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**Bay RMP Technical Review Committee Meeting**

March 23, 2022

# Meeting Summary

**Attendees (all participants remotely attending)**

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| **TRC Member** | **Affiliation** | **Representing** | **Present** |
| Yuyun Shang | EBMUD | POTW | **Yes** |
| Mary Lou Esparza | Central Contra Costa Sanitary District | POTW | **Yes** |
| Tom Hall | EOA, Inc. | POTW | **Yes** |
| Ross Duggan | City and County of SF | CCSF | **Yes** |
| Anne Hansen Balis | City of San Jose | POTW | **No** |
| Bridgette DeShields\* | Integral Consulting | Refineries | **Yes** |
| Chris Sommers | EOA, Inc. | Stormwater | **Yes** |
| Shannon Alford | Port of San Francisco | Dredgers | **No** |
| *Xavier Fernandez* | *SF Bay Regional WQCB* | *Water Board* | ***Yes*** |
| Luisa Valiela | US EPA | US EPA-IX | **Yes** |
| Ian Wren | Baykeeper | NGOs | **Yes** |
| *Jamie Yin* | *US Army Corps of Engineers* | *USACE* | ***Yes*** |
| *Heather Peterson* | *City and County of SF* | *POTW* | ***Yes*** |

**\***Chair; alternates in gray and italicized

**Staff and Others**

* Jay Davis – SFEI
* Melissa Foley – SFEI
* Adam Wong – SFEI
* Don Yee – SFEI
* Martin Trinh – SFEI
* Bryan Frueh – City of San Jose
* Craig Jones – Integral Consulting
* Paul Salop – AMS

## Introductions and Review Agenda

Bridgette DeShields opened the meeting with a round of introductions. She noted this would be Ross Duggan’s final TRC meeting. Heather Peterson will be replacing him. The TRC members thanked Ross for his many years of participation and welcomed Heather to the team. Melissa Foley proceeded to review the upcoming agenda, including multiple science updates: North Bay margins sediment preliminary results, In-Bay Modeling Strategy, and bird egg analytical method change and intercomparison.

## Approve Meeting Summary from December 9, 2021, Confirm/Set Dates for Future Meetings, and Confirm TRC Chair

Melissa asked the group for any final comments on the previous meeting’s summary. Receiving no comments, she continued to confirm the dates for upcoming meetings. The dates of the upcoming Steering Committee (SC) meetings were confirmed to be April 27, 2022, and July 20, 2022, with the joint SC/Multi-year planning (MYP) meeting confirmed for October 26, 2022. The upcoming TRC meeting date of June 15, 2022, was confirmed and a request to move the September TRC meeting to September 21, 2022, to accommodate the earlier Annual meeting was approved. The December TRC meeting was confirmed for December 8, 2022.

Following these meeting confirmations, the TRC inquired about the possibility of returning to in-person TRC meetings. Melissa shared the current SFEI plan, with staff planning to phase back into a hybrid work model by mid-May. However, external partners have not been considered as part of that plan to date. Luisa Valiela shared that the EPA will be beginning the return to hybrid work in April. The TRC reiterated the importance of the upcoming June TRC meeting and stressed the need to conduct the meeting in the most optimal setting. Chris Sommers and Bridgette DeShields acknowledged that the hybrid meeting format will likely be the standard for the foreseeable future and advocated to adopt this format for the June meeting and beyond. Chris stressed the need for consistency and transparency in any hybrid protocols. Xavier Fernandez offered to pass on any experience from the Water Board’s April hybrid meeting. Melissa will discuss with SFEI IT to ensure the most effective hybrid meeting. To end this item, the TRC approved the December meeting summary and reconfirmed Bridgette DeShields as chair, with her acceptance.

**Action Items:**

* Send out calendar invites for September 21, 2022, and December 8, 2022, TRC meetings (Martin Trinh, March 30, 2022)
* Confirm SFEI office capability to host future hybrid meetings (Melissa Foley, April 30, 2022)

**Decisions:**

* Ross Duggan motioned to approve the meeting summary. Chris Sommers seconded the motion. The motion was carried by all present members.
* Chris Sommers motioned to reconfirm Bridgette DeShields as the meeting chair. Mary Lou Esparza seconded the motion. The motion was carried by all present members.

## SC Meeting Summary from January 26, 2022

Melissa Foley went over the notable items from the January Steering Committee meeting, with the main topic being the additions to the 2022 budget.

At the last TRC meeting, SFEI’s Diana Lin presented the next phase of work being done by the Aquatic Global Passive Sampling (AQUA-GAPS) project to the TRC. The SC approved $10k in funds for the effort.

As a complement to wet season water sampling, $25k in funding in 2022 was requested for the dry season water sampling effort. These funds will allow for samples to be collected and analyzed at eight stations, with $17k for lab analysis and the remaining $8k for labor. This effort will piggyback on the NMS monthly cruises and sample at stations sampled during wet weather. Tom inquired why the effort was being limited to eight sites, with Melissa stating that more could be added. However, sites already span from San Leandro Bay to the Lower South Bay. Tom suggested that there could be regret in the future that more sites were not sampled and recommended that RMP staff come back in the future with a more substantial financial request that includes more stations, including some in North Bay.

The RMP requested $9k to aid workgroup coordination. These funds will support staff as well as efforts to improve proposal integration and pre-workgroup coordination. The additional budget will allow 16 hours per staff member for cross-workgroup coordination.

A request for $11.1k was made to fund stormwater PCB sampling upstream of the GE property. This addition will complement ongoing downstream stormwater monitoring. This effort is being conducted to enhance the PCB strategy, informing the upcoming TMDL review and revision.

These four requests (AQUA-GAPS-$10k, Workgroup Coordination-$9k, Dry Season Water Sampling-$25k, PCB Sampling-$11.1k) totaled $55.1k. With a balance of $228k in unallocated funds for 2022, the Steering Committee unanimously approved this package.

Other notable topics from the Steering Committee meeting, such as the status of incomplete projects, RMP website redesign, and Pulse planning were also on the March TRC agenda.

## Workgroup Dates, Special Studies Budget, and Workgroup Proposals, Coordination, and Strategy

Melissa previewed the upcoming RMP workgroup meetings, giving a brief overview of the organizational structure of the RMP workgroups. The PCB workgroup will hold a preliminary meeting on April 7, 2022, to discuss the in-Bay modeling strategy document and follow up with an expanded meeting in late May/early June. The Emerging Contaminants Workgroup will follow, meeting on April 11-12, 2022. The Microplastics Workgroup will meet the following week, on April 20, 2022. The Sediment Workgroup will meet on May 17, 2022, and the Sources, Pathways, and Loading (SPL) workgroup will meet on May 23 and 25, 2022.

Melissa announced the addition of three new advisors to the workgroups. The PCB workgroup added Dr. Earl Hayter of the US Army Corps of Engineers. Earl has extensive experience modeling sediment and contaminant transport in rivers, lakes, estuaries, and coastal environments and was highly recommended by Craig Jones. The PCBWG’s resident advisor, Frank Gobas, specializes in bioaccumulation and Earl’s work will be a great complement. The SPL workgroup will be adding Drs. Robert Budd from the California Department of Pesticide Regulation (CDPR) and Steve Corsi from the USGS. Robert brings expertise working with pesticides and will be able to link monitoring to modeling. Steve’s background as a research hydrologist and his experience with remote sensing will be a great source of guidance for the RMP’s work with CECs. Steve will be replacing Barbara Mahler, who is unable to return to advising the RMP following her accident. Chris suggested that a formal acknowledgement should be made to recognize Barbara’s accomplishments and roles within SFEI, noting the guidance she has provided over the years. Luisa fully agreed and suggested making a note in the upcoming Pulse.

The RMP has demonstrated an increased focus on cross-workgroup coordination and is attempting to make this process more efficient. Melissa invited the TRC to provide advice on the plan for carrying out cross-workgroup coordination this year. Melissa explained that most proposals have a home workgroup, but specific people in other workgroups will be asked to provide input. In addition, “lightning” talks will be given at related workgroup meetings to keep people up to date on project progress and how the project connects to potential future studies in that workgroup. Melissa noted that budgets are typically higher for these cross-cutting proposals as they contain multiple workgroups worth of work. Melissa highlighted that of the 20 proposals, 11 of them span multiple workgroups. Chris broached the prospect of having joint workgroup meetings, seeing as many workgroups have shared proposals. Chris expressed that this does not have to be implemented this year, but should be a consideration when scheduling next year’s meetings.

Luisa expressed that she loves the message the cross-workgroup coordination sends about integrative science, noting that this is an ideal year for such proposals. Luisa gave an update on the Water Quality Improvement Fund (WQIF). There will be two RFA’s, one for $5 million with no match and another for $24 million with matching funds required. As of now, the request for proposals is planned to be released at the end of April, with submissions being accepted through the end of June. Luisa explained that the recently passed omnibus bill increased the pot from the normal $5 million to $24 million for fiscal year 2022 to support projects focused on water quality and habitat restoration. Luisa noted that the RMP should treat this as a one-time opportunity given the unpredictability of future years. Luisa expressed that if proposals are written well, reviewers will be swayed, advising the RMP to create proposals that create confidence that public investment will lead to improved climate resilience and/or improved water quality. Luisa advised the group to check the EPA website to see what projects have been funded in the past. Jay suggested that stakeholders should have a special meeting to review and discuss the best proposal candidates. SC and TRC members will be included.

Melissa concluded the item by providing an overview of the workgroup proposals. There is $2.1 million in requested funding, with $1.4 million available (there is a possible $100k coming from municipal water monitoring funding). The SC wants the Multi-Year Plan to be fully updated by 2024, with particular interest in ongoing PCB strategy meetings to provide a technical foundation for updating the PCB TMDL. Melissa gave a high-level overview on the proposals of each workgroup, requesting comments and feedback on the summary table (page 28, Item 4) before the Workgroup meetings begin.

Chris inquired as to how workgroups other than SPL identify which special studies to propose each year. Melissa explained that each workgroup has a multiyear plan that is discussed with stakeholders and advisors. This table acts as the guiding document for proposals in any one year. Ideas are refined by the Workgroup lead and staff after communication with advisors and key stakeholders.

**Action Items:**

* Organize WQIF Proposal Prioritization Meeting (Melissa Foley, March 30, 2022)
* Relay feedback on the Workgroup Proposal Table to Melissa (TRC members, April 1, 2022)

## Data Services Update

Adam Wong gave an update on the work of the Data Services team in 2022, highlighting personnel changes as well as ongoing COVID delays. He provided a quick overview of the finalized datasets for the year as well as database maintenance and process improvement efforts.

The Data Services team now consists of Adam Wong (Data Manager), Michael Weaver, and Don Yee. In 2021, datasets were finalized for mercury, PCBs, and SSC in WY2020 POC Stormwater Data; selenium, mercury, dioxins, PBDEs, PCBs, and PFAS in 2019 sport fish; bisphenols and OPEs for a special study; and 2019-2020 North Bay selenium in clams and water. Data maintenance and process improvement, especially for QA/QC procedures, was a focus for 2021. Data in progress includes WY 21/22 POC stormwater data, 2021 Water Cruise, 2020 North Bay Margins, WY2021 wet weather Bay CECs, and 2021 North Bay selenium.

The main challenge Adam noted was pandemic-related delays, either related to sampling and analysis or staff workload. The RMP is also working with “new labs,” including Eurofins and academic labs who are often rotating in new staff. Improvements for 2022 center on expanding staff capabilities for QA/QC, whether by training additional staff to handle QA/QC or streamlining the QA/QC process. Michael Weaver’s return to Bay RMP work, after previously focusing on Delta RMP work, will help alleviate the workload. Luisa inquired if there are any other major factors contributing to these delays, other than COVID. Jay explained that estimates are getting better as the team acclimates to other labs and COVID related delays. The timeline of uploads was explained in detail as labs prefer to upload by batch (cost-saving measure), but submissions could be done individually if necessary. Xavier added that the recently open data legislation has had a huge effect on data uploads and scrutiny, with Chris noting the stress this could place on staff and timelines. Adam clarified that planning budgets and hours have not been updated recently to account for staff changes. Adam will work to update their planning costs, particularly in light of CECs taking additional time to go through the QA/QC process. Don added that attempts to automate some aspects of the QA/QC process are admirable but may require effort upfront to standardize idiosyncrasies amongst uploads.

## North Bay Margins Results

Don Yee of SFEI previewed the 2020 North Bay Margins Sediment results. Don will give a more detailed overview of the results at a later TRC meeting.

The North Bay study was the last in the series of margins pilot studies, with Central Bay completed in 2015 and South Bay in 2017. The objectives of the study were to assess contaminant concentrations in the margins and determine whether those levels are of concern and if they are different from concentrations measured in the open Bay. The South Bay margins constitute a much larger proportion of area relative to the North Bay which is in turn larger than the Central Bay. The North Bay margins are expected to be influenced by the heavily industrial land use (e.g., refineries) and Delta inputs, including mercury from historic gold mining in the Sierra. Don explained that a probabilistic design that gave an equal weighting of the number of stations to area for San Pablo Bay, Carquinez Strait, and Suisun Bay was used to distribute the 40 stations. The target analytes for the study were PCBs, Hg, methyl Hg, metals, and organics. For PCBs, the margins and open Bay had similar concentrations and were overall lower than Central Bay. Kolmogorov-Smirnov (K-S) tests suggested that concentrations of mercury, copper, arsenic, cadmium, nickel, zinc, aluminum, and iron were significantly different in the margins than the open Bay. However, the data have not yet been grain size-corrected, which may change the results. The cumulative distribution function analysis (CDF) showed that mercury was higher in the open Bay, likely due to the mining influence from the Delta. Chris wondered if the Central Valley was producing more PCBs than North Bay due to higher urban density. Craig Jones posed the thought that although contributions from the North Bay are significantly lower than from the Central and South Bay, some transport could be going to North Bay from the other embayments, but a more careful look is required.

North Bay margins had lower concentrations for most contaminants than other areas of the Bay. Jay noted that the open Bay does contain older data which could skew observations. The North Bay had less highly contaminated margins areas compared to the Central Bay.

A draft report for internal review will be published in May. A final report will be released in July. The revised S&T design calls for monitoring in the margins every five year intervals for CECs and every 10 years for all pollutants. Chris reiterated the importance of presenting the information with enough supporting information, especially when claiming there is a significant difference that may influence management and scientific decisions. Adam clarified that K-S tests are being used as non-parametric weighted statistical tests that have been used historically for sediment data. Luisa found these findings reassuring as they confirm the Bay is circulating in the manner we expected. Melissa linked this back to the robust conceptual models previously developed, as expectations and comparisons will allow for deeper inspection of models and actual results. Bridgette DeShields suggested that if these regional patterns in the margins continue to be observed, perhaps more emphasis on future monitoring should be placed on the Central Bay margins where there are bigger differences between the margins and the open Bay and where loadings tend to be higher.

## In-Bay Modeling Strategy

Jay Davis previewed the upcoming PCB Workgroup meeting by reviewing the In-Bay Modeling Strategy developed by Craig Jones, Don Yee, and Jay. This modeling strategy marks the beginning of a major multi-year endeavor that is also connected with the Emerging Contaminant and Sediment workgroups. This effort builds on previous work, leveraging NMS modeling and setting the foundation for future collaboration with this group. Craig reviewed the desired outputs to address management questions, which include distribution fields for contaminant loads, sediment recovery depth profiles, rates of sediment accumulation in areas of interest, measurement of sediment contaminant concentrations over time, surface sediment and contaminant distributions, and biota contaminant concentrations. Craig concluded the item by outlining the five phase workplan of the working group, for which $56k has been allocated for 2022. Phase 1 will utilize the existing NMS model to address specific PCB loading and sediment recovery questions in San Leandro Bay, with Phase 2 expanding this model to Steinberger Slough and Redwood Creek. Phase 3 will develop a whole-Bay sediment and contaminant fate model with Phase 4 working to develop and validate a bioaccumulation model that can be used with the PMU models. Once this model has been validated, the maintenance of this model, Phase 5, will allow multiple ongoing management challenges in the Bay to be addressed. There will be a detailed review of this workplan and modeling strategy at the upcoming PCB Workgroup meeting and subsequent updates provided at the Emerging Contaminants Workgroup, SPLWG, and Sediment Workgroup meetings. Afterwards, a modeling Council of Wisdom will continue to advise the effort with more specific plans for 2022 and 2023-2025 discussed at the second PCB Workgroup meeting early June.

## Bird Egg Intercomparison

Melissa Foley informed the TRC of a method change for PCBs, PBDEs, and pesticides at SGS AXYS. High Resolution Mass Spectroscopy (HRMS) instrumentation is being phased out due to the cessation of instrument support and software development for this method. HRMS is being replaced by Gas Chromatograph mass spec/mass spec (GC MS/MS), with the EPA funding SGS AXYS to develop this method for dioxins, PCBs, PBDEs, and Organochlorine (OC) pesticides. GC MS/MS was developed to mimic HRMS, the sample extraction process being exactly the same. Results suggest GC MS/MS is capable of equal or better performance, with likely lower detection limits for PCBs and OCs. There is no cost difference between the two methods at the moment, although there are likely cost savings to switching to GC MS/MS in the future. The suggested intercomparison will compare methods for PCBs and legacy pesticides, with samples costing $900 and $800 each respectively, with an approximate cost of $1780 per sample, totaling $16k. SGS AXYS is interested in publishing this comparison data in partnership with the RMP. PBDEs will continue to use the HRMS method as this is the final year of their analysis. Melissa noted that tissues would be the easiest medium to compare due to sample homogenization. Luisa, Mary Lou, and Bridgette voiced the larger group consensus that this switch should be done sooner rather than later, with Richard noting that HRMS is on its way out regardless. Xavier Fernandez reiterated that it would be preferable to pay now in order to ensure long-term savings.

## Website Update

Martin Trinh of SFEI provided an update on the ongoing redesign of the RMP webpage. Working with Tony Hale, the redesign will primarily focus on organizing the varied projects of the RMP into a navigable structure that will be intuitive for SC and TRC members. Adopting an aesthetic that resembles the newly redesigned SFEI Environmental Informatics and Resilient Landscape pages, the RMP webpage will follow a hierarchy of main tabs, related sub tabs, and accordions. The main tabs will be “Bay RMP”, “Data”, “Governance”, “Communications”, and “Workgroups”. Following the presentation, TRC members provided feedback on aesthetic and structural aspects. Text will be kept to a minimum in the tabs and subtabs. The SC will be given an opportunity to approve and finalize the text and content of each page. The Data sub tabs elicited some discussion. Currently, pages exist for specific analytes but the committee suggested organizing subtabs by media. Within each media tab, there could be a list of what samples were collected, when, and where. Another question was whether data was searchable by the year collected or just by the year of the published report. The committee suggested including a short description of data contained within each report on the subtab landing page. Finally, “Special Studies” was suggested to have its own subtab and live in the Workgroups main tab, which will be renamed “Workgroups and Projects”. Martin will send out a site map to both the SC and TRC for additional input. All input will be synthesized and incorporated into a beta version that will be shown at the upcoming April SC meeting.

## Communications

The Pulse Planning Subcommittee met in January to further develop the Clean Water Act theme, refining and articulating the goals and messages the RMP wishes to convey. Jay provided a recap of that discussion to the TRC. The main takeaway from the discussion with the subgroup is that the CWA is not the primary focus of the Pulse, but rather the RMP and identified data and management needs for San Francisco Bay; the CWA will act as the overarching framework for the articles. The subgroup identified key messages it would like to convey with regards to the CWA, including: infrastructure investments to date have been worth it, more investment is needed to address remaining challenges, and the CWA has been beneficial, but there are areas where it could be improved.

The subgroup emphasized the need for inclusion of varied perspectives in the article, including regional Water Board members, EPA staff, Baykeeper, and discharger perspectives. Jay reminded those at the meeting regarding due dates for perspective outlines.

For the 2022 Annual Meeting, Jay prompted the group to start thinking of high-profile speakers. Jay also proposed holding a panel of current and former Water Board members to parallel the Pulse perspectives. The Estuary News recently published an article on tire particles in salmonids in the February edition. Ideas for the upcoming Estuary News issue include RMP sampling methods and procedures from a DEIJ lens and highlighting individuals who are doing the work.

## Deliverables

In the interest of time, Melissa quickly went over deliverables and action items with the TRC members. She noted that the deliverables report included a few red items, though they were nearly complete. Melissa also highlighted some recently completed items and upcoming deadlines to alert the group to a number of publications coming from RMP projects.

## Agenda Items for Next Meeting

The group was aware the June meeting would focus mostly on special study prioritization, so Melissa took this time to review the action items from this meeting. Jay will follow up with interested parties on Pulse perspectives and WQIF prioritization. Melissa will inquire about input on the proposal table and the website redesign.

## Plus/Delta

Overall, the group was commended for their sustained effort and focus throughout the day, with Luisa commending the group for being so efficient during this meeting.