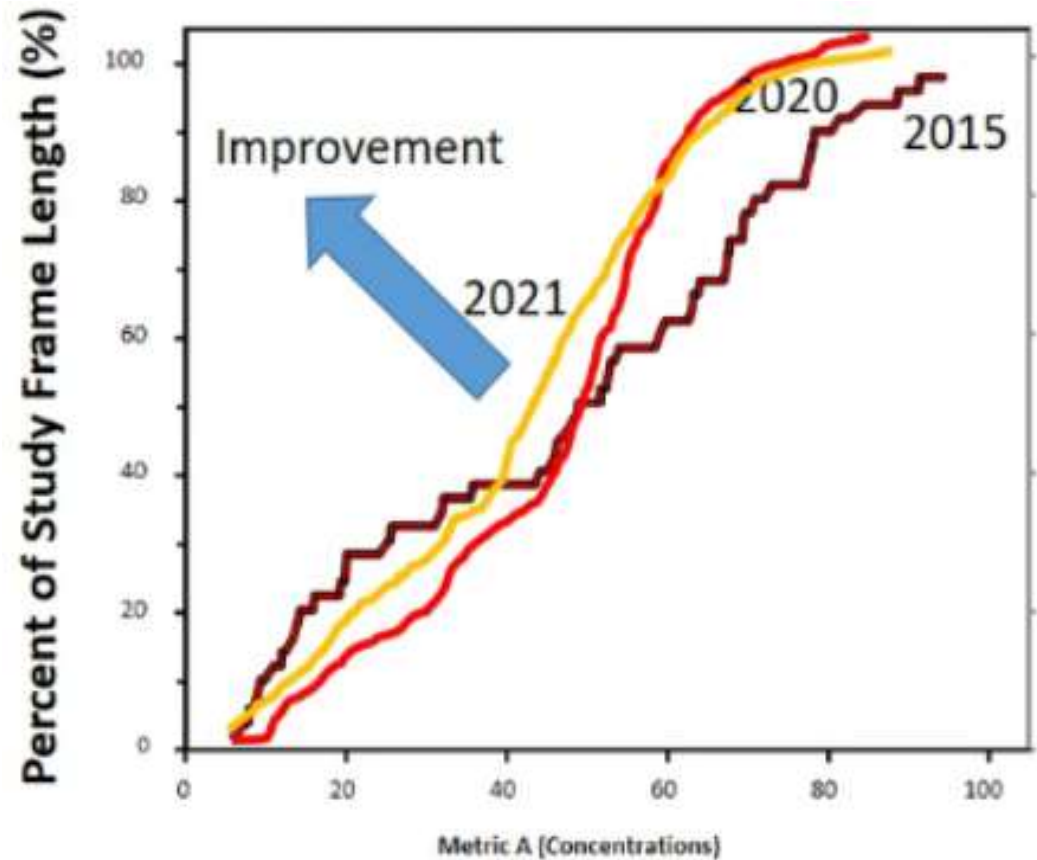
We are not monitoring everything, everywhere

Stakeholders determine the priorities



Regional trend assessment

- Look at regional patterns by parameter
- Compare from year to year
- Permittees can evaluate their local conditions in a regional context



Cumulative Distribution Function (CDF) plot

Example

14 studies completed since 2014

7 in progress, more in the pipeline

Wide range of topics

- LID, amendments, and retrofits
- O&M, E&O, IDDE

Why does this study matter?

What will we do with the findings?



Bioretention treatment of stormwater prevents toxicity

Well water (4 hr)



All 4 fish alive at 24 hr

Unfiltered stormwater (4 hr)



0 of 4 fish alive at 24 hr

Filtered stormwater (4 hr)



All 4 fish alive at 24 hr

Prevents acute mortality in spawners, juveniles, and alevin



What are we learning about 6PPD-quinone?

Multiple lines of inquiry

- Working with industry on 6PPD alternatives
- Developing accredited field and laboratory methods
- ✓ Identifying more stormwater best practices that remove the toxicity
- ✓ Working with stakeholders on priorities and funding to invest smartly
- ✓ Doing more research on fundamental questions: fate and transport, sub-lethal effects on multiple species



We've made it simple for the permittees

“It's so easy to just write a check!”



How does it work?

Permit monitoring condition

- Contribute to pooled funding accounts – amount calculated based on population
- or
- Conduct outfall monitoring for representative land use conditions according to a detailed boilerplate QAPP



Who participates?

All Western Washington Phase I and Phase II Permittees have “opted in” to SAM to meet their permit monitoring requirements

- 4 Phase I and 5 Phase II counties
- 2 Phase I and 82 Phase II cities
- 2 major ports

Washington State Dept. of Transportation

US Navy sites



Recap:

- Know your questions
- Invest in solid design to get useful answers
- Make it simple for the permittees



Questions?

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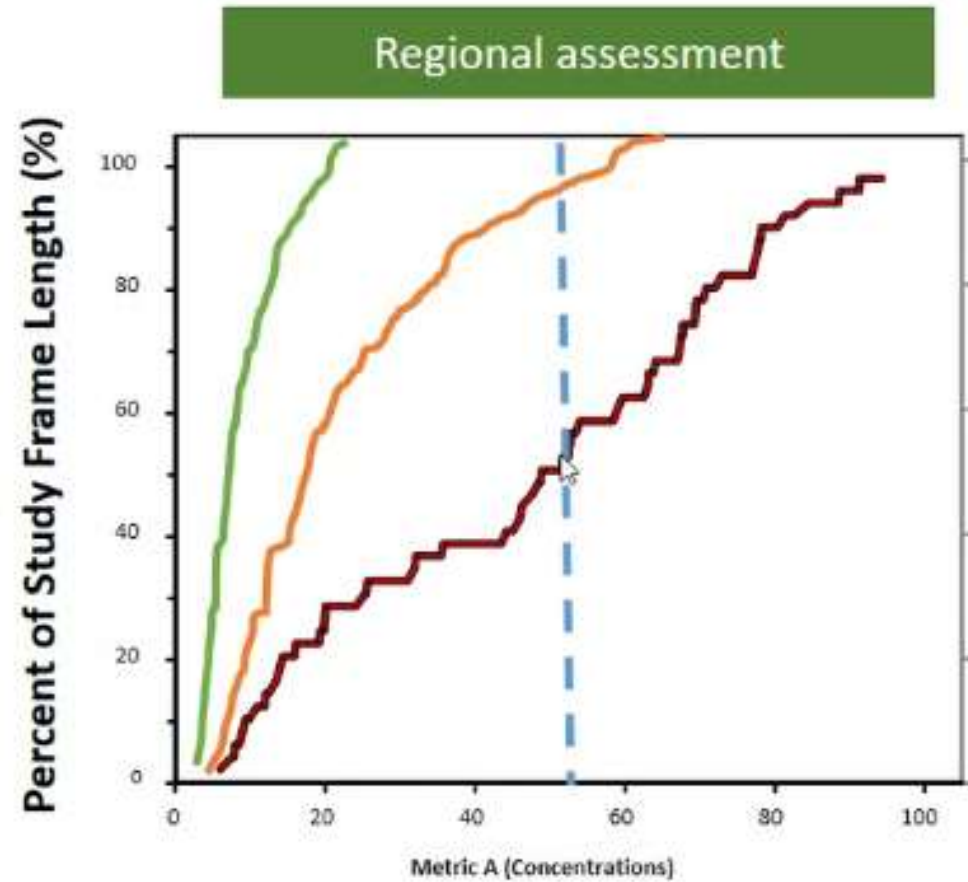
(360) 407-6550

ecology.wa.gov/SAM





Sites	One point length	Total Region
Total streams		6316 km
0-10	571 km	5142 km
10-20	51 km	461 km
20-40	57 km	514 km
40-100	33 km	199



Cumulative Distribution Function (CDF) plot