Bay RMP Technical Review Committee Meeting

March 26, 2024

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1. Introductions and Review Agenda (10 minutes)

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- Decision: Approve meeting summary, set future meeting dates, confirm TRC chair (15 min)
- Information: SC meeting summary (10 min)
- Information: Wet season sampling update (15 min)
- Discussion: S&T Monitoring Update (15 min)
- Information: Meet the new watershed modeler (15 min)
- Information: Workgroup planning update (1 hr)
- Discussion: S&T and Program Management planning update (30 min)
- Discussion: 2023 Interlaboratory Comparison Study Results and QA Update (30 min)
- Information: Cu and CN 2021 data update (15 min)
- Discussion: Communications Update (30 min)
- Information: Status of Deliverables and Action Items (5 min)
- Discussion: Plan Agenda Items for Future Meetings (5 min)

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2. Decision: Approve Meeting Summary from TRC Meeting on 12/7/23, Review/Set Future Meeting Dates, and Confirm TRC Chair (15 minutes)

Meeting schedule

Scheduled Technical Review Committee meetings (usually 3rd or 4th Wednesday of the month):

- June 13, 2024
- September - TBD
- December - TBD

Scheduled Steering Committee meetings:

- April 15, 2024
- August 12, 2024

Annual Meeting:

- October 16, 2024

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3. Information: SC Meeting Summary from 1/22/24 (10 minutes)

Desired outcome: Informed Committee

SC Meeting Summary

- Information: RMP Financial Update for 2023 Quarter 4
- Information: Review the Status of Incomplete Projects from 2023 and Prior Years.
- Decision: Funding request to complete IWMM strategy project.
- Decision: Approve Final Multi-Year Plan and 2024 RMP Annual Workplan and Budget
- Decision: Review Current SEP Proposals List
- Discussion: EPA Program Office Update
- Information: Science Update - In-Bay Modeling of Sediment and Contaminants.

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4. Information: Wet Season Sampling Update (15 min)

Desired outcome:

- Informed Committee

5. Discussion: S&T Monitoring Update (15 minutes)

Desired outcomes:

- Informed Committee
- Input on future monitoring plans

Status & Trends 2024

- Toxic Contaminants in Water – Wet Season
- Toxic Contaminants in Cormorant Egg Tissue
- Toxic Contaminants in Sport Fish
- Toxic Contaminants in Harbor Seals

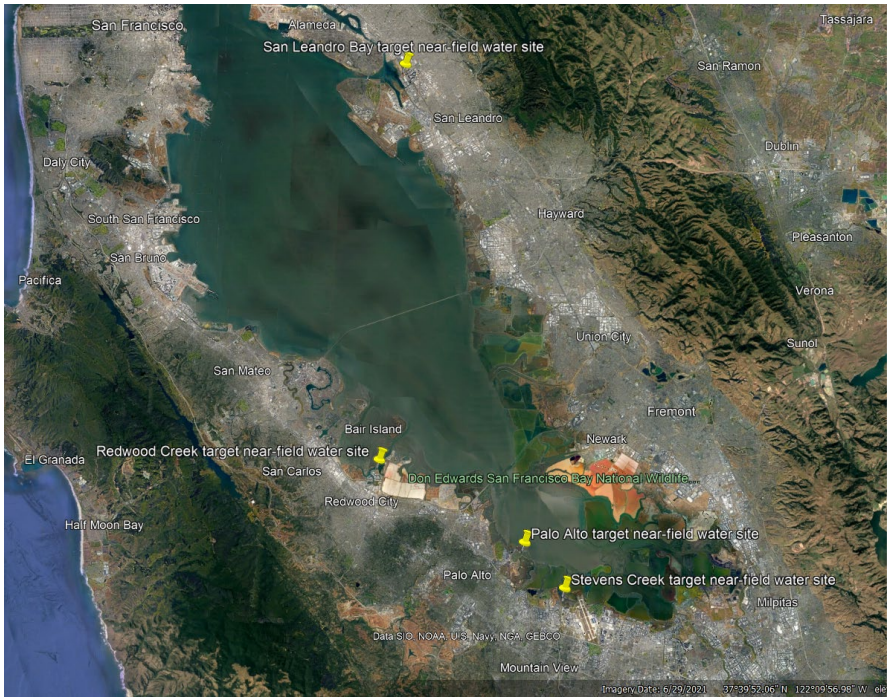
Timing of Activities

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Wet season water (SFEI)											dry season	
Bird Eggs (USGS)												
Sport Fish (ICF)												
Marine Mammals (MMC)												

Wet Weather Sampling - Near-field and Deep Bay

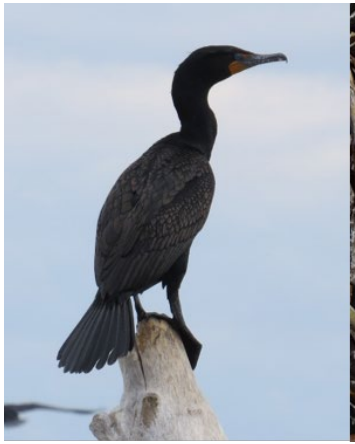
★ WY2024 S&T Near-Field Water Sampling and Analysis Plan - SFEI Contribution No. 1154

- ★ Sample following 2 storm events during the wet season and once in the dry season
- ★ 4 near-field stations and 4 deep Bay stations
- ★ PFAS, TOP, bisphenols, OPEs, stormwater CECs
- ★ Storm 1 sampled near-field 12/21/23 and deep Bay 1/11/24
- ★ Storm 2 sampled near-field 1/23/24 and deep Bay 2/1/24
- ★ All samples have been shipped to the labs for analysis
- ★ Dry season samples will be collected this summer



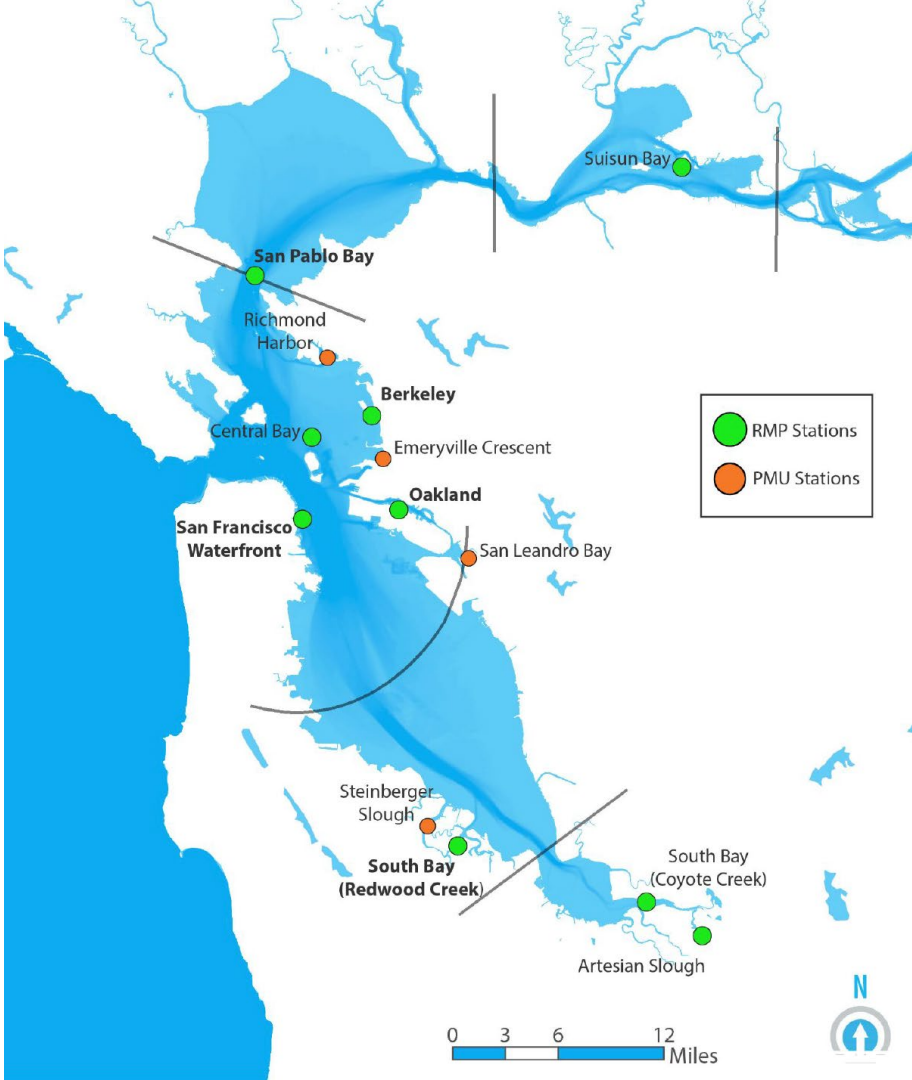
Toxic Contaminants in Bird Eggs

- ★ Double-crested Cormorants only
- ★ Samples will be collected by staff at the USGS-WERC - contract nearing finalization
- ★ Hg and Se (MLML)
- ★ PFAS, PCBs, PBDEs and legacy pesticides (SGS-AXYS)
- ★ Change from 2022: MLML will homogenize, sub-sample, composite and distribute samples in April 2025
- ★ Anticipate results of analyses to be reported to SFEI Summer 2025



Sport Fish

- ★ Sport Fish Strategy Team met on Dec 18
- ★ Key species: striped bass, shiner surfperch, white croaker, halibut
- ★ No white sturgeon this year
- ★ Fish will be collected by ICF
- ★ Hg and Se (MLML)
- ★ PFAS, PCBs, PBDEs and legacy pesticides (SGS-AXYS)
- ★ Expanded PFAS monitoring this round
- ★ Include PCB PMU sampling
- ★ Non-target analysis
- ★ Expanded archiving for CECs and microplastics
- ★ Coordinating with SWAMP Realignment



Toxic Contaminants in Marine Mammals

- ★ 2024 is year two of a two year special study
- ★ Goal: 10 harbor seals and 10 harbor porpoises
- ★ Animals recovered within the Bay are priority
- ★ PFAS analysis of liver and serum - SGS AXYS
- ★ Non target analysis (NTA) of liver and blubber - Crimmins lab (AEACS, Clarkson Univ.)
- ★ NTA of blubber - Hoh lab (SDSU)
- ★ Marine Mammal Center is collecting the samples
- ★ Deliverable: S&T study design recommendation
    - ○ June 2025.

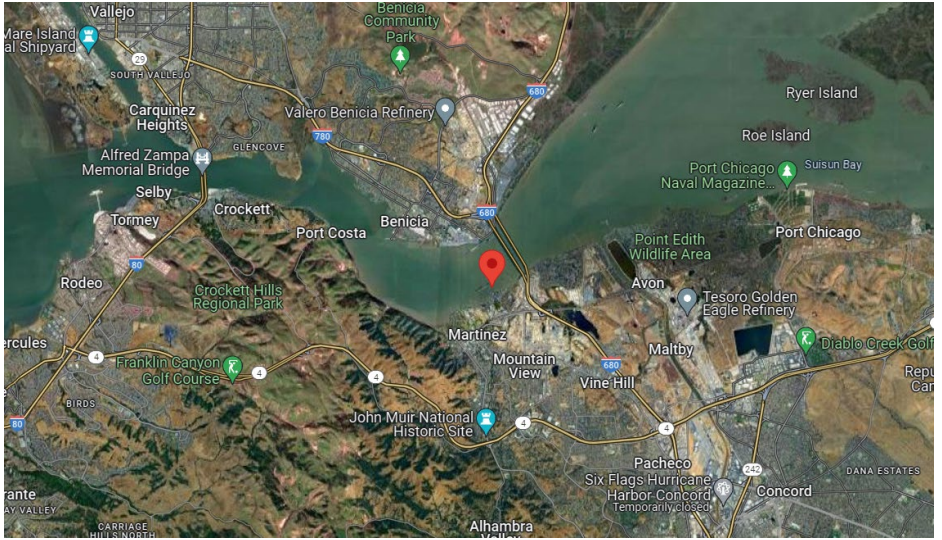
The Marine Mammal Center®

In 2023:

- ❖ Liver and Blubber samples from 3 harbor seals
- ❖ Serum samples from 6 harbor seals
- ❖ Zero harbor porpoises.

Selenium Impacts on Aquatic Life (non-RMP study)

- ★ Collect sturgeon muscle tissue samples from a minimum of 8 adults using non lethal sampling techniques
  - Mar/Apr 2024
- ★ Collect splittail filet from a minimum of 12 adults and egg-ovary tissue samples from a minimum of 6 fish
  - Nov/Dec 2024
- ★ Collect monthly water samples within 500 feet of Discharge Point 001
  - Starting March 27, 2024



Selenium Impacts on Aquatic Life (non-RMP study)

- ★ USGS to analyze fish tissue samples for total selenium in Summer 2024
- ★ Brooks Applied Labs will analyze the water samples for selenite (Se(IV)), selenate (Se (VI)), and total selenium after every 6 sampling events
- ★ Compare collected data to the muscle tissue and water column TMDL targets in Basin Plan Table 7.2.4-1
- ★ Evaluate splittail egg-ovary data with literature values.

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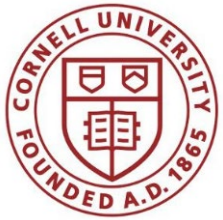
6. Information: Introducing Our New Watershed Modeler (15 minutes)

Desired outcome: Informed Committee

Introducing myself… Matt Héberger

Education

- 1996 BS in Agricultural and Biological Engineering, Cornell University
- 2003 MS in Civil and Environmental Engineering, Tufts University
- 2024 PhD in Earth Science, Sorbonne University



My MS thesis I created watershed models for bacteria loading on the Mystic River in MA

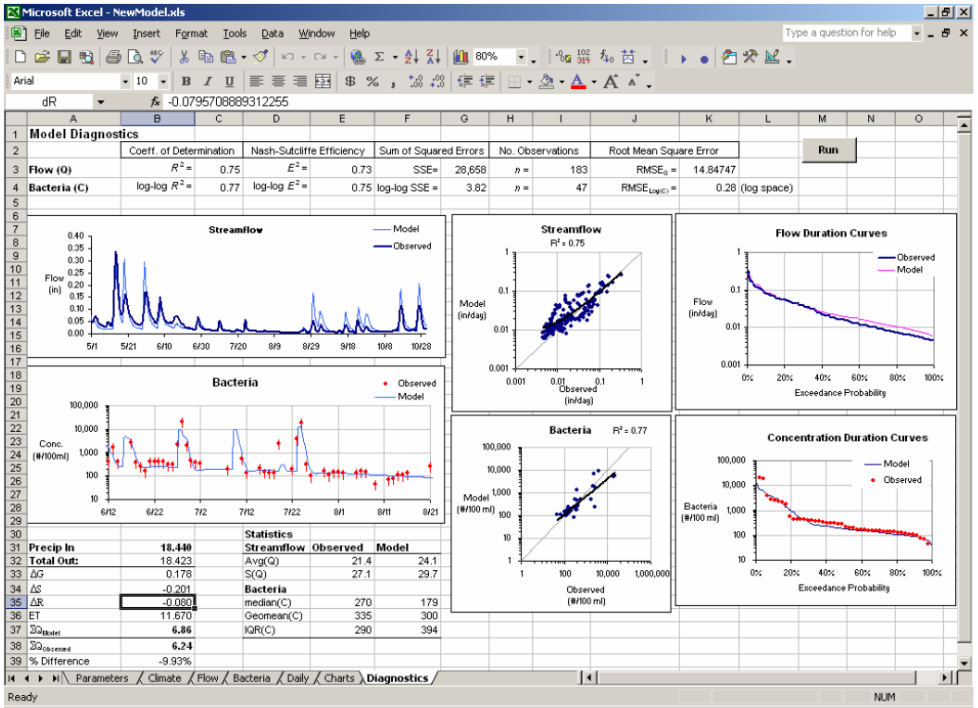


Figure 4.3 Model diagnostic worksheet

Looking back, an interesting aspect of this work was the comparison of different methods

- Discussed the pros and cons of simple “black box” statistical models versus complex simulation models
- What mattered most was predicting bacteria levels that would trigger beach closures

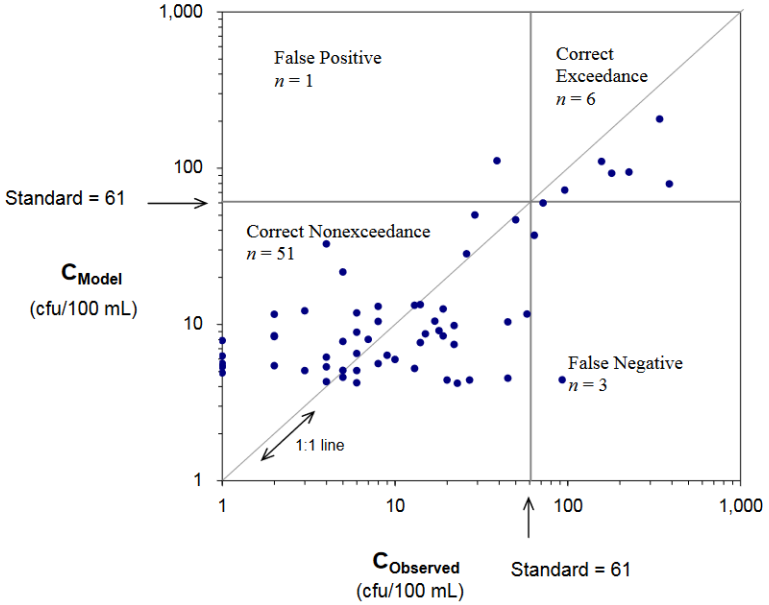
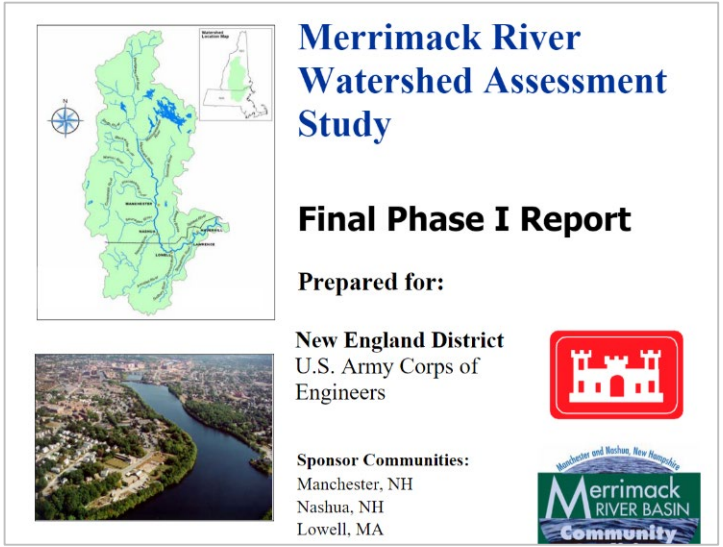


Figure 3.27 Performance of the regression model in predicting exceedances of the swimming standard at Sandy Beach, 2002

I worked as a consulting engineer in Cambridge, MA from 2004 – 2007

- Mostly doing H&H modeling – hydrology and hydraulics
- HSPF
- SWMM
- HEC-RAS



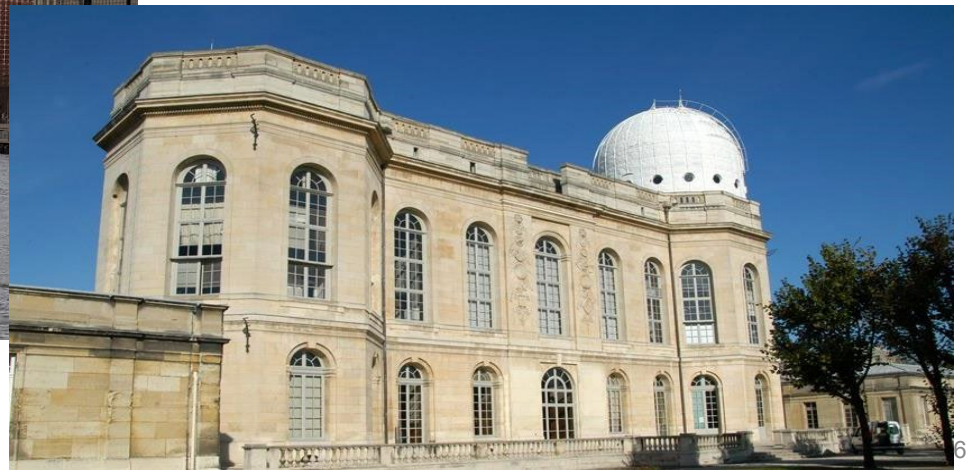
I spent 10 years as a researcher at the Pacific Institute in Oakland, CA

- Sea level rise
- Fracking
- Groundwater sustainability
- Desalination
- Water efficiency
- Stormwater capture
- Water and conflict
- Water and sanitation

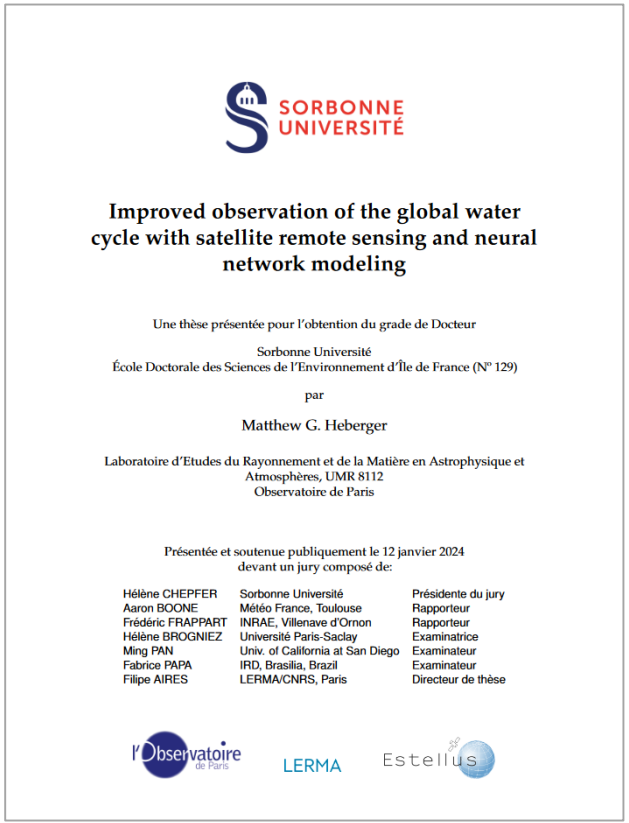
At SFEI, managed the Delta RMP 2017-2020

- Tremendous learning experience in stakeholder-driven science
- Important water quality drivers were pesticides from agriculture and stormwater, nutrients, mercury
- Large program of aquatic toxicity testing
- Method development and intercomparison studies

In 2021, fulfilled 2 lifelong dreams…



My PhD research focused on optimizing estimates of the water cycle globally, at the pixel scale



SORBONNE UNIVERSITÉ

Improved observation of the global water cycle with satellite remote sensing and neural network modeling

Une thèse présentée pour l'obtention du grade de Docteur

Sorbonne Université
École Doctorale des Sciences de l'Environnement d'Île de France (N° 129)

par

Matthew G. Heberger

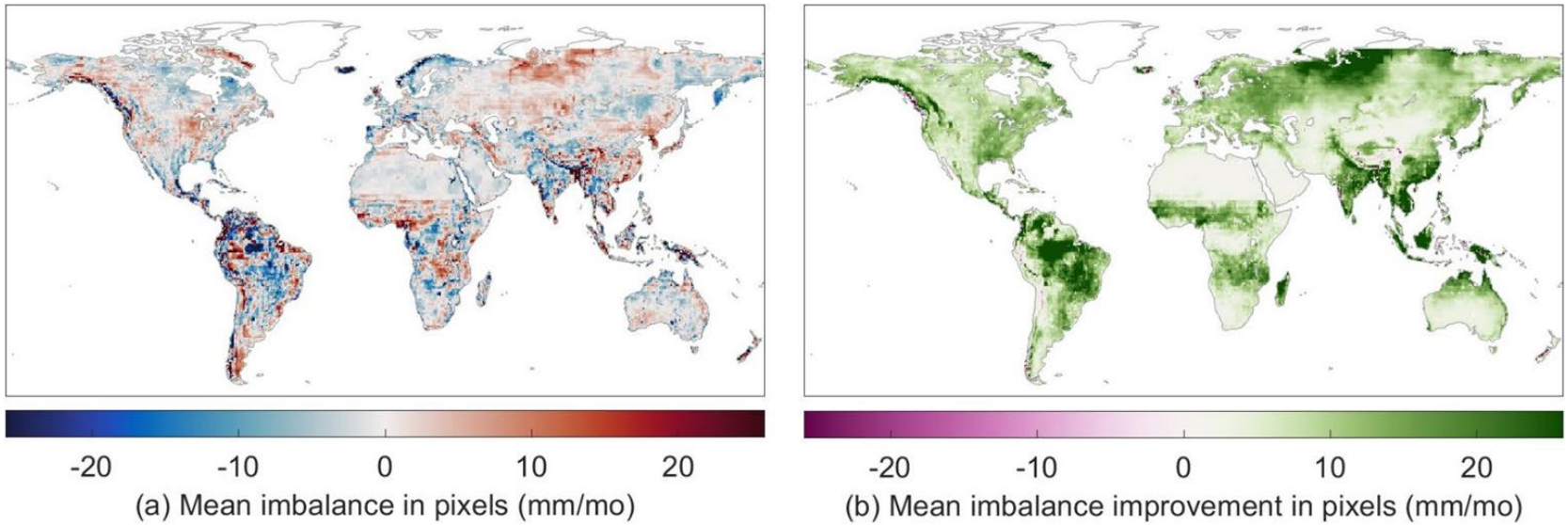
Laboratoire d'Etudes du Rayonnement et de la Matière en Astrophysique et Atmosphères, UMR 8112
Observatoire de Paris

Présentée et soutenue publiquement le 12 janvier 2024
devant un jury composé de:

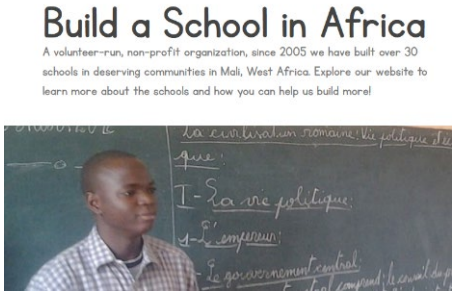
Hélène CHEPFER	Sorbonne Université	Présidente du jury
Aaron BOONE	Météo France, Toulouse	Rapporteur
Frédéric FRAPPART	INRAE, Villenave d'Ornon	Rapporteur
Hélène BROGNIEZ	Université Paris-Saclay	Examinatrice
Ming PAN	Univ. of California at San Diego	Examinateur
Fabrice PAPA	IRD, Brasilia, Brazil	Examinateur
Filipe AIRES	LERMA/CNRS, Paris	Directeur de thèse

l'Observatoire de Paris LERMA Estellus

Using optimization methods and machine learning, we reduced errors in water cycle imbalance almost everywhere

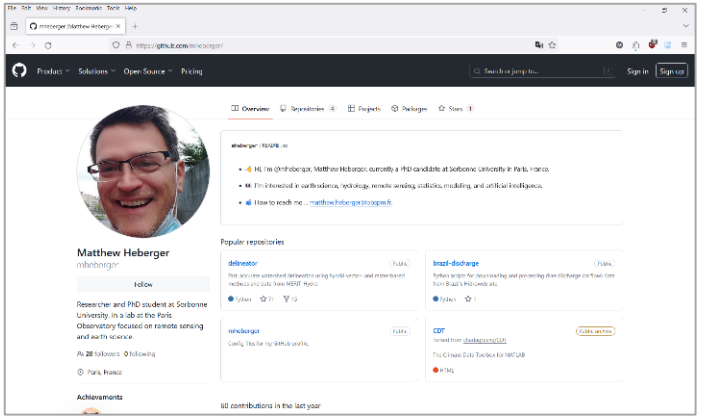


I served in the US Peace Corps in Mali, West Africa from 1996-98

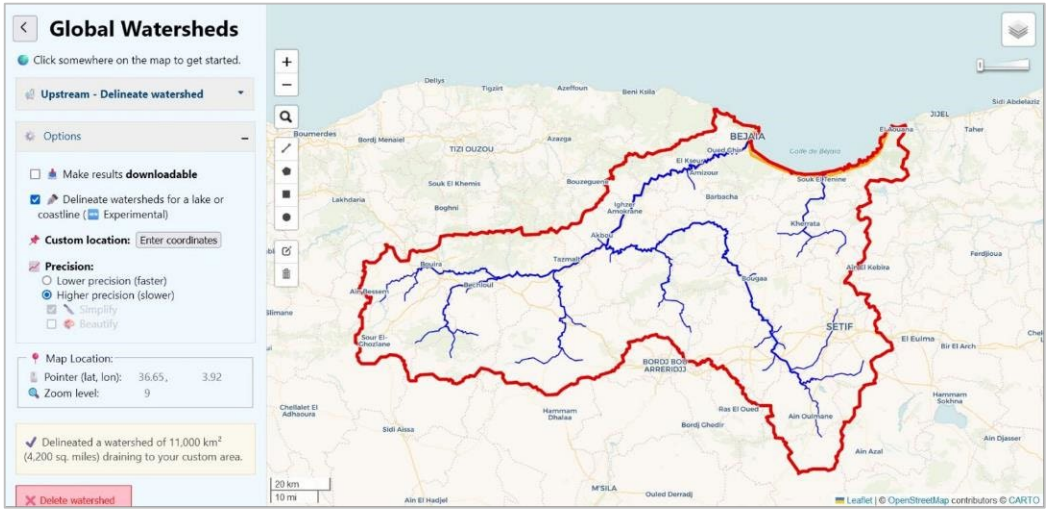


Today, I volunteer for nonprofits involved in health and education in Mali…

I love open source and science that is “FAIR”*



*findable, accessible, interoperable, and reusable



https://mghydro.com

What I hope to contribute to the Bay RMP

- Hydrologic science and watershed modeling
- Statistics and machine learning
- Project management and facilitation
- And of course, my love of the environment and SF Bay!

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Break

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7. Information: Workgroup Planning Update (1 hour)

Desired outcomes:

- Informed Committee
- Guidance for workgroups

EPA Region 9
San Francisco Bay Program Office
FY24 Draft Annual Priority List

Subtidal eelgrass and oyster reef restoration

Wetlands Regional Monitoring Program

Beneficial Reuse of Dredged Material Support

In-Bay Monitoring of Pollutants, including trash, and algal species under the Regional Monitoring Program

Large scale shoreline resilience, multi-benefit projects including horizontal levees and wastewater treatment/reuse

Nutrient Management Strategy

Special studies/projects for addressing PFAS in SF Bay

Large scale tidal wetlands restoration

Special studies/projects for addressing PCBs under TMDL implementation plan

Large scale implementation of urban green stormwater infrastructure

BRRIT (Bay Restoration Regulatory Integration Team)

RMP and the EPA Program Office

- EPA has >$20M not yet committed for FY 24
- Another $54M coming in FY 25, and FY 26, and FY 27….
- RMP could possibly receive some of the FY 24 funds
- EPA needs to commit the FY 24 funds by June, award by September
- Will need for/from RMP: 1) an approved exception memo (by xx); and 2) an approved workplan (by xx)
- SC should approve a funding amount at the 4/15 SC meeting
- Important to include EJ and climate adaptation
- RMP should aim for a first year grant of $5-7M, possibly more (can be spent over 5 yr)
- Match requirement of 25%
- SC guidance to Workgroups and staff: aim for 50% funding increase in 2025, eventual 100% increase over the next few years

Emerging Contaminants Workgroup

Tier 1 Proposals

- **Strategy - $70k**
- **Stormwater CECs - $300k**
- **Plastic Additives in Water, Sediment - $173k or $235k**
- **QACs in Water, Sediment - $106k or $164k**
- **Synthetic Dyes in Sediment, Water, Wastewater, Stormwater - $171k**
- **NTA of Bay Fish (year 2) - $76k**
- **NTA of Fibers, Stormwater - $124k**
- **Stormwater In Vitro Toxicity Screening - $26k**

Tier 2 Proposals

- **Stormwater CECs (augmented) - $150k**
- **PFAS NMR Analysis in Wastewater, Stormwater, and Bay Matrices - $380k**
- **Tire Wear Emissions and Washoff Estimates Journal Paper - $15k**
- **Tire Rubber Marker Analysis - $105k**
- **PFAS Analysis Add-on to Stormwater Depth Monitoring Pilot - $55k**
- **PFAS Wet Deposition Pathway - $185k or $320k**

Sediment Workgroup

Tier 1 Proposals

- **Strategy and coordination ($50k)**
- **Updated sediment conceptual model ($50k)**
- **Workplan for studies to support hydrodynamic model calibration - assess bed erodibility and impacts of flocculation on settling velocity ($75k)**
- **Pilot project for using satellite imagery to determine suspended sediment concentration ($125k)**

Tier 2 Proposals

- **Shoreline change analysis (≥$75k)**
- **Flux monitoring at the Golden Gate or other key Bay cross-section (~$100k)**
- **Flux and deposition monitoring and key mudflat-marsh location (~$100k)**
- **Monitoring at Bay shallows stations established by USACE (TBD)**

SPLWG

Tier 1 Proposals

- **Strategy and Coordination - $65k**
- **Tidal Area Remote Sampler - $10k**
- **PCB/Hg monitoring and modeling to support load and trend assessment - $167k**

Total $242k

Tier 2 Proposals

- **GIS improvements in watershed delineation and land use integration to support modeling, data interpretation and site selection decision-making ($60k - $100k)**
- **Stormwater Systems Management and Equipment Upgrades ($60k - $100k)**

Total $120k - $200k

Microplastics Workgroup

Tier 1 Proposals

- **Strategy - $20K**
- **MP in Stormwater Pilot Year 2 - $94K**
- **MP size distribution ambient water - $182K**

Tier 2 Proposals

- **Sport fish - $130K**
- **(ECWG) Tire Rubber Marker Analysis - $105k**

PCB Workgroup

Tier 1 Proposals

- **Strategy and coordination - $10K**

Tier 2 Proposals

- **Contaminant Flux Field Sampling in San Leandro Bay, Integral - $285K**

Related Non-RMP Proposals

- **BAMSC PCB Project**

Cross-Workgroup Proposals

- Fixed station watershed monitoring network (SPLWG, ECWG, SedWG, PCBWG)

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8. Discussion: Status & Trends and Program Management Planning Update (30 minutes)

Desired outcomes:

- Informed Committee
- Input from the Committee

Status & Trends 2025 Plan

- USGS Moored Sensors - $400k
- USGS Nutrient Cruises - $283k
- Toxic Contaminants in Dry Season Water – $265k
    - CTR & Organics - $88k
    - NTA - $12k
    - Passives - $51k
- Archives - $85k
- Reporting - $14k
- Lab Intercomparison Studies - $30k
- **GRAND TOTAL - $1,228,000**

Ideas for use of USEPA Bay Program Funds for Status & Trends Monitoring (Task 6)

- NTA - current budgets for 2025-6 as listed in the MYP is insufficient
- Sport fish - support for SWAMP Realignment-related work
  - Community fish collection
  - Additional locations - ex. Hunters Point
- Continuation of S&T pilot studies
  - Wet season water sampling
    - Increase sampling stations to include more regions of the Bay
    - Increase the number of storm events sampled
  - Harbor seals
    - Targeted sampling (not currently feasible)
- Selenium
  - Increased frequency of sampling (Annual, monthly)
  - South Bay stations
- Sediment cores
- Funds for more reporting and analysis, manuscript writing
- Systems upgrades - sample tracking, sites databases, field apps

Ideas for use of USEPA Bay Program Funds for Program Management (Tasks 1-5)

- Internal and External Coordination
  - More coordination between workgroups, external partners, developing analysis plans with labs etc.
- Technical Oversight
  - Internal and external review of deliverables
- Contract and Financial Management
  - More projects = more contracts and budgets to manage
- Governance
  - Funds to support proposal development, literature review
- QA & Data services
  - Increase DS team and budgets to allow datasets to be processed and uploaded more frequently
  - Database maintenance, archive database edits as use of archived samples increase
- NEW: Equipment maintenance budget (RMP funds)
  - To purchase and maintain field and lab equipment

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Lunch

Reconvene at 12:45

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9. Discussion: 2023 Interlaboratory Comparison Study Results and QA Update (30 minutes)

Desired outcome:

- Informed Committee
- Input on future interlab comparison studies

2023 PFAS Intercomparison Results

- Three Labs
  - Axys (primary S&T contract lab)
  - Eurofins (used in some SFEI studies)
  - Enthalpy

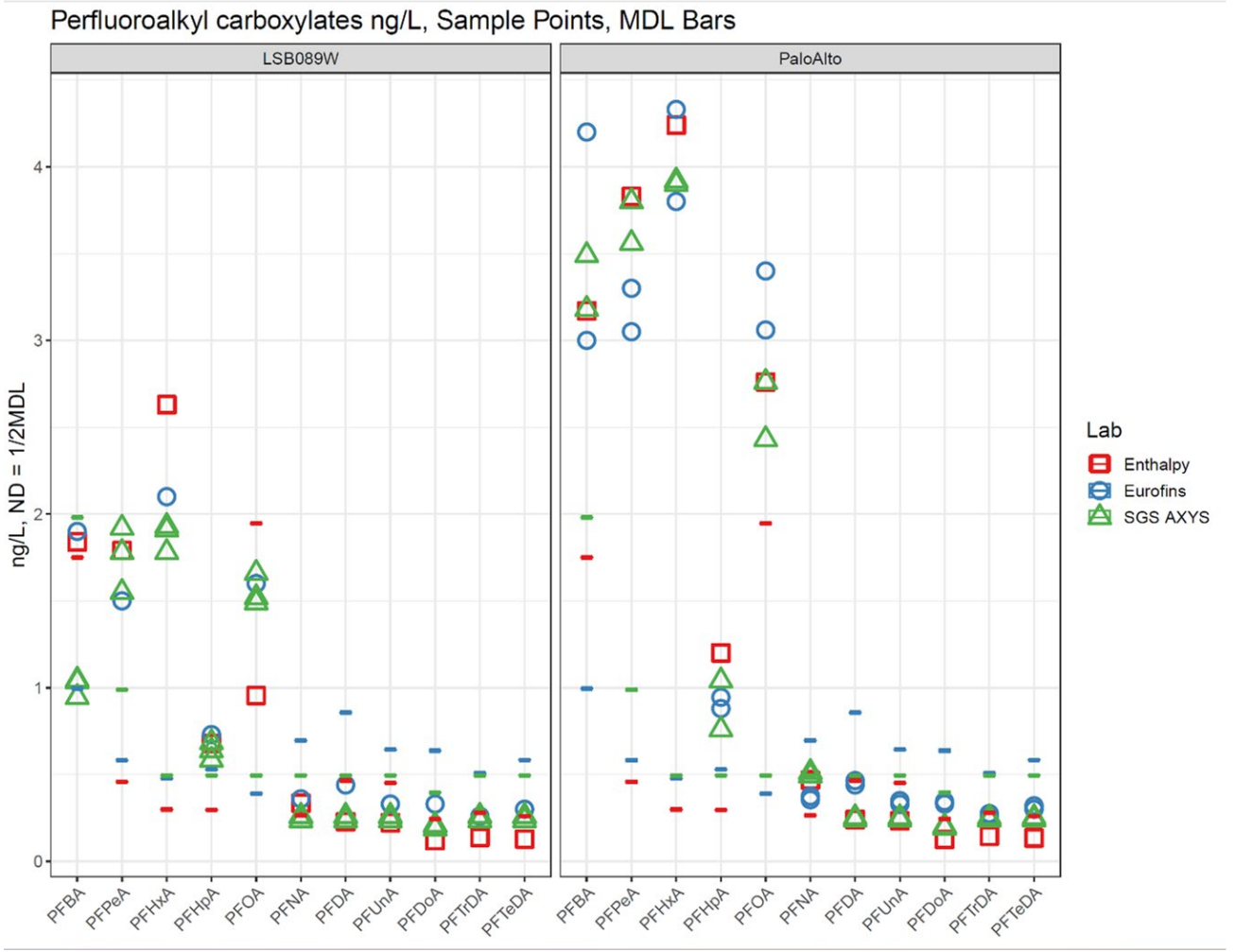
- Water samples
  - Two sites (1 nearfield, 1 S&T)
  - At least one of them analyzed in duplicate
  - One matrix spike sample from either site

Water PFAS Intercomp samples

- 1 Bay sample (LSB089w) in duplicate & 1 nearfield (Palo Alto) sample provided in triplicate to primary analytical lab
  - Both analyzed as lab duplicates by Axys
  - 3rd nearfield as matrix spike
- Bay sample and nearfield triplicate provided to other labs
  - Eurofins analyzed extra nearfield as lab dupe & MS
  - Enthalpy analyzed extra as MS and MS dupe

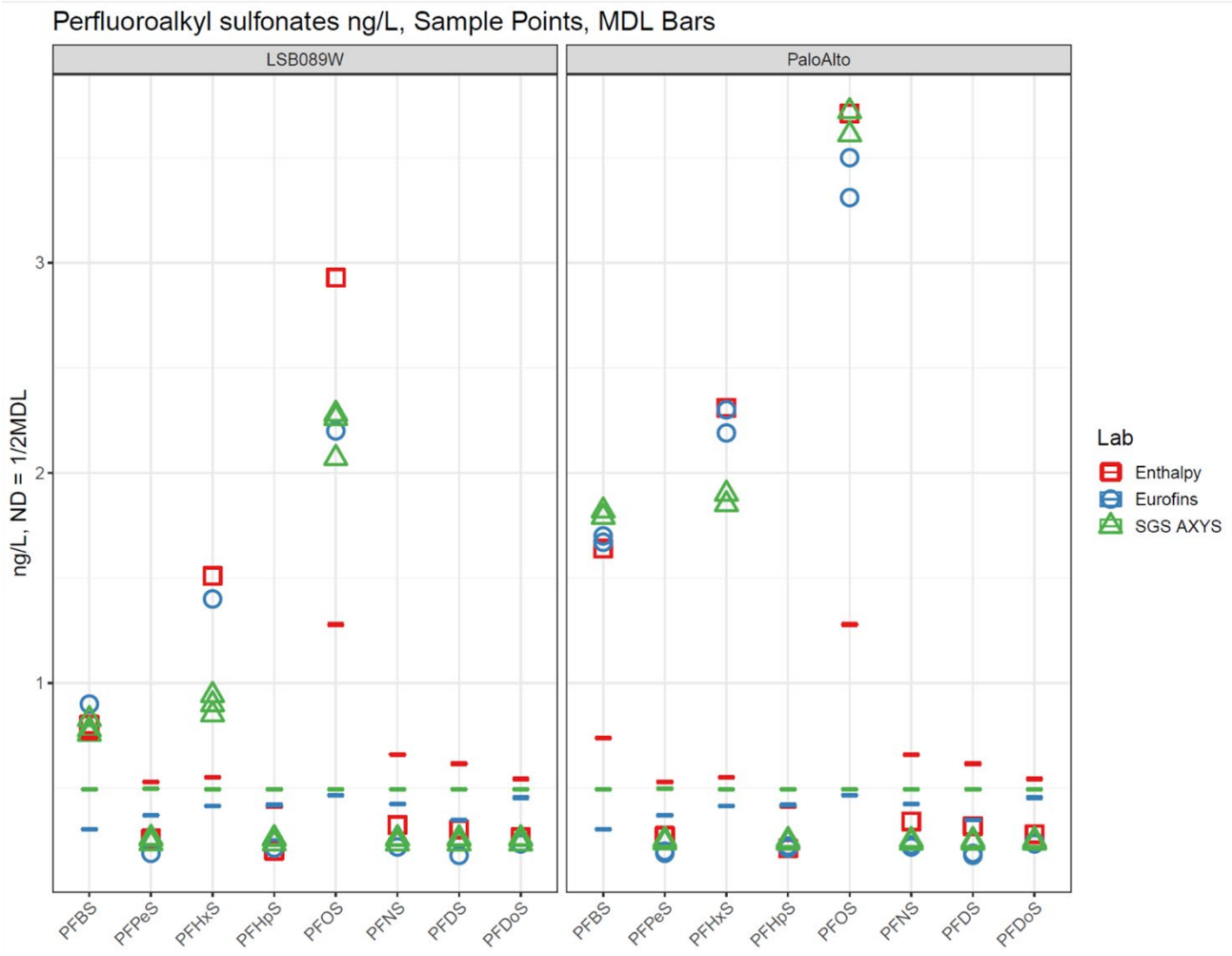
Labs usually within ~30% if >MDL

PF(4-8)A common

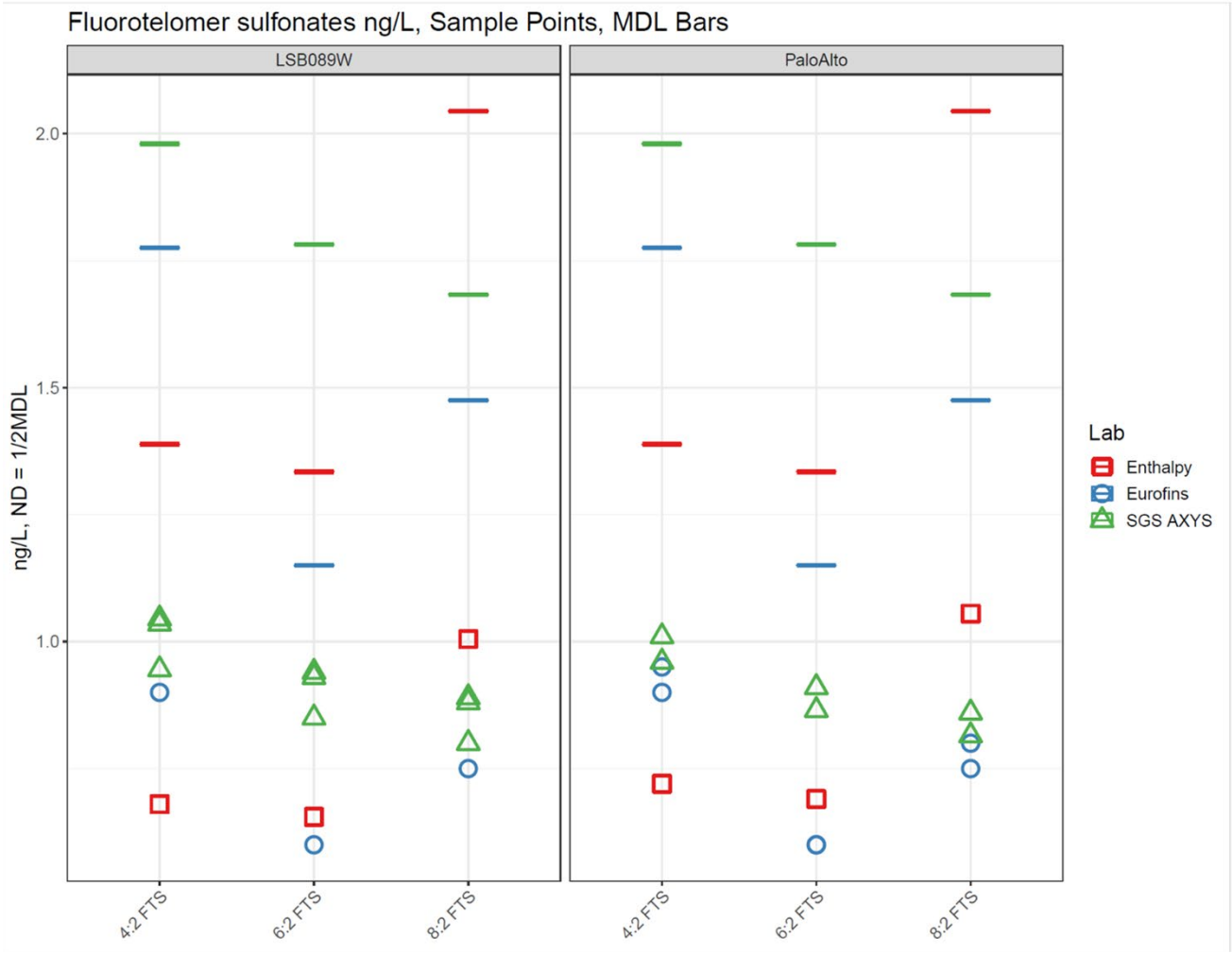


Labs usually within ~30% if >MDL

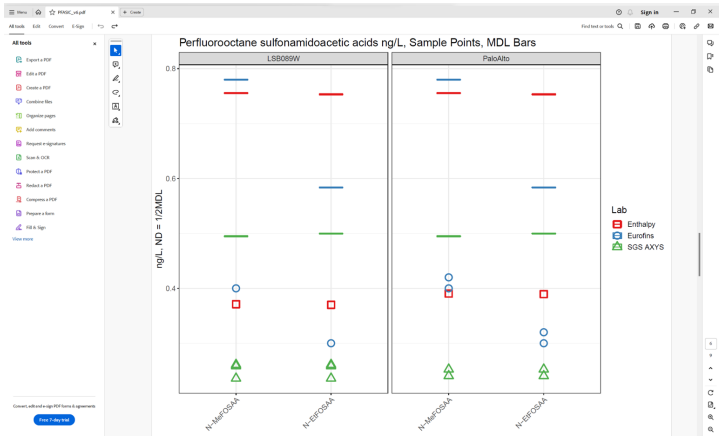
PF(4,6,8)S common

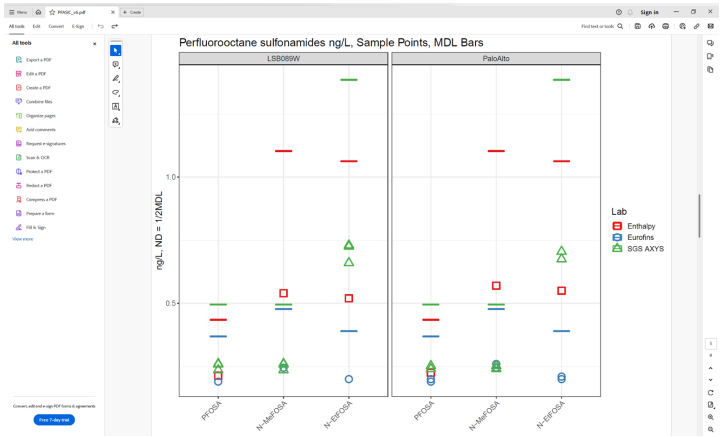


FTSs all <MDL

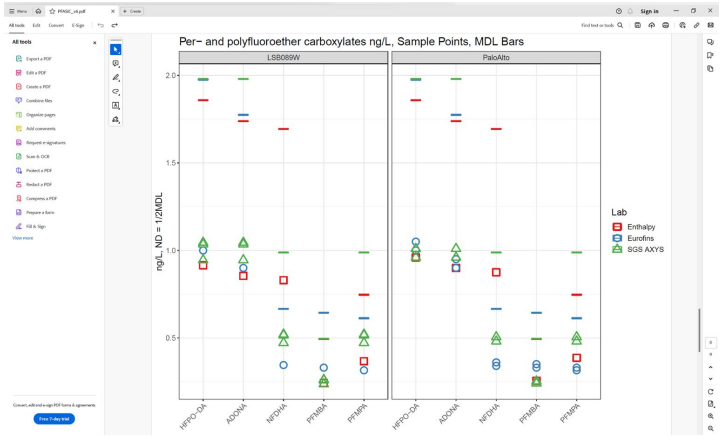

Fluorotelomer sulfonates ng/L, Sample Points, MDL Bars
LSB089W
PaloAlto
ng/L, ND = 1/2MDL
2.0
1.5
1.0
4:2 FTS
6:2 FTS
8:2 FTS
Lab
Enthalpy
Eurofins
SGS AXYS

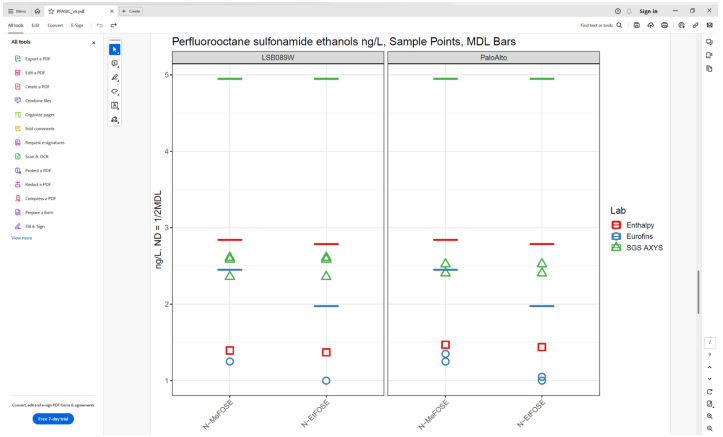
All other target PFAS <MDL





All other target PFAS <MDL





Recoveries Similar

LCS	min	max	avg	stdev
Enthalpy	80%	119%	100%	9%
Enthalpy	74%	115%	97%	8%
Eurofins	78%	113%	95%	8%
Eurofins	81%	120%	97%	9%

MS	min	max	avg	stdev
Enthalpy	86%	119%	101%	8%
Enthalpy	79%	123%	105%	11%
Eurofins	56%	113%	93%	12%
SGS AXYS	59%	125%	102%	13%

General Conclusions (PFAS)

PFxSs and PFxAs generally the only compounds detected

- All labs generally ~30% of each other
- Not always same lab highest/lowest within any group

Labs are generally comparable

- No lab obviously superior within this set
- Results are similar enough for qualitative comparisons (e.g., >~3x difference), even across labs (e.g., different labs for stormwater vs ambient)
- Still would want larger set of samples for lab switch, or quantitative applications between matrices (mass budgets, modeling dilution factors, etc.)

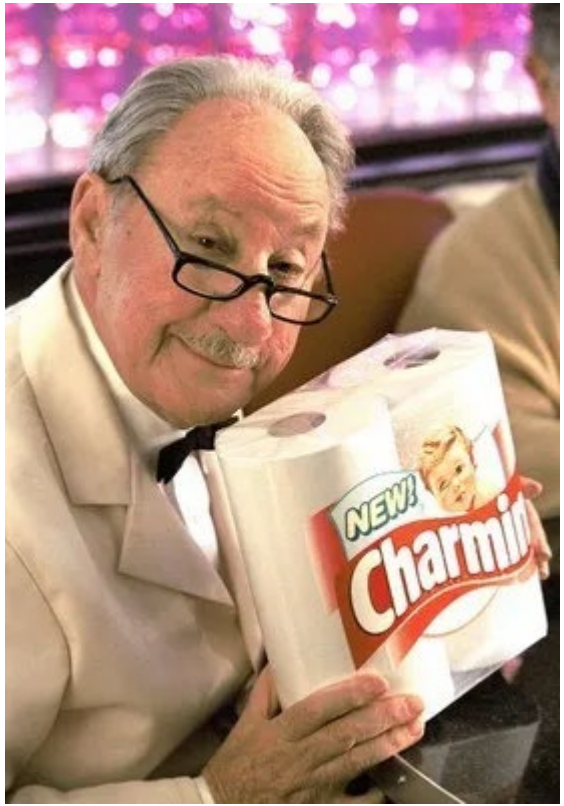
2023 Copper & Hardness Intercomp

- Primary lab (Brooks Applied) analyzed samples from all sites
  - Dissolved & particulate copper
  - Calculated hardness (sum of major cations)
  - Results still pending ?
- CCSF provided split samples from historical stations
  - Dissolved & particulate copper
  - Calculated hardness (sum of major cations)
  - Results appear in similar range as past data

Possible 2024 Intercomps

Big year of tissue testing -

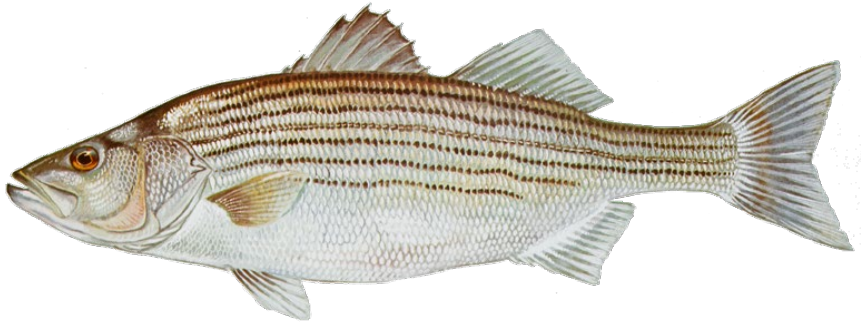
- Opportunity for tissue intercomparison?



Possible 2024 Intercomps

Big year of tissue testing -

- Opportunity for tissue intercomparison?
  - PFAS
  - PCBs
  - (Se?)



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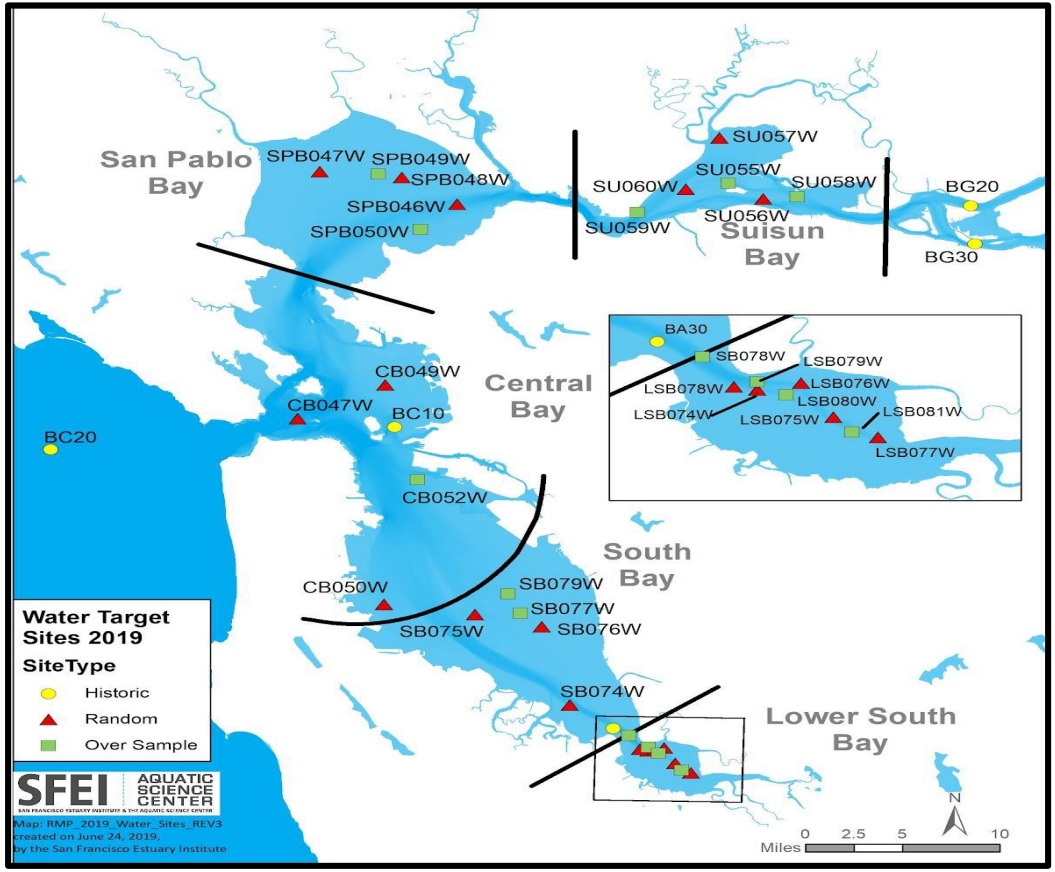
10. Information: Cu and CN 2021 Data Updates

Desired outcomes:

- Informed committee

2021 Water Quality Cruise:

Update on Copper dataset and Rolling Averages



Calculating 3-Event Rolling Averages

- As part of the site-specific objectives (SSO), NPDES dischargers are required to calculate the 3-event rolling average of dissolved copper and total cyanide concentrations in each segment of the Bay, based on RMP data

- Data from the last three RMP water cruises (2017, 2019, and 2021) were used to update the averages

Sites With Results by Year & Region

Copper

(dissolved)

	Suisun Bay	San Pablo Bay	*Central Bay	**South Bay	Lower South Bay
2017	3	3	3	4	5
2019	3	3	4	4	5
2021	3	3	4	4	5
Total Samples in Rolling Average	**9**	**9**	**11**	**12**	**15**

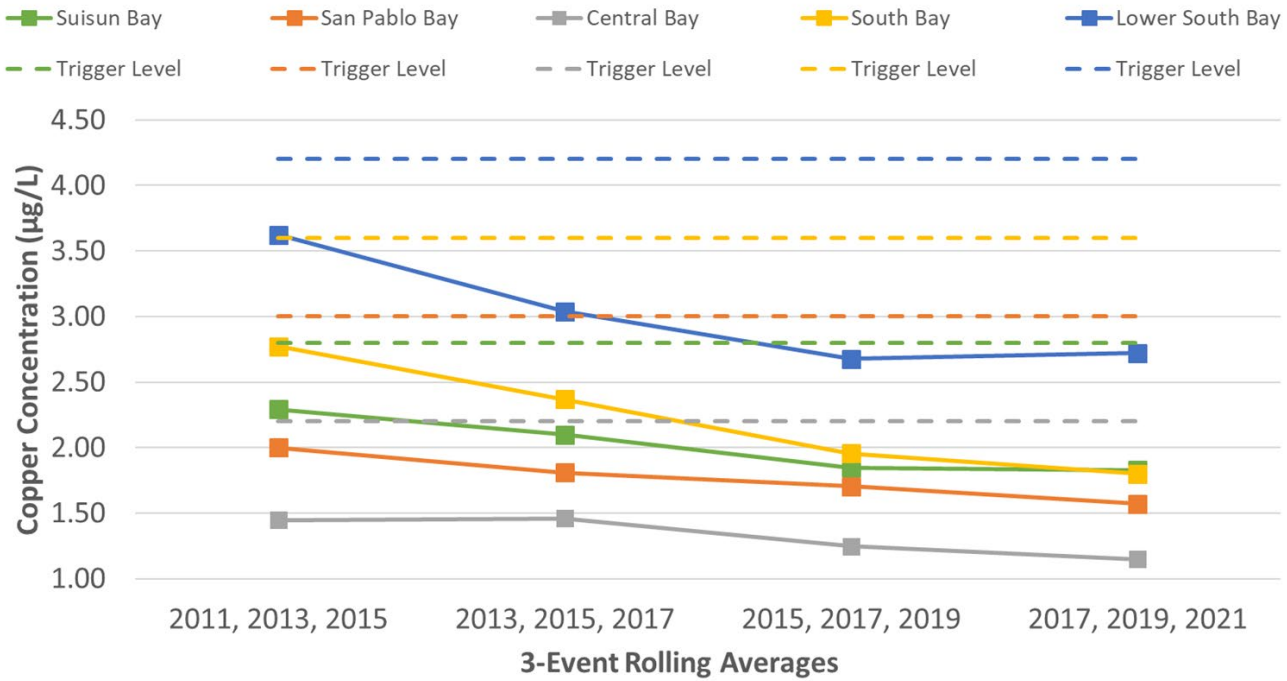
*Historical station BC10 included; **Historical station BA30 included

Copper Results

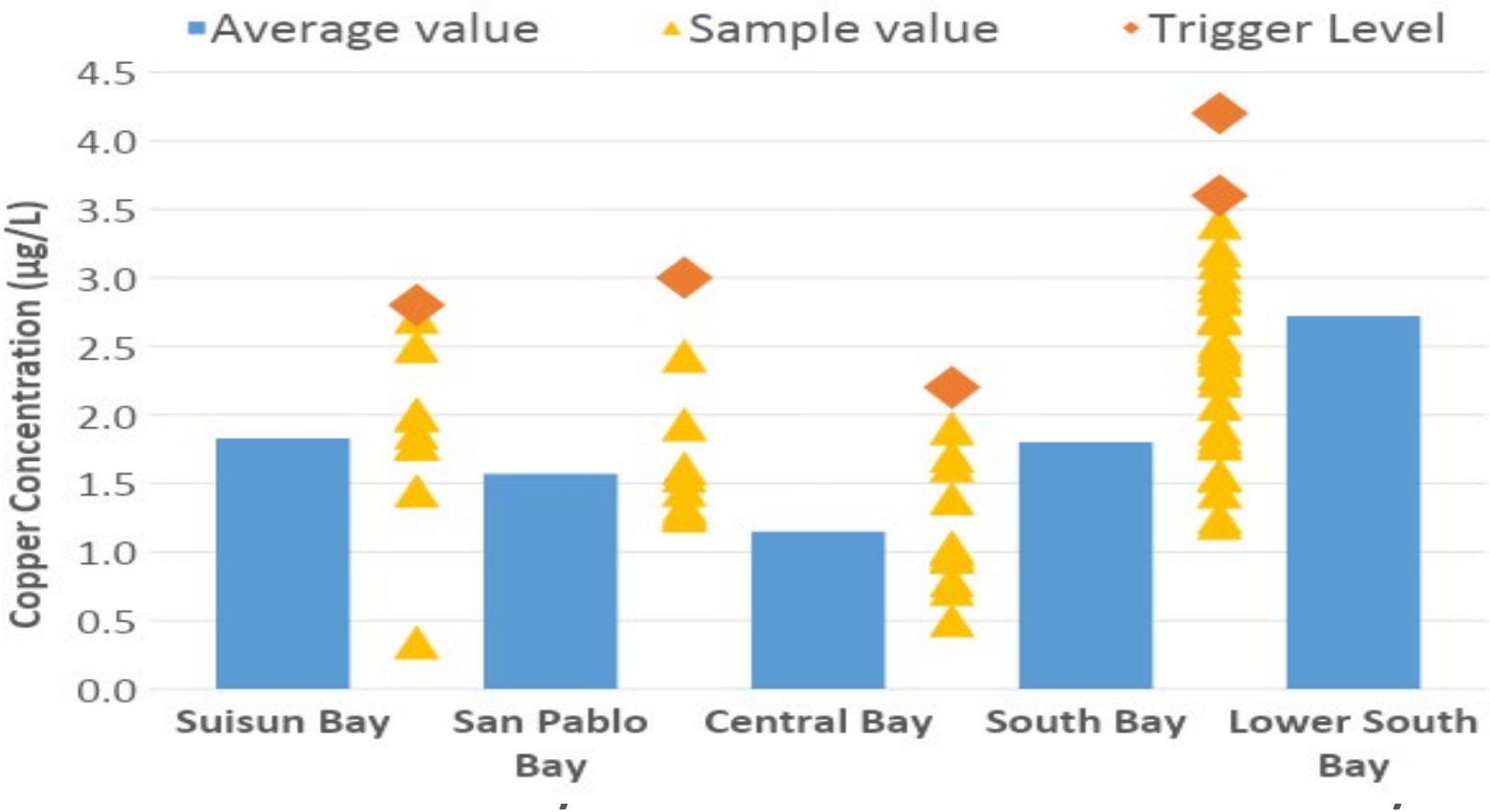
Region	Copper SSO (µg/L)	Copper TL (µg/L)	Current Average (µg/L) (2015, 2017, 2019)	Current Average (µg/L) (2017, 2019, 2021)	Δ Rolling Average	Distance From TL
Suisun Bay	6.0	2.8	1.85	1.83	-0.02	0.97
San Pablo Bay	6.0	3	1.70	1.57	-0.13	1.43
Central Bay	6.0	2.2	1.25	1.15	-0.10	1.05
South Bay	6.9	3.6	1.96	1.80	-0.16	1.80
Lower South Bay	6.9	4.2	2.68	2.72	+0.04	1.48

- Copper rolling averages are below the trigger level (TL) in all regions
- Averages decreased in all regions, except for the Lower South Bay

Trends in Copper Rolling Average

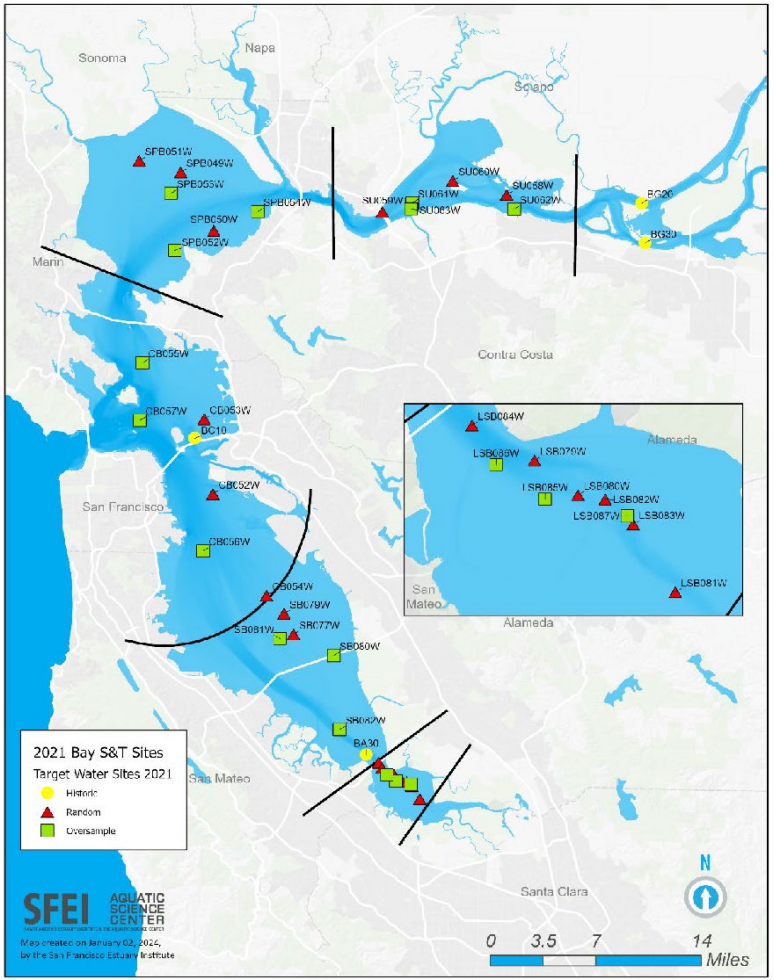


Dissolved Copper Results



2021 Water Cruise:

Update on Cyanide Rolling Averages



Calculating 3-Event Rolling Averages

- As part of the site-specific objectives (SSO), NPDES dischargers are required to calculate the 3-event rolling average of dissolved copper and total cyanide concentrations in each segment of the Bay, based on RMP data

- Data from the last three RMP water cruises (2017, 2019, and 2021) were used to update the averages

Sites With Results by Year & Region

Cyanide (total)

	Suisun Bay	San Pablo Bay	*Central Bay	**South Bay	Lower South Bay
2017	0	0	3	4	5
2019	3	3	4	4	5
2021	3	3	4	4	5
Total Samples in Rolling Average	**6**	**6**	**11**	**12**	**15**

Sites With CN- Results by Region and Year

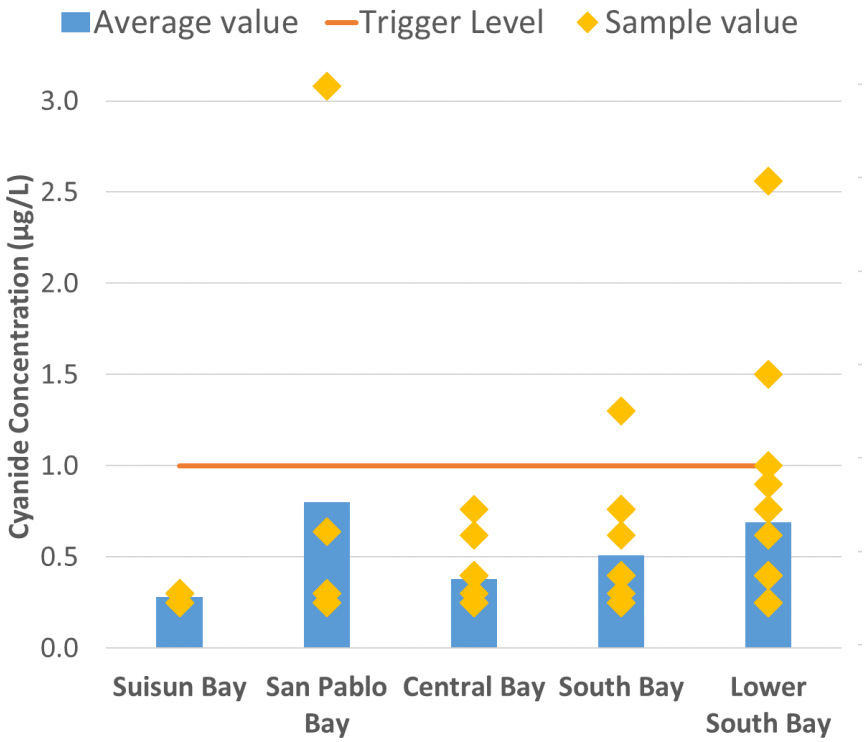
*Historical station BC10 included; **Historical station BA30 included

Cyanide Results

Region	Cyanide TL (µg/L)	Previous Average (µg/L) (2015, 2017, 2019)	Current Average (µg/L) (2017, 2019, 2021)	Δ Rolling Average	Distance From TL
Suisun Bay	1	0.35	0.28	-0.07	0.72
San Pablo Bay	1	0.82	0.80	-0.02	0.20
Central Bay	1	0.36	0.38	+0.02	0.62
South Bay	1	0.45	0.51	+0.06	0.49
Lower South Bay	1	0.52	0.69	+0.17	0.31

- Cyanide trigger level (TL) is 1 µg/L in all regions
- Cyanide rolling averages are below the trigger level in all regions
- Suisun and San Pablo Bays showed decreases in the rolling average while Central, South, and Lower South Bay showed increases in the rolling average
- Method detection limit for cyanide is 0.5-0.9 µg/L

Cyanide Results



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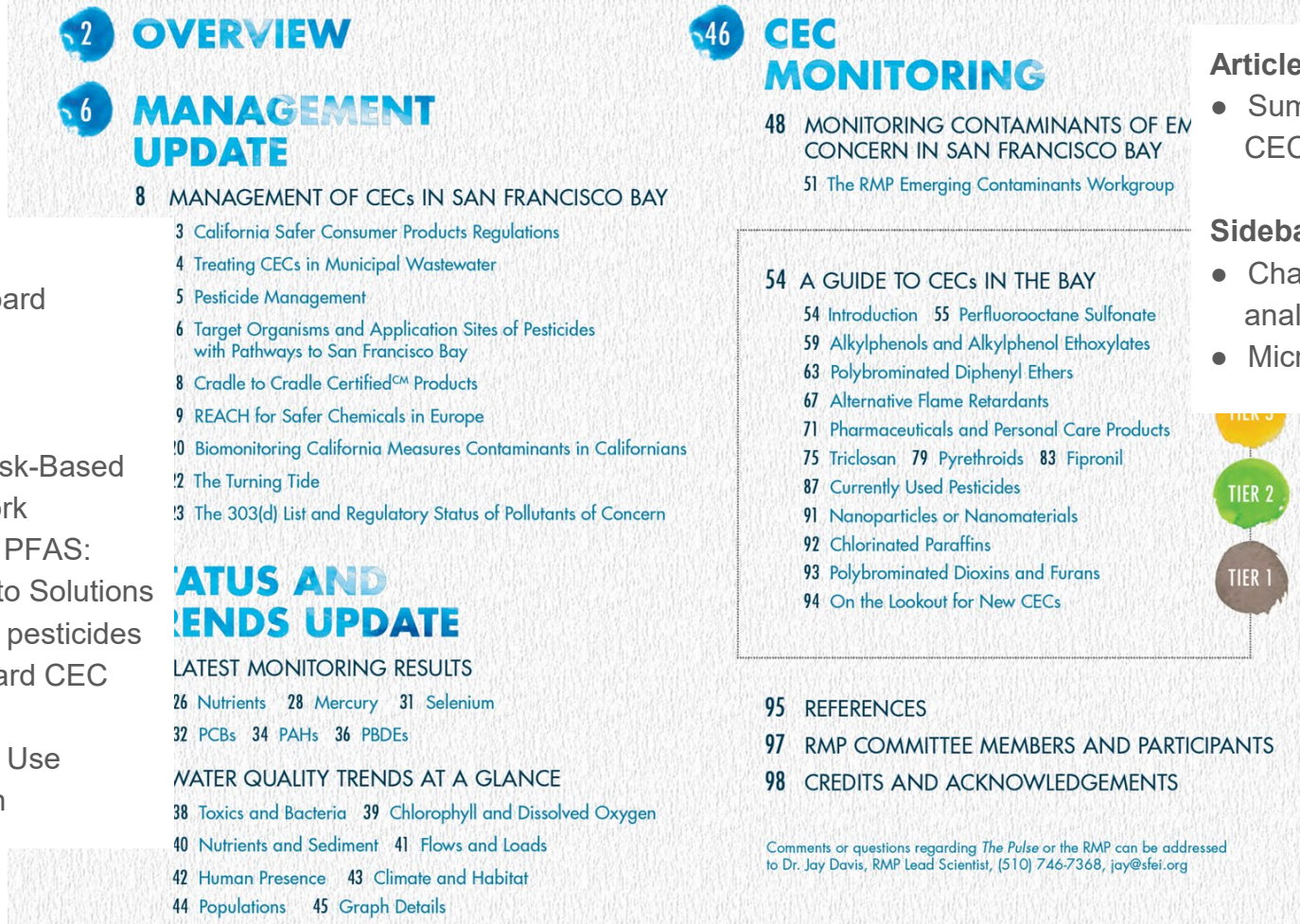
11. Discussion: Communications Update (30 minutes)

Desired outcomes:

- Ideas for Annual Meeting speakers

Pulse 2024

- Theme: CECs
- Similar to the 2013 Pulse
- An updated go-to guide to CECs in the Bay
- Will start early in 2024



Article
- Water Board
- DTSC

Sidebars
- Tiered Risk-Based Framework
- EPA and PFAS: Sources to Solutions
- DPR and pesticides
- State Board CEC Strategy
- Essential Use Approach

Article
- Summary of RMP CEC Strategy

Sidebars
- Challenges of analytical methods
- Microplastics

Annual Meeting Brainstorm

- General
  - RMP Highlights (EPA funding, …)
- CECs Block 1: ECWG advisor perspectives
  - Derek Muir
  - Bill Arnold: QACs in wastewater
  - Third advisor
- CECs Block 2?
  - CEC strategy revision
  - Ethoxylated surfactants?
  - PFAS Sources to Solutions project intro
- PCBs +
  - In-Bay modeling
  - Pedro's watershed modeling
- Sediment
  - Sediment talk
- Nutrients
  - NMS highlights (NMS "Pulse", …)
- SPL
  - SPL talk
- Microplastic
  - MP talk

Outline revised based on TRC discussion

2023 RMP ANNUAL MEETING AGENDA
October 12, 2023; 9:00AM – 4:00PM
Hybrid meeting: Register to obtain information

	Welcome and Introduction
9:00	Welcome and Introduction - *Tom Mumley, San Francisco Bay Water Board, RMP Steering Committee Chair*
	Session 1: General RMP Highlights
9:10	Introduction - *Karin North, City of Palo Alto*
9:15	Reflections on 30+ Years of Regional Monitoring - *Tom Mumley, San Francisco Bay Water Board*
:45	RMP Highlights - *Amy Kleckner, RMP Manager, San Francisco Estuary Institute*
0:10	Discussion - *Moderated by Karin North, City of Palo Alto*
0:35	BREAK (20 minutes)
	Session 2: Nutrients and Sediment
0:55	Introduction - *Ian Wren, Baykeeper*
1:00	Harmful Algal Bloom Update - *Dave Senn, San Francisco Estuary Institute*
1:20	Dissolved Oxygen Studies - *Ariella Chelsky, San Francisco Estuary Institute*
1:40	Sediment Loads from Creeks in Drought and Flood Years - *Alicia Gilbreath, San Francisco Estuary Institute*
2:00	Discussion - *Moderated by Ian Wren, Baykeeper*
2:20	**LUNCH BREAK** (60 minutes)
	Session 3: PFAS
1:20	Introduction - *Maggie Monahan, San Francisco Bay Water Board*
1:25	PFAS in Bay Fish - *Jay Davis and Miguel Mendez, San Francisco Estuary Institute*
1:45	Investigation of PFAS Sources to Municipal Wastewater - *Diana Lin, San Francisco Estuary Institute and Lorien Fono, Bay Area Clean Water Agencies*
2:05	Cosmetics Contribute to the PFAS Load at Wastewater Treatment Plants in California - *Simona Balan, California Department of Toxic Substances Control*
2:25	Discussion - *Moderated by Maggie Monahan, San Francisco Bay Water Board*
2:45	BREAK (20 minutes)
	Session 4: Contaminants of Emerging Concern in Stormwater
3:05	Introduction - *Chris Sommers, EOA, Inc.*
3:10	CECs in Stormwater - *Rebecca Sutton, San Francisco Estuary Institute*
3:30	CECs from Tires - *Ezra Miller, San Francisco Estuary Institute*
3:50	DTSC Actions on CECs and Microplastics - *Jen Jackson, California Department of Toxic Substances Control*
4:10	Discussion - *Moderated by Chris Sommers, EOA, Inc.*
4:30	**Adjourn**

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12. Information: Status of RMP Deliverables and Action Items (10 minutes)

Desired outcomes:

- Informed Committee
- Feedback on progress and due dates

Deliverables - completed!

- 2021 Cu & CN rolling averages
- RMP Participation Letters/Reports to BACWA and WSPA
- 2023 Honoraria payments and gifts to science advisors
- S&T WY24 wet season water sampling
- Updates to the sample archive database
- Technical Memo: Development of Semi-Empirical Light Extinction Estimates for Biogeochemical Modeling Applications in SFB. SFEI Cont. #1177
- 2024 RMP QAPP Update SFEI Cont. #1169
- CEC Modeling Exploration Report SFEI Cont. #XXXX
- Stormwater CECs manuscript submitted!

Deliverables – Overdue…

- MTC Bay area land use update (SEP)
- STLS regional model development
- Stormwater monitoring strategy for CEC’s
- 2020 S&T design report
- RWSM update and technical report

Deliverables – delayed

- STLS WY21 POC Recon. Monit. - Update data for the Advanced Data Analysis (ADA)
- NB Se in clams and water report
- NTA Sediment Data Manuscript and Fact Sheet
- PFAS in Archived Sport Fish Manuscript

Deliverables – due before next TRC meeting (6/13)

- Impact of Remediation Actions on San Leandro Bay Recovery from PCB Contamination technical report
- QACs in Bay area wastewater
- Final Margins Report
- 2021 QA Summary Report for S&T Activities
- NB Se clam and water data report (2019-2020)
- 2020 S&T Design Report
- Sediment Deposition on SB Marsh (Whales Tail) report

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13. Discussion: Plan Agenda Items for Future Meetings (5 minutes)

Desired outcome: Identify future agenda items

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14. Discussion: Plus/Delta (5 minutes)

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Thank you!