



Bay RMP Technical Review Committee Meeting

March 26, 2024

Meeting Summary

Attendees

TRC Member	Affiliation	Representing	Present
Alicia Chakrabarti	EBMUD	POTW	Y
Mary Lou Esparza	Central Contra Costa Sanitary District	POTW	N
Tom Hall	EOA, Inc.	POTW	Y
Heather Peterson	City and County of SF	CCSF	Y
Samantha Engelage	City of Palo Alto	POTW	Y
Bridgette DeShields*	Integral Consulting	Refineries	Y
Chris Sommers	BAMSC (EOA, Inc.)	Stormwater	Y
Shannon Alford	Port of San Francisco	Dredgers	N
Richard Looker	SF Bay Regional WQCB	Water Board	N
Luisa Valiela	US EPA	US EPA-IX	Y
Ian Wren	Baykeeper	NGOs	N
Jamie Yin	US Army Corps of Engineers	USACE	N

Staff and Others

- Jay Davis – SFEI
 - Amy Kleckner – SFEI
 - Martin Trinh – SFEI
 - Don Yee – SFEI
 - Becky Sutton – SFEI
 - Alicia Gilbreath – SFEI
 - Kelly Moran – SFEI
 - Diana Lin – SFEI
 - Scott Dusterhoff – SFEI
 - Dave Senn – SFEI
 - Melissa Foley – SFEI
- Matthew Heberger – SFEI
 - Lester McKee – SFEI
 - Jen Trudeau – SFEI
 - Adam Wong – SFEI
 - Warner Chabot – SFEI
 - Gerardo Martinez – SFBRWQCB
 - Xavier Fernandez – SFBRWQCB
 - Bryan Frueh – City of San Jose
 - Jade Ishii – USACE

1. Introductions and Review Agenda (00:05:00)

Bridgette DeShields opened the meeting with a round of introductions and a brief review of the day's agenda. The TRC welcomed Jade Ishii who was attending in place of Jamie Yin, USACE representative. Key agenda items include updates on the RMP's wet season sampling, S&T monitoring, introducing SFEI's new watershed modeler, and workgroup updates.

2. Decision: Approve Meeting Summary from January 22, 2024, Review/Confirm/Set Dates for Future Meetings (00:07:30)

Bridgette asked the group for any final comments on the previous meeting's summary. Receiving no comments, Bridgette confirmed the dates for upcoming meetings. The Committee confirmed the next TRC meeting for June 13, 2024 and scheduled the following meetings for September 24, 2024 and December 12, 2024. Amy Kleckner confirmed the RMP Annual Meeting for October 16, 2024. The Multi-Year Planning Meeting will be held on November 4, 2024.

Action Item:

- Send out calendar invites for September 24, 2024 and December 12, 2024 TRC meetings (Martin Trinh, April 1, 2024)

Decisions:

- Chris Sommers motioned to approve the meeting summary. Luisa Valiela seconded the motion. The motion was carried by all present members.

3. Information: SC Meeting Summary from January 22, 2024 (00:12:30)

Amy Kleckner presented a summary of the last Steering Committee meeting.

After introductions and the approval of the previous SC meeting summary, Beth Birmingham provided an RMP financial update for Q4 of 2023.

Amy summarized the incomplete projects from 2023 and earlier. For 2020, there are two incomplete projects: the North Bay margins report and the Se in NB clams and water report; both of which are in finalization and expected in the next couple of weeks. 2021 has seven incomplete projects, two of which are now completed: CECs in Urban Stormwater manuscript has been submitted and the Nutrients Light Attenuation and

moored sensors technical report. The rest are expected to be completed in 2024. 2022 has eight incomplete projects, most of which are nearing completion this year. 2023 has several projects that are incomplete but expected to complete on time and two projects, Sediment Flux at Richmond Bridge and the STLS Regional Model Development, both of which are delayed and new timelines for completion are still in development.

The SC approved an additional \$10,800 to complete the Integrated Watershed Monitoring and Modeling Strategy special study. The SC approved finalization of the Multi-Year Plan (MYP) with some minor edits. An adjustment was made to the S&T set-side withdrawal amount to account for a bookkeeping error made in the first draft. The SC approved the SEP Proposals List as is.

Luisa presented information on the EPA Program Office Update, similar to the presentation the TRC received in December. The discussion focused on preparing for potential funding increases and ensuring effective allocation of resources.

Craig Jones and Sam McWilliams provided an update on the progress and objectives of the In-Bay Modeling of Sediment and Contaminants project. Sam provided an overview of sediment transport modeling, the presentation then went on to modeling objectives and the importance of developing models aligned with management goals while avoiding unnecessary complexity. Sam described refinements made to the watershed dynamic model to evaluate sediment loads from nine distinct subregions of the San leandro Bay watershed. The in-Bay model refinements included improvements in grid resolution and focusing on silt fractions associated with PCBs. Sam then discussed using sediment data to estimate PCB transport. Other discussion points included sediment deposition patterns, distribution comparisons, and next steps.

Jay led the communications discussion which focused on the 2024 Pulse and the plan to model it as an update to the 2013 edition. There was also mention of dedicating more than one session of the Annual Meeting to CECs to tie it into the 2024 Pulse.

Finally, Amy reviewed the status of RMP deliverables and action items. Suggested agenda items for the April 15 meeting included a data services report, introduction of the new watershed modeler, new Se plan, updated S&T plans, and potential plans for future EPA funding.

4. Information: Wet Season Sampling Update (00:18:30)

Alicia Gilbreath from SFEI provided an update on stormwater sampling efforts for the current wet season. She provided details on the rainfall received so far this season, indicating that it had been moderate to good in various regions, with some areas slightly below normal. She mentioned an upcoming storm and preparations for deploying remote samplers and manual sampling.

Alicia emphasized the growth and diversification of project goals in recent years, including expanded pollutant monitoring, piloting of remote samplers in previously inaccessible areas, bioretention monitoring, and near-field S&T sampling. She highlighted the addition of new staff, including two new full time staff who have taken on more leadership roles in project activities as well as assistance from Watershed Project interns.

Regarding current projects, Alicia reported progress on manual sampling and deploying remote samplers at multiple locations and sampling events conducted. Alicia emphasized the importance of manual sampling due to its flexibility and ability to closely monitor field conditions, but stressed the burgeoning role of remote samplers. SFEI will continue to sample stormwater manually, but remote samplers stand to become a very transformational part of SFEI's stormwater monitoring toolkit. Once developed, they offer the capability of sampling many more sites per storm and the cost per site (from prep to post-storm processing and shipping) will be about half that of manual sampling. Alicia reported significant progress in site reconnaissance and database development for stormwater sampling in the Bay Area. They identified approximately 75 flow-gauged locations and conducted site visits during the previous summer, determining that over 50 of them were suitable for SFEI Mayfly deployment. However, obtaining permits for deployment posed a significant challenge, requiring considerable effort. Despite this, the team has successfully deployed samplers at seven locations this year, with permits secured for an additional four sites and ongoing efforts to obtain permits for five more locations.

Alicia discussed challenges related to obtaining permits for stormwater sampling efforts. She noted that while some municipalities readily issued permits, others posed substantial hurdles. The process was described as time-consuming and, in some cases, costly, with permit fees reaching up to \$600 per site. Alicia emphasized the variability in permit issuance, noting that approximately one-third of municipalities readily approved permits, while others required extensive time and effort to secure approvals. Additionally, she mentioned the impact of staff turnover within municipalities on the permit process, which further complicated efforts to navigate permit requirements consistently.

Alicia shared insights into the lessons learned from pilot remote sampler deployments, including gaining experience, design improvements, and limitations such as sampler tubing contamination. Alicia discussed challenges related to tubing contamination in the sampling process. She explained that certain analytes were prone to contamination from soft tubing used with peristaltic pumps. Despite efforts to mitigate contamination, such as exploring alternative tubing materials, Alicia acknowledged ongoing concerns regarding the accuracy and reliability of sampled data. This issue raised questions about the suitability of current sampling methods and highlighted the need for continued research and development to address tubing contamination effectively.

Alicia noted that the small number of containers used in sampling leads to a limited number of analytes being assessed, as laboratories are hesitant to split samples for CECs. This limitation underscores the importance of considering alternative sampling methods alongside Mayfly and ISCO. Despite their efficacy, these methods are hindered by soft tubing contamination, affecting only a few compounds, albeit crucial ones for San Francisco Bay. SPLWG advisors recommended continuing with Mayfly/ISCO while exploring other options. Notably, the samplers, with their current tubing, perform well for PFAS and the Kolodziej lab tire/road chemicals suite. The team also discussed tweaks and improvements made this year, including an automated baseflow level adjustment and a lower drag configuration for hanging installations. Additionally, limitations due to sampling head height were identified, with a maximum height of three meters due to decreased pumping rates beyond that. Furthermore, although the current system is limited to three bottles due to drilling constraints and practical considerations, the Mayfly system has the capacity for up to five containers.

Alicia also addressed the topic of vacuum samplers, outlining both their potential benefits and associated challenges. She emphasized the advantages of vacuum samplers in facilitating high-flow sampling rates, which could enhance the collection of stormwater samples with greater efficiency compared to traditional methods. However, Alicia also highlighted several concerns raised during the discussion regarding the practical implementation of vacuum samplers.

One notable concern involved the need for standardization and calibration protocols to ensure the accuracy and reliability of data collected using vacuum samplers. Meeting participants expressed the importance of establishing consistent procedures for calibrating equipment across different sampling sites to minimize variability and ensure data comparability. Additionally, there were discussions about the potential influence of environmental factors, such as temperature and humidity, on the performance of

vacuum samplers, highlighting the need for further research to understand and address these potential sources of variability.

Furthermore, Alicia mentioned discussions around the logistical challenges associated with deploying vacuum samplers in diverse field conditions, including urban and industrial environments. Issues such as accessibility to sampling sites, power requirements, and equipment maintenance were identified as important considerations for effectively implementing vacuum sampling strategies. Overall, while vacuum samplers offered promising opportunities for improving stormwater sampling practices, the TRC acknowledged the importance of addressing these technical and logistical challenges to maximize their utility and reliability in environmental monitoring efforts.

The discussion expanded to include reflections on data usage and accuracy, particularly concerning the deployment of monitoring equipment and its implications for data interpretation. Alicia underscored the importance of understanding data limitations and ensuring clarity in data utilization.

5. Discussion: S&T Monitoring Update (00:50:00)

Amy provided an update on the S&T monitoring planned for 2024, including water, bird eggs, sport fish, and marine mammals. She began by discussing with a focus on dry season water samples for comparison during the wet season, marking the final year of the water monitoring pilot. Bird egg collection began in March, with marine mammal sampling in its second year.

Wet weather water sampling was conducted in both the near-field and deep Bay. There were two storm events during the wet season and one sampling during the dry season. This includes setting up four near-field stations and four deep Bay stations to capture variation in water quality. The analytes for analysis included PFAS, TOP, bisphenols, OPEs, and stormwater CECs. Samples from Storm 1 were obtained from near-field stations on 12/21/23 and from deep Bay stations on 1/11/24. Storm 2 samples were collected from near-field stations on 1/23/24 and from deep Bay stations on 2/1/24. All collected samples have been shipped to the labs for analysis, with plans to collect dry season samples during the upcoming summer.

For bird egg sampling, changes were made to streamline the process and minimize shipping delays. The sampling focus is solely on Double-crested Cormorants, with samples to be collected by USGS-WERC staff, with the contract nearing finalization. Analysis will include Hg and Se by MLML, while PFAS, PCBs, PBDEs, and legacy pesticides will be analyzed by SGS-AXYS. A notable change from 2022 is that MLML will handle homogenization, sub-sampling, compositing, and sample distribution,

scheduled for April 2025. Moss Landing will handle homogenization and subsampling to reduce the number of times eggs need to be shipped. Results from the analyses are expected to be reported to SFEI by Summer 2025.

The Sport Fish Strategy Team convened on December 18 to discuss the design for 2024. Key species targeted for sampling include striped bass, shiner surfperch, white croaker, and halibut, with no sampling of white sturgeon this year due to this species being listed as protected. Fish collection will be conducted by ICF. Analysis will include Hg and Se by MLML, and PFAS, PCBs, PBDEs, and legacy pesticides will be analyzed by SGS-AXYS. This round of sampling will see expanded PFAS monitoring, inclusion of PCB PMU sampling, and non-target analysis. Additionally, there will be expanded archiving for CECs and microplastics. Collaboration with the SWAMP Realignment initiative is also underway.

In 2024, the second year of a two-year special study on marine mammals is underway, aiming to sample 10 harbor seals and 10 harbor porpoises, prioritizing animals recovered within the Bay. PFAS analysis of liver and serum will be conducted by SGS AXYS, while non-target analysis (NTA) of liver and blubber will be handled by the Crimmins lab (AEACS, Clarkson Univ.) and NTA of blubber by the Hoh lab (SDSU). The Marine Mammal Center is tasked with sample collection. The deliverable, a recommendation on the S&T study design, is expected by June 2025. In 2023, liver samples from three harbor seals and blubber and serum from six harbor seals were collected, with no samples obtained from harbor porpoises. Collaborators are considering alternative options if sample numbers remain below target, potentially analyzing archived samples.

In addition, a study on selenium impacts on aquatic life was discussed, involving sampling water and sturgeon tissue near a refinery discharge point in Carquinez Strait. To investigate potential impacts of Martinez Refining Company (MRC) discharging selenium above its wasteload allocation, the Water Board has required MRC to monitor possible effects of selenium on Sacramento splittail and white sturgeon. In March and April 2024, sturgeon muscle tissue samples will be collected from at least 8 adults using non-lethal sampling techniques. In November and December 2024, splittail filet samples will be gathered from a minimum of 12 adults, along with egg-ovary tissue samples from at least 6 fish. Additionally, starting from March 27, 2024, monthly water samples will be collected within 500 feet of Discharge Point 001. USGS will 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. Collected data will be compared to the muscle tissue and water column TMDL targets in Basin Plan Table 7.2.4-1, while splittail egg-ovary data will be evaluated with

literature values. Amy noted the USGS's lab relocation to Mountain View, with plans to analyze tissue samples for selenium. The sampling permit for sturgeon collection was noted to expire in December 2025, highlighting the need for timely analysis.

Further discussions revolved around community engagement efforts, challenges in integrating engagement with sampling activities, and potential expansions of S&T monitoring of other species or regions. The importance of community involvement and trust-building through data collection was emphasized.

6. Information: Introducing Our New Watershed Modeler (01:18:20)

Jay introduced Matt Heberger as the new watershed modeler, replacing Tan Zi. Notably, Matt had previously served as the program manager for the Delta RMP and exhibits a fervent dedication to watershed modeling, akin to Alicia's passion for monitoring. Jay noted that they will make an excellent team. Matt shared that he is currently in Paris following the completion of his PhD but anticipated returning to Richmond in August. Matt provided an overview of his academic and professional background, starting with his degrees in agricultural and biological engineering and civil and environmental engineering, culminating in a recent PhD in Earth sciences from Sorbonne University in Paris. He elaborated on his MS thesis research focused on watershed loading models for bacteria in the Mystic River, Massachusetts, emphasizing the importance of predicting bacteria levels to preempt beach closures. Transitioning to his consulting experience at CDM Smith in Cambridge, Massachusetts, he detailed his work on hydrology and hydraulics projects, notably on the Merrimac River, addressing various water quality challenges. Subsequently, he shared his tenure at the Pacific Institute in Oakland, where he delved into diverse water issues, including sea-level rise, groundwater, and desalination.

Matt's presentation then covered his global experiences, including his time at the Paris Observatory, where he engaged in earth observation using remote sensing data to study the water cycle. He provided a description of his PhD research, focusing on optimizing water cycle estimates globally using optimization methods and machine learning. Additionally, he discussed his volunteer work with nonprofits in Mali, West Africa, emphasizing his commitment to public health and education. Transitioning to his love for open science and open-source software, Matt shared his GitHub page and personal website, showcasing his global watershed delineation tool. Finally, he outlined his aspirations for contributing to the Bay RMP, emphasizing his expertise in hydrologic science, watershed modeling, and pollutant loading, along with his background in project management and facilitation.

Jay commended Matt's extensive experience and skills, particularly noting his patience, a valuable trait given his role in the Delta Regional Monitoring Program. Matt expressed his gratitude and eagerness to connect with everyone further.

7. Information: Workgroup Planning Update (01:29:45)

To begin this item, Jay provided an update on the potential significant funding from the EPA and the process involved in securing it. Jay described the proposal development process, emphasizing the need to intensify the annual planning cycle to align with the new funding opportunity. Multiple proposals were discussed, encompassing various work areas, including RMP, NMS, WRMP, PCBs, PFAS, and WQIF projects. It was noted that some projects may overlap and contribute to multiple buckets, underscoring the interconnectedness of the work.

Jay noted that the EPA has over \$20 million available for FY24, with an additional \$54 million per year expected in subsequent years. The Regional Monitoring Program (RMP) might receive some of the FY24 funds, which need to be committed by June and awarded by September, requiring an approved exception memo and workplan from the RMP. The Steering Committee (SC) should approve a funding amount at the upcoming April SC meeting, emphasizing the importance of including environmental justice and climate adaptation. RMP should target a first-year grant of \$5-7 million, with a match requirement of 25%. The SC guidance to Workgroups and staff is to aim for a 50% funding increase in 2025 and eventually a 100% increase over the next few years.

Leading off for the Emerging Contaminants Workgroup, Becky Sutton of SFEI discussed Tier 1 proposals. Strategy funding would require \$70K while stormwater contaminants of emerging concern monitoring will cost \$300K. Plastic additives in water would require \$173K or \$235K if sediment is added. Quaternary ammonium compounds (QACs) in water would cost \$106K or \$164K if sediment was added. This would be follow up work to the draft report just released by Becky and Bill Arnold. Synthetic dyes in sediment, water, wastewater and stormwater is an early outgrowth of the workgroup's data mining exercise where it will look at targeted data and additional priorities. This would be an additional exploration. Non-target analysis (NTA) of bay fish would be conducted for a second year for \$76K and could be done with a new partner. NTA of fiber in stormwater will look at plastic additives expelled from textiles and fibers for \$124K. A stormwater in vitro toxicity screening would test a new method developed by the EPA for \$26K.

Becky proceeded to review the Tier 2 proposals for the ECWG. Augmented stormwater CECs monitoring aimed to extend previous work in monitoring contaminants

of emerging concern (CECs) in stormwater, possibly with additional funding to enhance monitoring efforts for \$150K. Becky proposed a PFAS nuclear magnetic resonance (NMR) analysis, utilizing advanced analytical techniques to comprehensively analyze per- and polyfluoroalkyl substances (PFAS) in various matrices such as wastewater, stormwater, and bay samples for \$380K. A journal paper on tire wear emissions will collaborate with a European laboratory to assess tire wear based on chemical markers, potentially contributing to the understanding of tire-related pollutants in the environment for \$15K. An analysis on tire rubber markers will conduct detailed analyses of tire particles using paralysis gas chromatography-mass spectrometry (GCMS), enhancing the accuracy of tire wear particle measurements in stormwater samples for \$105K. Becky proposed a PFAS analysis add-on to stormwater depth monitoring pilot proposed incorporating PFAS analysis into an existing pilot study on stormwater microplastics, aiming to evaluate the impact of different depth sampling on PFAS evaluation that would be \$55K. Finally, an analysis on PFAS wet deposition pathways project would involve community groups to collect samples and share data, focusing on assessing PFAS contamination through wet deposition pathways, with particular attention to the importance of rainfall data for exposure assessment. This effort would cost either \$185K or \$320K. Focusing on rainfall data importance for exposure assessment and would include involvement of community groups to gather samples and share data.

For the Sediment Workgroup, Scott Dusterhoff presented the Tier 1 Proposals, stressing that the dollar amounts were flexible. In Tier 1, Scott proposed three main project ideas in addition to \$50K for strategy and coordination. Firstly, the Bay conceptual model, which was completed two years ago, would be updated. The workgroup would consider whether to update it at the bay scale or sub-embayment scale. This would cost \$50K. Secondly, the workgroup would develop a work plan for studies supporting hydrodynamic model calibration, focusing on assessing erodibility and sediment flocculation impacts on settling velocity for \$75K. The group also proposed a pilot project for using satellite imagery to determine suspended sediment concentration, aiding in assessing sediment flux in the Bay for \$125K. Tier 2 proposals included developing a shoreline change analysis for areas such as St. Pablo Bay (\$75K), monitoring flux at key bay cross-sections like the Golden Gate or other key Bay cross sections (\$100K), and continuing flux and deposition monitoring on mudflats and marshes, potentially at new locations (\$100K). Additionally, he suggested continuing monitoring at US Army Corps shallow stations and for bathymetric data collection (\$100K).

For the Sources, Pathways, and Loadings Workgroup (SPLWG), Alicia Gilbreath presented the team's Tier 1 proposals. In Tier 1, proposals included a strategy and coordination budget aimed at enhancing internal and external coordination for

monitoring and modeling needs (\$65K). Alicia also presented a tidal area remote sampler project addressing ongoing needs and permit-related expenses (\$10K). Lastly, there will be PCB and Mercury monitoring and modeling to support load and trend assessment, focusing on estimating model uncertainties and providing monitoring design recommendations for \$167K. Tier 2 proposals included GIS improvements in watershed delineation and land use integration to support modeling, data interpretation and site selection decision-making (\$60K-\$100K). Another proposal involved full stormwater systems management and equipment upgrades to automate sampling processes and enhance data management for (\$60K-\$100K).

For the Microplastics Workgroup, Diana Lin outlined the Tier 1 proposals, including \$20K for strategy funding. The first proposal featured a stormwater pilot study that hoped to continue exploring sampling biases between single-depth and depth-integrated methods for an additional year (\$94K). The next proposal would update tireware particle analysis to complement microplastic analysis using FTIR spectroscopy, addressing the need for comprehensive particle assessment. Additionally, the workgroup plans to leverage the 2025 Status and Trends water cruise monitoring to collect smaller microplastic water samples, enhancing previous data by capturing microplastics as small as 10 micrometers, crucial for evaluating toxicity and understanding particle size distribution in ambient water samples. This effort would cost \$182K. Transitioning to Tier 2 proposals, Diana presented a study to analyze microplastics in sport fish, utilizing specimens collected during the status and trends for fish monitoring (\$130K). Lastly, the tire rubber marker analysis would be conducted in conjunction with the ECWG (\$105K).

Jay presented the proposals from the PCB Workgroup. The Tier 1 proposal primarily focuses on strategy and coordination (\$10K) as the group already has substantial funding secured for modeling work from Destination Clean Bay and other sources. Tier 2 introduced a proposal driven by the modeling team to gather empirical data supporting modeling efforts in San Leandro Bay, involving the deployment of sensor arrays to track sediment and other parameters, aiming to enhance modeling accuracy. Finally, he shared a cross workgroup proposal on creating a fixed station watershed monitoring network that would span the SPLWG, ECWG, SedWG, and PCBWG.

Jay emphasized the need for coordination between all of the workgroups and other initiatives to ensure alignment and avoid duplication of efforts. Additionally, there was mention of potential future data needs dependent on factors like regulatory reviews and adaptation efforts, indicating a dynamic approach to research prioritization. Beyond PCB-specific proposals, there was a broader consideration for conceptual designs and

targeted monitoring efforts aimed at understanding runoff management and identifying areas of environmental impact across the Bay Area.

8. Discussion: Status & Trends and Program Management Planning Update (02:32:50)

Amy provided a detailed review of the Status and Trends Plan for 2025, which outlined various initiatives and their corresponding budgets. The plan included allocations for USGS Moored Sensors (\$400k), Nutrient Cruises (\$283k), Toxic Contaminants in Dry Season Water (\$265k), CTR & Organics (\$88k), NTA (\$12k), Passives (\$51k), Archives (\$85k), Reporting (\$14k), and Lab Intercomparison Studies (\$30k), totaling \$1,228,000. Amy noted that North Bay Selenium monitoring was not included in the plan for 2025 but was planned for 2026; however, given the decision to pause sampling in 2024, consideration was given to adjusting the plan to include selenium monitoring in 2025.

Amy discussed utilizing USEPA Bay Program Funds for Status & Trends Monitoring, including addressing the insufficient budget for NTA in 2025-6, support for SWAMP Realignment-related sport fishwork (including community fish collection and additional sampling locations like Hunters Point), continuation of S&T pilot studies such as wet season water sampling, increasing sampling stations to cover more regions of the Bay, increasing storm event sampling, and considering harbor seals and selenium monitoring.

Amy also highlighted the need for internal and external coordination, technical oversight, contract and financial management, and governance to support the expansion of projects and partnerships. She proposed efforts to increase coordination between workgroups, external partners, and technical oversight for project deliverables. Additionally, she suggested allocating more funds for proposal development, literature review, QA, and data services to ensure efficient management and timely processing of datasets.

A new idea was introduced to establish an equipment maintenance budget using RMP funds to purchase and maintain field and lab equipment, including YSI and regularly scheduled calibrations, remote sampler and ISCO maintenance costs, peristaltic pumps, safety harnesses, CTD replacement, and lab improvements. The initiatives aim to strengthen the RMP's capabilities, enhance data quality, and support the growing needs of the Status and Trends program.

9. Discussion: 2023 Interlaboratory Comparison Study Results and QA Update (03:03:36)

Don Yee of SFEI provided a detailed discussion on the 2023 interlaboratory comparison study. The purpose of the study was to assess the agreement among different labs conducting PFAS analysis in water. These labs included SGS AXYS, serving as the primary S&T contract lab, Eurofins, which has been utilized in some SFEI studies, and Enthalpy. Each lab was provided with samples for analysis, ensuring comprehensive coverage of the study parameters.

Water samples from two sites, one near-field station and one deep Bay S&T station, were chosen for the comparison. Each lab was provided with sufficient volumes of sample for analysis, including duplicates and matrix spikes. Different methods of analysis were discussed, with preference given to non-spike options for more realistic results. A Bay sample (LSB089Ww) and triplicate samples from the near-field Palo Alto station were provided to the primary analytical lab, AXYS, for thorough analysis. Two of the near-field samples were analyzed as lab duplicates by AXYS, while the third near-field sample served as a matrix spike.

Furthermore, a deep Bay sample and near-field triplicate samples were also provided to other labs for analysis. Eurofins analyzed the extra near-field samples as a lab duplicate and matrix spike, while Enthalpy conducted additional analyses as matrix spike and matrix spike duplicate. Overall, the labs demonstrated consistency, with results generally within ~30% of each other, particularly for PFxSs and PFxAs, which were the only compounds detected.

Further discussion revolved around upcoming intercomparison studies, particularly focusing on tissue analyses. The feasibility of conducting such studies, especially with fish samples, was explored. Concerns were raised about mass limitations for certain species like sturgeon and the need for adequate sample collection for multiple labs. Appropriate species will be selected for testing and Don will coordinate with labs capable of conducting the analyses.

Additionally, Don addressed issues related to CECs contamination in water samples with efforts underway to improve field blank collection methods and identify the sources of contamination.

Finally, there was deliberation on selecting labs for future intercomparison studies, with a focus on those capable of analyzing PFAS and PCBs. Budgetary considerations

were discussed, along with the importance of selecting labs based on their capabilities and track record. Plans were made to collaborate closely on selecting suitable species for testing and coordinating with labs to ensure standardized procedures and reliable results. In summary, the intercomparison studies highlighted the comparable performance of the participating labs, with no lab demonstrating obvious superiority. The results obtained were deemed sufficient for qualitative comparisons, although larger sample sets would be preferred for quantitative applications and potential lab switches.

Don also presented on the 2023 copper and hardness intercomparison study, where the primary lab, Brooks Applied, analyzed samples from all sites for dissolved and particulate copper and calculated hardness. However, the results of this study were still pending. Additionally, CCSF provided split samples from historical stations for comparison, with results appearing in a similar range as past data.

Future intercomparison studies in 2024 will most likely focus on tissue.

10. Information: 2021 Copper and Cyanide Rolling Averages Data Update (03:31:00)

Martin Trinh of SFEI shared results for the 2021 copper and cyanide rolling averages. The rolling averages for both copper and cyanide were updated based on the latest data. These rolling averages included data from the past three sampling years, specifically 2017, 2019, and 2020.

Samples were collected from various locations, including the South and Lower South Bay, the Central Bay, and Suisun and San Pablo Bay. Overall, it was observed that the levels of copper and cyanide remained below trigger levels, indicating satisfactory water quality. However, there were slight increases in the rolling averages for cyanide, particularly in the South and Lower South Bay areas due to one high sample in each subembayment from 2019.

The TRC discussed the significance of these trends, with considerations for assessment of legislative actions on brake pads and the effectiveness of source control measures. There was a focus on understanding the impact of legislation on water quality and the need for evidence-based policy decisions. They discussed the availability of the updated data and the timeline for future data releases. Martin stated that the 2023 data were undergoing quality assurance processes and would be available soon.

Further questions were raised regarding detection limits and the possibility of utilizing alternative methods to achieve lower detection limits in Bay water analysis. However, it was acknowledged that finding such methods might be challenging given current technological limitations.

11. Discussion: Communications Update (03:53:10)

Jay began the agenda item by highlighting the work on the upcoming 2024 Pulse. Jay announced that there are copies of the RMP Update available. The discussion then shifted to the 2024 Pulse, where CECs (Contaminants of Emerging Concern) will be highlighted, similar to the 2013 edition. Work will begin on an updated guide to CECs in the Bay in early 2024, with additional text added to address Jay's suggestions for improvements. The TRC suggested the inclusion of a sidebar on challenges, followed by risk profiles. Tom volunteered someone at the Water Board to provide some input on the draft. Both the Water Board and DTSC will have featured articles in the Pulse and there will be sidebars on the tiered risk-based framework, EPA and PFAS: Sources to Solutions, DPR and pesticides, State Board CEC Strategy, and Essential Use Approach.

Jay moved on to discuss the planning for the upcoming 2024 RMP Annual Meeting. The TRC discussed potential keynote speakers and presenters for different sessions, recognizing the importance of securing engaging and knowledgeable speakers who could address relevant topics effectively. Ideas were shared regarding experts in the field, including those with experience in watershed modeling, water quality perspectives, and environmental advocacy.

The agenda for the Annual Meeting will be crafted to cover a range of topics relevant to the organization's objectives and current environmental challenges. The TRC considered sessions on various subjects such as sediment studies, stormwater updates, PFAS contamination, and wastewater management. The TRC considered dedicating more than one session of the Annual Meeting to CECs, potentially tying it in with Pulse discussions. The aim will be to provide attendees with a comprehensive overview of ongoing research, initiatives, and issues.

The TRC also touched upon the structure of the sessions, considering the optimal flow of topics and the inclusion of panel discussions or interactive elements to engage the audience. Chris proposed potentially featuring presentations by advisors followed by staff presentations. In addition to content planning, logistical aspects of the Annual Meeting were also addressed. Discussions included considerations such as the format of the event (in-person or virtual), scheduling, budgeting, and accommodating speakers'

availability. The meeting organizers also reflected on past events to identify lessons learned and areas for improvement in terms of logistics and execution.

Finally, the meeting participants discussed strategies for promoting the Annual Meeting and ensuring effective communication with attendees. This included considerations for marketing materials, registration processes, and leveraging various communication channels to reach the target audience. The aim was to maximize attendance and engagement while ensuring that relevant stakeholders were informed about the event.

12. Information: Status of Deliverables and Action Items (02:52:30)

Amy highlighted the completion of several deliverables, including the 2021 copper and cyanide rolling averages, distribution of participation letters to BACWA and WSPA, and payment of honoraria and gifts to science advisors. She reemphasized the completion of S&T wet weather water sampling for the wet season. Despite a team member being on leave, the data services team managed to update the sample data archive database with all the archives and bird eggs collected in 2022. The final deliverable for 2021 Nutrients special study was a technical memo on semi-imposed light extinction estimates for biochemical modeling applications in San Francisco Bay. Amy noted the completion of the 2024 RMP QAPP update, which is now posted on the website, as it facilitated contract negotiations with Destination Clean Bay. The CEC modeling exploration report is also completed. Additionally, the stormwater CECs manuscript has been submitted.

Amy also addressed overdue deliverables, such as the MTC Bay Area land use update, the STLS regional model development, the stormwater monitoring strategy for CECs, 2020 S&T Design report, and RWSM update and technical report.

Delayed deliverables include the STLS WY21 POC Reconnaissance Monitoring, which required an update of data for the Advanced Data Analysis. This project is waiting on input from BAMSC, Lester has been in contact with Lisa Sabin to discuss next steps. The North Bay Selenium in clams and water report has had all data through 2022/2023 run through DS. The USGS data release for 2010-2016 is coming soon, with Shaun Baseman working to finalize this. Work on the NTA Sediment Data Manuscript and Fact Sheet has slowed, prioritized behind CEC strategy revisions and 2025 ECWG proposal prep. Work on the PFAS in Archived Sport Fish Manuscript has slowed, prioritized

behind CEC strategy revisions and 2025 ECWG proposal prep, and the QACs report, delayed until summer 2024.

Deliverables due before the next TRC meeting include the Impact of Remediation Actions on San Leandro Bay Recovery from PCB Contamination technical report, which is currently under review with the PCBWG and aiming to be finalized in April. Wastewater partners needed more time on the The QACs in Bay wastewater SEP but the intention is to have the report ready for the ECWG meeting. Don and Data Services are still working on the reanalysis for the Final Margins report. This was prioritized behind the 2023 lab intercomparison results, Bird Egg PFAS QA for ECWG, and the ambient Bay numbers update for the BCDC. With help from Miguel on QA ancillary datasets, the 2021 QA Summary Report for S&T Activities should be completed by June. A draft of the North Bay Selenium in clam and water data report (2019-2020) has been sent for review by the Selenium workgroup, aiming for finalization in April. The 2020 S&T Design Report will be completed without review from Tom Grieb. Finally, the Sediment Deposition on SB Marsh (Whales Tail) report will be submitted this month.

13. Discussion: Plan Agenda Items for Future Meetings (04:27:50)

The group was aware the June meeting would focus mostly on special study prioritization. The Annual Meeting and RMP Pulse will be discussed.

14. Discussion: Plus/Delta

Overall, the group commended Jay and Amy on the efficient meeting. The TRC particularly appreciated the RMP's sustained efforts on S&T monitoring. In-person attendees appreciated Bridgette's cake and noted how productive the meetings were in person.

About the RMP

RMP ORIGIN AND PURPOSE

In 1992 the San Francisco Bay Regional Water Board passed Resolution No. 92-043 directing the Executive Officer to send a letter to regulated dischargers requiring them to implement a regional multi-media pollutant monitoring program for water quality (RMP) in San Francisco Bay. The Water Board's regulatory authority to require such a program comes from California Water Code Sections 13267, 13383, 13268 and 13385. The Water Board offered to suspend some effluent and local receiving water monitoring requirements for individual discharges to provide cost savings to implement baseline portions of the RMP, although they recognized that additional resources would be necessary. The Resolution also included a provision that the requirement for a RMP be included in discharger permits. The RMP began in 1993, and over ensuing years has been a successful and effective partnership of regulatory agencies and the regulated community.

The goal of the RMP is to collect data and communicate information about water quality in San Francisco Bay in support of management decisions.

This goal is achieved through a cooperative effort of a wide range of regulators, dischargers, scientists, and environmental advocates. This collaboration has fostered the development of a multifaceted, sophisticated, and efficient program that has demonstrated the capacity for considerable adaptation in response to changing management priorities and advances in scientific understanding.

RMP PLANNING

This collaboration and adaptation is achieved through the participation of stakeholders and scientists in frequent committee and workgroup meetings (see Organizational Chart, next page).

The annual planning cycle begins with a workshop in October in which the Steering Committee articulates general priorities among the information needs on water quality topics of concern. In the second quarter of the following year the workgroups and strategy teams forward recommendations for study plans to the Technical Review Committee (TRC). At their June meeting, the TRC combines all of this input into a study plan for the following year that is submitted to the Steering Committee. The Steering Committee then considers this recommendation and makes the final decision on the annual workplan.

In order to fulfill the overarching goal of the RMP, the Program has to be forward-thinking and anticipate what decisions are on the horizon, so that when their time comes, the scientific knowledge needed to inform the decisions is at hand. Consequently, each of the workgroups and teams develops five-year plans for studies to address the highest priority management questions for their subject area. Collectively, the efforts of all these groups represent a substantial body of deliberation and planning.

PURPOSE OF THIS DOCUMENT

The purpose of this document is to summarize the key discussion points and outcomes of a workgroup meeting.

Governance Structure for the Regional Monitoring Program for Water Quality in San Francisco Bay

Figure 1. Collaboration and adaptation in the RMP is achieved through the engagement of stakeholders and scientists in frequent committee and workgroup meetings.

