



**RMP**

REGIONAL MONITORING  
PROGRAM FOR WATER QUALITY  
IN SAN FRANCISCO BAY

[sfei.org/rmp](http://sfei.org/rmp)

# New Sediment Scan & Science Communication

Sierra Garcia, San Francisco Estuary Institute

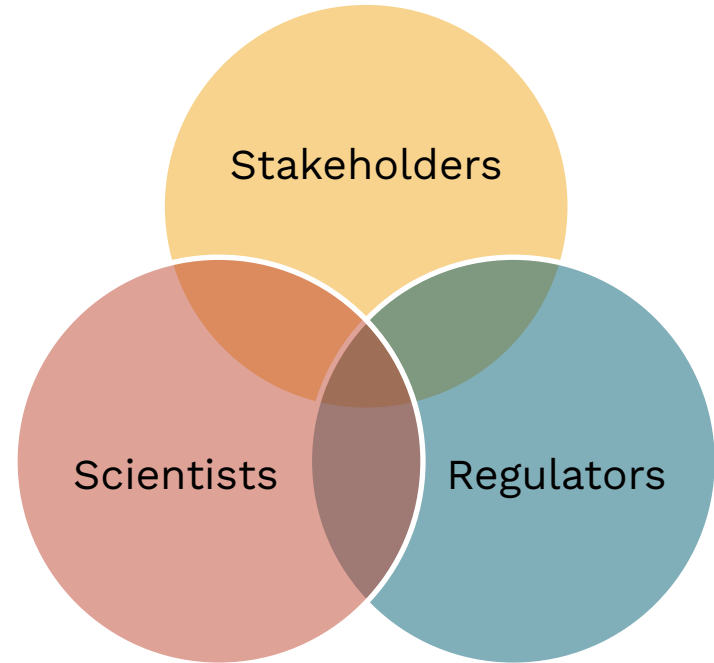
*San Francisco Bay is the ancestral homeland of many indigenous peoples, including the Ohlone, Patwin, and Coast and Bay Miwok.*



# Regional Monitoring Program for Water Quality in San Francisco Bay (RMP)



**SFEI**  
SAN FRANCISCO  
ESTUARY INSTITUTE



# The RMP's World-Class Monitoring

We sample both **legacy** and **emerging** contaminants in **many different** parts of the **environment**

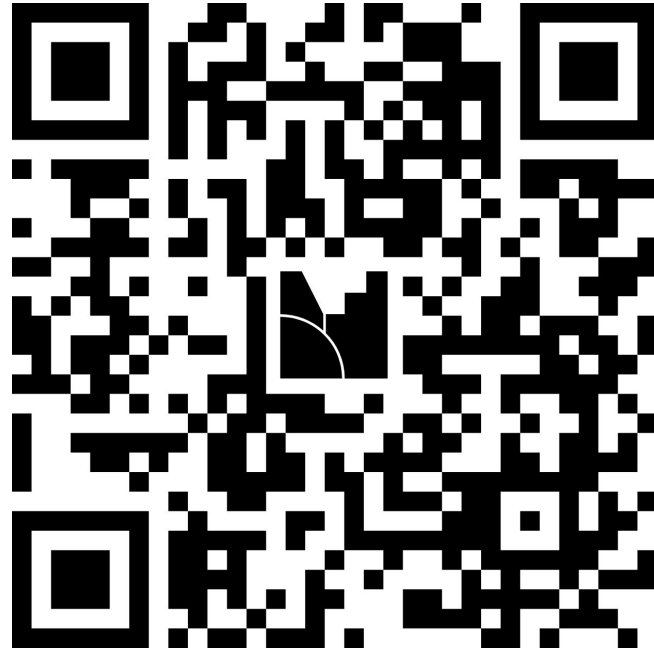




# RMP Communication



# Let's Warm Up By Hearing from You



[menti.com](https://www.menti.com)

Code: 2170 6332



# The *RMP Update*



Produced in odd years

Focus is RMP activities

RMP stakeholders are the audience

# Annual Meeting



In-person and virtual daylong event in October


Talks on latest water quality information

# RMP e-Updates

Were you forwarded this email? [Subscribe to quarterly RMP eUpdates.](#)

## NEWS

January 2025  
Fresh Funds for RMP from Tracking Bay Health Grant



Alex Braud

"Often our studies are constrained to the bare minimum because of funding...having additional funds through this EPA grant is

Quarterly newsletter

Links to general articles explaining findings, latest news, events, technical reports/studies, & more



[www.sfei.org/content/rmp-e-updates](http://www.sfei.org/content/rmp-e-updates)

# RMP Website

**SFEI** | San Francisco Estuary Institute

WHAT WE DO

PROJECTS & RESOURCES

ABOUT

DONATE



**Science for  
people and  
nature**

**San Francisco Estuary Institute**

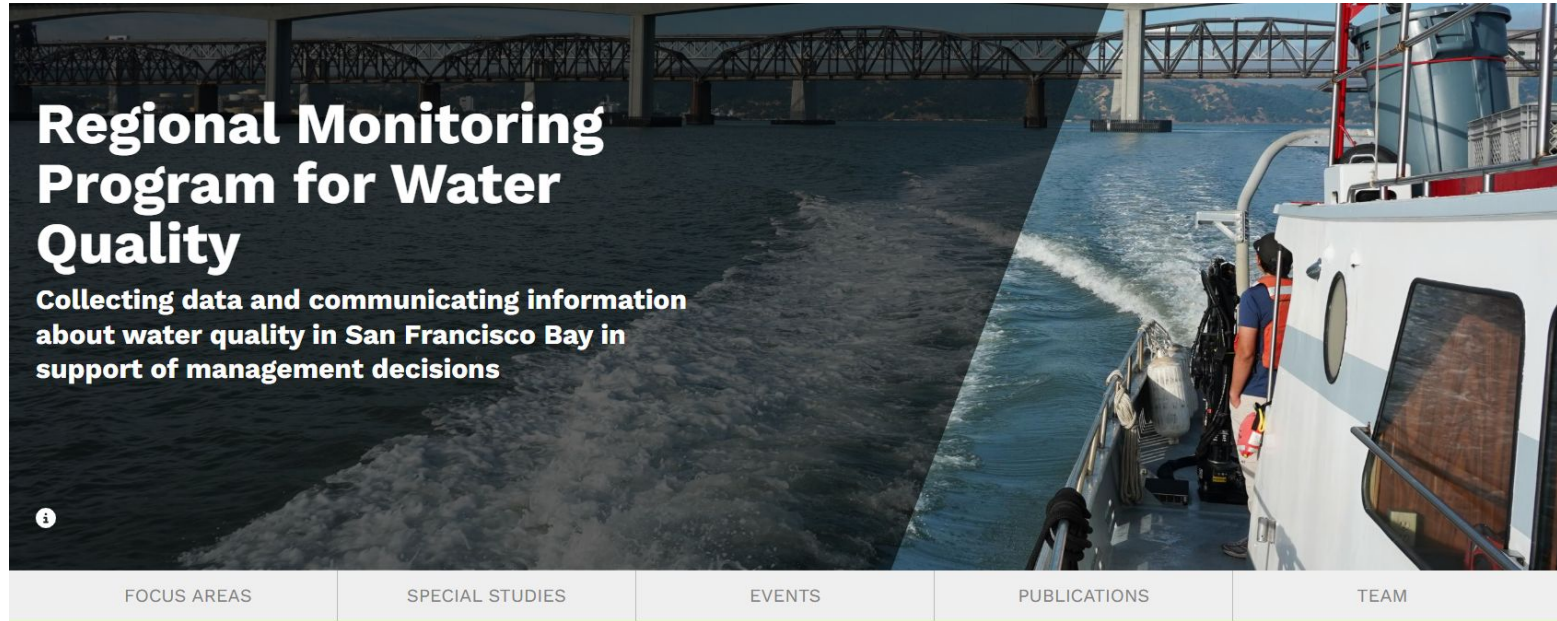
# RMP Website

**SFEI** San Francisco Estuary Institute

WHAT WE DO PROJECTS & RESOURCES ABOUT **DONATE** Q

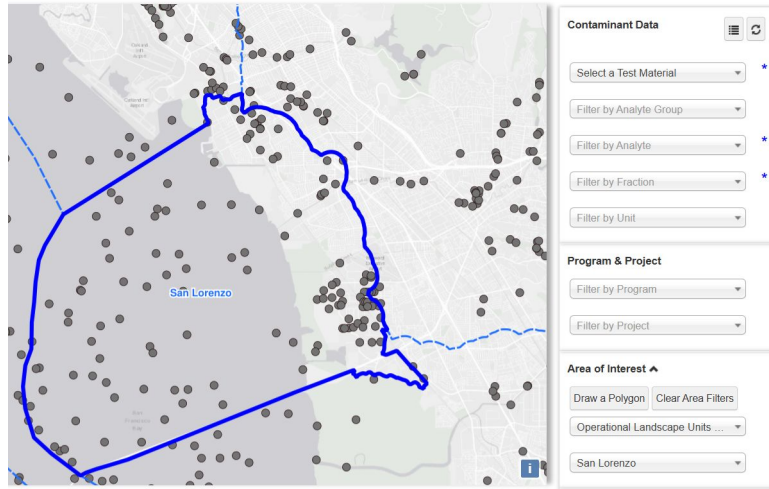
Clean Water	Environmental Informatics	Resilient Landscapes	Science Communications
PFAS, Forever Chemicals	Geographic Information Systems (GIS)	Baylands & Shoreline Resilience	Using Story To Reveal Scientific Findings
Microplastics	Data Services	Delta Landscapes	Visualizing Data To Support Decision-Making
Emerging Contaminants	Technology Architecture	Stream & Riparian Health	Providing Planning & Design Guidance
Contaminated Fish	Habitat Assessment & Monitoring Technology	Urban Nature Historical Ecology	Collaborative Design & Engagement
Nutrient Management Strategy	Software Engineering & Web Development	Ecosystem Carbon Sediment Science	
	Bay Regional Monitoring Program	Habitat Assessment & Monitoring	

# RMP Website



Houses lots of information (continuing to improve and build out)


# CD3



Dashboard and data portal aggregating nearly a million RMP records (and other records—almost 8 million total)

Undergoes regular improvements and updates

# Fact Sheets & Plain Language Summaries



**RMP** REGIONAL MONITORING PROGRAM FOR WATER QUALITY IN SAN FRANCISCO BAY  
(sfpl.org/rmp)

## New San Francisco Bay Contaminants Emerge

Non-targeted analysis shines a light on overlooked contaminants and pathways



San Francisco Bay water sampling sites (left to right, Napa River, San Leandro Bay, and Coyote Creek).

### HIGHLIGHTS

In 2016, the RMP launched a novel investigation to detect new or unexpected contaminants in Bay waters, as well as treated sewage (or wastewater) discharged to the Bay. This study used non-targeted analysis, a powerful tool that provides a broad, open-ended view of thousands of synthetic and naturally-derived chemicals simultaneously. We identified hundreds of contaminants, and the results have opened our eyes to urban stormwater runoff as an important pathway for emerging contaminants to enter the Bay.

- ▶ **Non-targeted analysis of Bay water and wastewater identified over 400 unique, water-soluble contaminants;** this analysis does not indicate whether contaminants are at levels of concern for aquatic life
- ▶ **Urban stormwater runoff is a major pathway to the Bay for contaminants** like ethoxylated surfactants, plastic additives, and compounds derived from tires and roadways
- ▶ **Treated wastewater is also a major contaminant pathway,** particularly for pharmaceuticals, personal care and cleaning products, plastic additives, and pesticides
- ▶ **Findings informed two new monitoring studies** to measure levels of ethoxylated surfactants and roadway-related contaminants and evaluate potential risk for the Bay

July 2020 • SFEI Contribution No. 931

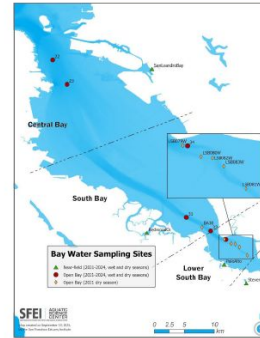


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## Plain Language Summary

### Emerging Contaminants in Dry vs. Wet Season Bay Water

Stormwater runoff carries many less commonly studied chemicals (also called "emerging contaminants") from urban areas to San Francisco Bay. The Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) compared water samples collected from the Bay directly after storms to samples collected during the dry summer to better understand 32 of these chemicals.



### Key Findings

- Some samples of the **car tire chemical 6PPD-Q** were above levels that might impact threatened steelhead trout and related species. The pesticide imidacloprid and the preservative carbendazim were also above levels set to protect wildlife in some samples.
- **Car tire chemicals and several pesticides were at higher levels in the wet season.** This confirms the key role of stormwater carrying these chemicals to the Bay.
- Several chemicals were high enough in the dry season to show that **another pathway, like wastewater, also contributes substantial amounts** of these chemicals to the Bay. These included industrial chemicals commonly used as antiozonants, personal care and cleaning products, pharmaceuticals, and carbendazim (a fungicide/preservative).

### Implications and Future Research Directions

6PPD-Q, imidacloprid, and carbendazim are in the RMP's **"moderate" concern tier** for monitoring. This study reinforces that ranking. Everything else sampled was

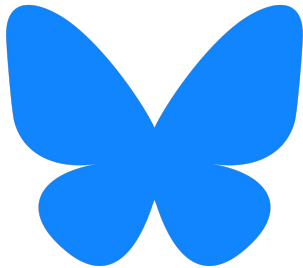
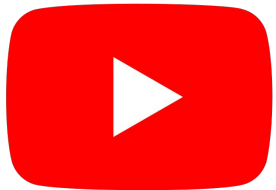
below levels of concern for Bay wildlife where enough hazard information is available to assess risk.

# Social Media



RMP uses SFEI's accounts

More than 5,000 followers  
across five platforms



LinkedIn is largest platform, but  
plan to expand and refine  
content on others this summer

# Works In Progress



Leveraging the 2024 *Pulse*

CECs mini-fact sheets

Summary slides  
stakeholders can draw  
on—please let me know if  
you'd like to view and give  
feedback on this!

# Coffee Chats for More Feedback



Opportunity to gain more insight than survey allows

\$10 courtesy for stakeholders (you!) who share thoughts on the RMP's communication in an informal conversation (virtual or in person)



Please reach out with  
questions and ideas!

[sierrag@sfei.org](mailto:sierrag@sfei.org)



# New Sediment Findings in SF Bay



# Anticipating the Next Silent Spring



Martin Pot

Reactionary  
monitoring



Anticipatory  
monitoring

# Challenging to look ahead



Robert  
Lowe

# Emerging Contaminants

Also called “contaminants of emerging concern” (CECs)

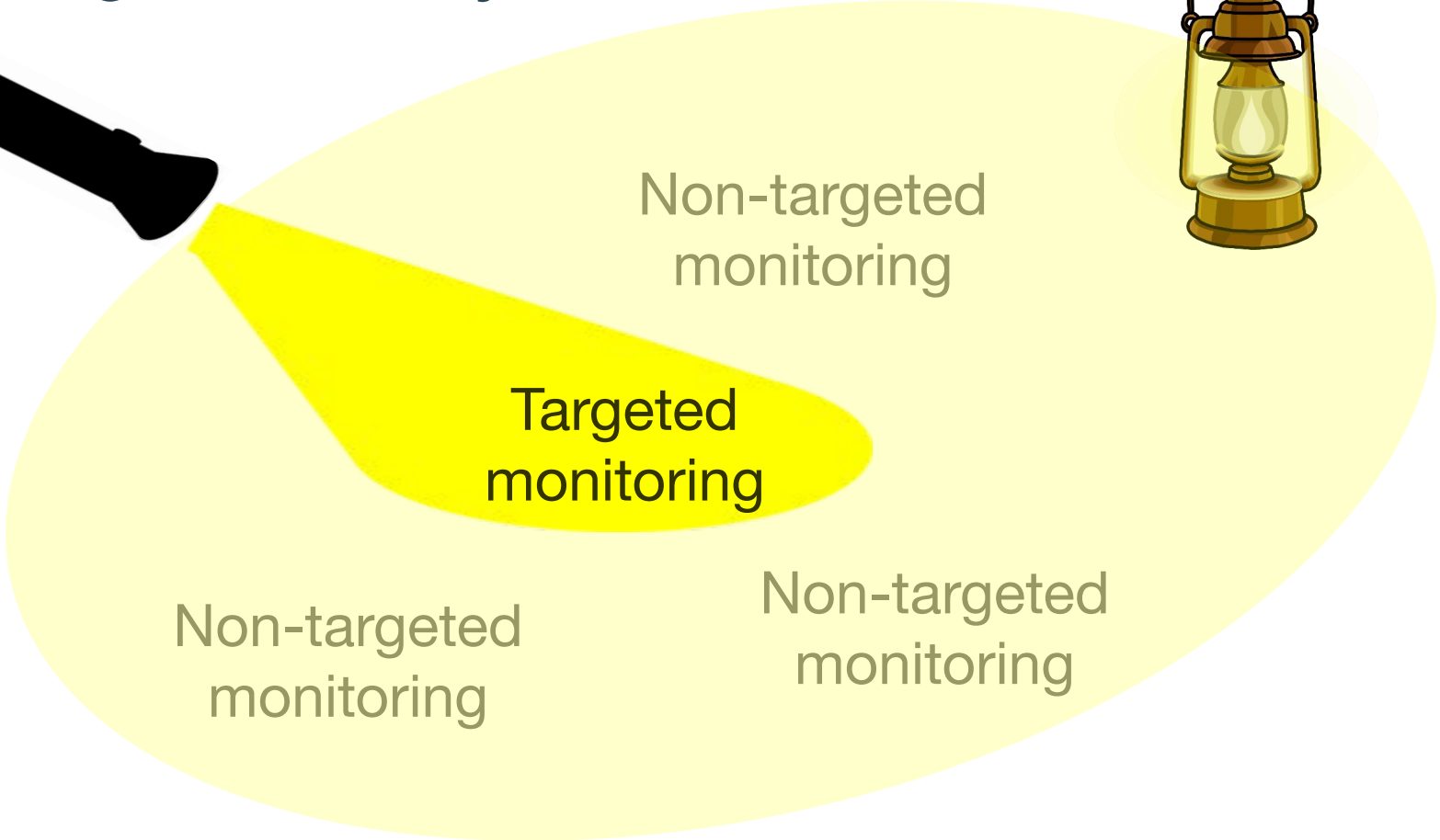
Unregulated or under-regulated

Can enter the environment and harm people and wildlife

Not typically monitored



# Non-targeted analysis



Non-targeted monitoring

Targeted monitoring

Non-targeted monitoring

Non-targeted monitoring

# Non-targeted analysis



**Can:** Help detect tens of thousands of chemicals

Give rough trends across samples

**Can't:** Find everything

Tell us exact concentrations

# The RMP's World-Class Monitoring

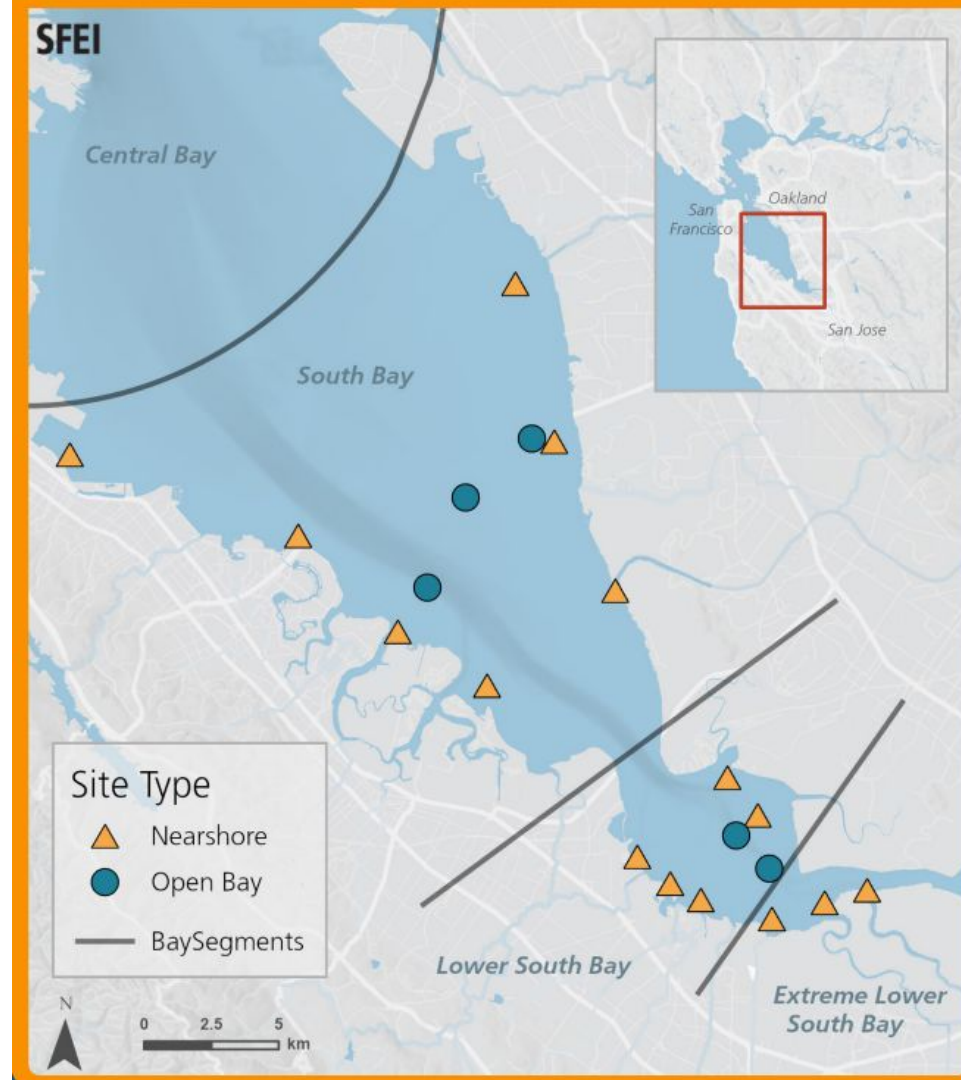
We sample both **legacy** and **emerging** contaminants in **many different** parts of the **environment**





# In 2018, we sampled sediment at 20 sites

Focused on South Bay and Lower South Bay



We processed the samples to find  
molecular “fingerprints”



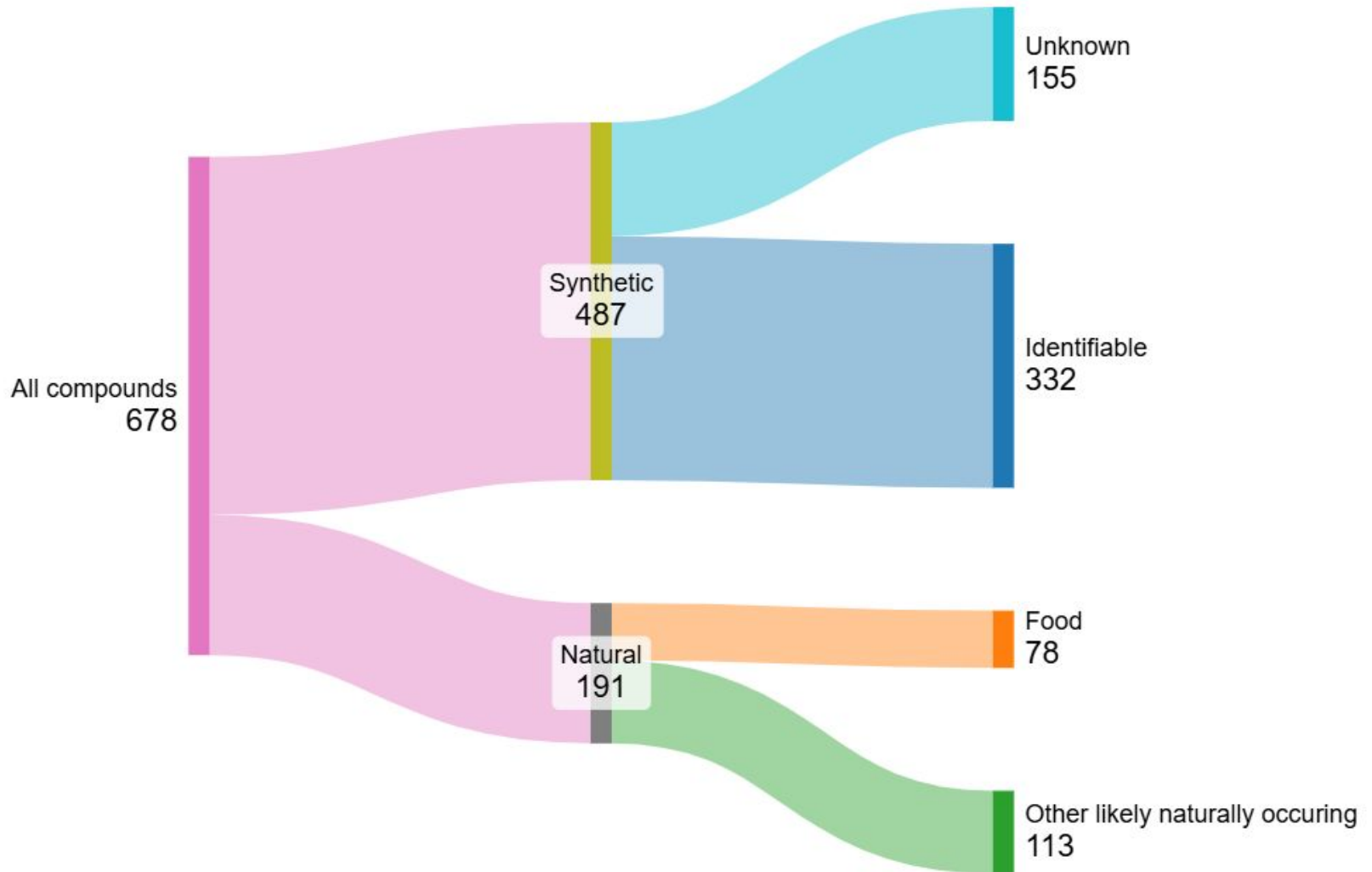
And detected almost 700 unique compounds

# To the (digital) library!



Our scientists combed through global chemical databases to find molecular matches

And found...



# Most chemicals we detected are in groups\* we already monitor

Tire & vehicle derived

Disinfectants

Preservatives

Pesticides

Combustion byproducts

Detergents

Personal care & cleaning product  
ingredients

Pharmaceuticals & drugs

Plastic additives

Flame retardants

& more

# Two new chemical groups of interest



**Synthetic Dyes** are in textiles and many other products

More than 10,000 in use today

Never been studied in SF Bay

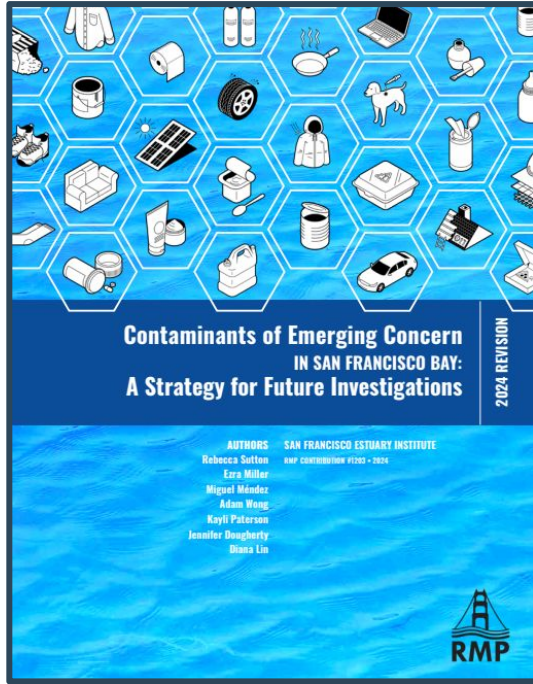
# Two new chemical groups of interest



**Siloxanes** have been widely used in many products since the 1940s

Suspected to enter the aquatic environment mainly through use and down-the-drain disposal of personal care products


# Results inform future monitoring



- Few surprises in sediment strengthens confidence in existing RMP monitoring
- Synthetic dyes and siloxanes could be studied further

<https://www.sfei.org/documents/contaminants-emerging-concern-san-francisco-bay-strategy-future-investigations-2024>

# Learn More



Sampling cruise (photo by Dara Beckett)

## Scanning Bay Sediment for Unexpected Contaminants

**OVERVIEW**  
In 2018, the Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) launched an innovative investigation to detect contaminants that were either new to Bay sediment or had previously gone undetected. This study used nontarget analysis, a powerful tool that provides a broad, open-ended view of thousands of synthetic and naturally derived chemicals simultaneously. A leader in using novel technologies to inform decision making, the RMP has explored Bay water quality with nontarget analysis for over two decades. However, sediment had been underexplored with nontarget analysis until this study.

- ▶ We detected over 680 unique compounds in Bay sediment using two complementary techniques. This analysis does not indicate whether contaminants are at levels of concern for aquatic life.
- ▶ Many detected compounds are members of chemical classes the RMP already studies. This suggests our current targeted monitoring is generally effective for protecting the Bay.
- ▶ Nonetheless, there were some newly identified priorities: siloxanes (found in many personal care products, medical applications, plastics, and other products) and dyes (used in textiles and paints).

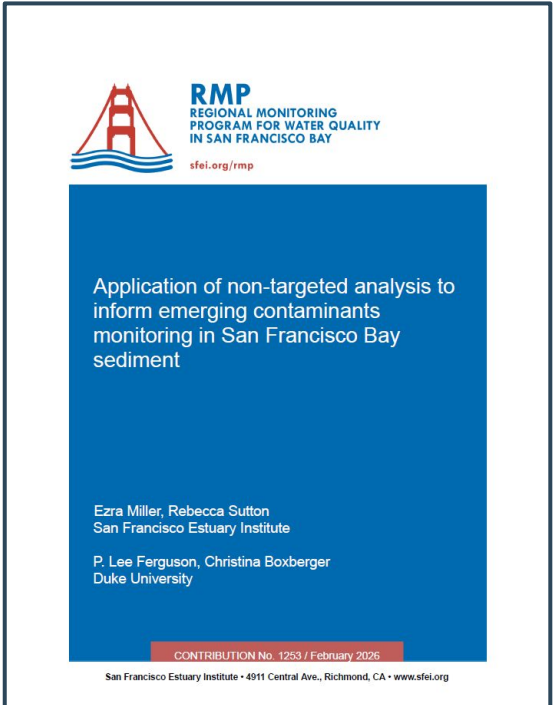
SFEI Contribution # 1158


<https://www.sfei.org/bibcite/reference/3553>

## Fact sheet



## Report



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[sfei.org/rmp](http://sfei.org/rmp)

### Application of non-targeted analysis to inform emerging contaminants monitoring in San Francisco Bay sediment

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CONTRIBUTION No. 1253 / February 2026

San Francisco Estuary Institute • 4911 Central Ave., Richmond, CA • [www.sfei.org](http://www.sfei.org)

<https://www.sfei.org/documents/application-non-targeted-analysis-inform-emerging-contaminants-monitoring-san-francisco>