

RMP

2019 ANNUAL MEETING

STORMWATER SCIENCE UPDATE

Alicia Gilbreath



RMP
REGIONAL MONITORING
PROGRAM FOR WATER QUALITY
IN SAN FRANCISCO BAY

sfei.org/rmp

Stormwater Science Update

Old'ish' News

Reconnaissance Monitoring

New Stuff

Suspended Sediment Loads

Contaminants of Emerging Concern

Microplastics

Green Stormwater Infrastructure



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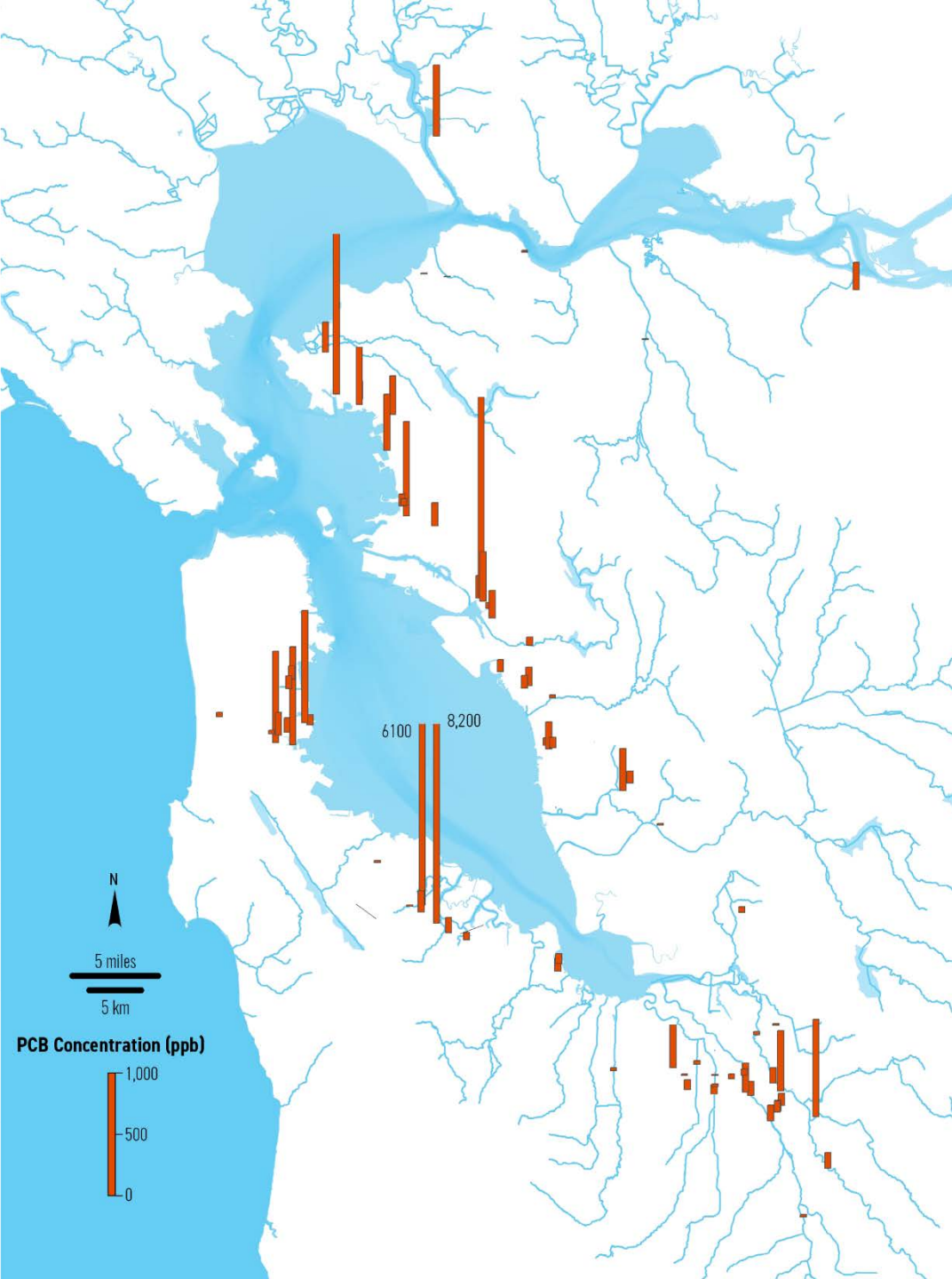
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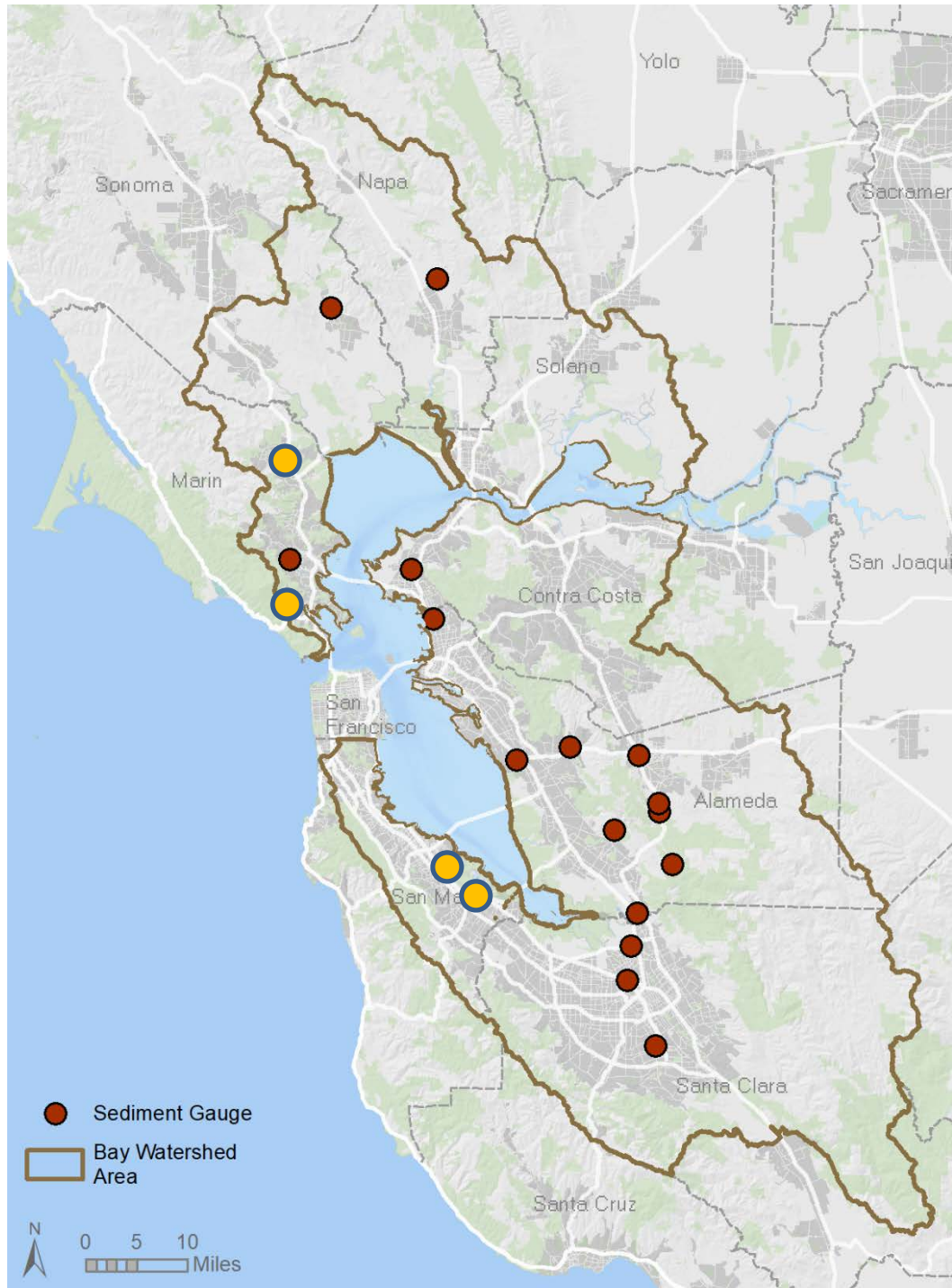
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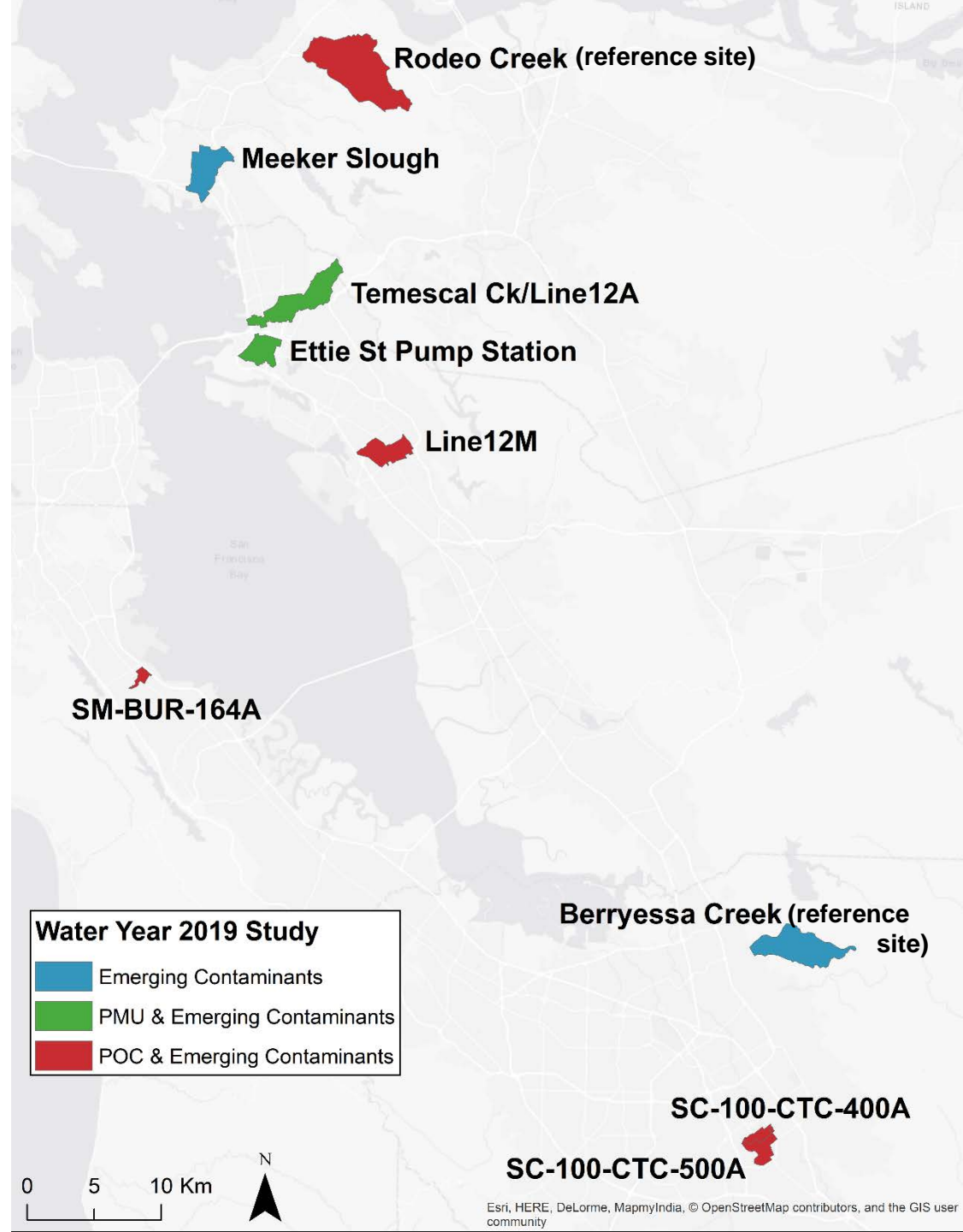
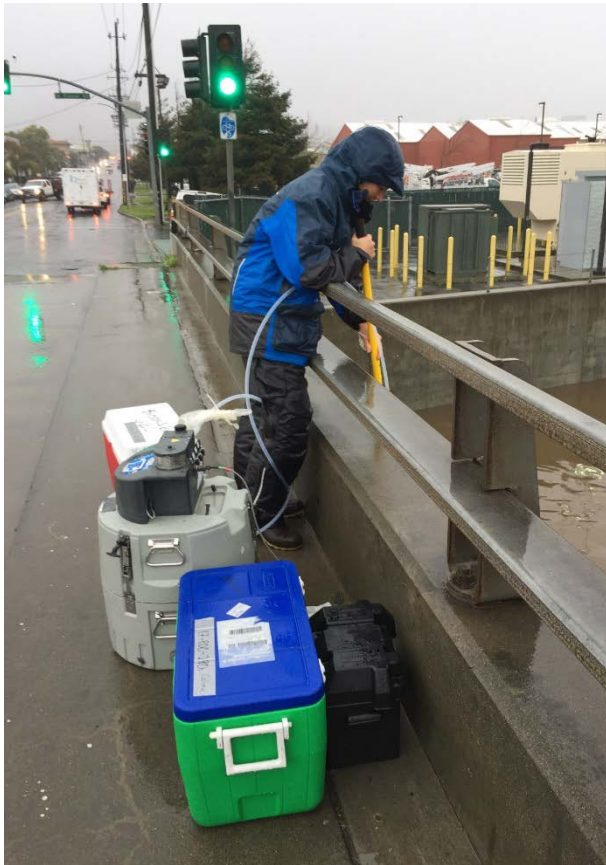
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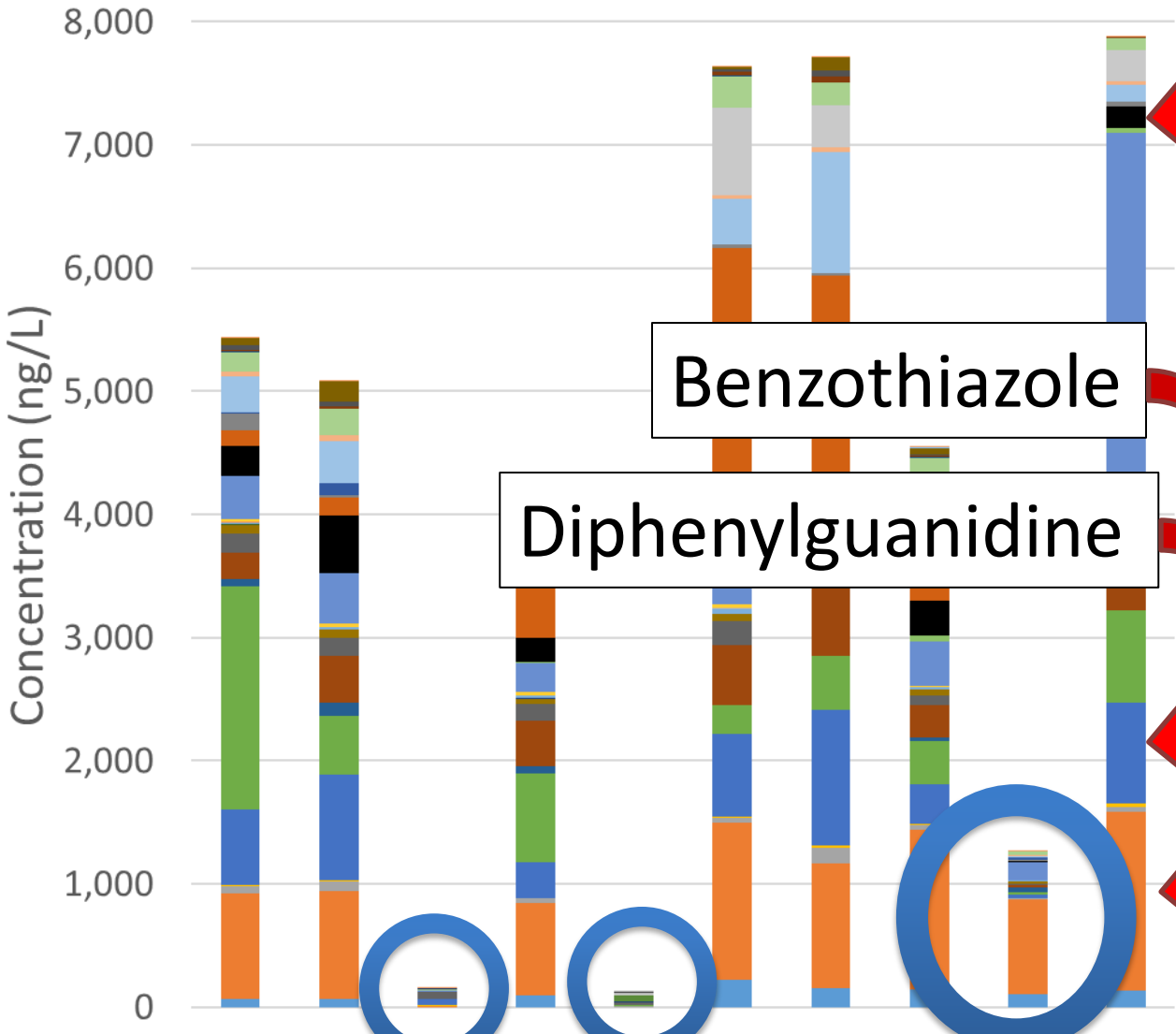
WY2019 CECs Sampling



Hexa(methoxymethyl)melamine



Ed Kolodziej
Univ. of Washington



Rebecca Sutton
SFEI

| October 10, 2019



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Coyote Creek

Photo credit: Save the Bay Blog

Microplastic contamination in the San Francisco Bay, California, USA

Rebecca Sutton ^a  , Sherri A. Mason ^b, Shavonne K. Stanek ^{a, 1}, Ellen Willis-Norton ^{a, 2}, Ian F. Wren ^c, Carolyn Box ^d



Microplastic detected in Bay
at levels higher than:

Great Lakes
Chesapeake Bay
Salish Sea

Microplastics Monitoring

Pollution Pathways

Bay Monitoring



Wastewater

Marine Monitoring & Science



Water

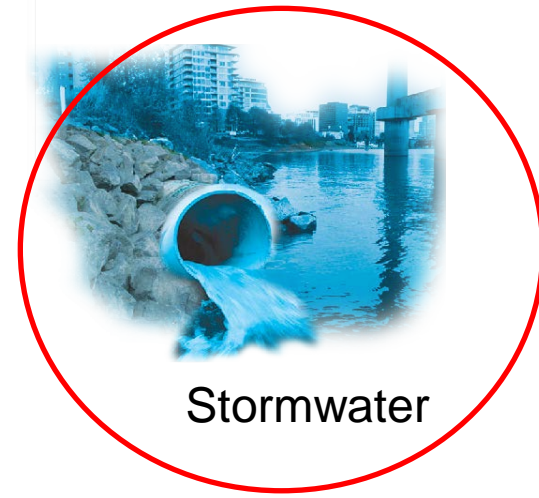


Fish

Transport Model



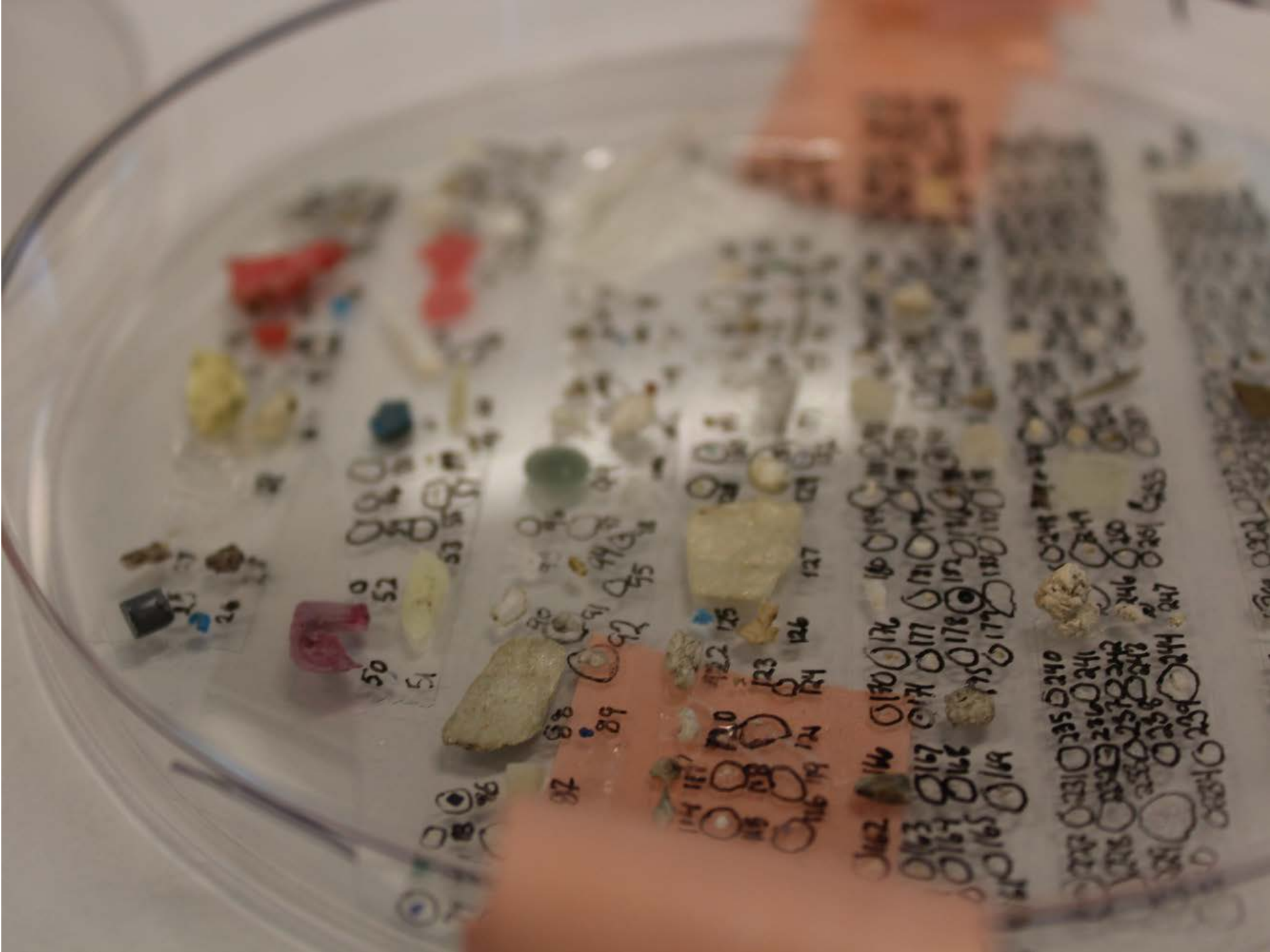
Sediment



Stormwater

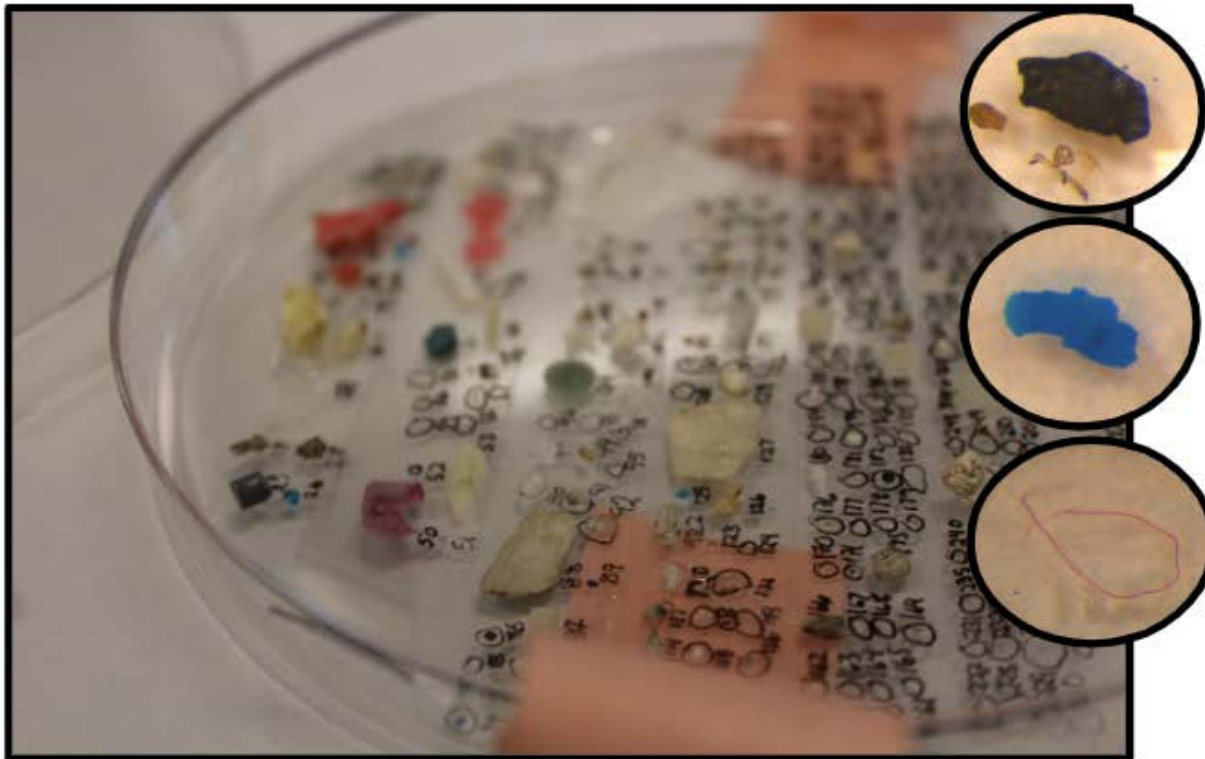
Microplastics Sampling Sites





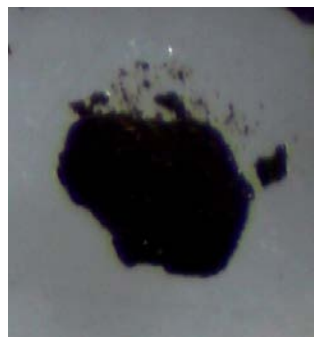
What are microparticles? Not all are microplastics

Sorted  Characterized
Microparticles

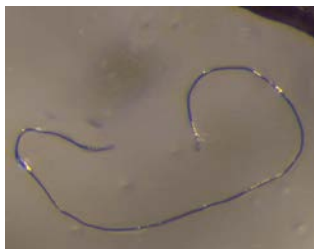


In stormwater:

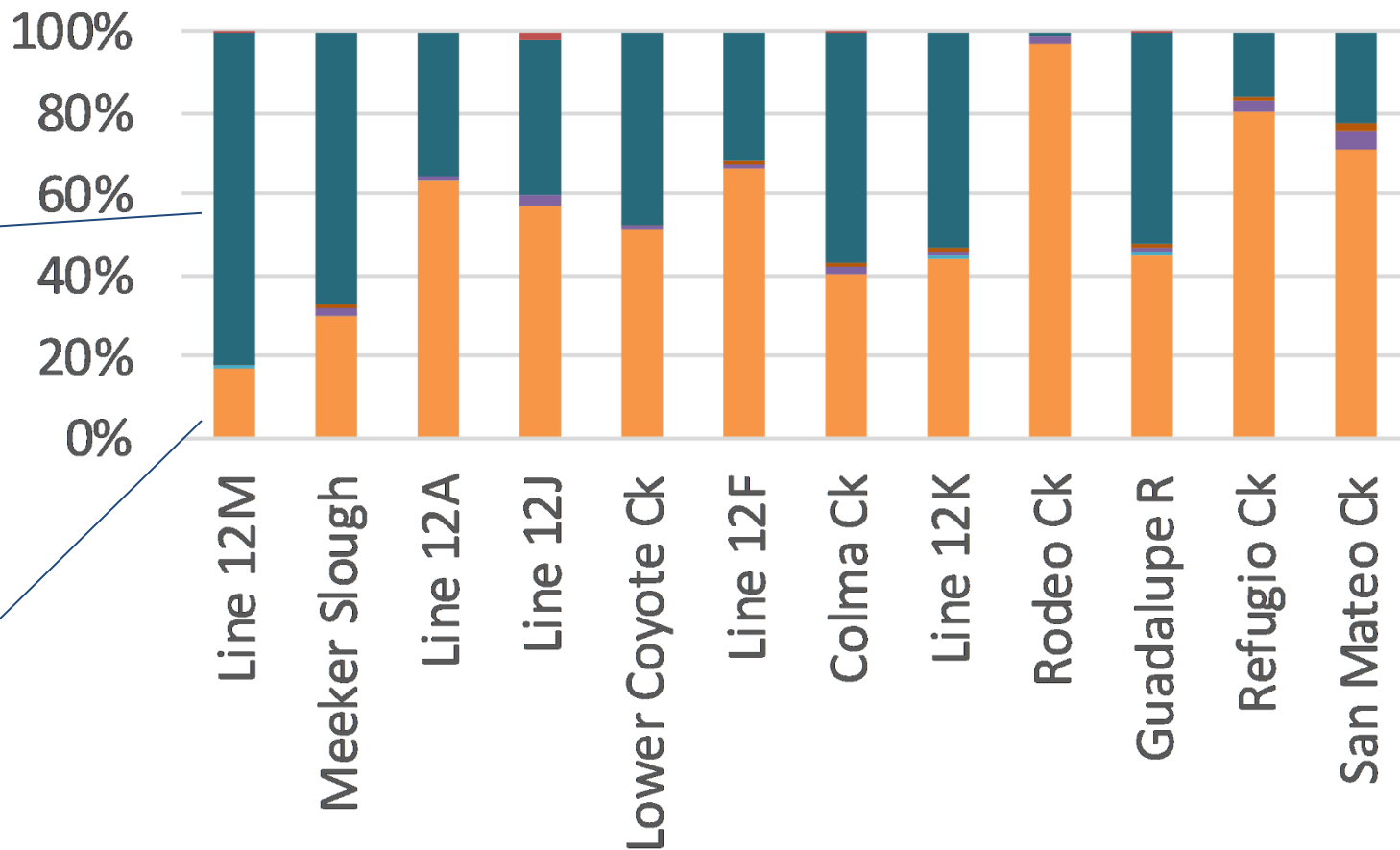
Fragments 59%, Fibers 39%



Fragment



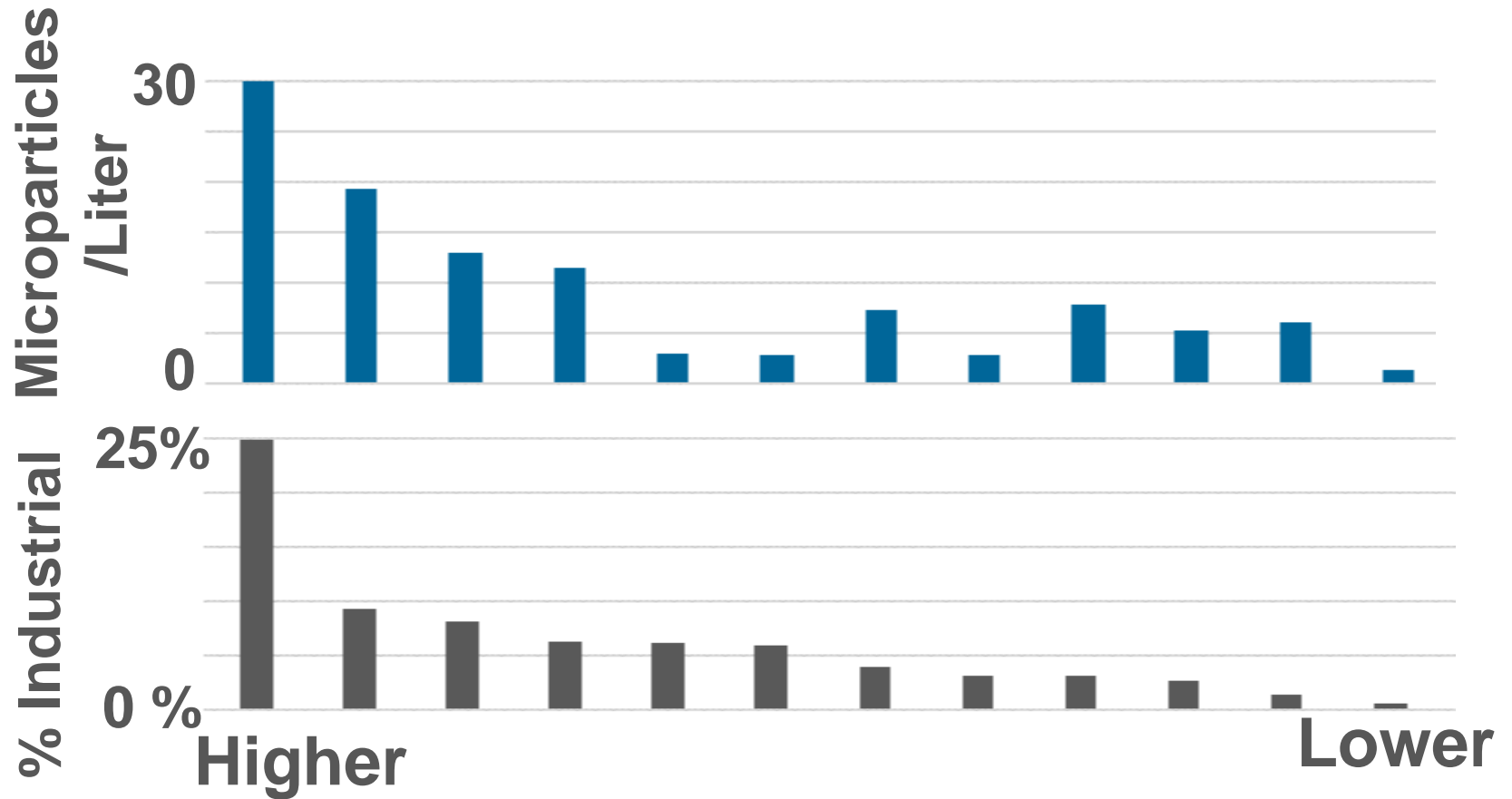
Fiber



Half of the particles found in stormwater are rubber-like fragments



Microparticle Abundance in Stormwater



Note to self:

...don't forget to caveat the loads estimate.



~11 trillion

microparticles to SF Bay annually

~7 trillion

microplastics to SF Bay annually

Stormwater load to Bay is ~300x
greater than wastewater load



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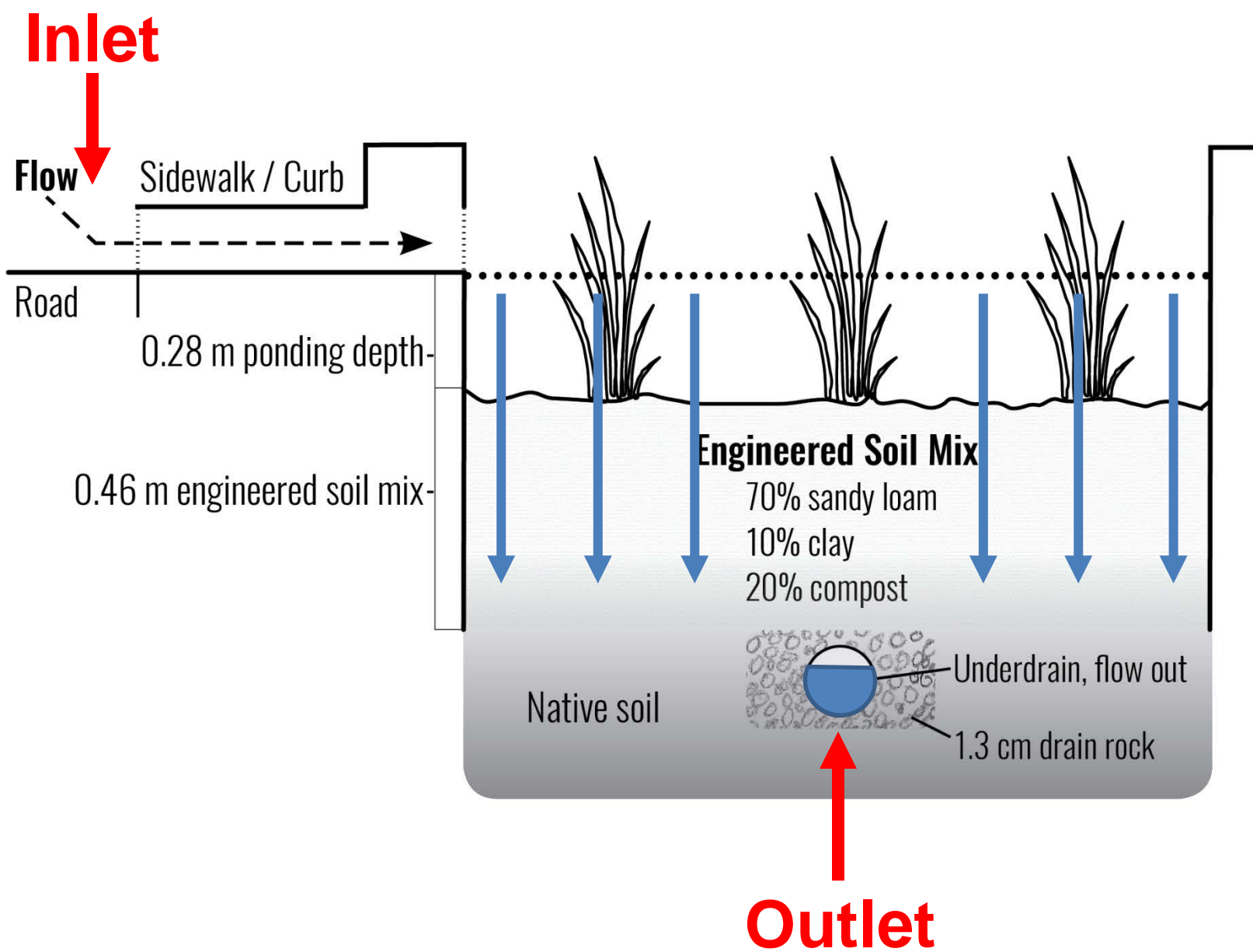
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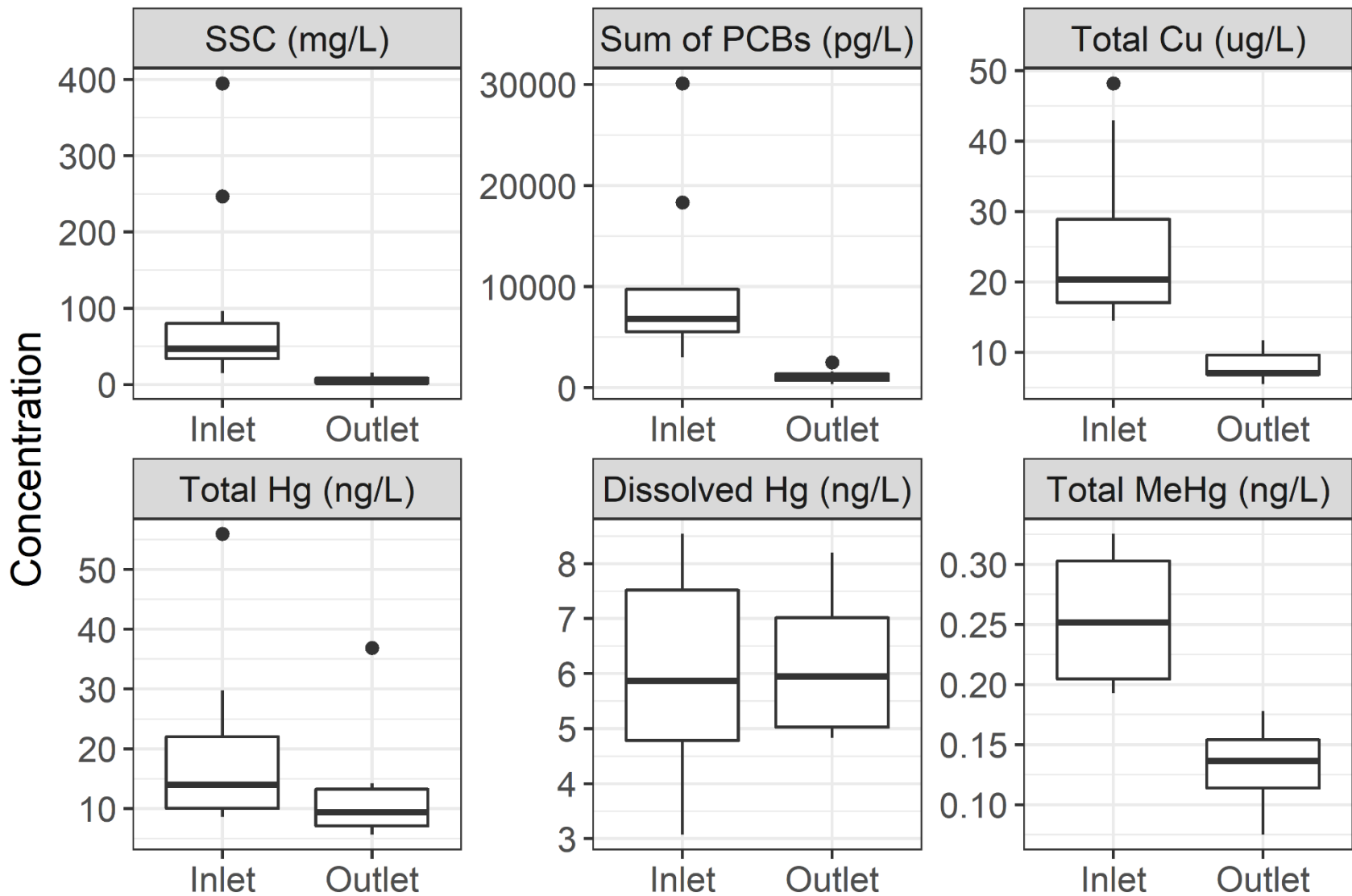
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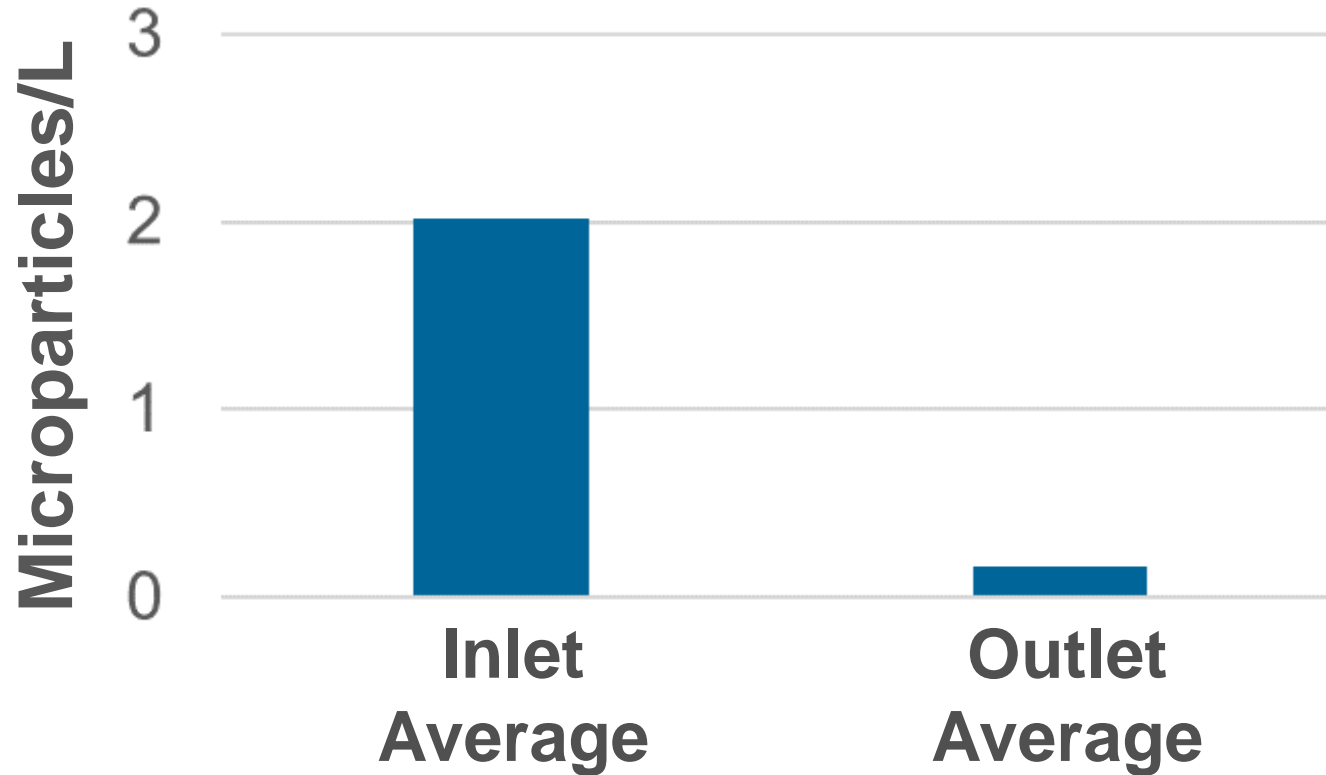








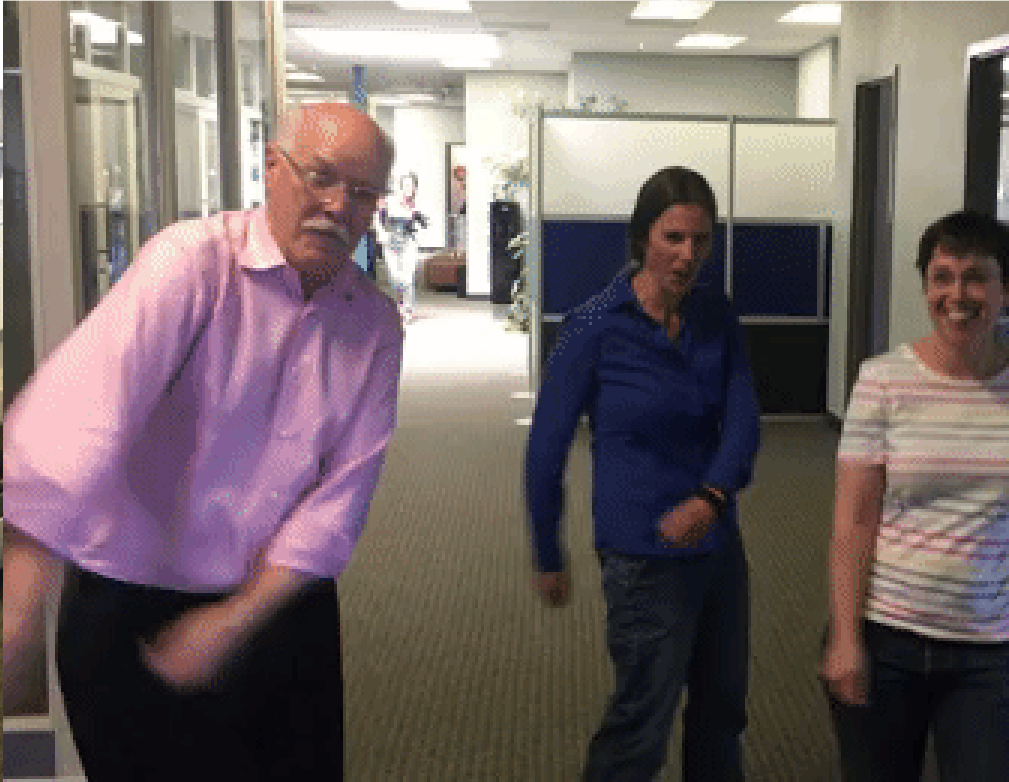
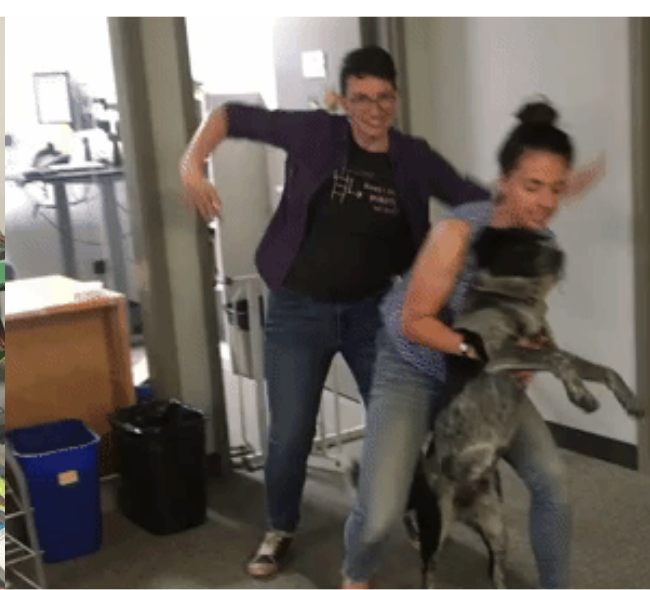
El Cerrito rain garden reduces microparticles by over 90%



Stormwater Science Update

Where are we headed?

An ask...
and a gratitude.





THANK YOU

Alicia Gilbreath: alicia@sfei.org