RMP Steering Committee Meeting

January 22, 2024
9:00 AM – 1:50 PM

HYBRID MEETING
In-person: First floor conference room at SFEI
Remote Access: https://us06web.zoom.us/j/92590225613
Meeting ID: 925 9022 5613
Dial in: (669) 900-6833

AGENDA

1.	**Introductions and Review Goals for the Meeting**	9:00 (10 min) Tom Mumley
2.	**Decision: Approve Meeting Summaries from MYP Workshop and SC Meeting on November 1, 2023; Confirm Dates for Future Meetings** Scheduled SC meetings: April 15, 2024 Other scheduled meetings: TRC meetings: March 26, 2024, June 13, 2024 2024 Annual Meeting: October 16 Materials: MYP Meeting Summary, pages 05 - 11, SC Meeting Summary, pages 12 - 19 Desired outcomes: ● Approve meeting summaries ● Confirm future SC meeting and Annual Meeting dates	9:10 (10 min) Tom Mumley, Group
3.	**Information: TRC Meeting Summary** Topics discussed at the most recent TRC meeting included: ● EPA Program Office Update ● 2024 Workplan Overview ● Watershed Modeling Update ● S&T Monitoring Update	9:20 (15 min) Amy Kleckner

	● Event-based Monitoring ● Informatics Update ● Communications Materials: TRC Meeting Summary, pages 20-33 Desired Outcome: ● Informed Committee	
4.	**Information: RMP Financial Update for 2023 Quarter 4** Amy to introduce Beth Birmingham. The RMP Financial Update summarizes the balance of budgeted and reserved RMP funds as well as its cash position. Materials: ● Financial Update Memo, pages 34-59 Desired outcomes: ● Informed Committee	9:35 (15 min) Beth Birmingham
5.	**Information: Review the Status of Incomplete Projects from 2023 and Prior Years** Review incomplete projects from 2023 and prior years and provide a timeline for completion. Materials: Ongoing projects table presented at the meeting. Desired Outcome: ● Decisions on continuing incomplete projects.	9:50 (20 min) Amy Kleckner
6.	**Decision: Funding Request to Complete Integrated Watershed Modeling and Monitoring Strategy Special Study** Discuss the additional funding request for completion of Integrated Watershed Modeling and Monitoring Implementation Strategy report. Materials: 2021 Special Study Proposal, pages 60-65; Memo outlining funding request, pages 66-67 Desired outcomes: ● Decision on funding requests	10:10 (10 min) Jay Davis
7.	**Decision: Approve Final Multi-Year Plan and Annual Workplan & Budget for 2024** Revisions made to the draft MYP presented at the November meeting will be highlighted. Discuss revisions to MYP and Annual Workplan & Budget to correct for accounting errors.	10:20 (20 min) Amy Kleckner

	Materials: Final Multi-Year Plan for 2024, pages 68-124; Final Annual Workplan & Budget for 2024, pages 125-151. Desired Outcome: ● Approve the Multi-Year Plan for 2024 ● Discuss revisions to the 2024 Annual Workplan & Budget.	
8.	**Information/Decision: Review Current SEP Proposals List** Water Board to affirm the list of SEP proposals on a quarterly basis. The latest developments with SEP and MMP funds will be reviewed. Materials: Current SEP Proposal List, pages 152-154; Desired Outcome: ● Informed Committee	10:40 (10 min) Tom Mumley
9.	**Break**	10:50 (10 min)
10.	**Discussion: EPA Program Office Update** EPA has developed a draft list of priorities for 2024 for their new Program Office and is soliciting input. Materials: Draft priority list document and slides, see pages 155-162 Desired outcome: ● Informed Committee	11:00 (50 min) Luisa Valiela
11.	**Information: Science Update - In-Bay Modeling of Sediment and Contaminants** Materials: Slides presented at the meeting Desired Outcome: ● Informed Committee	11:50 (30 min) Jay Davis
12.	**Lunch Break**	12:20 (40 min)
13.	**Discussion: Communications** Discuss 2023 RMP Update and plan for the 2024 Pulse on CECs. Materials: Slides presented at the meeting Desired outcomes: ● Feedback on the 2023 RMP Update ● Approve Pulse outline and workplan ● Annual Meeting date: October 16	1:00 (20 min) Jay Davis

14.	**Discussion: Status of RMP Deliverables and Action Items** Materials: Action Items & Deliverables Stoplight Reports, pages 163-174 Desired outcomes: ● Informed committee ● Feedback on progress and due dates	1:20 (10 min) Amy Kleckner
15.	**Discussion: Plan Agenda Items for Future Meetings** Desired outcome: ● Identify future agenda items, including science updates	1:30 (15 min) Tom Mumley
16.	**Discussion: Plus/Delta**	1:45 (5 min) Tom Mumley
17.	**Adjourn**	1:50

Recently Completed RMP Reports/Products

2023. 2023 Status and Trends Monitoring - Sampling Plans and QA Reports.

Kleckner, A.; Sutton, R.; Yee, D.; Wong, A.; Davis, J.; Salop, P. 2023. 2023 RMP Sediment Cruise Sampling and Analysis Plan. SFEI Contribution No. 1138. San Francisco Estuary Institute: Richmond, CA.

Kleckner, A.; Sutton, R.; Yee, D.; Gilbreath, A.; Trinh, M. 2023. Water Year 2023 RMP Near-Field Water Sampling and Analysis Plan. SFEI Contribution No. 1142. San Francisco Estuary Institute: Richmond, CA.

Kleckner, A.; Sutton, R.; Yee, D.; Wong, A.; Davis, J.; Salop, P. 2023. 2023 RMP Dry Season Water Cruise Plan. SFEI Contribution No. 1139. San Francisco Estuary Institute: Richmond, CA.

Mendez, M.; Kleckner, A.; Sutton, R.; Yee, D.; Wong, A.; Davis, J.; Sigala, M. 2023. 2023 Bay Prey Fish and Near-field / Margins Sediment Sampling and Analysis Plan. SFEI Contribution No. 1141. San Francisco Estuary Institute: Richmond, CA.

McKee, L.; Peterson, D.; Braud, A.; Foley, M.; Dusterhoff, S.; Lowe, J.; King, A.; Davis, J. 2023. San Francisco Bay Sediment Modeling and Monitoring Workplan. SFEI Contribution No. 1100. San Francisco Estuary Institute: Richmond, CA.

Trinh, M. 2024. 2021 Update to Copper Rolling Averages. San Francisco Estuary Institute: Richmond, CA.

Trinh, M. 2024. 2021 Update to Cyanide Rolling Averages. San Francisco Estuary Institute: Richmond, CA.

REGIONAL MONITORING PROGRAM FOR WATER QUALITY IN SAN FRANCISCO BAY
sfei.org/rmp

Bay RMP Multi-Year Planning Meeting
November 1, 2023

Meeting Summary

Attendees

Member	Affiliation	Representing	Present
Alicia Chakrabarti	EBMUD	POTW	**Yes**
Eric Dunlavey	City of San Jose	POTW	**Yes**
Amanda Roa	Delta Diablo	POTW	**Yes**
Karin North	City of Palo Alto	POTW	**Yes**
Tom Hall	EOA, Inc.	POTW	**Yes**
Xavier Fernandez	San Francisco Bay Water Board	Water Board	**Yes**
Tom Mumley*	SF Bay Regional WQCB	Water Board	**Yes**
Richard Looker	SF Bay Regional WQCB	Water Board	**Yes**
Gerardo Martinez	SF Bay Regional WQCB	Water Board	**Yes**
Bridgette DeShields	Integral Consulting	Refineries	**Yes**
Maureen Dunn	Chevron	Refineries	**Yes**
Adam Olivieri	BASMAA (EOA, Inc.)	Stormwater	**Yes**
Chris Sommers	EOA, Inc.	Stormwater	**Yes**
Ian Wren	Baykeeper	NGOs	**Yes**
John Coleman	Bay Planning Coalition	Dredgers	**Yes**

*Chair; alternates in gray and italicized

Staff and Others

- Jay Davis - SFEI
- Amy Kleckner – SFEI
- Warner Chabot – SFEI
- Rebecca Sutton - SFEI
- Martin Trinh - SFEI
- Scott Dusterhoff - SFEI
- Alicia Gilbreath - SFEI
- Diana Lin - SFEI
- Kelly Moran – SFEI
- Don Yee - SFEI

1. Introductions and Review Goals for the Meeting

Tom Mumley began the meeting by welcoming everyone to the Multi-Year Planning (MYP) Workshop. Following a brief introduction to the technology and hybrid meeting etiquette, Tom oversaw a round of introductions. He then reviewed the agenda items, including reviewing Special Study funding for 2024, workgroup direction, and implementation of the revised Status & Trends (S&T) program.

2. Discussion: Setting the Stage – Planning for 2024 and Beyond

Amy opened this agenda item by sharing the RMP budget for 2024, consisting of $4.16 million in core fees, $440K for the CEC monitoring supplement, SEP funds, and additional funding from the WQIF proposals. The Status and Trends updated design is well under way. After this upcoming year, the RMP will have completed the sampling portions of the pilot studies for wet season water and harbor seals. In Agenda Item 4, Amy will share more details of what changes have been made since the 2023 MYP and how those changes would affect future S&T budgets and what remains for special studies. Amy shared the annual gross expense vs net expense and the 10-year average for net expense after set-aside fund withdrawals or contributions. In the 2023 MYP, the predicted 10 year average for net S&T expenses was $1.45M. In this year's update, that average is now $1.5M (2020-2029). The RMP is anticipating the release of funds for the WQIF Destination Clean Bay grant by the end of this year, also hoping to hear soon about the PFAS Sources to Solutions WQIF grant. In addition to the competitive block of funds estimated at around $5M, the RMP is encouraged to plan for additional funds from the EPA SF Bay Program Fund that will be earmarked for studies in key areas such as nutrients, PCBs, and stormwater management.

Amy then highlighted the work planned for 2024. The first big lift of the year will be the storm water CECs monitoring and modeling, getting ready for the upcoming storms. Concurrent will be the OPES, bisphenol and other plastic additives in wastewater, microplastics storm water monitoring pilot, and tire and roadway contaminants in wet season Bay water. Other priorities include the nontarget analysis of Bay fish, sediment accretion in Bay restoration, sediment deposition in San Leandro Bay, and PCB and mercury watershed load monitoring and modeling. Additional lifts include the nutrient moored sensor network, PFAS synthesis and strategy, PFAs and Bay water using the TOP assay, the tidal area remote sampler, and the remote sampler purchase that Kelly will provide an update on. Workgroup strategies are helping to inform special studies planning and Jay will cover the progress of the workgroup strategy updates in more detail later in the agenda.

Amy concluded the item by updating the Committee on the RMP discussions at various stakeholder meetings. Future priorities discussed at the BACWA meeting included the need for baselines to support monitoring, particularly the effects of reduced wastewater and stormwater inputs into the Bay and the effects of reverse osmosis concentrate discharge to the Bay. Other identified needs include the South Bay standards-related selenium assessment, sea level rise

adaptation and climate-related changes in salinity, pH, temperature, and dissolved oxygen. Trash and microplastics, wetland restoration permits and regional monitoring, and tribal and subsistence beneficial uses are additional potential future drivers. Future priorities discussed at the BAMSC meeting included modeling watershed PCB and Hg loading more broadly and not just at priority margin units (PMUs), data on PCB inputs from North Bay watersheds, supplementing BMP effectiveness tracking across counties, and obtaining CECs monitoring data to determine “sources” to support regulators and legislation. Additional needs include linking nature-based solutions to green stormwater infrastructure for sea level rise adaptation and linking to waste-related regulations (foodware, compost). Meetings with refiners and dredgers will be happening in the coming weeks.

Action Item:

- Work with John Coleman to schedule meetings with dredgers (Amy Kleckner, January 1, 2024).

3. Discussion: Information Priorities for 2024-2026

For this item, Tom reviewed the RMP management driver table, which includes categories for high priority, other, and potential drivers. High priority management drivers include the ongoing 303(d) list and 305(b) report, TMDLs for PCBs and mercury, updates to the tiered risk-based framework for CECs, review of the sediment guidelines and testing criteria for the beneficial reuse of dredged sediment, and the determination of wastewater permit limits. The first three projects are all ongoing with calls for 303(d) data in 2026 for the 2030 round and PCB data by 2028. The table of other management drivers was the same from last year with the primary change being the review of 303(d) listings for sediment hotspots changed from 2024 to ongoing. Potential future drivers included microplastic consideration for the 2030 303(d) list discussed at the April SC meeting. Richard clarified that segments of the Bay will likely be put on a watchlist. “Specific CECs e.g. PFAS” was suggested to be added to the list of potential future drivers. Regarding tribal and subsistence uses, Jay highlighted non-RMP work that SFEI was doing with the Water Board, developing a consumption survey questionnaire for subsistence fishers.

Action Item:

- Update the RMP Management Decision Table (Amy Kleckner, January 1, 2024).
- Add back first line (BACWA highlighted in stakeholder meeting) from 2023 Potential future drivers table to updated table for 2024 MYP (Amy Kleckner, January 1, 2024).
- Add PFAS item to Potential future drivers table (Amy Kleckner, January 1, 2024).

4. Discussion: Status & Trends and Other Items

Amy provided a detailed review of changes to the S&T plan from the 2023 MYP. Notable adjustments included a decrease in the grand total for 2024, a reduction in set-aside funds used, and a decrease in the net S&T funding needed. The 2025 and 2026 forecasted grand totals saw a slight increase due to a shift in NTA funding. Additionally, the 2027-forecasted

grand total increased to more accurately reflect the bird egg budgets based on the 2022 budget actuals. The 2028 forecasted grand total was higher, assuming the continuation of wet season water sampling.

Specific changes from the 2023 MYP were highlighted, including a significant reduction in the NB Selenium budget for 2024 from $131k to $18k. Selenium sampling activities will be paused until 2025, and the reduced budget will be used towards the exploration of a different analytical partner for tissue samples, reporting, and a data and methods review. NTA and passive samplers for water will be delayed until 2025 and 2026. Tom inquired as to why the non-target analysis and passive sampler work had to be delayed, with Amy citing an inability to find analytical partners this year. The bivalves budget was removed ($21k).

Further adjustments included an increase in the bird eggs budget from $160k to $195k, reflecting a more accurate estimate based on the costs from the 2022 sampling and analysis. The sport fish budget was increased from $531k to $560k. Additional allocations were made, including $20k for shiner surfperch PMU monitoring and $9k for expanding the sport fish archiving plan. The harbor seals budget was reduced to match the approved proposal, decreasing from $300k to $127k. A model maintenance budget of $50k was added for 2024.

The meeting also identified key pieces for review, such as pilot studies, wet season water and harbor seals monitoring, North Bay selenium, and non-target analysis. Long-term funding needs were discussed, including model maintenance beyond 2024, and $200k per year for PCB and Hg monitoring and modeling. Equipment maintenance requirements and the need for sustained funding were highlighted, prompting questions about who would review priorities for maintenance.

Action Items:

- Revisit and discuss NTA and passive samplers “off-line” (xx)
- Revisit/discuss future model maintenance, equipment maintenance, and continuation of wet season, harbor seals, selenium funding before 2025 MYP Update (Amy Kleckner, September 2024)

5. Discussion: Multi-Year Plan and Strategy Updates for Workgroups

In this agenda item, Jay requested guidance from the committee members on priorities and funding levels for workgroups. The group was tasked with giving feedback on the draft Multi-Year Plan (MYP), which will be finalized at the January meeting. The primary emphasis was on planning for 2025. Tom proposed maintaining the same level of funding as the previous year, and a discussion followed regarding the Special Studies for 2025.

During the discussion, Jay noted that available funds for 2025 might be slightly lower, and there was a suggestion that PCB funding might not be needed in 2025 with all the WQIF funding available. Sediment and SPL budgets for 2025 were discussed and were estimated to be

around $300k. A graph representing the distribution of funds was presented, with Karin noting that with outside funds, the representation of PCB, SPL, and nutrients funds should be higher. The committee members suggested including other funding sources in future graphics, like factoring in WQIF for PCBs in 2025.

The discussion shifted to the total budget, emphasizing the need to rank and prioritize studies. Workgroup leads were encouraged to come with prior prioritization, and there was a proposal to give similar direction to workgroups for 2025 as in 2024. However, the committee members raised concerns that workgroups might take the direction too literally, potentially leading to a lack of flexibility when other funds become available. The group suggested expanding potential planning budgets for workgroups, but with some level of boundary. Chris advised requesting workgroups to expand potential planning budget to allow workgroups flexibility. Jay noted this would take up staff time but Tom pushed back that those who are willing to step up will be able to receive more money. There was a discussion about the allocation of funds, with Bridgette suggesting that a percentage could be given, while Ian proposed narrowing the scope of the budget. Tom noted an academic contacted him inquiring as to why the RMP no longer accepts proposals from external academics.

A discussion ensued on the concept of two tiers of proposals, which was supported by Tom as a lighter lift for workgroups. There was discussion about workgroup bandwidth, and the idea of providing guidelines for a streamlined two tier application was proposed. Xavier and Karin expressed agreement with providing some guidance, while Karin emphasized that some projects may need background information. Richard suggested providing guidelines for a streamlined tier 2 template for proposals, focusing on the approach section without including schedule or background information. The discussion touched on turnover within the TRC, with considerations to revisit the streamlined approach in the future. Jay committed to bringing a draft to the December TRC meeting.

The ECWG held two meetings and two subgroup meetings between 2022 and 2023 that included strategy discussions. Management Questions (MQs) have been revised and are open for further refinement based on ECWG feedback. The strategy revision progress involved the review of two chapters in April, with a full draft expected in January and the final document anticipated in April. Notably, stormwater monitoring, which overlaps with SPLWG, is an ongoing project. Planned future projects with overlap include stormwater monitoring and modeling (SPLWG, MPWG), in-Bay modeling (PCBWG), and tire material and contaminants monitoring (MPWG, SPLWG - 2026). Tom inquired about RMP staff capacity as WQIF could distract from core RMP CEC interests. Kelly clarified that lots of CECs work is going to partners. There is approximately $2 million in work from RMP and WQIF, with a proposed target of $700K for tier 1 work.

The SPLWG held its first meeting in April, with another anticipated for early December. Pre-meetings are planned for late November. Revised MQs have been agreed upon, and the strategy update, outlined in August, is in the drafting phase, expected to conclude in November. The Multi-Year Plan (MYP) update draft has been submitted for RMP review. Ongoing projects

with overlap include CEC stormwater groundwork (ECWG), IWBMS (PCBWG, ECWG, SedWG, MPWG). Planned future projects with overlap include CECs in stormwater M&M, WDM application, and MPs monitoring in stormwater.

The SedWG conducted strategy meetings on January 31 (Part 1: MQ3-5), February 8 (MQ 1-2), and March 23 (Part 2: MQ 3-5), with the next meeting scheduled for January 2024 (MQ1-2). Management Questions 3-5 have been expanded based on WG input, and MQs 1-2 will be revisited in early 2024. Workplan development is set to conclude in November 2023. The MYP update was completed in October 2023 based on the draft Workplan. Ongoing projects with overlap include the In-Bay model (PCBWG) and IWBMS (SPLWG). Planned future projects with overlap include the In-Bay model (PCBWG) and WDM applications (SPLWG).

The MPWG held strategy discussions in April and a subgroup meeting in July. Related efforts included the OPC-funded state macro- and microplastics strategy, a dryer microfiber study, and the Next Gen WQIF bioretention rain garden study. Revised MQs were finalized in April, and the strategy revision draft was shared in September, with the final document expected in February. Current projects with overlap include stormwater monitoring Year 1 (SPLWG, ECWG). Planned future projects with overlap involve stormwater monitoring Year 2 (SPLWG, ECWG), and coordination with OPC-funded statewide plastics monitoring efforts.

The PCBWG updated its strategy and MQs, with a meeting planned for December to discuss modeling and the TMDL plan. Ongoing projects with overlap include the In-Bay model (ECWG, SedWG, Nutrients) and IWBMS (SPLWG). Planned future projects with overlap also involve the In-Bay model (ECWG, SedWG, Nutrients). Tom does not believe the efforts supported by the WQIF will result in a robust whole Bay model, especially with BAMSC's interest in characterizing the North Bay. Karin noted that the RMP should specify that it is no longer collecting data for the PCB TMDL but continuing analysis.

The committee members noted the importance of using the MYP graphics and tables to communicate to stakeholders how effectively their dollars were utilized. Tom noted a key advantage of the RMP was its communications, with investments in communications returning more investment in the science.

Action Item:

- Bring discussion of revised two-tiered proposal process to the December TRC meeting (Jay Davis, December 7, 2023)

6. Discussion: Workgroup Scheduling and Agendas

Jay reviewed the priority workgroup agenda items and scheduling plans. This past year, the ECWG and SPLWG overlapped a meeting for CEC monitoring-related updates and special study discussion in early April. Although committee members appreciated the opportunity to take advantage of overlapping audiences, Jay noted members of the Emerging Contaminants

team felt the overlapping meetings prevented focus on some emerging contaminant topics. Other workgroup meetings will be spaced more evenly this year to optimize staff workflow. There will be a SPLWG meeting in late May focused on legacy contaminants. The PCBWG elected to hold two meetings per year to address modeling guidance needs, with a second meeting to be held in December. Priority agenda items for workgroups include management questions and strategy process updates, MYP development, reviewing 2025 proposals, reviewing relevant related proposals from other workgroups, and project updates.

7. Summary and Action Items

Amy reviewed the action items to be completed. For the MYP, key steps are reworking the workgroup tables and updating the funding charts. Jay will work on providing guidance for workgroups to follow the new-tiered project format. Committee members should provide comments on the new MYP by December 1st.

Action Items:

- Rework the MYP workgroup tables and updating the funding charts (Amy Kleckner, December 31, 2023)
- Providing guidance for workgroups on the new two-tiered project format (Jay Davis, January 31, 2023)

Adjourn

Bay RMP Steering Committee Meeting
November 1, 2023
San Francisco Estuary Institute

Meeting Summary

Attendees

SC Member	Affiliation	Representing	Present
Eric Dunlavey	City of San Jose	POTW-Large	**Y**
Amanda Roa	Delta Diablo	POTW-Small	**Y**
Karin North**	City of Palo Alto	POTW-Medium	**Y**
Adam Olivieri	BAMSC / EOA, Inc.	Stormwater	**Y**
John Coleman	Bay Planning Coalition	Dredgers	**Y**
Xavier Fernandez	SF Bay Regional WQCB	Water Board	**Y**
Tom Mumley*	SF Bay Regional WQCB	Water Board	**Y**
Maureen Dunn	Chevron	Refineries	**Y**

* Chair, ** Vice Chair, alternates in gray and italicized

Staff and Others:

- Amy Kleckner, SFEI
- Jay Davis, SFEI
- Martin Trinh, SFEI
- Beth Ebiner, SFEI

1. Introductions and Review Goals for the Meeting

Tom Mumley began the meeting by giving an overview of the day's agenda and goals. Following the MYP workshop, the agenda items of interest for this meeting include discussion of event-based monitoring and funding, a Q3 financial update, and review of the 2024 detailed workplan and budget.

2. Decision: Approve Meeting Summary from August 24, 2023, and Confirm Dates for Future Meetings (00:02:30)

Tom Mumley asked the group for any final comments on the previous meeting's summary. Receiving no comments, he continued to confirm the dates for upcoming meetings. The RMP Steering Committee (SC) meeting was confirmed for January 22, 2024, and the proposed date of April 15, 2024, was approved. There will be an RMP Technical Review Committee (TRC) meeting on December 7, 2023. Amy Kleckner informed the group that the 2024 Annual Meeting will be held October 16, 2024.

Action Items:

- Send out calendar invitations for the April 25, 2024, SC meeting (Martin Trinh, November 7, 2023).
- Send out calendar invitations to active SC and TRC members for October 16, 2024, Annual Meeting (Martin Trinh, December 7, 2023)
- Book October 16, 2024, for RMP Annual Meeting with David Brower Center (Amy Kleckner, November 7, 2024).

Decision:

- Adam Olivieri motioned to approve the meeting summary. Eric Dunlavey seconded the motion. The motion was carried by all present members.

3. Decision: Select Chair and Vice Chair and Review the Charter (00:07:00)

In this agenda item, Tom and Karin expressed their willingness to continue their involvement. However, Tom mentioned his plans to retire by summer 2024, particularly after achieving a nutrient watershed permit by May 2024. Karin expressed her willingness to chair post Tom's retirement. Xavier was identified as Tom's Water Board replacement.

Tom expressed his desire to continue participating but raised the question of in what role or capacity. The possibility of Tom continuing as the chair after retirement was discussed, contingent on modifying the charter. There was also a suggestion that retirees could be kept on as emeritus members. Tom conveyed his continued interest in being an advisor even after retirement. The item concluded with an understanding that there are ongoing considerations regarding leadership roles and potential modifications to the charter, highlighting the commitment of individuals like Tom and Karin to the continuation and success of the program.

The discussion extended to the consideration of a separate management structure for the Nutrient Management Strategy (NMS), and it was noted that this would also require revisions to the charter.

Decisions:

- John Coleman motioned to approve Tom and Karin as Chair and Vice Chair. Adam Olivieri seconded the motion. The motion was carried by all present members.

4. Information: TRC Meeting Summary (00:19:00)

Amy reviewed the September 19 TRC meeting. At that meeting, Jay gave an update on the workgroups' efforts to update their strategies. Within that agenda item, there was brief discussion of what future funding levels might be expected from WQIF and San Francisco Bay Program. Luisa had shared that in the future we might expect to see an estimated $5M for competitive grants and could assume up to an additional $40M for the "priority list".

Amy provided an update on the S&T monitoring activities for the year, including the (delayed) water cruise and near-field water sampling, harbor seal sample collection completion, and the interlab comparison studies on track to review the results by end of year. Jay provided an update on the RMP Annual Meeting and the 2023 RMP Update, both of which have now been completed and are available for viewing on the website. Amy gave an update on the Status of Deliverables and Action Items.

Future agenda items of interest were proposed such as updates on informatics, review of intercomparison studies and plans, SFEI's plans to fill the modeler position and how deliverables timelines are being affected, and planning for event-based monitoring. The meeting ended with previews of Annual Meeting presentations from Ezra and Diana. Final versions of those presentations from the Annual Meeting can be viewed on the website if anyone missed the meeting.

5. Information: RMP Financial Update for 2023 Quarter 3 (00:41:45)

In this agenda item, Beth Ebiner of SFEI delivered a comprehensive financial update for Quarter 3 of 2023. For the current year, 2023, 46% of the budget has been expended, with 78% of invoiced fees received, resulting in a surplus of $98k, thanks to SEP funds supporting part of Task 45 - Sediment Delivery to Marshes in C&N Bays. Looking at 2022, 79% of the budget has been expended, and all invoiced fees for the year have been collected, resulting in an $18k surplus. The 2021 budget shows 85% expended, with 99% of invoiced RMP fees collected, and a final invoice from San Francisco Marina anticipated to be paid in 2023 Q4. The financial status of previous years, including 2020, 2019, and 2018, indicated high percentages of budget expended and full fee collection, with one final invoice pending in 2018. Tom clarified that $180K

has been moved but not spent in undesignated funds, to be eventually transferred to the RMP budget.

Changes in the Local Agency Investment Fund (LAIF) and S&T Set Aside Funds were outlined, showcasing interest updates for Q1 and Q2 of LAIF of $34,081 and $38,160 (2.74% and 3.15% respectively). Q3 LAIF interest totals will be reported next quarter (3.59%). The S&T Set Aside Funds reflected withdrawals and contributions, with a projected balance of $1.039M by 2028.

Finally, Beth relayed a request for an early release of funds for the 2024 Task 030 stormwater project, specifically seeking $139,800 from the overall task budget of $217,000. This budget allocation was detailed to include labor costs amounting to $94,150. Subtask B, focusing on stormwater monitoring and data management, accounted for $71,820 of the labor expenses. Another component of the labor costs, amounting to $22,330, was designated for Subtask D, which pertains to project management. Additionally, the breakdown of direct costs revealed an amount of $8,650, while subcontracts were budgeted at $37,000.

Decisions:

- Eric Dunleavy motioned to approve the early release of funds for 2024 Task 030 stormwater project. Karin North seconded the motion. The motion was carried by all present members.

6. Decision: Draft Detailed Workplan and Budget for 2024 (00:51:30)

In the review of the 2024 budget and workplan, Amy presented the anticipated revenue and expenses for the upcoming year. The projected revenue for 2024 stands at $5,216,129. The breakdown of this total includes $3,956,642 in core fees, $339,488 in AMR, $100,000 in MRP, and $500,000 in S&T set-aside funds. The Core fees total assumes a dredger shortfall of $200k, additional funding from POTWs for Alternate Monitoring and Reporting, $100k from stormwater, a $500k withdrawal from the S&T set aside (this is lower than the planned $650k), $320k from the undesignated reserve; $180k for the remote sampler purchase and $140k for workgroup strategy allocations. Additionally, there is $320,000 from the undesignated reserve to support workgroup strategy efforts. On the expense side, the total is aligned with revenue, amounting to $5,216,074, leaving a balanced budget with a surplus of $55.

The detailed breakdown of the 2024 revenue reveals a significant portion from core fees and financial contributions from various sectors, including AMR, MRP, and S&T set-aside funds. The undesignated reserve's allocation aims to support workgroup strategy initiatives, ensuring comprehensive planning and execution. Program management includes increased for training new hires and for more staff interaction and coordination. Governance funding assumed a similar workgroup structure to 2023 and in-person/hybrid meetings with potential advisor travel. The Annual Reporting budget will increase with production of a Pulse in 2024. The

communications budget assumes more in-person conference attendance, associated travel costs, and general design work.

Amy highlighted key components and priorities of the 2024 workplan. The implementation costs were discussed, considering factors such as in-person attendance. The Status and Trends program budget for 2024 focuses on critical activities, including the USGS Moored Sensor Network for Suspended Sediment, monthly cruises for nutrients and phytoplankton, and monitoring in various environmental components such as water, cormorant eggs, sport fish, and harbor seals. Model maintenance is included in the S&T program budget due to its importance for ongoing modeling efforts. The special studies budget for 2024 amounts to $1,947,500.

Following the detailed presentation, the 2024 budget was approved, with Amanda moving for approval and Adam seconding the motion. This approval ensures the allocation of funds for the outlined programs and studies, supporting the RMP's commitment to robust and effective monitoring efforts in the upcoming year.

Decision:

- Amanda Roa motioned to approve the 2024 workplan and budget. Adam Olivieri seconded the motion. The motion was carried by all present members.

7. Information: Remote Sampler Purchase Update (00:22:30)

This item was a continuation of the discussions held during the August SC meeting. The Stormwater CECs Stakeholder-Science Advisory Team convened on September 21 and put forth recommendations. The Team suggested proceeding with the use of the SFEI Mayfly portable remote sampler and conducting pilot sampling with the current design in the present year. Simultaneously, efforts were proposed to enhance the sampler to address contamination concerns, specifically related to a few CECs chemicals that may originate from tubing. The plan outlined the intention to build up to 10 SFEI Mayfly samplers during the winter, utilizing separate funds for the improvement work. The decision to purchase remote samplers to support Water Year 2025 hinged on the outcomes of pilot deployments, improvements to the SFEI Mayfly, and considerations regarding the Stormwater CEC approach, particularly concerning the number of analytes per location.

To address potential CEC contamination, future considerations were discussed, including the possibility of having two different sets of SFEI Mayfly samplers—one for PFAS and another for other CECs. Additionally, the use of ISCO samplers in some situations was proposed due to practical limitations on the number of containers that can be attached to an SFEI Mayfly. Permanent ISCO installations were contemplated for a few locations. The current budget, amounting to $180,000, was acknowledged as unlikely to be sufficient for building permanent installations. No budget adjustments were recommended at the present time, with clarification that the budget had not yet been approved. The next update on this matter was anticipated in the following summer.

Kelly provided clarification on the rough cost per sampler, estimating parts to be between $2000 and $2500, while uncertainties persisted regarding labor, shipping, and additional expenses. Kelly explained that the desire for trends information and calibration data for modeling was driving the desire for permanent installations, additionally explaining that permits were required for these permanent structures.

8. Discussion: Event-based Monitoring and Funding (01:33:40)

The group continued the discussion from the morning MYP Workshop on event-based monitoring, focusing on funding and identifying the RMP's role in the Bay to support this work. Richard Looker of the TRC joined for this item.

The group defined the need for event-based monitoring and the specific events that would be targeted. Identified events included spills, typically handled by other agencies like NOAA, and the assessment of PAHs in mussels. Additionally, considerations were given to monitoring high flows and Harmful Algal Blooms (HABs), recognizing the importance of addressing these events for comprehensive monitoring. The historical context includes a past precedent of maintaining a $50,000 contingency fund annually, and planning for high-flow year loading studies at specific locations such as Mallard Island and Guadalupe River.

Building on the lessons learned from the NMS response to HABs, the need to establish a more structured approach was emphasized. The previous year's challenge in the NMS, where costs were incurred without available funds, underscored the necessity for a proactive strategy. Tom mentioned the need for securing boats for such monitoring activities, prompting a broader discussion on the process to address this need.

Potential approaches were considered, including the formation of a small Council of Wisdom (COW) or having staff present a preliminary proposal to the Technical Review Committee (TRC). The planning should encompass the ongoing efforts of the nutrient team. The general consensus was that the RMP needs to develop a matrix of event types and monitoring needs, with a priority given to developing plans for things that could happen sooner such as high flows and HABs. The group agreed that a COW should meet soon to begin developing the matrix and plans.

Action Items:

- Schedule a first COW meeting to include Richard and Dave to brainstorm types of events, level of effort, and ways to pull in other groups. (Jay Davis, December 31, 2023)

9. Discussion/Decision: Communications (01:15:20)

For this agenda item, Jay gave a brief review of various RMP communication products. Jay thanked all involved for their contributions to the 2023 Update and inquired with the committee about requests for physical copies.

Jay then gave a quick summary of attendee feedback following the 2023 Annual Meeting. 110 people attended the event in person at the David Brower Center, joined by 168 online participants on Zoom. Survey results indicated very favorable feedback, with the hybrid format and individual speakers being lauded in particular. There were some audio troubles for online participants, with the RMP resolving to stick to the Zoom meeting (instead of Zoom webinar) format going forward. The Center has been reserved for October 16, 2024 for the upcoming Annual Meeting.

Jay previewed the 2024 RMP Pulse, with the RMP staff recommendation to have CECs as the theme, similar to the 2013 Pulse. This edition will provide an updated go-to guide to CECs in the Bay. Further updates will be provided at the January meeting.

10. Discussion: Status of RMP Deliverables and Action Items (02:05:30)

In this agenda item, Amy reported the status of recently completed, overdue, and upcoming RMP deliverables and action items. Among the accomplishments were the Nearfield Margins sediment & Preyfish cruise report and the Water Cruise report. The team also successfully executed the PFAS and NTA in Marine Mammals sample collection, conducted the Annual Meeting, and published the RMP Update. Overdue items include the QA Summary Reports for 2021 and 2022 S&T, with pending data steps and awaiting Bird Egg data and PFAS archive data. Efforts to update the MTC Bay Area Land Use (SEP) were in progress, with Tony in contact with Caitlyn Sweeney SFEP and Kearey Smith at MTC working on a plan to move things forward.

Several projects faced delays, including the updated RWSM model (new timeline June 2024) and the nutrients light attenuation and moored sensors project due to prioritization of permit-related work and awaiting WQIF approval. The Ethoxylated Surfactants Final Report experienced a delay in analysis, now expected in spring 2024, with the final report slated for 12/31/24. Data release for the Sediment Delivery to Marshes project was postponed until April 2024. The CEC modeling exploration draft report is anticipated by the end of the year.

Items due before the next meeting include the NTA Sediment Data Manuscript and Fact Sheet, DMMO database enhancements, the 2023 QAPP Update, S&T Design Report, PFAS in Archived Sport fish manuscript, and CECs in Urban Stormwater manuscript, all with expected submission for publication by the end of the year. A significant discussion revolved around access to manuscripts, weighing the options of open source versus public access.

11. Discussion: Plan Agenda Items for Future Meetings (02:25:50)

Proposed agenda items for the January SC meeting include the approval of the changes made to the Multi Year Plan and approval of the Pulse Outline.

12. Plus/Delta

The group unanimously agreed that the meeting was highly productive, especially after the MYP Workshop. Participants noted Tom's impeccable consensus decision record and commended the RMP on the Annual Meeting and RMP update.

Adjourn

Bay RMP Technical Review Committee Meeting

December 07, 2023

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	**N**
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	**Y**
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
- Craig Jones – Integral Consulting
- Bryan Frueh – City of San Jose
- Paul Salop – Applied Marine Sciences

1. Introductions and Review Agenda (00:03:00)

Bridgette DeShields opened the meeting with a round of introductions and a brief review of the day's agenda. Key agenda items include updates on EPA's draft annual priority list, S&T monitoring, data services and informatics, and event-based monitoring.

2. Decision: Approve Meeting Summary from September 19, 2023, and Confirm/Set Dates for Future Meetings (00:04:45)

Bridgette asked the group for any final comments on the previous meeting's summary. Bridgette noted Mary Lou Esparza should be recognized for her contributions to the TRC and RMP. Receiving no other comments, Bridgette confirmed the dates for upcoming meetings. The Committee confirmed the first TRC meeting of 2024 for March 26, 2023 and scheduled the following meeting for June 13, 2024. The Committee confirmed the RMP Annual Meeting for October 16, 2024.

Action Item:

- Edit requested: the 9/19 meeting summary to include recognizing Mary Lou Esparza. Update Meeting Summary and repost to website etc. (Martin Trinh, 12/31/2023)
- Send out calendar invites for June 13, 2024 TRC meeting (Martin Trinh, December 15, 2023)

Decisions:

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

3. Information: MYP and SC Meeting Summary from November 1, 2023 (00:09:23)

The Multi Year Plan workshop began with Amy setting the stage - planning for 2024 and beyond. This included a summary of the 2024 RMP budget, work highlights and priorities in 2024, and outcomes of discussions with stakeholders in recent meetings. Included in the discussion of the RMP budget was increased funding from WQIF grants and planning for additional funds from the EPA SF Bay Program in the future. Some of the work highlights included preparing for upcoming storm events, building of the SFEI Mayfly remote sampler, and final years of pilot studies of wet season water sampling and marine mammals. Future priorities discussed at stakeholder meetings included a need for baseline information to support monitoring climate-related changes, trash and microplastics, modeling watershed PCB and Hg loading more broadly, and CECs monitoring to identify sources.

Tom Mumley led the next agenda item reviewing the RMP management driver table. The tables remained mostly unchanged except for review of 303(d) listings for sediment hotspots now listed as ongoing and the addition of specific CECs to the table of potential future drivers.

Amy then reviewed the changes to the S&T plan for 2024 compared to what was originally laid out in the last MYP update. The grand total budgeted for S&T activities in 2024 is $1.95M compared to the $2.2M forecasted in last year's MYP. The changes in 2024 are to pause North Bay selenium sampling to allow for a review of the data and sampling and analysis plans. Non-target analysis and passive samplers for water will be delayed until 2025 and 2026. Budget adjustments to Bird Eggs and Sport Fish were made to cover anticipated costs in 2024. These adjustments factored in previous actual expenditures for these efforts and also anticipated cost increases for subcontractors and labor. A model maintenance budget of $50k was added to S&T for 2024.

RMP staff sought guidance on priorities and funding levels for workgroups with the group proposing to maintain 2023 funding levels. The multi-year plan underwent changes, incorporating core funds and adjusting the ranking and prioritization process for study proposals. Instead of categorizing proposals as high priority and SEP, a two-tier approach was adopted, with Jay tasked to develop a format for tier 2 proposals. Jay also presented a review of the priority workgroup agenda items and scheduling plans, maintaining a structure similar to 2023. The summary action items included the completion of a revised multi-year plan draft, with a final call for comments scheduled for the Steering Committee meeting in January. An internal kickoff meeting with workgroup leads is set for January 18 to review Committee-outlined guidance for work groups.

To begin the Steering Committee meeting, Tom shared his plan to retire by summer 2024. Karin expressed a willingness to chair post Tom's retirement, and Tom expressed a desire to continue his participation post retirement but as to what role or capacity was not defined. It was understood that this may require potential modifications to the charter to delineate a role. A motion to approve Tom as Chair and Karin as Vice Chair was approved.

Kelly presented an update on the progress of the remote sampler purchase. She shared that at the SST meeting on September 21 that the recommendations were to continue with the plans for SFEI Mayfly sampler, conduct pilot sampling with the current design in WY (Water Year) 2024, while in parallel working on improvements to address contamination issues. The plan is to use these funds to build up to 10 Mayflyies this

winter. Plans for WY 2025 depend on outcomes of the pilot deployments this year, how far we can get on the Mayfly improvements, and the Stormwater CEC Approach. Future considerations include a possibility of a second set of Mayfly samplers to minimize CEC contamination concerns, use of ISCOs and possible permanent ISCO installations. Current budget should be sufficient to cover all sampler purchases but not cover the building of permanent installations.

Beth delivered the financial update for Quarter 3 outlining percentages of annual budgets expended and fee collections. Beth outlined changes in the LAIF and Set-Aside funds showing interest updates and withdrawals and contributions. An early release of funds was approved for a stormwater project that had not previously been included in earlier meetings requests for early release of funds.

Amy then presented the 2024 budget and workplan. All members present approved the workplan and budget.

The group discussed event-based monitoring, which types of events to target, and the need to establish a more structured approach. The consensus was that the RMP will develop a matrix of event types and subsequent monitoring needs, with a priority given to high flow events and HABs. An initial small group meeting (Jay, Amy, Richard Looker, Dave Senn) will be scheduled to brainstorm types of events, level of effort and ways to pull in other groups.

Jay elaborated on the format for tier two proposals, proposing a condensed one-page document covering essential elements such as a short summary, rationale, description of planned activities, budget information, and participant names. The discussion delved into considerations about the necessity of timelines and the suggestion to offer flexibility in estimating project timelines for easier researcher planning. The group contemplated the idea of setting a budget threshold that would trigger the requirement for a full proposal for higher-cost projects. Chris Sommers also brought up the importance of assessing the actual cost savings for staff in writing shorter proposals, suggesting a post-implementation review to evaluate the effectiveness of the two-tier approach. The discussion contributed to the formulation of a comprehensive plan for the Tier 2 proposal format.

Action Items:

- Send final reminder for comments/edits to the MYP draft. (Amy Kleckner, 12/15/23)
- Finalize MYP for SC Meeting on 1/22/24 (Amy Kleckner 1/12/2024)

4. Discussion: EPA Program Office Update (00:31:45)

Luisa Valiela presented the annual program priority list for the expanded San Francisco Bay Program, included as part of the National Defense Authorization Act. The Act served as a funding mechanism, leading to the establishment of an authorized program called the San Francisco Bay Program. Language in the legislation included direction to EPA to create an Annual Priority list which identifies needed projects and studies. In creating the list, EPA should consider recommendations from the SFEP, SF Water Board, SFBRA, and other stakeholders. Luisa highlighted the significant increase in funding, from approximately $5 million per year to the authorized level of $54 million. Luisa presented the draft priority list, emphasizing that these were not ranked priorities but rather program areas intended to reflect collaborative efforts for Estuary restoration. Feedback was sought on the proposed priorities, with adjustments already made based on previous input, such as specifying "habitat, eelgrass, and oyster reef restoration" under the "Subtitle A" category. Luisa welcomed ongoing feedback and suggestions for additional venues or stakeholders to engage with, recognizing the importance of refining the list collaboratively. Luisa concluded with an overview of the timeline for finalizing the list, targeting the end of winter or early spring, and highlighted the need for quick action to allocate funds incrementally under continuing resolutions. The challenges of moving away from a competitive grant program and developing new funding mechanisms were acknowledged, with a focus on figuring out the logistics with the help of the department, headquarters, and legal experts. The TRC suggested potential categorization improvements, such as using a Venn diagram or broader categories, to enhance the clarity of the proposed priorities. Luisa also sought input on how stakeholders preferred to receive updates on the program's progress in the long term.

The TRC acknowledged the increased attention on the topics of climate resiliency and equity, but expressed difficulty in incorporating these concepts into their existing framework. To address this, a decision was made to add additional language to the existing documentation, including a priority list presented as a table with explanatory language. The focus was on aligning with the Biden administration's justice and equity goals, emphasizing meaningful engagement with underserved communities or tribes in funded projects. To specifically address climate resiliency and equity concerns, it was decided not to create separate buckets but to integrate these considerations into the existing priorities. The commitment was made to include language in funding agreements emphasizing engagement and equity considerations.

Chris Sommers offered input on structuring the information to make it more comprehensible for the public, suggesting two broader categories: habitat restoration (including monitoring) and contaminant control programs. Chris raised concerns about the absence of the term "emerging contaminants" in the presentation. He suggested

explicitly mentioning projects related to emerging contaminants, such as PFAS, and discussed the need for clarity in language.

The discussion continued with various comments on organization of the illustration, the inclusion of specific terms like "trash," and considerations for funding distribution. Towards the end, there was a conversation about the readiness of the organization to handle the anticipated flow of funds. Luisa acknowledged that the current year might feel messy due to simultaneously developing programs and disbursing funds. There were also discussions about potential regional entities to manage funds efficiently, with a focus on finding suitable organizations and municipalities willing to accept federal funding.

The TRC acknowledged the need for detailed planning and consideration of the scale of projects, expressing a preference for streamlining processes and avoiding unnecessary complexity. The ongoing work on the Wetlands Regional Monitoring Program was highlighted as an example of a project actively being prepared for funding.

The conversation continued with Chris asking about the annual review process and decision-making for the funding. Chris highlighted the importance of readiness in the first year, but he sought clarification on the review process and decision-makers in the subsequent years. The conversation shifted to the mechanics of decision-making, and the participants expressed uncertainty, with a mention of the latitude given to the EPA in making decisions based on the legislation. There was a discussion about collaboration and the entities named in the list provided by the legislation. The importance of finalizing the list to ensure satisfaction among stakeholders was emphasized. The group acknowledged the challenge of reporting progress to different entities with potentially conflicting interests, and the need for metrics and reporting mechanisms was raised.

The discussion turned to the possibility of funds being allocated to management actions and projects on the ground. Questions arose about staffing and management, and considerations for the allocation of funds to different projects. The conversation delved into the complexity of reporting back to Congress and managing expectations. Chris noted the potential need for metrics, and mentioned the numerous Excel spreadsheets that need to be filled out regularly for progress tracking. Luisa acknowledged the ongoing inquiries from Congress about the progress of the program office.

The discussion shifted to the Delta and whether the funding can be used for Delta-related work. The participants expressed a focus on San Francisco Bay but acknowledged the connection with the Comprehensive Conservation and Management

Plan (CCMP), which includes Delta work. Luisa noted the decision not to have a separate Delta bucket unless directed otherwise.

The conversation concluded with a discussion about the potential establishment of a PFAS workgroup. The need for coordination and the challenges of intra-work group coordination were highlighted. Concerns about bandwidth and institutional capacity were raised, emphasizing the importance of effective communication and coordination among workgroups, technical advisors, and stakeholders. Chris expressed his concerns about the increasing workload and the need for organizational discussions around capacity and resources.

Action Items:

- Discuss formation of PFAS workgroup with Steering Committee (Jay Davis, 1/12/2024)
- Discuss Program Office with PCB Workgroup (Jay Davis 1/12/2024)
- Include this agenda item for the 1/22/24 SC meeting (Amy/Jay 1/12/24)

5. Information: 2024 Workplan (01:22:00)

Amy presented the TRC with the updated 2024 Workplan. She noted the core fees totals assumed a dredger shortfall of $200k, additional funding from POTWs for alternate monitoring and reporting, $100k from stormwater, a $500k withdrawal from the S&T set aside (this is lower than the planned $650k), $320k from the undesignated reserve; $180k for the remote sampler purchase, and $140k for workgroup strategy allocations. The expected revenue totaled $5,216,129 with expenses at $5,216,074, leaving a balance of $55.

Amy addressed the Program implementation costs for 2024, emphasizing that most increases were related to labor costs associated with annual salary raises. Program management increased over 2023 to cover internal coordination needs and staff salary increases. Governance maintains a similar workgroup structure to 2023 with in-person/hybrid meetings with potentially accommodating more advisor travel. QA and Data Services increased in line with staff salary increases. Annual Reporting increased for the Pulse in 2024. What was not spent in 2021 for the RMP Update supplemented the 2022 budget to produce the Pulse. The 2023 and 2024 planned budgets more accurately reflect what will actually be spent in those years. The communications budget assumes more in person conference attendance, associated travel costs, and general design work.

Amy presented a graph showing the Special Studies Budgets, for Core RMP funds only, in 2024. These slices do include strategy funds. In 2024, ECWG was allocated

$100k from Stormwater CEC funds and $339,488 from AMR Funds, so the remaining amount of RMP funds that went to ECWG was $275,112. The chart also does not include any potential future SEP funds, anticipated WQIF funds, or other pro bono sources that may come available in 2024.

Major portions include sport fish, bird eggs, and water, with additional allocations for USGS sediment and nutrients. Amy showed a chart illustrating special study budgets for the core RMP funds, specifying that these slices did include strategy funds.

6. Information: Watershed Modeling Update (01:28:30)

Jay provided an update on the RMP's watershed modeling, including challenges, progress, and future plans. Jay noted the departure of Tan had been a major obstacle, but the Institute was making steps to move forward. Jay updated the TRC on the ongoing discussions with key stakeholders, including Richard, Tom, and Chris.

Jay praised Pedro Avellanda's excellent work thus far at the RMP, detailing his progress on various tasks, including CEC data analysis, a model exploration report, San Leandro Bay watershed modeling, and NextGen Urban Greening. Jay noted that multiple RMP projects have been on hold, creating a backlog.

Jay enthusiastically reported nearing the conclusion of a hiring process, with the expectation of having a new watershed modeler on the team by January. The anticipation is that this addition will significantly contribute to addressing the existing gaps in the team. Luisa requested to meet the new hire at the next TRC meeting, raising questions about the status of the Regional Watershed Spreadsheet Model (RWSM) and its potential impact on CEC projects.

Jay discussed the exploration of external consulting help. Detailed discussions with Lester, Tom, Richard, and Chris have been ongoing, sorting out who and how to bring in external support. The next step in this process is to examine budgets and revise workplans.

Chris acknowledged the challenges of the more transient nature of the workforce, emphasizing the need to create stable teams that require less onboarding. The importance of consultant support to create stability and overcome turnover was underlined.

Jay provided a thorough overview of the challenges faced, the progress made, and the strategies moving forward in the realm of watershed modeling.

7. Information: S&T Monitoring Update (01:50:00)

Amy began this item with an update on the RMP's 2023 efforts. All samples have been collected. Nearly all have reached the labs for analysis, with data beginning to trickle in. Amy had started drafting a contract with CCSF to analyze the sturgeon samples we had collected in the Spring and also had been in communication with Dr. Ben Linhoff who is the new selenium PI at USGS. They discussed being able to run future selenium tissue samples at the USGS starting in summer 2024, but unfortunately the RMP had a freezer failure on November 21st and the sturgeon tissue plugs were compromised. The samples were completely thawed out, but were kept. They are now refrozen but Amy sought guidance on whether or not the samples should be analyzed. There were only 12 samples, with CCSF serving as an interim lab until USGS took over. Concerns were raised about the limited value of data from CCSF, given differences in methods compared to Amy's preferred approach. Despite being cost-effective, CCSF's data was viewed with caution. Jay considered the data high-profile, contemplating the implications of marking it with an asterisk, with Bridgette agreeing.

Amy followed by providing updates on the completed sediment cruise, with data expected by the end of January. Emphasis was placed on grain size analysis for ALS, near-field, and margin sediments. Preparations for harbor seals for AXYS and prioritizing PFAS data in dry season water samples were also covered.

Wet weather sampling is now in its third year, aiming for consistency between WY23 and WY24. The team aimed to sample two storm events and once in the dry season at 4 near-field and 4 Bay stations, focusing on PFAS, the TOP assay for PFAS, bisphenols, OPEs, and stormwater CECs. The bird eggs and sport fish projects involved drafting contracts by the end of 2023, with sample collection by USGS-WERC staff and analysis by SGS-AXYS. Samples for both projects will be analyzed for PFAS, PCBs, PBDEs and legacy pesticides.

For Marine Mammals, 2024 marked the second year of a two-year special study aiming for 10 harbor seals and 10 harbor porpoises. PFAS analysis, non-target analysis, and sample collection were delegated to SGS AXYS, the Crimmins lab, and Marine Mammal Center, respectively. Amy noted the RMP was beginning the final stages of the North Bay Selenium Data Report 2019-2020 and ongoing discussions with USGS regarding lab analysis. In 2023, liver and blubber samples were collected from 3 harbor seals and serum samples from 6 harbor seals. There were no harbor porpoises collected.

Amy provided an update on the RMP's selenium efforts, noting that the North Bay Selenium Data Report for 2019-2020 is currently in the final internal review stages. The

draft of the 2021-2022 data report is estimated to be available by March 2024. Additionally, ongoing discussions with the USGS regarding lab analysis were highlighted, and the next steps in this collaboration were under consideration.

Action Item:

- Invite Committee members to CW team meetings with guest speakers. (Jay Davis, 12/31/2023)

8. Information: Event-based Monitoring (02:12:40)

Jay led a discussion on event-based monitoring, initially proposed last year in response to the significant events of 2022. The group decided not to address it in 2023 due to ongoing strategy development work but has now decided to prioritize it, given greater bandwidth this year. The Steering Committee discussion included technical input from individuals like Tom Mumley, Eric Dunlavy, and Richard Looker. The focus is on preparing for various events, such as spills or fires, and developing plans and matrices for monitoring responses, considering factors like urgency and impact time. The matrix will summarize event types and monitoring responses. A key step involves collaborating with Dave SennThere was a suggestion to potentially involve others from Richard's group, considering their expertise and potential availability. The group planned to move forward, acknowledging the need for a rapid response plan for certain events and aiming to involve various stakeholders in the process. The next steps include scheduling a meeting with a small group, including Dave, Richard, Amy, and Jay, to start developing plans and matrices for event-based monitoring.

Action Item:

- Schedule meeting w/ Richard, Dave, Amy & Jay (Jay Davis, 12/31/23)

9. Information: Data Services and Informatics Update (02:24:00)

Adam Wong, SFEI's Data Services Manager, provided an update on the data management in the RMP. Adam began by discussing the datasets finalized in 2023, including North Bay Selenium, water and clam samples, archived sport fish PFAS, stormwater CECs, ethoxylated surfactants, and various matrices in North Bay margins.

Adam noted that some finalized data are not yet public due to ongoing work on manuscripts and reports. He acknowledged challenges with the 2023 timeline, noting that despite completing the Quality Assurance (QA) review process, most data are not yet available on CD3.

Adam discussed budget allocations for database maintenance and process improvements. Adam mentioned changes in flagging processes compared to the past and ongoing efforts to script queries. The team is reserving funds for implementing CEDEN 2, anticipating it in 2024.

CEDEN, which is experiencing leadership changes, poses uncertainties. Adam addressed staff availability issues and discussed the workload associated with multi-year projects, including PCBs in stormwater, involving three separate years.

The presentation featured graphs on data progress, indicating projects completed and ongoing work across various projects. Adam touched on lab timeliness, noting challenges and discussions within SWAMP regarding similar issues.

Chris Sommers raised concerns about the timeliness of POC stormwater data for PCBs, emphasizing its role in guiding inspections and sampling. Adam explained the issues related to splitting contracts with the lab, resulting in delays. Chris stressed the importance of prioritizing the analysis and QA of these data for effective decision-making.

Miguel Mendez's role in QA/QC procedures was highlighted as a positive development, aiming to expedite data processing. Adam shared improvements in communication and collaboration within SFEI to address data processing bottlenecks.

Chris discussed the decision to move away from AXYS due to time considerations, acknowledging that other labs may also pose challenges. The broader industry trend of consolidation was mentioned as a factor affecting service quality. Paul Salop, shared his experiences with AXYS, noting recent improvements in responsiveness. Paul highlighted positive changes in communication and quicker responses to inquiries, which have positively impacted turnaround times for deliverables.

The item concluded with discussions on industry-wide challenges, including turnover and delays with other labs such as Brooks. The TRC expressed hope for continued improvements in lab responsiveness and data delivery timelines.

10. Discussion: Communications Update (02:44:00)

In the communications agenda item, Jay thanked all for their contributions to the 2023 RMP Update and asked TRC members to make requests for the numbers of hard copies of the RMP Update they would like to receive. Jay followed by giving a summary of attendee feedback from the Annual Meeting. 110 people attended in person and 168

attended virtually. A post meeting survey was conducted, with responses mainly from regulators and wastewater/stormwater professionals. Overall, the feedback was positive, with a high level of satisfaction and positive comments about the speakers, topics, and organization. There was feedback on some of the audio and participation issues for online participants and the RMP will be using “Zoom meeting” instead of “Zoom webinar” in the future to try and address these issues. Jay also previewed the 2024 RMP Pulse with the recommendation to have CECs as the theme.

The discussion then shifted to planning for the Pulse, with a focus on CECs. The goal was to create a guide for CECs in the Bay similar to the 2013 Pulse. There was a proposal to expand the CEC profile section, given its enduring value, and the need to represent both the Water Board and DTSC (Department of Toxic Substances Control).

The group discussed updating the management section, hoping for input from Kelly, who was not part of the 2013 team. The risk tier based framework was highlighted, and the group suggested that the updated version should be a centerpiece of the Pulse. The group acknowledged the need for early collaboration and feedback.

The group revisited the structure of the 2013 Pulse, and emphasized a need to update and expand sections, especially in light of increased information on CECs, was recognized. The possibility of EPA input on PFAS was raised, and it was suggested to include a placeholder for EPA information. The challenges of analytical methods, particularly with CECs, were also acknowledged, with a proposal for a one-page section or sidebar on the topic.

Attendees were encouraged to provide additional feedback, and the item concluded with a general consensus that the planning was on track.

11. Information: Status of Deliverables and Action Items (02:57:30)

In her update on the status of deliverables and action items, Amy reported on various completed, overdue, delayed, and upcoming tasks. Among the completed projects are the Sediment Monitoring and Modeling Workplan (SFEI Contribution No. 1100), the WY24 S&T Wet Season Water SAP (SFEI Contribution No. 1154), and a productive RMP Update/Meeting with WSPA (Western States Petroleum). Additionally, the 2024 Annual Workplan and Budget, along with the Draft 2024 MYP Update, have been completed.

Turning to overdue tasks, the MTC Bay Area Land Use Update (SEP) has faced delays due to a lack of updated data, prompting Tony to consult with Caitlyn Sweeney and involve Tom Mumley. Despite Eileen White's outreach to Therese of MTC, the project has been deprioritized due to a shortage of staff capability and funding. Luisa suggested the potential use of EPA funding.

Regarding STLS Regional Model Development, Tan's departure has caused delays in deliverables, and a revised timeline is still in development. The Stormwater Monitoring Strategy for CECs is a work in progress.

In the delayed category, various projects include the analysis of selenium in sturgeon muscle tissue, bird eggs analysis, and the updated model for RWSM. The timeline for the latter is expected in May or June 2024, contingent on Pedro's availability. Nutrients light attenuation and moored sensors work is underway but delayed due to prioritizing permit-related tasks. Approval from WQIF, expected on Friday or Monday, will influence the new estimated timeline for the deliverable, set for 6/2024. The Ethoxylated Surfactants Final Report is experiencing delays in analysis, with remaining sediment and wastewater samples anticipated in spring 2024 and the final report expected by 12/31/24. Data releases for Sediment Delivery to Marshes, initially scheduled for the end of the year, have been postponed until April 2024. The 2023 Interlab comparison study results presentation is still pending, with Eurofins delivering, Enthalpy working on completing their CEDEN EDD, AXYS estimating mid to late January for results, and CCSF's results trickling in. Don is expected to present the results at the next meeting.

Tasks due before the next TRC meeting include the North Bay Selenium Clam and Water Report, the 2023 QAPP Update, the 2021 QA Summary, the Microplastics Strategy Update, the NTA Sediment Data Manuscript and Fact Sheet, the PFAS in Archived Sport Fish Manuscript, and the CECs in Urban Stormwater.

Action Item:

- Share revised draft of margins report after reanalysis (Don Yee, December 12, 2023)

12. Discussion: Plan Agenda Items for Future Meetings (03:09:40)

The group will reconfirm the TRC in March and the group will continue to ensure coordination of special studies, and provide planning guidance for groups. The lab

comparison results report will be shared. The TRC requested updates on the new watershed modeler and decisions about the possibility of a PFAS workgroup.

The discussion then shifted to decision-making on the thawed samples. The loss of samples and its significance were debated, with a potential 20% loss mentioned. The need for documentation of the decision and its justification was emphasized. The importance of clarity and transparency in handling missing data points, especially given the rarity of such occurrences, was underscored.

13. 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 noted the eggnog was particularly delicious this year and that the TRC could make an interesting podcast.

REGIONAL MONITORING PROGRAM FOR WATER QUALITY IN SAN FRANCISCO BAY

sfei.org/rmp

DATE: January 12, 2024

TO: RMP Steering Committee

FROM: Beth Ebiner and Amy Kleckner

RE: RMP Financial Update – Period Ending 12/31/2023

The purpose of this memorandum is to provide an update of budgets and expenses for all open RMP budget years and the balances of reserve and designated funds. All of the information presented is for job to date labor and expense billing through December 31, 2023, hereafter referred to as the "current period."

RMP 2023 BUDGET

$3,571,314 of the $3,865,174 (92%) in 2023 invoiced fees have been collected. 2023 invoices have not been sent out yet. Notes:

1. The full 2023 revenue is $4,622,374 which includes
    a. $400,000 which is a pass through from USACE to USGS
    b. $300,000 from set aside funds
    c. $57,200 from undesignated reserve
2. In RMP 2023, we are passing $515,000 in revenue directly through to the NMS to support NMS projects;
3. The full 2023 planned expenses are $4,524,350 (including the $400k in item 1 above and $515k in item 2 above);
4. RMP 2023 has an overall surplus of $98,024.
5. The total amount invoiced does not include the $400,000 that will go from USACE to USGS directly;
6. The total amount invoiced does not include the $98,872 that will be invoiced to Caltrans in January 2024;
7. Table 6 showing the outstanding Accounts Receivable for 2023.

The expected fees are the sum of core fees ($3,435,574) and supplemental fees paid by wastewater agencies ($329,600) under Water Board Order R2-2016-0018 and updated Order R2-2021-0028 (hereafter referred to as Alternative Monitoring and Reporting funds or AMR funds) and $100,000 in stormwater fees per the Municipal Regional Permit.

As of December 31, 2023, we are 59% expended on the total budget.

RMP 2022 BUDGET

$3,645,669 of the $3,645,669 (100%) in 2022 invoiced fees have been collected. Notes:

1. The full 2022 revenue is $4,038,513 and includes $400,00 which is a pass through from USACE to USGS.
2. In RMP 2022, we are passing $508,000 in revenue directly through to the NMS to support NMS projects;

3. The full 2022 planned expenses are $3,670,800 (including the $400k in item 1 above and $508k in item 2 above);
4. The total amount invoiced does not include the $400,000 that will go from USACE to USGS directly;
5. RMP 2022 has an overall surplus of $17,713. Note that the previous surplus amount was $137,713. At the November 2022 Steering Committee meeting, the SC authorized usage of $108,000 of surplus funds to support multiple tasks: 1) $35k for the Emerging Contaminants Workgroup Strategy update, 2) $27k for the Microplastics Workgroup Strategy update, 3) $10.5k for the Sources, Pathways, and Loading Workgroup Strategy update 3) $35.5k for the Regional Watershed Dynamic Model. In addition, the Steering Committee also authorized up to $72,000 for additional stormwater sampling during Water Year 2023. As of 3/31/2023, $12,000 of the $72,000 has been allocated for additional stormwater monitoring.
6. Table 6 showing the outstanding Accounts Receivable for 2022.

The expected fees are the sum of core fees ($3,718,033) and supplemental fees paid by wastewater agencies ($320,480) under Water Board Order R2-2016-0018 and updated Order R2-2021-0028 (hereafter referred to as Alternative Monitoring and Reporting funds or AMR funds).

As of December 31, 2023, we are 82% expended on the total budget.

RMP 2021 BUDGET

Revenue

$3,669,589 of the $3,675,093 (99%) in 2021 invoiced fees have been collected. Notes:

1. The full 2021 revenue is $4,091,093 and includes $400,00 which is a pass through from USACE to USGS and $16,000 from undesignated funds. $50,000 of RMP 2021 revenue was transferred (deducted from the revenue) from RMP 2021 to Set-Aside Funds for S&T Monitoring and an additional $74,516 was transferred (deducted from the revenue) to the undesignated reserve. Therefore operating revenue is $3,966,577;
2. The full 2021 planned expenses are $3,962,900 (including the $400k in item 1 above);
3. During Q1 2022, the dredger invoice amount was determined. This amount was $5,391 higher than planned. The full revenue amount has been updated in item 1 above.
4. The total amount invoiced does not include the $400,000 that will go from USACE to USGS directly;
5. Due to the higher than planned dredger revenue, RMP 2021 has an overall net surplus of $3,677 (was previously a deficit of $1,800).
6. Table 6 shows the remaining outstanding Accounts Receivable for 2021. The San Francisco Marina Dredger invoice in the amount of $5,504 is expected to be paid in Q1 2024.

The expected fees are the sum of core fees ($3,795,792) and supplemental AMR funds paid by wastewater agencies ($279,301).

As of December 31, 2023, we are 86% expended on the total budget.

RMP 2020 BUDGET

Revenue

$3,873,721 of the $3,873,721 (100%) in 2020 invoiced fees have been collected. Notes:

1. The full 2020 revenue is $3,716,846 which includes $88,129 from set aside funds for RMP Program Review, $30,000 from undesignated reserve, and deducts $275,000 which was transferred to Set-Aside Funds for S&T Monitoring;
2. The total amount invoiced does include the $400,000 that will go from USACE to USGS directly;
3. The total amount invoiced includes the $93,196 for Caltrans;
4. The total RMP 2020 local dredger revenues have been calculated at $82,814, which is lower than the original estimate of $209,489; and
5. RMP 2020 budgets were adjusted to reflect the lower dredger revenue (reduced multiple budgets by a total of $53,800) and there remains an overall revenue shortfall of $18,328.

The expected fees are the sum of core fees ($3,594,416) and supplemental AMR funds paid by wastewater agencies ($279,301).

As of December 31, 2023, we are 94% expended on the total budget.

The RMP budget is now planned at $3,735,174 which results in a deficit of $18,328. We have closed all of tasks 1-5 and the balance remaining in these tasks is $203k. After accounting for the $18k deficit, there's a remaining balance of $185k in tasks 1-5. We will hold these funds in the RMP 2020 account until we unencumber the entire year.

RMP 2019 BUDGET

Revenue

$3,459,851 of the $3,460,087 (99%) in 2019 fees have been collected. SFEI has written off the expected revenue from Marina Dredge Neighbors in the amount of $200. After accounting for this write off, all 2019 funds have been received. Notes:

1. The full 2019 revenue is $3,879,760 (including $169,672 from undesignated reserve funds and $400,000 that will go from USACE to USGS directly);
2. The total amount invoiced does not include the $250,000 that went from the USACE to the USGS directly.

The expected fees are the sum of core fees ($3,430,787) and supplemental AMR fees paid by wastewater agencies ($279,301). There is reduced dredger revenue of $262,334 ($150,000 in reduced revenue from USACE and $112,334 reduced revenue from local dredgers). Due to this lower than expected revenue, the planned 2019 RMP expenses exceeded revenue by $36,108. At the August 2019 Steering Committee meeting, a decision was made to move $16,762 from Undesignated Reserve Funds to RMP 2019 and to reduce the RMP 2019 unallocated budget from $19,346 to $0. These two changes balanced the RMP 2019 budget.

Expenses

Overall, 95% of the 2019 funds have been spent through December 31, 2023. To date, we are over budget on some tasks by about $58.7k ($39.7k on workgroup meetings, $10k on the water cruise, and $9k on the Selenium North Bay clam study (these overages were previously approved by the RMP SC). Through 12/31/2023, we have a positive balance of about $115.2k on tasks-1-5 (program management tasks). This $115.2k balance will be needed to cover previous Steering Committee approved overages. We aim to complete remaining tasks on budget and will wait until we are near 100% complete on projects to unencumber funds.

Unencumbrances this Quarter

- There is no request to unencumber at this meeting.

RMP 2018 BUDGET

Revenue

$3,596,060 of the $3,596,060 (100%) in 2018 fees have been collected. The expected fees are the sum of core fees ($3,326,493) and AMR fees paid by wastewater agencies ($269,575).

Expenses

Overall, 98% of the 2018 funds have been spent. The remaining projects are mostly special studies. For the Status and Trends tasks, most of the remaining expenses are laboratory invoices and data management. The project is now complete and we are waiting for the final deliverables relating to one final invoice, which we anticipate receiving no later than January 2024. We anticipate unencumbering remaining funds in the meeting following our receipt of the invoice.

Unencumbrances this Quarter

- There is no request to unencumber at this meeting.

RESERVE FUNDS

Dedicated Set-Aside Funds

The RMP has several dedicated set-aside funds. The purpose of these funds is to spread out the cost of large projects across multiple budget years. In the first quarter of 2022, $350,000 was transferred to the S&T set aside funds from RMP 2022. The current balance of all set-aside funds is **$1,077,975**. The current balance of each set-aside fund is shown in Table 2. At the start of CY2023, $300,000 was withdrawn from this account and moved to RMP year 2023. At the start of CY2024, $500,000 will be withdrawn from this account and moved to RMP year 2024. The historical and projected balance of the S&T Set-Aside Fund is shown in Figure 3.

Dedicated Dredger Reserve Fund

The balance of the Dredger Reserve Fund was reset to zero on January 1, 2018, when new dredger fees took effect. In 2018, there was a $62,665 credit to the Fund for dredger fees associated with the 6-month “stub year” that was created when the new fee schedule was developed[1]. There was also a debit of $109,060 because the local dredger fee payments were below their target for the year. In 2019, 2020, 2021, and 2022 there was a dredger revenue reduction due to dredged materials below targets of $262,334, $209,498, $196,757, and $192,844 respectively. Therefore, the balance of the Dredger Reserve is currently -**$907,828.** Table 3 tracks the running balance of the Dredger Reserve Fund.

Undesignated Funds

The RMP has a policy to maintain a Reserve of Undesignated Funds of at least $400,000 (this was increased from $200,000 at the October 2018 Steering Committee meeting) to allow for response to unanticipated funding needs or revenue shortfalls.

Going forward, all RMP earned interest will be deposited directly into Undesignated Funds and will be reported each quarter.

Any remaining Undesignated Funds are available for spending at the discretion of the Steering Committee. Figure 2 shows how the balance of Undesignated Funds has changed over time. The balance of Undesignated Funds through the current period is **$965,210**. Table 4 shows the withdrawals and deposits in the Undesignated Funds during the last two budget years. Q1 2023 LAIF interest was $34,081 (2.74% interest), Q2 2023 LAIF interest was $38,160 (3.15% interest), and Q3 LAIF interest was $55,146 (3.59% interest). At the August 2023 Steering Committee meeting, $180,000 was authorized to be transferred from the reserve for RMP 2024.

Supplemental Environmental Project (SEP) Funds

The total amount of RMP SEP funds received through the current period is $3,875,070, which includes $11,650 of additional funding for project oversight that supported previously completed and closed projects (no change since last reporting period). There are $80,289 of unallocated SEP (MMP) settlement funds that were previously received and are available.

As of the end of the current reporting period, $2,921,698 was spent on current and previous SEP projects, which includes 32 projects to date. The current balance of SEP funds is **$953,372** (includes the unallocated funds that have been received and not yet committed to a project). Table 5a summarizes the budget status for current, active SEP projects through this reporting period. Descriptions of the active and approved projects are listed in Table 5b.

FOR STEERING COMMITTEE APPROVAL

- No items for approval.

Figures and Tables

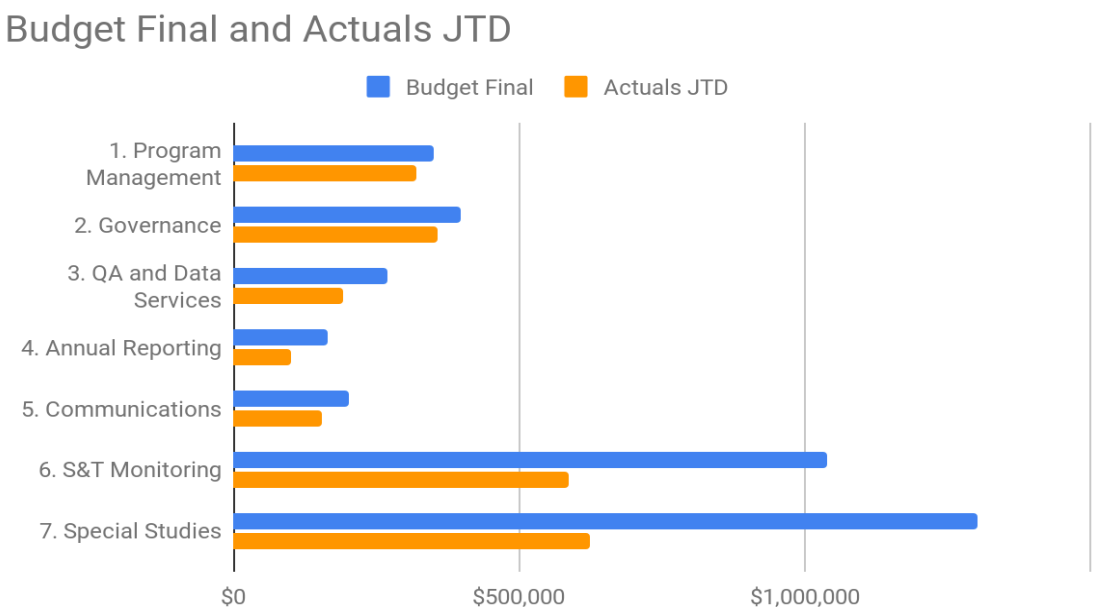


Figure 1: Bay RMP 2023 Budget. Budget and expenses through the current period by category.

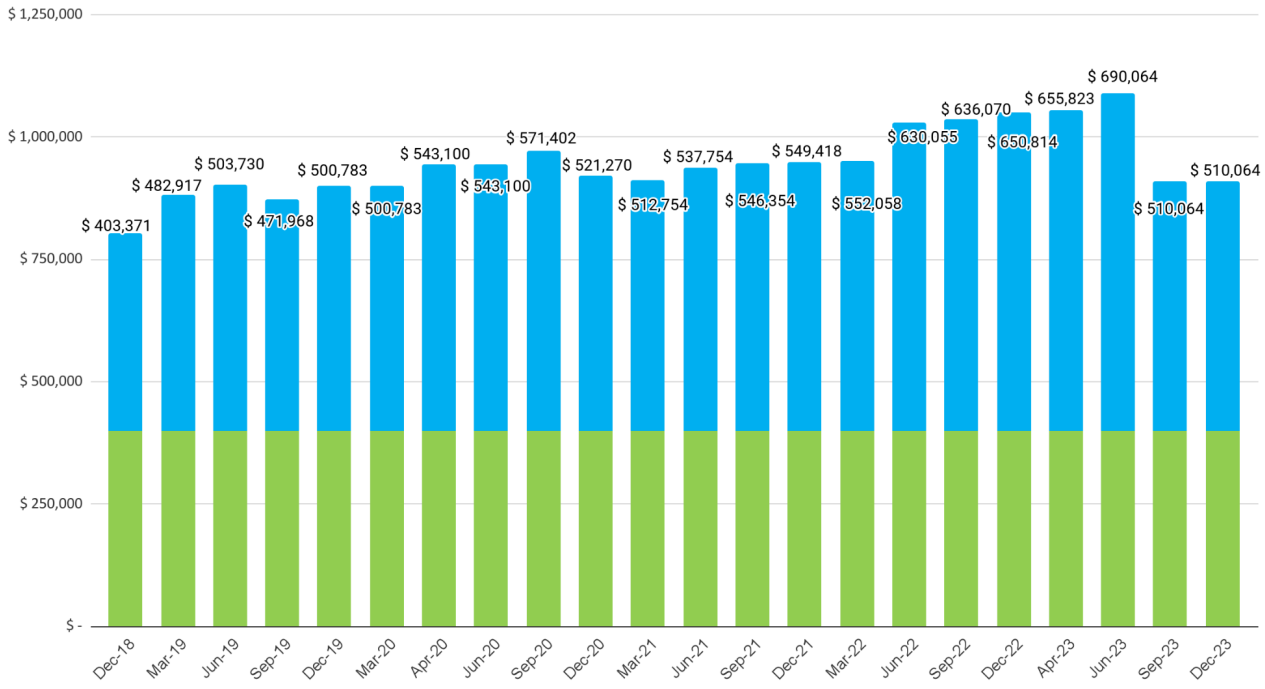


Figure 2: Bay RMP Undesignated Funds Balance over the past three years. The height of the bar shows the total balance of the Undesignated Funds. The bar is color coded to indicate the RMP policy that $400,000 of the Undesignated Funds should not be spent. Note that prior to December 2018, the RMP policy for restricted

Undesignated Funds was $200,000. The increase to $400,000 was approved at the October 2018 Steering Committee meeting.

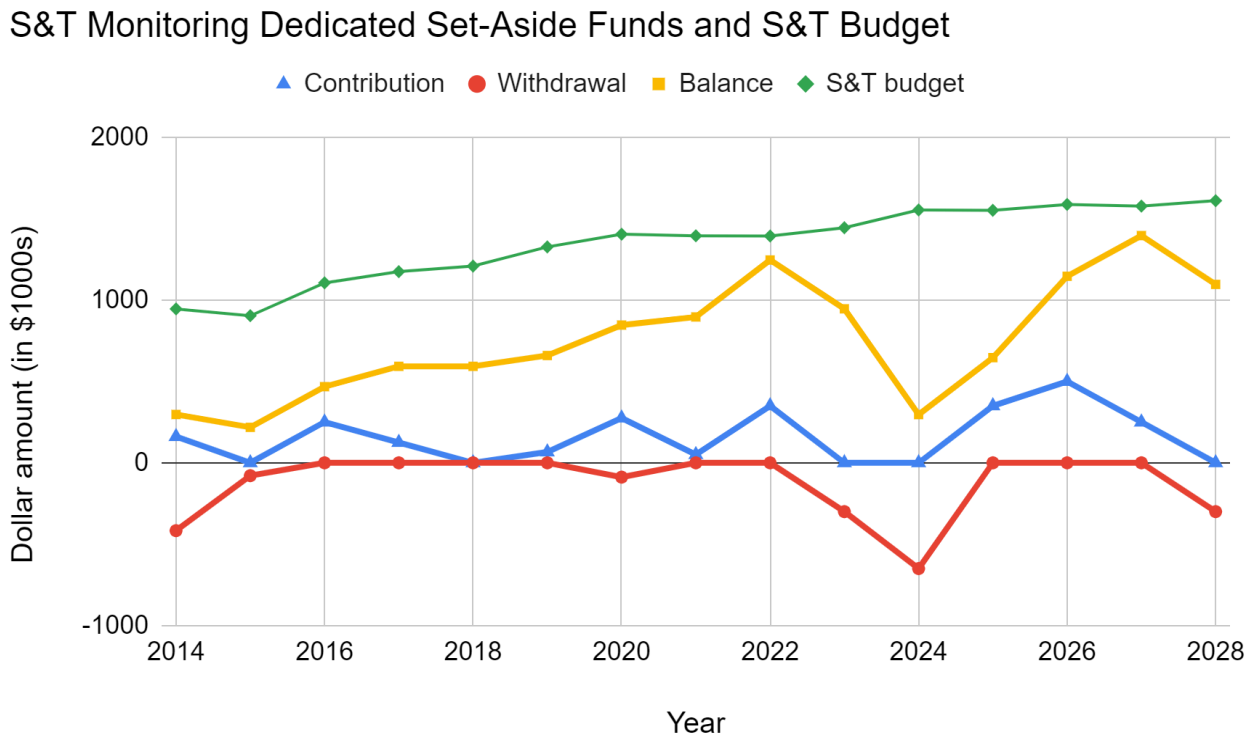


Figure 3: Contributions to and withdrawals from the S&T Set-Aside Fund from 2014 to 2022, anticipated contributions and withdrawals from 2023 to 2028, S&T actual budget for 2014 to 2021, and S&T projected budget for 2023 to 2028.

Table 1a: Bay RMP 2023 Budget: Budget and expenses for active tasks through the current period by line item.

Task	***Subtask***	***Subtask Name***	**Budget**	**Expenses JTD**	**% Complete**
Task Number: 001 Program Management	A	Budget and Workplan Development	$46,000	$44,939	98%
	B	Contract and Financial Management	$70,000	$60,084	86%
	C	Technical Oversight	$71,100	$70,434	99%

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
	D	Internal Coordination	$115,000	$105,946	92%
	E	External Coordination	$41,500	$39,136	94%
	F	Administration	$7,500	$0	0%
Task Number: 002 Governance	B	TRC meetings	$51,000	$49,156	96%
	C	Genaral WG meetings (MF, E	$63,800	$58,652	92%
	D	External Science Advisors	$60,000	$24,615	41%
	I	PCB WG	$22,000	$21,398	97%
Task Number: 003 QA and Data Services	A	Quality Assurance System	$38,200	$36,309	95%
	B	Online Data Access: CD3	$73,200	$22,689	31%
	C	Database Maintenance	$62,000	$48,253	78%
	D	Updates to SOPs and Templates	$43,800	$42,151	96%
	E	DMMO Database Support	$52,800	$42,426	80%
Task Number: 004 Annual Reporting	A	Pulse Report	$80,000	$35,367	44%
	B	Annual Meeting	$85,000	$66,434	78%
Task Number: 005 Communications	A	Communications Plan Implementation	$51,200	$30,750	60%

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
	B	Stakeholder Engagement	$28,000	$22,666	81%
	C	Responses to Information Requests	$22,500	$17,086	76%
	D	Outreach Products	$17,000	$9,950	59%
	E	Presentations at Conferences and Meeting	$65,000	$55,207	85%
Task Number: 006 S&T Monitoring	C	Dry season Bay water cruise	$217,000	$144,857	67%
	D	Dry season Bay water cruise data mgmt	$40,000	$18,954	47%
	E	Wet season water sampling	$45,000	$19,502	43%
	F	Wet season water data mgmt	$15,000	$15,300	102%
	G	Nearfield and margins sediment & prey fi	$313,000	$195,444	62%
	H	Nearfield and margins sed & prey fish da	$50,000	$7,988	16%
	I	S&T Laboratory Intercomparison Studies	$60,000	$11,929	20%
	J	Sample archive	$80,000	$69,103	86%
	K	S&T Field Sampling Report & Support	$20,000	$9,165	46%

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
	L	Ambient Bay sediment	$170,000	$84,688	50%
	M	Ambient Bay sediment data mgmt	$30,000	$10,163	34%
Task Number: 021 Special Study: PCBs in sediment and fish		Special Study: PCBs in sediment and fish	$75,000	$46,348	62%
Task Number: 023 Special Study: Microplastic Strategy		Special Study: Microplastic Strategy	$13,000	$4,922	38%
Task Number: 027 Special Study: STLS Strat. Supp. & Coord		Special Study: STLS Strat. Supp. & Coord	$35,000	$21,724	62%
Task Number: 029 Special Study: STLS Regional Model Devel		Special Study: STLS Regional Model Devel	$130,000	$91,023	70%
Task Number: 030 Small Tributaries Pollutants of Concern	B	Labs and Subs	$10,000	$1,315	13%
Task Number: 031 Special Study: SPL Tidal Area Remote Sam	B	Field work	$38,121	$24,830	65%
	C	Reporting	$9,000	$0	0%
	E	Project management	$5,828	$885	15%
Task Number: 032 Special Study: SPLWG Strategy		Special Study: SPLWG Strategy	$30,000	$15,373	51%
Task Number: 033 Special Study: EC Strategy Support		Special Study: EC Strategy Support	$60,000	$59,363	99%
Task Number: 034 Nontargeted data mining	A	Study Design	$7,000	$5,644	81%

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
	B	Analysis	$30,000	$4,009	13%
	C	Reporting	$8,000	$1,400	17%
Task Number: 035 CEC: Tires Strategy		CEC: Tires Strategy	$10,000	$7,922	79%
Task Number: 036 CEC: Groundwork for CEC stormwater	A	Stakeholder Meetings & Project Mgmt	$49,000	$44,238	90%
	B	Remote Sampler Pilot	$101,700	$88,453	87%
	C	Location Database	$46,300	$38,227	83%
	D	Data Analysis of SW Pilot Project	$53,000	$24,596	46%
Task Number: 037 Special Study: Tire-related Contaminants	A	Study Des & Smple Collection	$30,000	$190	1%
	B	Data Mgmt	$5,000	$0	0%
	C	Data Analysis & Report	$5,000	$0	0%
Task Number: 038 Spec Stud: EC Ethoxyl Surfact in Water	A	Wastewater Sample Collection	$8,000	$10,161	127%
	B	Data Services	$2,700	$832	31%
	C	Analysis and Reporting	$19,300	$148	1%
Task Number: 039 Spec Stud: SPL SW CECs Strategy Year 2	A	Draft Approach	$24,000	$0	0%
	B	Report	$31,000	$0	0%

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
Task Number: 040 Special Study: PFAS and NTA in marine ma	A	Study design and Collection	$14,500	$10,000	69%
	B	Data Management	$4,000	$0	0%
	C	Analysis and Reporting	$97,000	$564	1%
Task Number: 042 Special Study: Suspended Sediment in LSB		Special Study: Suspended Sediment in LSB	$52,000	$23,975	46%
Task Number: 044 Special Study: Sediment Flux Richmond Br		Special Study: Sediment Flux Richmond Br	$70,000	$0	0%
Task Number: 045 Special Study: Sediment Delivery to Mars		Special Study: Sediment Delivery to Mars	$135,000	$0	0%
Task Number: 046 PFAS in fish	A	Analysis and Reporting	$32,500	$29,339	90%

Table 1b: Bay RMP 2022 Budget: Budget and expenses for active tasks through the current period by line item.

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
Task Number: 001 Program Management	B	Contract and Financial Management	$105,200	$80,190	76%
	E	External Coordination	$42,800	$39,116	91%
	F	Administration	$7,000	$1,628	23%
Task Number: 002	A	SC meetings	$54,500	$53,414	98%

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
Governance					
	B	TRC meetings	$55,700	$45,665	82%
	D	External Science Advisors	$60,000	$22,244	37%
Task Number: 004 Annual Reporting	A	Pulse Report	$129,000	$99,576	77%
Task Number: 005 Communications	B	Stakeholder Engagement	$27,000	$26,315	97%
	C	Responses to Information Requests	$20,700	$18,867	91%
Task Number: 006 S&T Monitoring	C	Winter StormWater	$107,000	$65,094	61%
	D	Winter StormWater Data Mgmt	$20,000	$19,138	96%
	E	S&T Bivalves	$20,000	$775	4%
	F	N Bay Se Mon DataMgt	$30,000	$29,935	100%
	H	Dry season Bay water cruises	$25,000	$18,763	75%
	I	S&T Laboratory Intercomparison Studies	$22,000	$7,364	33%
	J	Sample archive	$43,000	$42,233	98%
	K	S&T Field Sampling Report & Support	$10,000	$6,336	63%
Task Number: 023 Special		Special Study:	$37,000	$28,831	78%

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
Study: Microplastic Strategy		Microplastic Strategy			
Task Number: 027 Special Study: STLS Strat. Supp. & Coord		Special Study: STLS Strat. Supp. & Coord	$45,500	$40,808	90%
Task Number: 029 Special Study: STLS Reg. Model Devpmt.		Special Study: STLS Reg. Model Devpmt.	$125,500	$112,566	90%
Task Number: 030 Small Tributaries Pollutants of Concern	E	Labs and Subs	$55,000	$21,235	39%
Task Number: 031 PCB monitoring at GE property		PCB monitoring at GE property	$21,200	$11,033	52%
Task Number: 032 AQUA-GAPS passive sampler		AQUA-GAPS passive sampler	$10,000	$0	0%
Task Number: 034 Special Study: EC in Urban Stormwater	A	Stormwater Sampling	$33,000	$4,909	15%
	C	Analysis and Reporting	$62,000	$50,915	82%
Task Number: 035 CEC modeling exploration		CEC modeling exploration	$25,000	$23,778	95%
Task Number: 037 Spec Stud: EC Tire-related contam in Bay	A	Study Des & Smple Collection	$27,993	$22,107	79%
	B	Data Mgmt	$12,007	$13,226	110%
	C	Data Analysis & Report	$10,000	$6,533	65%
Task Number: 038 Spec Stud: EC Ethoxyl Surfact in Water	A	Project Management	$2,509	$1,284	51%

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
	B	Data Services	$3,500	$0	0%
	C	Analysis and Reporting	$12,100	$3,419	28%
	D	Laboratory analysis	$11,891	$9,337	79%
Task Number: 039 Spec Stud: SPL SW monitor strat for CECs		Spec Stud: SPL SW monitor strat for CECs	$50,000	$22,665	45%
Task Number: 044 Special Study: Upload Data to DMMO		Special Study: Upload Data to DMMO	$20,000	$183	1%
Task Number: 045 Special Study: Sedimiment Temp variabili		Special Study: Sedimiment Temp variabili	$155,000	$140,713	91%

Table 1c: Bay RMP 2021 Budget: Budget and expenses for active tasks through the current period by line item.

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
Task Number: 006 S&T Monitoring	D	2021 Water Cruise Data Mgmt	$35,000	$34,089	97%
	E	Bird Egg Sampling	$226,000	$69,509	31%
	F	2021 Bird Egg Data Mgmt	$30,000	$1,991	7%
	I	S&T Laboratory Intercomparison Studies	$28,000	$13,423	48%
	J	Sample Archive	$84,000	$74,542	89%
	K	S&T Field Sampling	$12,000	$7,298	61%

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
		Report & Support			
Task Number: 021 Special Study: PCB Remediation Monitorin	C	Labs	$39,034	$29,111	75%
	D	Reporting	$12,830	$7,636	60%
Task Number: 026 Special Study: STLS Integrated Conceptua		Special Study: STLS Integrated Conceptua	$49,640	$47,097	95%
Task Number: 030 Special Study: STLS WY20 POC Recon Monit	B	Field Work	$16,359	$12,714	78%
	C	Data Management	$44,203	$46,012	104%
Task Number: 035 Special Study: Toxicology Strategy		Special Study: Toxicology Strategy	$60,000	$56,985	95%
Task Number: 046 Special Study: DMMO Database Enhancement		Special Study: DMMO Database Enhancement	$40,000	$4,641	12%
Task Number: 048 S&T RMP Prog Rev		S&T RMP Prog Rev	$220,000	$137,950	63%

Table 1d: Bay RMP 2020 Budget: Budget and expenses for active tasks through the current period by line item.

Task	*Subtask*	*Subtask Name*	Budget	Expenses JTD	% Complete
Task Number: 006 S&T Monitoring	E	2020 N Bay Margins Sediment Mon FieldWk	$220,600	$215,849	98%
	I	S&T Laboratory Intercomparison Studies	$37,000	$28,953	78%

	K	S&T Field Sampling Report & Support	$23,000	$9,823	43%

Table 1e: Bay RMP 2019 Budget: Budget and expenses for active tasks through the current period by line item.

Task	***Subtask***	***Subtask Name***	**Budget**	**Expenses JTD**	**% Complete**
Task Number: 035 Special Study: EC Ethoxylated Surf. Stud	A	Sample Collection and Reporting	$98,300	$79,492	81%
	B	Data Management	$24,700	$22,655	92%

Table 1e: Bay RMP 2018 Budget: Budget and expenses for active tasks through the current period by line item. There are no active tasks but we are waiting for one final invoice from a laboratory. We will unencumber remaining funds in the Spring 2024 meeting.

Table 2: Bay RMP Dedicated Set-Aside Funds. Balances as of the current period.

Reserve Type	**Purpose**	**Balance**
Dedicated Set-Aside Fund	Monitoring Contingency	$50,000
Dedicated Set-Aside Fund	S&T Monitoring	$1,027,975
	TOTAL	**$1,077,975**

Table 3: Bay RMP Dedicated Dredger Reserve Fund. Yearly surplus (deficit) and total surplus (deficit) as of the current period. Note that the previous running surplus/deficit was reset to $0 in 2018.

Year	Yearly Surplus/Deficit	Balance
Starting Balance from “Stub Year”		$62,665 (received) $62,665 (total)
2018	-$109,060	-$46,395
2019	-$262,334	-$308,729
2020	-$209,498	-$518,227
2021	-$196,757	-$714,984
2022	-$192,844	-$907,828

Table 4: Bay RMP Undesignated Funds. Withdrawals and deposits during the last two budget years and total balance as of the current period.

Budget Year	Deposit or Withdrawal	Reserve Type	Purpose	Authorization	Date of Authorization	Amount	Include	Comment
2022	Deposit	Undesignated Funds		Program Manager	3/31/2022	$3,481		Q1 2022 LAIF interest
2022	Deposit	Undesignated Funds		Program Manager	6/30/2022	$6,015		Q2 2022 LAIF interest

Budget Year	Deposit or Withdrawal	Reserve Type	Purpose	Authorization	Date of Authorization	Amount	Include	Comment
2022	Deposit	Undesignated Funds		Program Manager	9/30/2022	$14,744		Q3 2022 LAIF interest
2023	Withdrawal	Undesignated Funds		Steering Committee	2/23/2023	-$8,200		$8,200 withdrawal from undesignated funds approved by SC on 2/23/23 allocated for 3023-43
2023	Withdrawal	Undesignated Funds		Steering Committee	2/23/2023	-$11,000		$11,000 withdrawal from undesignated funds approved by Tom/SC on 3/21/23 to be allocated to RMP project task 3023.00-047 to support the completion of the SEP project 3300-21E
2022	Deposit	Undesignated Funds		Program Manager	12/31/2022	$24,209		Q4 2022 LAIF interest

Budget Year	Deposit or Withdrawal	Reserve Type	Purpose	Authorization	Date of Authorization	Amount	Include	Comment
2023	Withdrawal	Undesignated Funds		Steering Committee	4/26/2023	-$38,000		$38k withdrawal from undesignated funds approved by SC for 3023 006 G for fish/sed
2023	Deposit	Undesignated Funds		Program Manager	3/31/2023	$34,081		Q1 2023 LAIF interest
2023	Deposit	Undesignated Funds		Program Manager	3/31/2023	$38,160		Q2 2023 LAIF interest
2023	Withdrawal	Undesignated Funds		Steering Committee	8/31/2023	-$180,000		SC approved $180k move from undesignated reserve to 3024.00 031 for purchase of remote sampler equipment.
2023	Deposit	Undesignated Funds		Program Manager	9/30/2023	$55,146		Q3 2023 LAIF interest

Table 5a: Bay RMP Supplemental Environmental Project (SEP) Settlement Funds budget status for open, current projects or projects that ended within the last quarter. Listed are the amount of funds received and allocated to specific projects, the amount spent through the end of this reporting period, and the amount of unallocated funds available for this reporting period. The RMP maintains records of each settlement payment in their accounting system.

Active RMP SEP Projects	Amount Funded	Amount Spent	SEP Project Balance
Task 015: North Bay Selenium Clam and Water Data Management and Reporting	$40,000	$38,211	$1,790
Task 019: ECWG Special Study 2020 Q_Ammonium Compounds Survey	$58,200	$40,477	$17,723
Task 023: Integrated Watershed-Bay Modeling Strategy and Pilot Implementation	$200,000	$69,953	$130,047
Task 024: Regional Watershed Spreadsheet Model Update	$23,300	$1,381	$21,919
Task 026: Characterizing Per- and Polyfluoroalkyl Substances (PFAS) and Chlorinated Paraffins in San Francisco Bay Sediment	$106,150	$17,087	$89,063
Task 027: High speed mapping of water quality parameters on the eastern shoal of South San Francisco Bay	$184,470	$149,397	$35,073
Task 028: San Francisco Bay Sediment Transport and Fate Modeling	$408,000	$84,315	$323,685
Task 029: PFAS in Archived Sport Fish Manuscript	$25,500	$25,500	$0
Task 030: Non-targeted Analysis (NTA) Sediment Data Manuscript	$37,600	$28,148	$9,452
Task 031: Investigating harmful algal blooms in San Francisco Bay: priority data, model development/application, and synthesis	$252,300	$37,770	$214,530
Task 032: Temporal Variability in Sediment Delivery to a North & Central SF Bay Salt Marsh	$118,250	$88,449	$29,801
Unallocated	$80,289	$0	$80,289
Total for above active projects and unallocated funds	**$1,453,770**	**$580,687**	**$953,372**
Total for all SEP Projects	**$3,863,420**	**$2,921,698**	**$953,372**

Table 5b: Active Bay RMP Supplemental Environmental Project Descriptions

Study Name	Budget	Description	Status
Task 015 North Bay Selenium Clam and Water Data Management and Reporting	$40,000	The goal of the study is to provide data quality assurance, data management, and preparation of a data report for clam and water selenium monitoring conducted by the Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) in North San Francisco Bay. This monitoring is being conducted by the RMP in support of the North Bay Selenium TMDL. This study will cover clam and water selenium data generated by RMP monitoring in 2019 and 2020.	Approved
Task 019 ECWG Special Study 2020 Quaternary Ammonium Compounds Survey	$58,200	Quaternary ammonium compounds (QACs) are surfactants widely used in a variety of consumer products, particularly as antimicrobials. The current COVID-19 pandemic is thought to have increased use of products containing QACs, which is expected to continue into the near future. QACs have been detected in San Francisco Bay sediment, and are considered Possible Concern within the RMP tiered risk-based framework for emerging contaminants in the Bay. This ECWG special study will determine the concentrations of at least 22 QACs in Bay Area wastewater influent and effluent and begin to assess the temporal trends related to COVID-19.	Approved Started 7/2020
Task 023: Integrated Watershed-Bay Modeling Strategy and Pilot Implementation	$200,000	This project will produce and implement a strategy that integrates, links, and advances modeling tools to evaluate transport and loading of pollutants and sediment to San Francisco Bay from its tributary watersheds and other sources and pathways, and to evaluate the fate and transport of the resulting exposure of the pollutants in the Bay. Currently available models include watershed and Bay dynamic simulation models, watershed spreadsheet models, food web models, and mass balance conceptual box models of the Bay and Bay margins. Integrated use of these modeling tools and monitoring data will provide improved understanding of the linkages between ecosystem components and will better answer management questions to inform preventive and corrective actions for pollutants of concern, including contaminants of emerging concern, and management of sediment sources and supply needed for sea level rise resilience and adaptation, and habitat protection and restoration.	Approved Started 6/2021
Task 024: Regional Watershed Spreadsheet Model Update	$23,300	The Regional Watershed Spreadsheet Model (RWSM) was developed to estimate average annual regional and sub-regional scale pollutant loads to San Francisco Bay from stormwater runoff. It is part of a class of deterministic empirical models based on the volume-concentration method. In the Bay Area, it has so far been used for providing first approximations of regional (Baywide) and sub-regional (e.g., individual county, Bay segment, or priority margin unit) estimates of PCBs, mercury, copper, nutrients, and microplastics.	Approved Started 6/2021

Study Name	Budget	Description	Status
		The model will be recalibrated for flow using a new calibration period (1991-2020) and updated land use data to be published by the Metropolitan Transportation Commission in March 2021. The recalibrated flow model will be used to improve the model calibration and load estimates for mercury and one or more other pollutants.	
Task 026: Characterizing Per- and Polyfluoroalkyl Substances (PFAS) and Chlorinated Paraffins in San Francisco Bay Sediment	$106,150	This study will assess PFAS concentrations in San Francisco Bay sediment samples to improve our understanding of the occurrence and risks associated with PFAS in the Bay. Sediment samples collected throughout the Bay in 2018 and archived for the Status and Trends (S&T) Program will be analyzed, as well as a subset of samples expected to be collected in 2023 to provide information on current status. PFAS will be analyzed via targeted methods using tandem liquid chromatography/mass spectrometry (LC-MS/MS), and may also include analysis via the total oxidizable precursors (TOP) assay, which allows characterization of the overall presence of precursors rather than individual PFAS.	Approved Started 4/2022
Task 027: High speed mapping of water quality parameters on the eastern shoal of South San Francisco Bay	$184,470	This study will conduct high speed mapping of water quality parameters covering the eastern shoals of South San Francisco Bay (monthly) over 4 months. The mapping surveys will include information about water quality, nutrients, phytoplankton, and near-field remote sensing of high spatial resolution on the shoals and into the channels. The results will provide a quantitative understanding of phytoplankton and nutrient dynamics on the shoals and how they link to nutrient cycling processes in the channels of San Francisco Bay.	Approved Started 7/2022
Task 28: San Francisco Bay Sediment Transport and Fate Modeling	$408,000	This project will produce a foundational quantitative model of sediment transport and fate in San Francisco Bay that can be used to address management questions for polychlorinated biphenyls (PCBs), nutrients, and sediment. The study will have four major elements: 1. Compilation of existing information on (a) sediment loadings and boundary conditions and (b) sediment properties and parameters in San Francisco Bay; 2. Diagnostic analysis of sediment transport and fate model development; 3. Application of the model to answer management questions for PCBs, nutrients, and sediment supply; and 4. Coordination among the scientists working on the multiple facets of this effort and the stakeholders (including Regional Water Board staff) providing guidance via San Francisco Bay Regional Monitoring Program and Nutrient Management Strategy workgroups.	Approved Started 9/2022

Study Name	Budget	Description	Status
Task 029: PFAS in Archived Sport Fish Manuscript	$25,500	This funding request would support SFEI staff to prepare a draft manuscript from a 2022 RMP study to examine archived samples of four fish species from previous RMP sport fish sampling events in 2009, 2014, and 2019 across subembayments. Publishing this work in a peer-reviewed journal is important to add to the growing body of literature regarding PFAS in fish and widely increase the reach of the important studies done by the RMP. In coordination with this manuscript, an additional communication supplement is recommended to highlight this work at the SETAC Conference in Europe in May. This would include costs for attendance as well as creation of a poster synthesizing the findings of the report/manuscript, modeled after previous RMP conference posters. This effort further aids in improving the audience informed of our work while building on peer networking and partnership opportunities globally.	Approved Started 1/2023 Closed this period
Task 030: Non-targeted Analysis (NTA) Sediment Data Manuscript	$37,600	This SEP funding supports the development of a manuscript that would report on non-targeted techniques to examine both nonpolar and polar contaminants in Bay sediment using data reported from a 2018 RMP study lead by Lee Ferguson at Duke and Eunha Hoh at San Diego State University. SFEI staff will use the data provided by the 2018 study to further assess the distribution patterns, pathway influences, potential compound sources, and available toxicity information to inform prioritization. In addition SFEI will develop a 2-page fact sheet to describe the results and their implications modeled after past RMP fact sheets for non-targeted analysis.	Approved Started 1/2023
Task 031: Investigating harmful algal blooms in San Francisco Bay: priority data, model development/application, and synthesis	$252,300	In August 2022, SFB experienced its first severe harmful algae bloom (HAB) event, with a large-scale bloom of the organism Heterosigma akashiwo resulting in unprecedented water quality impacts in South Bay and other regions, including widespread fish mortality. The recent SFB monitoring program investments allowed a team of regional scientists (SFEI, USGS, UCSC) to quickly mobilize and intensively track the HAB event, yielding valuable datasets (field surveys; in situ measurements using water quality moorings; remote sensing) and samples (preserved/archived) that are essential for understanding the factors that initiated and shaped this HAB event. In this study, SEP funds will be used to support a range of activities related to understanding the August 2022 HAB event, including: analysis of physical forcing data (sunlight, wind, tides); analysis of water quality datasets from ship-based, mooring, and remote-sensed measurements (nutrients; phytoplankton abundance; dissolved oxygen; suspended sediments; etc.) to characterize how conditions varied spatially and temporally over the course of the event; analysis of archived samples collected during or in the lead-up to the event for molecular/DNA related parameters (e.g., sequencing to characterize phytoplankton, grazers, bacteria, viruses); application of numerical models to	Approved Started 7/2023

Study Name	Budget	Description	Status
		quantitatively explore coupled transport/transformation hypotheses; and numerical simulations to explore how potential management actions (e.g., nutrient load reductions to SFB) could lower the risk of similar events in the future.	
Task 032: Temporal Variability in Sediment Delivery to a North & Central SF Bay Salt Marsh	$118,250	This study will investigate the influence of tides, waves, and water levels on sediment delivery and deposition on two tidal marshes in North and Central San Francisco Bay. The project will include measurements of suspended sediment concentration (SSC) and suspended sediment flux in the shallows adjacent to the marshes, SSC at long-term tidal creek stations, deposition and accretion on the marshes, and the variation in deposition with elevation and vegetation density and type. Data will be collected in 2023 and analyzed and reported by fall 2024. Study results will inform shoreline and tidal marsh sea level rise resilience and adaptation management strategies.	Approved Started 7/2023

Table 6: Steering Committee RMP Budget Summary as of 12/31/2023

Budget and Current Expenses							
Year	Budget	Expended	Balance	Previously Unencumbered	Unencumbered this Period	Balance minus Unencumbered (Remainder)	% Remaining
	$	$	$	$	$	$	%
SEP	$3,875,070	$2,921,698	$953,372	0	0	$953,372	25%
2023	$3,727,600	$2,337,160	$1,390,440	0	0	$1,390,440	37%
2022	$2,762,800	$2,288,613	$474,187	0	0	$474,187	17%
2021	$3,564,216	$3,055,627	$508,589	0	0	$508,589	14%
2020	$3,735,174	$3,496,238	$238,936	0	0	$238,936	6%

2019	$3,819,850	$3,636,917	$182,933	0	0	$182,933	5%
2018	$3,818,427	$3,741,457	$76,970	0	0	$76,970	2%
Grand Total	**$25,303,137**	**$21,477,712**	**$3,825,425**	**0**	**0**	**$3,825,425**	**15%**

Year	Accounts Receivables & Remaining Interest:	Amount	Notes
2023	3023.07 EBDA - Municipal	$158,926	
2023	3023.19 SF Airport - Municipal	$16,789	
2023	3023.29 St. Helena - Municipal	$8,715	
2023	3023.35 Treasure Island (U.S. Navy) - Municipal	$14,440	
2023	3023.54 Fairfield-Suisun - Stormwater	$19,767	
2023	3023.81 City of Petaluma Maintenance Dredging	$10,978	
2021	3021.74 San Francisco Marina - Dredger	$5,504	Payment confirmed will be sent ASAP in 2024 Q1

Special Study Proposal: Integrated watershed modeling and monitoring implementation strategy

Summary: The RMP modeling of concentrations and loads delivered to the Bay from the small tributaries in the nine county Bay Area, along with monitoring to support the modeling, has largely been funded and led by the SPLWG and focused on PCBs and Hg. Other workgroups with modeling or monitoring needs have largely just retrofitted the models or piggybacked on the monitoring programs. As the focus of modeling moves towards supporting a broader suite of contaminants including sediment, nutrients and CECs beyond just PCBs and Hg, the information and the monitoring required to model contaminant groups with similar characteristics (chemical and physical properties, sources, pathways, etc.) needs to be systematically identified, and the model structure needed to support these priorities needs to be considered from inception. This proposal aims to address these issues by building an integrated watershed modeling and monitoring implementation strategy to lay out the information needs and associated monitoring and modeling processes to address management questions for any contaminant of interest when the need arises.

Estimated Cost: $50k
Oversight Group: TRC
Proposed by: L McKee and T Zi (SPLWG), R Sutton (ECWG), S Dusterhoff (SedWG), J Davis (PCBWG), D Senn (Nutrients Management Strategy), and M Foley (RMP Manager)
Time Sensitive: Yes, bridge monitoring and modeling efforts to avoid inefficiencies.

Proposed Deliverables and Timeline

Deliverable	Due Date
Draft strategy and processes for incorporating pollutants of concern into models and identifying monitoring needed to support the model	April 2021
Complete full draft FINAL integrated watershed modeling and monitoring implementation strategy	September 2021
Final report	December 2021

Background

The SPLWG is a recognised leader within the RMP and the Bay Area in the design and implementation of monitoring and modeling programs to support estimates of the flow of stormwater, suspended sediment (SS), and contaminant concentrations and loads in the small tributaries that flow into the Bay from the nine counties that ring the Bay. To scientifically understand and support water quality management questions of pollutants of concern, a phased monitoring and modeling progress has been adopted. Taking PCB

and Hg as an example, first step was to lay out the conceptual models for stormwater monitoring designs for PCBs and Hg based on the outcomes of several efforts, including regional estimates of contaminant loads using simple model (Davis et al., 2000), pilot monitoring program (e.g.Guadalupe loads monitoring program), and literature review ("urban runoff literature review", McKee et al., 2003). Monitoring then continued on Guadalupe River through 2006 and then in Zone 4 Line A through 2010. This was then followed by strategy development (SFEI, 2009), and a multi-year plan (BASMAA, 2011) that included the development of the Regional Watershed Spreadsheet Model (RWSM), as well as a monitoring plan for PCBs and Hg loads at a selection of tributaries. These efforts resulted in the design of a "reconnaissance field monitoring method" to characterise PCBs and Hg concentrations and particle concentrations. This method was piloted in WY 2011 using a discrete sampling design (McKee et al., 2012), and refined in 2015 and 2016 to use a composite design (Gilbreath et al., 2017), and enhanced in 2016-2018 to include several remote sampler methods as an initial characterisation tool (Gilbreath et. al., 2019). The RWSM hydrology model was completed in 2012 (Lent et al., 2012) and a calibrated RWSM for PCBs and Hg was completed in 2016 (Wu et al., 2017). In 2015, the SPLWG began transitioning towards a greater focus on trends. Consistent with the history of the workgroup (WG), the phased approach from past PCB and Hg work experiences was then repeated: 1) Pilot monitoring and research; 2) Conceptual model development based on existing knowledge, literature review and knowledge gained from step 1 (McKee and Yee, unpublished); 3) Statistical analysis of loads and trends in a well-sampled archetype watershed (Melwani et al., 2018; 4) Refined monitoring design based on the results of conceptual model and statistical analysis, 5) evaluation of the data needs of dynamic modeling (in preparation); 6) Prepare Modeling Implementation Plan (Wu and McKee, 2019); and 7) start dynamic modeling of contaminants (in preparation).

These efforts were largely designed to support management questions and permit provisions that evolved out of the PCB and Hg TMDLs for San Francisco Bay. Yet, the reconnaissance field monitoring design has been adopted for microplastics and other CECs, and those groups along with the PCB workgroup have been "piggybacking" on the PCB and Hg field program for the past three wet seasons, placing a larger demand on and competition for field staff resources, particularly when sites for PCBs and Hg are not optimal for microplastics and other CECs. In addition, the RWSM has been retrofitted to estimate regional scale nutrient and microplastic loads and PCB loads for priority margin units and the Bay Area Hydrology Model (BAHM) was updated and the flow information was used to estimate loads of nutrients and CECs. Now, as the SPLWG is embarking on the development of a new dynamic simulation model to support tributary concentrations and load questions for the RMP, there is a concern that a design of the model with a narrow focus on PCBs and Hg (the contaminants with the most robust supporting data) will lead to cost inefficiencies when retrofitting the model for other contaminants. In addition, although a basic component of the new model will be a calibrated sediment transport, again, if the focus is on its use to support contaminant

loadings alone, the urban component of the model will need to be optimised, yet the SedWG will need equal effort placed on the calibration for non-urban erosion and SS transport processes. There are also concerns that a focus of the model development on initially supporting PCBs and Hg loads and trends may not adequately address the objective of broadly addressing watershed modeling needs for any future contaminant of interest. Although there is a generous amount of data available to calibrate either model for flow, suspended sediment, PCBs (and other trace organics such as OC pesticides, pyrethroid pesticides, and PBDE), Hg (and other trace metals, e.g. Cu), and nutrients, and there is a wealth of nationwide modeling experience on these, there is a paucity of data to support calibration for emerging contaminants and a lack of modeling experience to learn from.

This proposal aims to address these issues by bringing together a cross-disciplinary supragroup of RMP staff with broad WG review to transcend the focuses of any single WG and build an integrated modeling and monitoring strategy that lays out a road map of the information needs and associated monitoring and modeling processes that would support the broad range of contaminants, RMP WG, and management needs.

Study Objectives and Applicable RMP Management Questions

This proposal is unlike other proposals brought forward during the last decade by each single WG with only limited input from other workgroups. Instead, it explicitly requires collaboration across the staff of multiple work groups (and multiple WG review of the product) to identify and fill watershed monitoring and modeling needs across multiple contaminants. The objective is to increase information development while reducing programmatic cost over a 5-year term. Thus, the standard format of listing applicable workgroup-specific management questions does not appear to apply. Instead we offer Table 1 for consideration and review.

Table 1. Framework for information development via the watershed modeling and monitoring strategy to inform surface water quality management.

	Information Phases		
	Early Evaluation	**Support for Regulatory Goal Setting**	**Evaluating Control Measure Implementation and Adaptive Management**
Core Management Questions	What are the risks? Which ones are high priorities? Should it be regulated?	What are the current loadings and concentrations at the regional scale? What should be the regulation targets? Are effective control measures feasible?	What are the effective water quality improvement implementations? What are the load and concentration after the implementation of control measures?

Monitoring Objectives	Identify the concentrations in different media for risk evaluation	Regional concentration and load estimation, modeling support	Trend and load estimation to evaluate the control measure implementation; regional and watershed specific load and trend monitoring to support modeling
Monitoring Design	Water, Sediment, Biota Samples	Water, Sediment, Biota Samples	Water, Sediment, Biota Samples
Modeling Objectives	Risk evaluation	Regulation (e.g., TMDL) development	Trend, load, control measure evaluation
Modeling Design	Conceptual model (food web, transport and accumulation in the Bay), RWSM, single box model of the Bay	Conceptual (RWSM) and/or dynamic watershed model for regional loading and target scenarios testing	Integrated watershed-Bay model for regional and watershed specific loading and implementation scenarios and linkage analysis

Approach

Conceptual models have already been developed by the RMP for watershed sources and transport processes for suspended sediment, nutrients, PCBs, and Hg. These will form a useful framework for developing conceptual models for new and emerging contaminants to support monitoring design and model structure. In addition, MYPs have been written for WGs and Strategies. The approach we propose to take combines these concepts. We will prepare a draft framework for the ongoing identification of management questions and associated monitoring and modeling needs with respect to high priority contaminants (or contaminant groups) and the implementation of monitoring and modeling through the RMP to address these needs. High priority contaminants may include sediment, PCBs, Hg, nutrients, and individuals or groups of CECs of interest. The framework will include elements of a road map to support the water quality management for emerging contaminants:

a) documentation of the decision rationale for the suite of contaminants or contaminant classes for consideration,
b) an evaluation of data requirements loads estimation for each contaminant/class,
c) conceptual model development for each contaminant class in direct relation to the model data requirements,
d) a data gaps evaluation,
e) a series of recommended studies (literature reviews or field monitoring programs) to address data gaps, and
f) a decision tree to support monitoring decisions and when to start modeling

For the initial draft, we will draw upon existing materials and reports prepared by the SedWG, ECWG, PCBWG, Nutrient Management Strategy team, and RMP staff

expertise. The draft will then undergo review and input from multiple WG experts through normal WG channels before being finalised as “Version 1” of the strategy. The strategy will be written as a living document in case updates are needed in 2-5 years as new information emerges.

Budget

The following budget represents estimated costs for this proposed special study (Table 2). Efforts and costs can be scaled back by reducing the number of sampling sites.

Table 2. Proposed budget.

Expense	Estimated hours	Estimated Cost
Labor		
Draft report (Project Staff)	200	$34,000
Project management and Program manager and lead scientist review	32	$5,440
Review process and final report	60	$10,200
Grand total		$49,640

Budget Justification

- Development of many other strategy documents and conceptual models.
- Assumes a lot of coordination between internal RMP staff during the drafting.
- Assumes a lot of review and input from approximately 7-10 work group experts from the five (5) work groups engaged on the project.

Reporting

The outcome of the study will be a concise technical report.

References

BASMAA, 2011. Small Tributaries Loading Strategy Multi-Year Plan (MYP) Version 2011. Submitted to the Water Board, September 2011, in support of compliance with the Municipal Regional Stormwater Permit, provision C.8.e. http://www.swrcb.ca.gov/rwqcb2/water_issues/programs/stormwater/MRP/2011_AR/BASMAA/B2_2010-11_MRP_AR.pdf

Davis, J.A., L. McKee, J. Leatherbarrow, and T. Daum. 2000. Contaminant Loads from Stormwater to Coastal Waters in the San Francisco Bay Region: Comparison to Other Pathways and Recommended Approach for Future Evaluation. San Francisco Estuary Institute, Richmond, CA.

http://www.sfei.org/documents/contaminant-loads-stormwater-coastal-waters-san-francisco-bay-region-comparison-other

Gilbreath, A.N., Hunt, J.A., Yee, D., and McKee, L.J., 2017. Pollutants of concern reconnaissance monitoring final progress report, water years 2015 and 2016. A technical report prepared for the RMP, SPLWG, STLS. Contribution No. 817. SFEI, Richmond, CA. http://www.sfei.org/sites/default/files/biblio_files/SFEI%20WY2016%20POC%20monitorng%20report%20FINAL%20June2017.pdf

Gilbreath, A.N., Hunt, J.A., Yee, D., and McKee, L.J., 2019. Pollutants of concern (POC) reconnaissance monitoring final progress report, water years (WYs) 2015 - 2018. A technical report prepared for the RMP, SPLWG, STLS. Contribution No. 942. San Francisco Estuary Institute, Richmond, CA. https://www.sfei.org/documents/pollutants-concern-reconnaissance-monitoring-water-years-2015-2018

Lent, M.A., Gilbreath, A.N., and McKee, L.J., 2012. Development of regional suspended sediment and pollutant load estimates for San Francisco Bay Area tributaries using the regional watershed spreadsheet model (RWSM): Year 2 progress report. A technical report prepared for the RMP, SPLWG, STLS. Contribution No. 667. San Francisco Estuary Institute, Richmond, California. https://www.sfei.org/documents/development-regional-suspended-sediment-and-pollutant-load-estimates-san-francisco-bay

McKee, L.J., Leatherbarrow, J., Pearce, S., and Davis, J., 2003. A review of urban runoff processes in the Bay Area: Existing knowledge, conceptual models, and monitoring recommendations. A report prepared for the Sources, Pathways and Loading Workgroup of the Regional Monitoring Program for Trace Substances. SFEI Contribution 66. San Francisco Estuary Institute, Oakland, Ca. http://www.sfei.org/documents/review-urban-runoff-processes-bay-area-existing-knowledge-conceptual-models-and-monitoring

McKee, L.J., Gilbreath, A.N., Hunt, J.A., and Greenfield, B.K., 2012. Pollutants of concern (POC) loads monitoring data, Water Year (WY) 2011. A technical report prepared for the RMP, SPLWG, STLS. Contribution No. 680. San Francisco Estuary Institute, Richmond, CA. http://www.sfei.org/documents/pollutants-concern-poc-loads-monitoring-data-water-year-wy-2011

Melwani, A.R., Yee, D., McKee, L., Gilbreath, A., Trowbridge, P., and Davis, J.A., 2018. Statistical Methods Development and Sampling Design Optimization to Support Trends Analysis for Loads of Polychlorinated Biphenyls from the Guadalupe River in San Jose, California, USA, Final Report. https://www.sfei.org/documents/statistical-methods-development-and-sampling-design-optimization-support-trends-analysis

SFEI, 2009. RMP Small Tributaries Loading Strategy. A report prepared by the strategy team (L McKee, A Feng, C Sommers, R Looker) for the Regional Monitoring Program for Water Quality. Contribution No. 585. San Francisco Estuary Institute, Oakland, CA. http://www.sfei.org/sites/default/files/biblio_files/Small_Tributary_Loading_Strategy_FINAL.pdf

Wu, J., Gilbreath, A.N., McKee, L.J., 2017. Regional Watershed Spreadsheet Model (RWSM): Year 6 Progress Report. A technical report prepared for the RMP, SPLWG, STLS. Contribution No. 811. San Francisco Estuary Institute, Richmond, California. http://www.sfei.org/documents/regional-watershed-spreadsheet-model-rwsm-year-6-final-report

MEMORANDUM

Date: January 12, 2024
To: RMP Steering Committee
From: Jay Davis and Amy Kleckner
Subject: Request for Funding Augmentation

This memo documents a request for additional funding for a Special Study funded in 2021: **Integrated watershed modeling and monitoring implementation strategy**. The original proposal is attached. The original budget was $50,000. An additional $10,800 is requested to complete the project.

Background

Existing RMP watershed/stormwater monitoring designs, methods, and numerical models were developed to be optimal for PCBs and Hg, but not as optimal for sediment, and sampling design for microplastics and other CECs was not considered. Integrating watershed modeling needs into monitoring design offers the opportunity to more quickly and cost effectively use watershed models to address management questions. This report outlines a framework for integrating watershed modeling and monitoring designs.

Conceived at the 2020 SPLWG meeting and funded in 2021, this project has both facilitated, benefited from, and been delayed by an evolution of ideas about modeling and sampling design, particularly with regard to CECs, which are becoming a focus of the RMP watershed monitoring program. While this project initially had a more general focus, its purpose has been expanded to provide a foundation for the Stormwater CECs Monitoring & Modeling Approach that is currently in development. These changes necessitate a request for additional funds to bring this project to completion. In addition, we have added a budget for a presentation and discussion of the report at either the Joint EC/SPLWG meeting or an upcoming SST meeting. We are requesting additional funding for completion of the draft report for workgroup review and stakeholder interaction (meetings and presentations), and then completing the final report.

Updated Deliverables and Timeline

Deliverable	Due Date
Draft strategy internal review	Feb 2024
Draft strategy Workgroup review	Mar 2024
FINAL web published integrated watershed modeling and monitoring implementation strategy	Apr 2024
Stakeholder outreach / Presentations	Apr 2024

Budget breakdown

Task	Lester	Jay	Kelly	Total
Internal review of final draft	$0	$1,008	$902	$1,911
Address internal review comments	$2,335	$0	$0	$2,335
Send out for Workgroup review	$97	$0	$0	$97
Stakeholder engagement (phone calls, meetings)	$778	$0	$902	$1,680
Address WG review comments and web publish	$2,335	$0	$0	$2,335
Present to either the Stormwater CECs stakeholder and science advisor team (SST) or the joint SPL/ECWG meeting	$1,556	$0	$902	$2,458
Total	$7,101	$1,008	$2,706	$10,815

RMP
REGIONAL MONITORING
PROGRAM FOR WATER QUALITY
IN SAN FRANCISCO BAY

sfei.org/rmp

MULTI-YEAR PLAN

2024 ANNUAL UPDATE

DRAFT: JANUARY 2024

Contribution Number: XXXX

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 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 from 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 (Figure 1).

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 put forward recommendations for special studies 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 who then considers this recommendation and makes the final decision on the annual workplan.

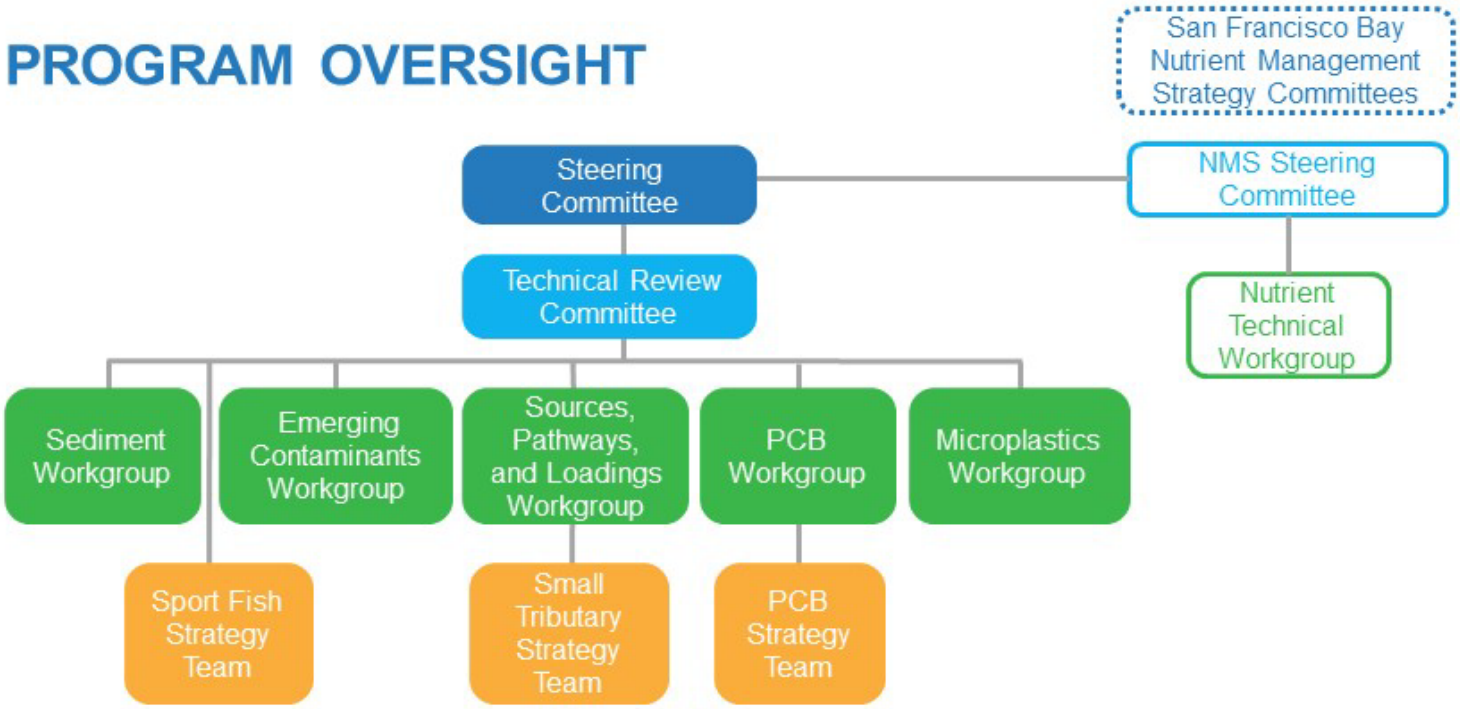
In order to fulfill the overarching goal of the RMP, the Program has to be forward-thinking and anticipate what decisions are on the horizon, so that when their time comes, the scientific knowledge needed to inform the decisions is at hand. Consequently, each of the workgroups and teams develops three to 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 AND ORGANIZATION OF THIS DOCUMENT

The purpose of this document is to guide efforts and summarize plans developed within the RMP. The intended audience includes representatives of the many organizations who directly participate in the Program. This document will also be useful for individuals who are not directly involved with the RMP but are interested in an overview of the Program and where it is heading.

The organization of this Multi-Year Plan parallels the RMP planning process (Figure 2). Section 1 presents the long-term management plans of the agencies responsible for managing water quality in the Bay and the overarching management questions that guide the Program. The agencies' long-term management plans provide the foundation for RMP planning (Figure 2). In order to turn the plans into effective actions, the RMP distills prioritized lists of management questions that need to be answered (Page 8). The prioritized management questions then serve as a roadmap for scientists on the Technical Review Committee, workgroups, and strategy teams to plan and implement scientific studies to address the most urgent information needs. This information sharpens the focus on management actions that will most effectively and efficiently improve water quality in the Bay.

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



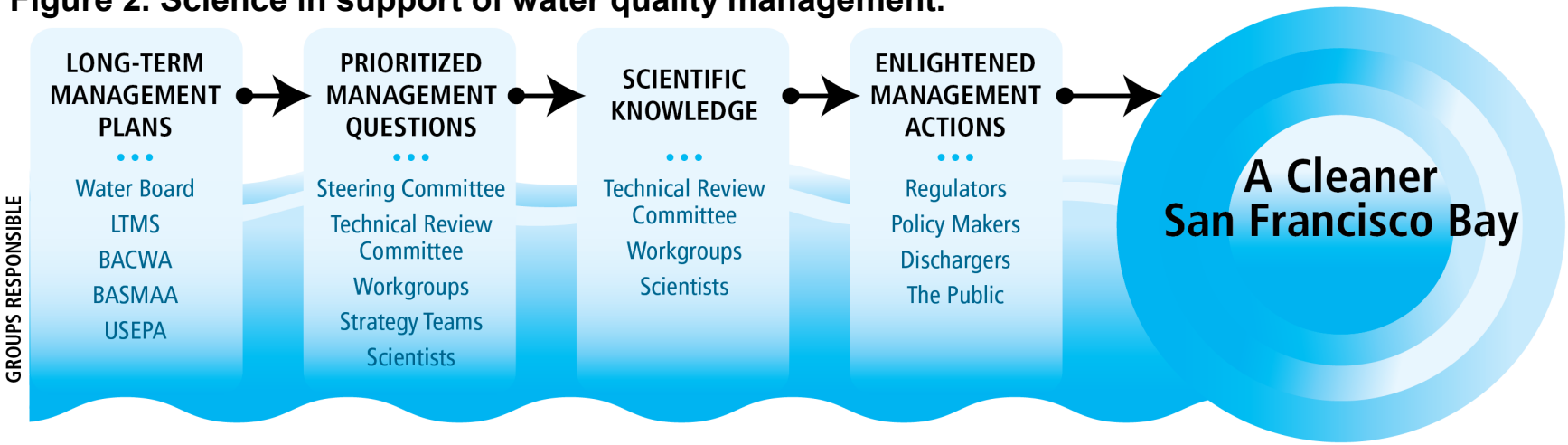
The Steering Committee consists of representatives from discharger groups (wastewater, stormwater, dredging, industrial) and regulatory agencies (Regional Water Board and U.S. Army Corps of Engineers). The Steering Committee determines the overall budget and allocation of program funds, tracks progress, and provides direction to the Program from a manager's perspective.

Workgroups report to the TRC and address the main technical subject areas covered by the RMP. The Nutrient Technical Workgroup was established as part of the committee structure of a separate effort—the Nutrient Management Strategy—and makes recommendations to the RMP committees on the use of the RMP funds that support nutrient studies. The workgroups consist of regional scientists and regulators and invited scientists recognized as authorities in the field. The workgroups directly guide planning and implementation of special studies.

Oversight of the technical content and quality of the RMP is provided by the **Technical Review Committee** (TRC), which provides recommendations to the Steering Committee.

RMP strategy teams constitute one more layer of planning activity. These stakeholder groups meet as needed to develop long-term RMP study plans for addressing high priority topics.

Figure 2. Science in support of water quality management.



Section 2 provides an overview of the RMP budget, including where the funding comes from and how it is allocated among different elements of the Program. This section provides a summary of the priority topics to be addressed by the Program over the next three to five years.

Section 3 presents the three to five-year plans developed by the workgroups and strategy teams for the current focus areas: emerging contaminants, microplastics, nutrients, PCBs, sediment, and small tributary loads. Led by the stakeholder representatives that participate in these groups, each workgroup and strategy team develops a specific list of management questions for each topic that the RMP will strive to answer over the next three to five years. With guidance from the science advisors on the workgroups, plans are developed to address these questions. These plans include proposed projects and tasks and projected annual budgets. Information synthesis efforts are often conducted to yield recommendations for the next phase of studies. For now, study plans and budget allocations for these strategies are largely labelled as “to be determined”. Other pieces of information are also included to provide context for the multi-year plans. First, for each high priority topic, specific management policies or decisions that are anticipated to occur in the next few years are listed. Second, the latest advances in understanding achieved through the RMP and other programs on Bay water quality topics of greatest concern are summarized. Lastly, additional context is provided by listing studies performed within the last five years and studies that are currently underway.

Section 4 describes five-year plans for other elements that are essential to the mission of the RMP: Status and Trends Monitoring, Program Management, Communications, Data Management, and Quality Assurance.

Section 5 contains lists of RMP studies that are relevant to specific permit conditions for dredging, stormwater discharges, and municipal and industrial wastewater discharges.

A Living Document

The RMP Multi-Year Plan is updated annually to provide an up-to-date description of the priorities and directions of the Program. An annual Planning Workshop is held in conjunction with the October Steering Committee meeting. A draft Multi-Year Plan is prepared before the workshop, and approved by the Steering Committee at the January meeting.

More detailed descriptions of the elements of the RMP are provided in the annual Detailed Workplan (available at www.sfei.org/rmp).

Figure 3. Annual planning calendar for the Regional Monitoring Program.

Annual Steering Committee Calendar

- January
  - Approve Multi-Year Plan
  - Review incomplete projects from the previous year
  - Approve annual report outline
  - Pick date for Annual Meeting
- April
  - Plan for Annual Meeting
  - Provide additional planning guidance to workgroups
- July
  - Multi-year Plan: mid-year check-in, workshop planning
  - Approve special studies recommended by the TRC for the next year and update projects list for SEP funding
  - Plan for Annual Meeting
  - Report on SFEI financial audit
  - Briefly discuss fees for year after next
  - Select annual report theme for next year
- October
  - Multi-Year Planning Workshop
  - Confirm chair(s) and Charter
  - Decision on fees for the year after next
  - Approve workplan and budget for next year
  - Decision on workgroups to be held next year
  - Discuss outcome of the Annual Meeting

Each meeting (except October) includes a Science Program Update from a workgroup or strategy team focus area.

Annual Technical Review Committee Calendar

- March
  - Confirm chair(s)
  - Review special studies to ensure coordination
  - Provide planning guidance to workgroups
- June
  - Recommend special studies for funding
  - Review SEP project list
  - Review S&T target analyte list, CEC tiers
  - Review plans for Annual Meeting and annual report
- September
  - Prepare for Annual Meeting
  - Review Status and Trends Monitoring Design
  - Discuss lab intercomparison studies
- December
  - Review annual report outline for next year
  - Informatics update
  - Present workplan for next year and outcome of Multi-Year Planning Workshop
  - Review intercalibration studies and plans

Each meeting includes feedback on proposed and ongoing studies.

Annual Workgroup Calendar

Workgroups meet annually between April and June to discuss results from prior studies and select proposals to recommend to the TRC and SC for funding the next year.

Multi-Year Calendar: RMP fees are approved in 3-year increments. The most recent approval was for 2023-2025. The dredger fee schedule is reviewed every 3 years. The most recent approval was for 2022-2024. The MOU between SFEI and the Water Board for administering the RMP is amended every two years. The most recent amendment was for 2023-2024.

Current and anticipated management decisions, policies, and actions by the regulatory agencies that manage water quality in San Francisco Bay

Decisions, Policies, and Actions	Timing
BAY WATERSHED PERMITS (NEXT REISSUANCE)	
Municipal Regional Stormwater Permit	2027
Mercury and PCBs Watershed Permit for Municipal and Industrial Wastewater (Implement mercury and PCB TMDLs)	2027
Nutrient Watershed Permit for Municipal Wastewater (Implement Nutrient Management Strategy)	2024
CURRENT HIGH PRIORITY DRIVERS BY TOPIC	
303(d) List and 305(b) Report Current listings and next cycle	2024 2026*/2030
Beneficial Reuse of Dredged Sediment Review sediment guidelines[+] and testing criteria Evaluate the effectiveness of strategic placement	Ongoing Ongoing
Contaminants of Emerging Concern Updates to CEC Tiered Risk-Based Framework Opportunities to inform regional actions and state and federal regulations	Annual Ongoing
Determination of Wastewater Permit Limits California Toxics Rule	Ongoing
PCBs Review existing TMDL and inform revisions	Complete by 2028
Mercury Review existing TMDL and inform revisions	Complete by 2026
Nutrients Inform the Nutrient Management Strategy	Ongoing
OTHER DRIVERS BY TOPIC	
Beneficial uses Fish exposure (PCBs, Hg, and PFAS) and tribal uses	Ongoing
Current Use Pesticides EPA Registration Review of fipronil and imidacloprid DPR fipronil mitigation measures	Ongoing

Decisions, Policies, and Actions	Timing
OTHER DRIVERS BY TOPIC	
Copper Site specific objectives triggers[+]	Ongoing
Cyanide Site specific objectives triggers[+]	Ongoing
Dioxins Review 303(d) listings and establish TMDL development plan or alternative	Ongoing
Dredging Permits Bioaccumulation testing triggers and in-Bay disposal thresholds[+]	Ongoing
Legacy Pesticides (DDT, Dieldrin, Chlordane) Monitoring recovery (biota)	Ongoing
Sediment Hot Spots Review 303(d) listings and establish TMDL development plan or alternative	Ongoing
POTENTIAL FUTURE DRIVERS	
Specific CECs, e.g., PFAS	TBD
Effects of reduced wastewater and stormwater inputs to the Bay	TBD
Effects of reverse osmosis concentrate discharge to the Bay	TBD
South Bay standards-related selenium assessment	TBD
Sea level rise adaptation and changes in salinity, pH, temperature, and dissolved oxygen due to climate change	TBD
Trash and Microplastics	TBD
Wetland restoration permits and regional monitoring	TBD
Tribal and subsistence use as beneficial uses	TBD

+ Comparisons to triggers updated every 5 years for sediment and every 2 years for water; *Data for 2030 Integrated Report needed by 2026

RMP Outcomes (as of February 2019)

Legislation
- CA Flame Retardants in Consumer Products (2018)
- CA Pharmaceutical Stewardship (2018)
- SF Flame Retardant Ordinance (2017)
- Palo Alto & San Francisco expanded polystyrene ordinances (2015, 2016)
- CA Microbead Ban (2015)
- US Microbead Ban (2015)
- CA Copper in Brake Pads (2010)
- CA PBDE Ban (2003)

NPDES Regional Permits
- *Municipal and industrial wastewater*
  - Mercury and PCBs (2017)
- *Municipal stormwater*
  - MRP 2.0 (2015)
  - MRP 1.0 (2010)

Regulations
- CA Safer Consumer Products Regulations (ongoing)
- CA Fipronil Application (2017)
- CA Flame Retardants in Furniture (2013)
- CA Pyrethroid Application (2012)

TMDLs
- Selenium (2016)
- PCBs (2009)
- Mercury (2008)
- Urban Creeks Diazinon and Pesticide-Related Toxicity (2007)

Water Quality Objectives
- Copper (North of Dumbarton) (2010)
- Copper and Nickel (South of Dumbarton) (2002)

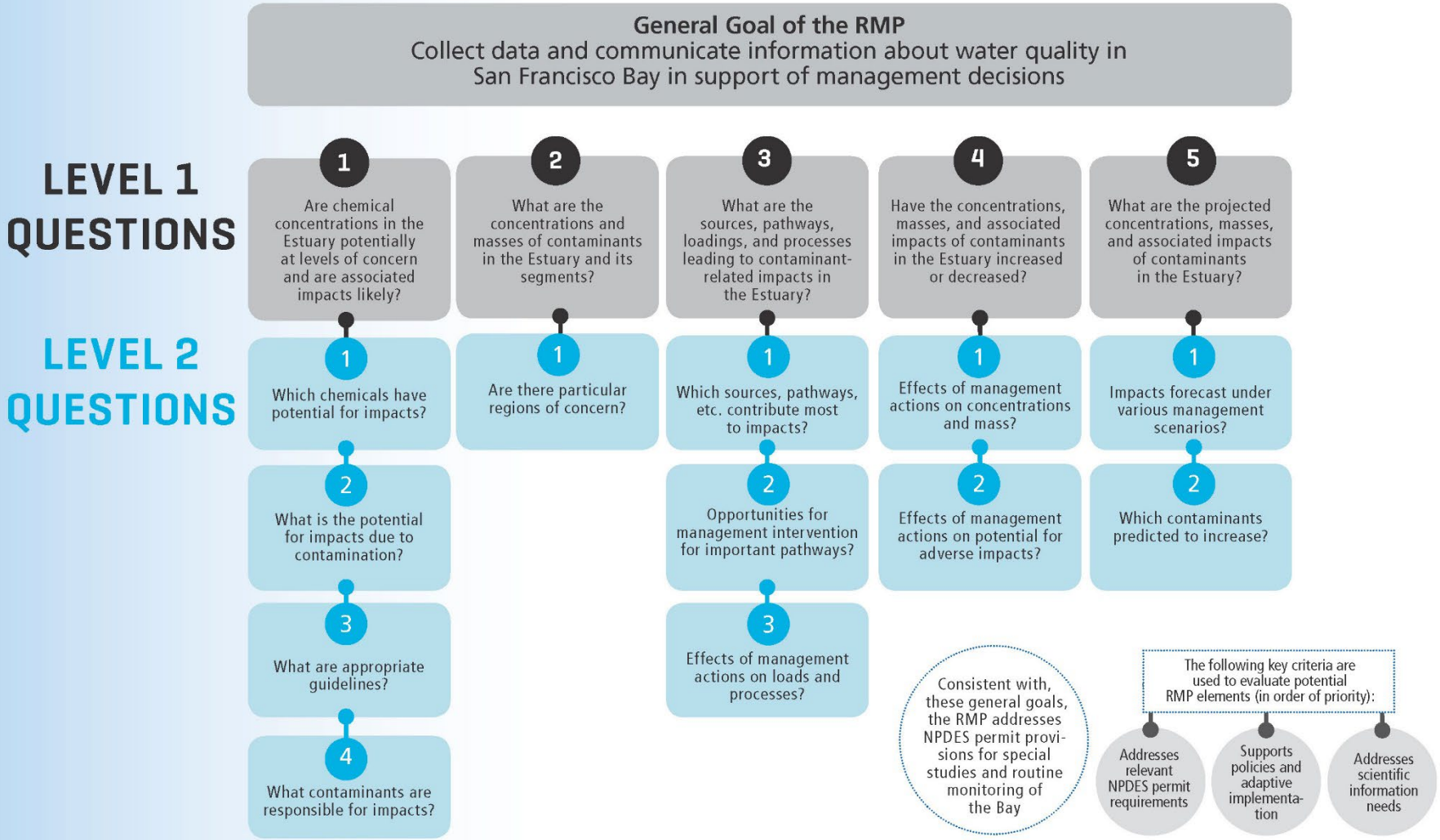
San Francisco Bay 303(d) List Updates
- 2018
- 2010
- 2006
- 2002
- 1998
- 1996

Phase-outs
- US PFOA (2015)
- US Deca-BDE (2013)
- US PFOS (2002)

Fish Advisory
- SF Bay (2011)

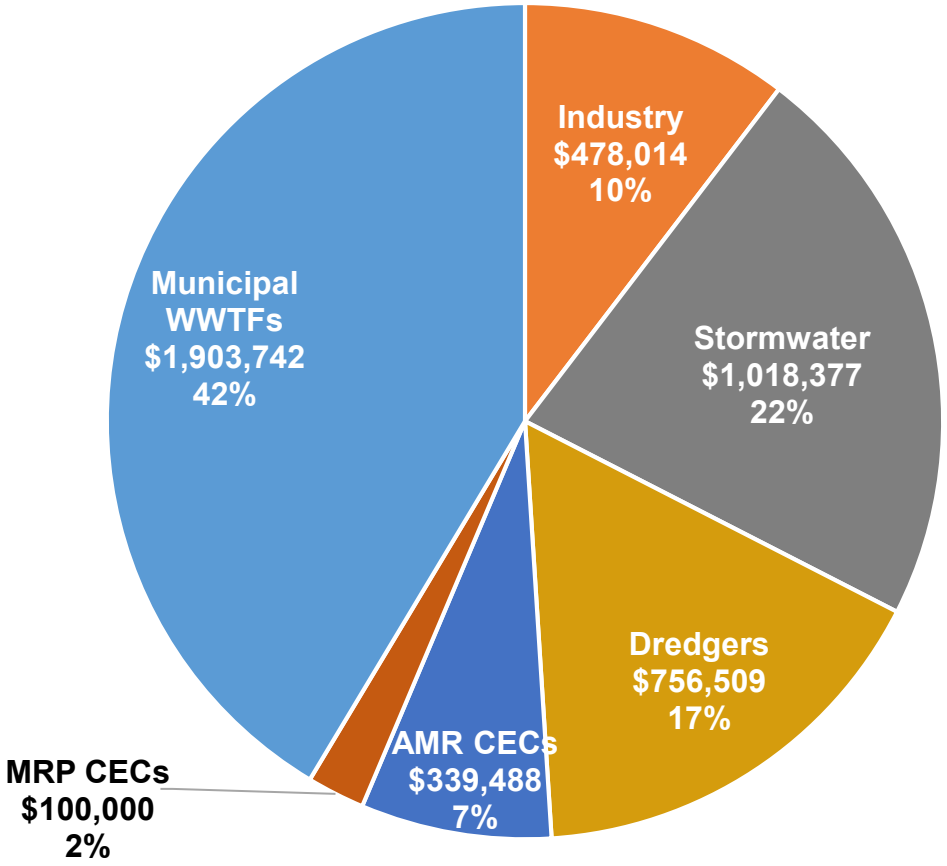
RMP GOAL AND MANAGEMENT QUESTIONS

RMP stakeholders have articulated an overarching goal and a tiered framework of management questions that organize and guide RMP studies. The management questions are closely linked to existing and planned regulations.



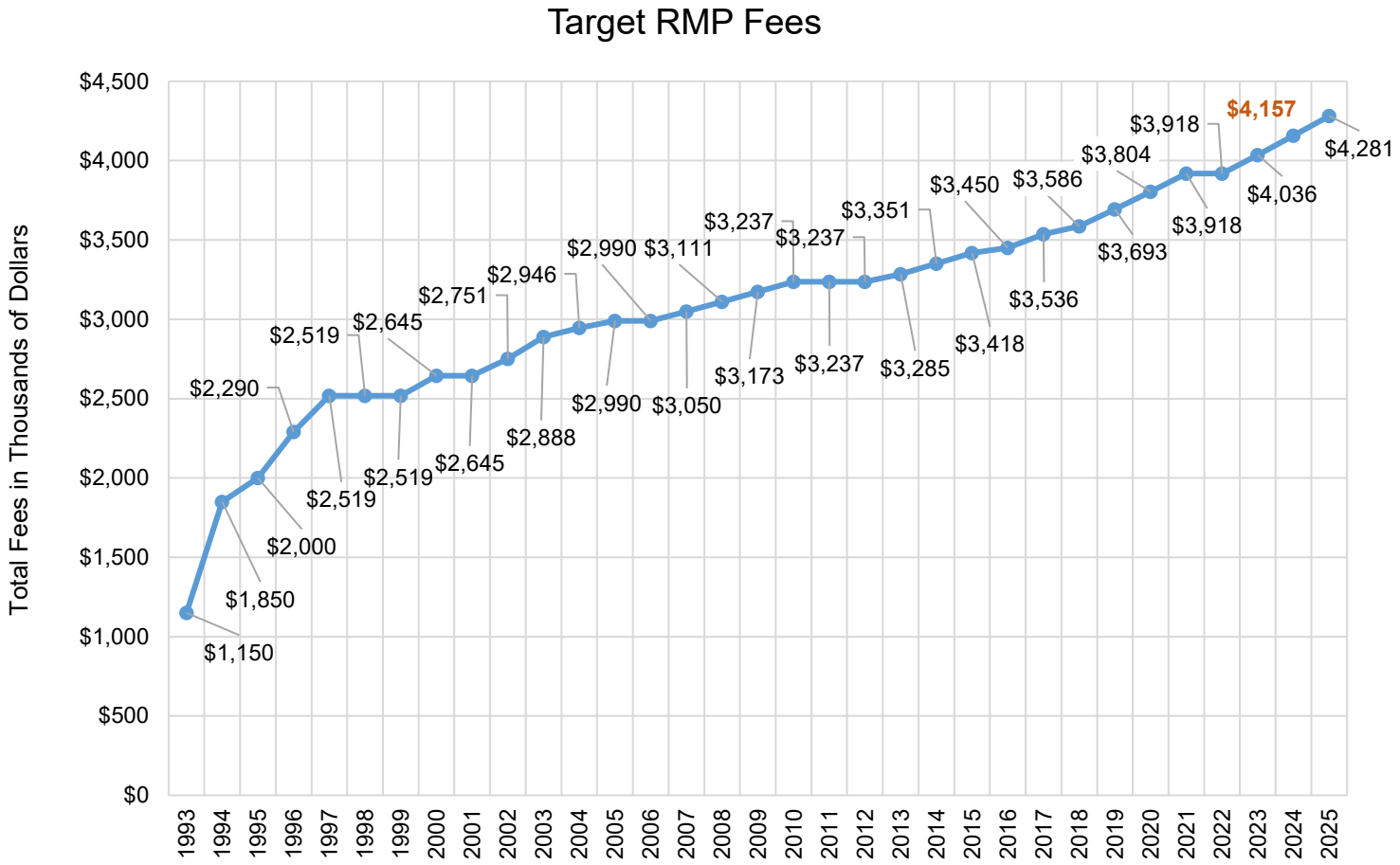
BUDGET: Revenue by Sector 2024

RMP fees are divided among four major discharger groups. Core RMP fees in 2024 are $4.157 million. Municipal wastewater treatment agencies are the largest contributor, followed by stormwater agencies. The contribution from dredgers includes $400,000 from the U.S. Army Corps of Engineers. Refineries constitute the majority of the industrial sector, and also contribute to the Program due to dredging activities at their facilities. In addition to fees, the RMP also receives funding for emerging contaminant-related studies from Alternate Monitoring and Reporting (AMR) Program funds from municipal wastewater agencies ($339.5k) and a supplement from the municipal stormwater dischargers ($100k) as outlined in the Municipal Regional Stormwater Permit.



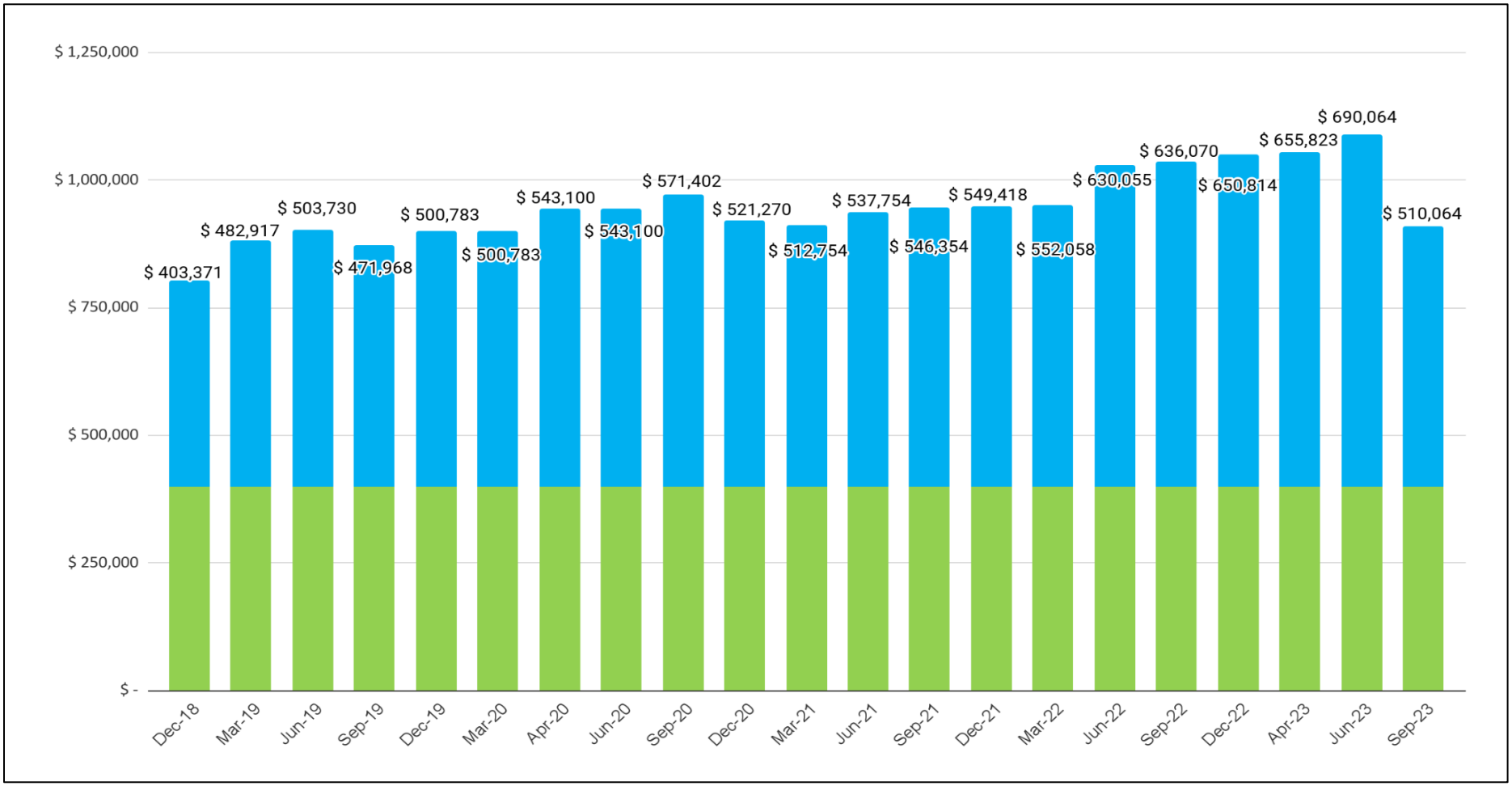
BUDGET: Revenue by Year

Target RMP fees in 2024 are $4.157 million, an increase in 3% from 2023. For 2023-2025, the Steering Committee has approved a 3% increase in fees for each year. Over the past 20 years, RMP fee growth has not kept up with inflation.



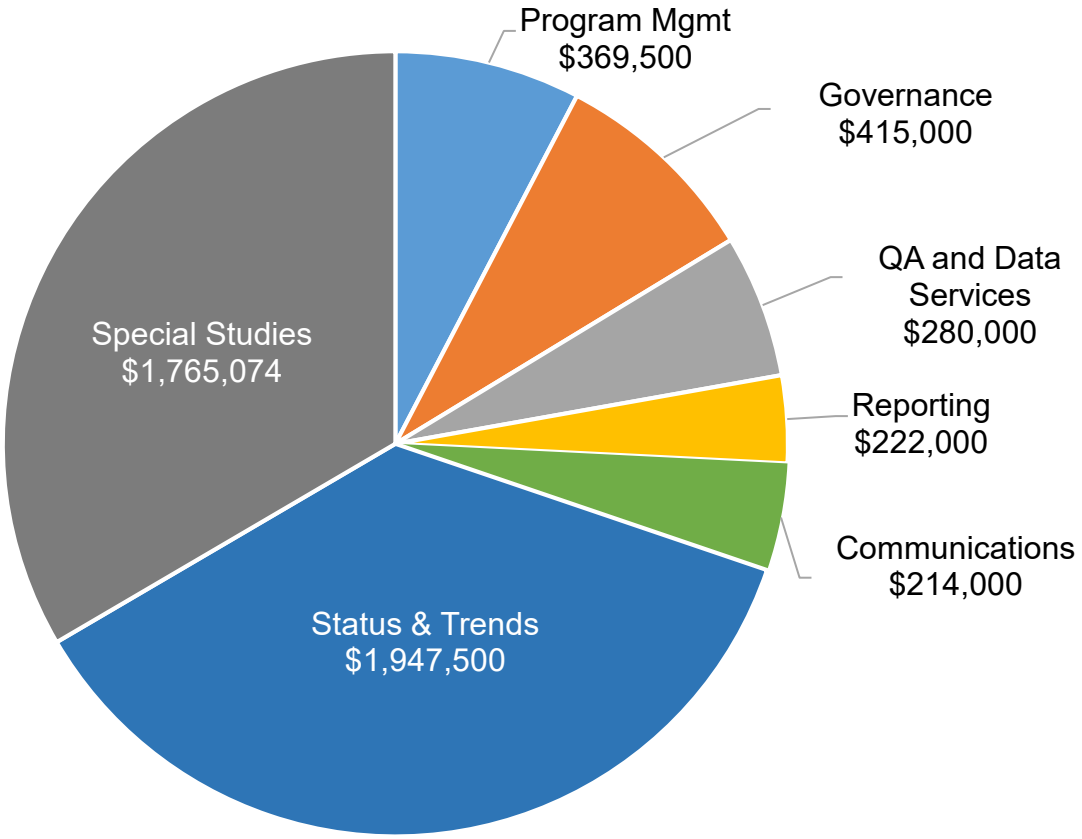
BUDGET: Reserve Funds

The RMP maintains a balance of Undesignated Funds for contingencies. Higher than anticipated revenues and elimination or reduction of lower priority elements sometimes leads to accumulation of funds that can be used for high priority topics at the discretion of the Steering Committee. The Bay RMP Undesignated Funds balance over the past four budget years is shown below. The height of the bar shows the total balance of the Undesignated Funds. The bars are color coded to indicate the RMP policy that $400,000 of the Undesignated Funds should be held as a Reserve. The Steering Committee increased the Reserve amount from $200,000 to $400,000 in 2018 so that the reserve is now approximately 10% of the annual Program budget.



BUDGET: Expenses 2024

In 2024, 71% of the budget is allocated on Status & Trends and Special Studies. Quality assurance and data systems, reporting, and communications are each approximately 5% of the budget. Governance meetings (8%) are critical to ensure that the RMP is addressing stakeholder needs and conducting studies that include peer-review from project planning through report preparation. Finally, 7% of the budget is needed for program management, including fiduciary oversight of contracts and expenditures.



ACTUAL AND FORECAST BUDGETS: Special Studies 2021-2026

RMP actual and planned expenditures on special study topics. Costs for 2021-2024 are based on approved budgets. Costs for 2025 and beyond are estimates for planning based on the most recent input from the Workgroups and Strategy Teams. The funds available for 2025-2026 were estimated based on a 3% RMP revenue increase each year, and subtracting estimated Status and Trends monitoring costs (page 39) and programmatic expenses.

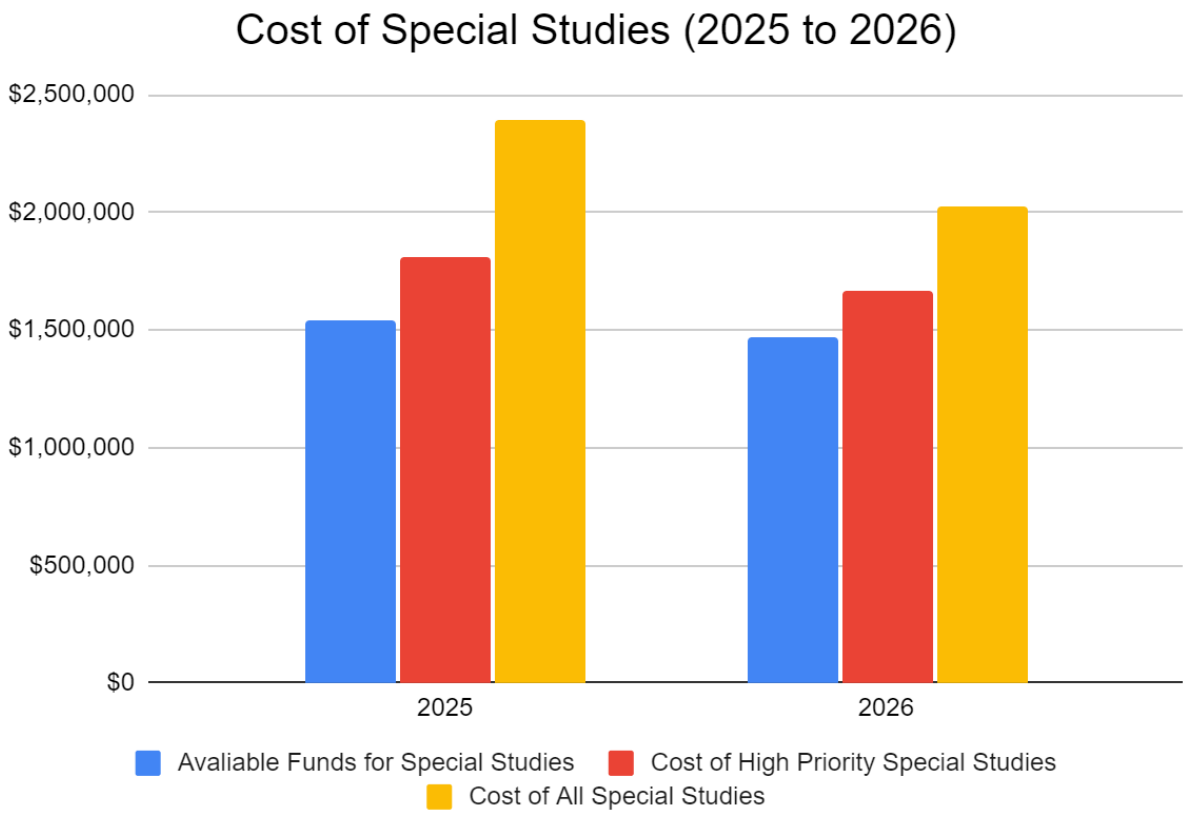
FOCUS AREA	2021	2022	2023	2024	2025	2026
	Budget	*Budget*	*Budget*	*Budget*	*Forecast*	*Forecast*
Emerging Contaminants	$338,000	$320,000	$638,000	$714,600	$734,000	$756,000
Microplastic	$61,500	$35,500	$13,000	$94,100	$133,000	$57,000
Nutrients*	$250,000	$250,000	$250,000	$250,000	$400,000	$400,000
PCBs	$131,880	$108,000	$75,000	$95,846	$0	$0
Sediment	$214,050	$185,000	$267,000	$297,528	$842,000	$590,000
Sources, Pathways, Loading	$265,000	$193,000	$290,000	$316,000	$282,000	$220,000
SPECIAL STUDIES TOTAL	**$1,260,430**	**$1,091,500**	**$1,533,000**	**$1,768,074**	**$2,391,000**	**$2,023,000**
Predicted RMP Core Budget for Special Studies		$820,699	$1,083,586	$1,188,586	$1,090,498	$1,010,533
Predicted AMR Funds		$320,000	$329,600	$339,488	$349,673	$360,163
Predicted Stormwater CEC Funds			$100,000	$100,000	$100,000	$100,000
PREDICTED SPECIAL STUDIES BUDGET TOTAL		**$1,140,699**	**$1,513,186**	**$1,628,074**	**$1,540,171**	**$1,470,716**

*The estimated RMP budgets on this table do not cover all of the funding needs for the Nutrients Management Strategy. Funding for these strategies is partially provided from other sources.

In 2016, the RMP became eligible to receive penalty funds for Supplemental Environmental Projects. Wastewater agencies also began to provide the RMP with Alternative Monitoring Requirement (AMR) funds for additional emerging contaminants studies. These new funding streams will augment the core RMP budget for special studies. The AMR expired in 2021 but was replaced with a similar permit amendment for CEC monitoring starting in 2022. The MRP issued in 2022 included an opportunity for Municipal Stormwater entities to contribute $100k to the RMP in lieu of individual monitoring for CECs. The SEP funds are not predictable. The AMR and MRP funds have been included in the predicted special studies budget total in the table above because these funds are predictable. AMR funds will increase at the same rate as the core RMP fees.

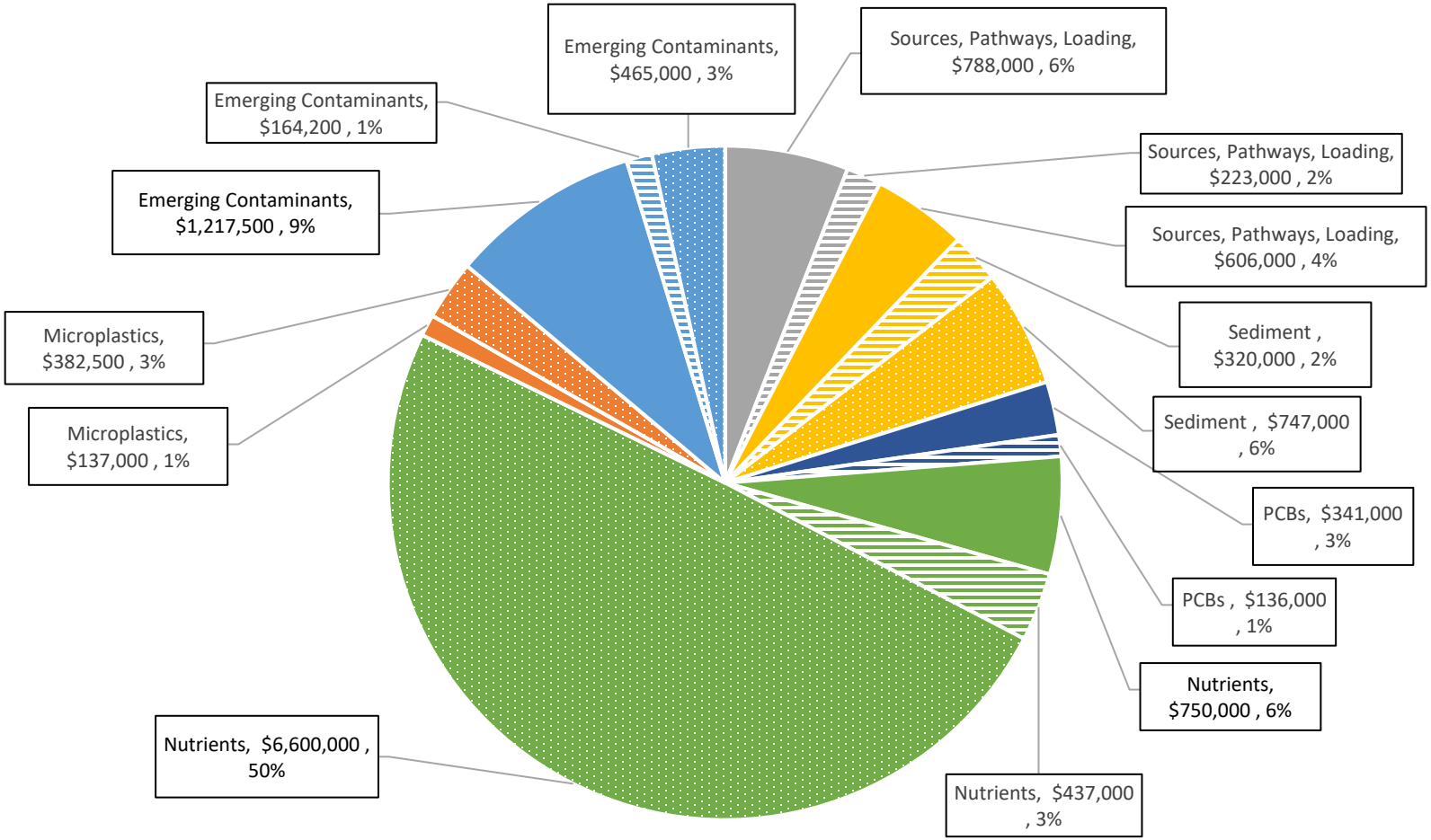
PROJECTED BUDGET: SPECIAL STUDIES 2025 to 2026

Projected funds available for special studies in 2024-2025 (blue), the cost of high priority studies (red), and the cost of all special studies based on the multi-year plans for all workgroups (orange). High priority studies for 2025 are estimates because not all workgroups have selected and prioritized studies for those years.



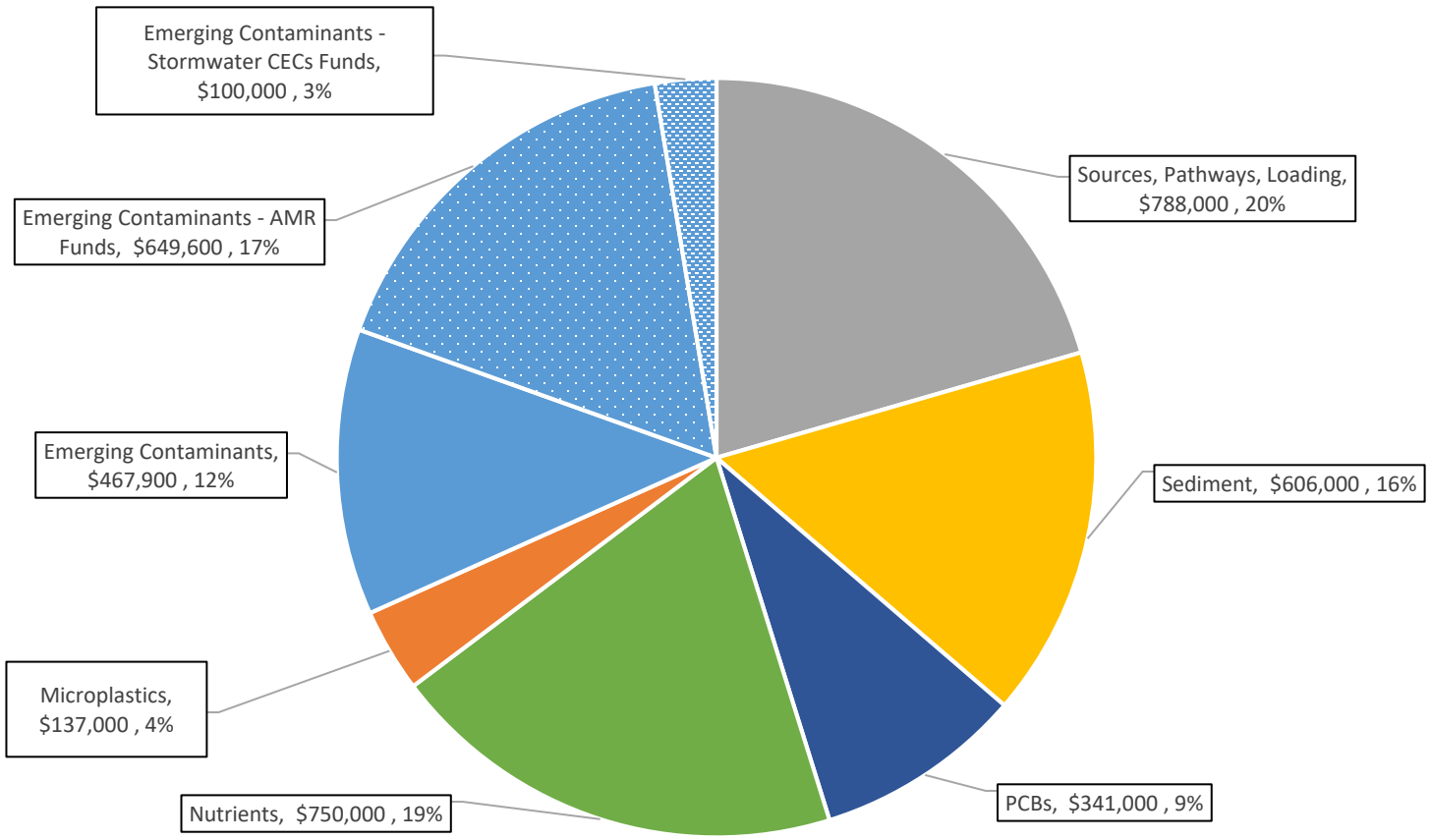
BUDGET: All Special Studies funding 2021-2023

Total funding for Special Studies for each workgroup over the past three years. RMP Special Studies funding (solid slices), MMP & Supplemental Environmental Projects funding (striped slices), Pro-Bono & External funding (dotted slices) for the past three years. Total funds: $13,314,200



BUDGET: RMP Funding for Special Studies 2021-2023

RMP-funding for Special Studies for each workgroup over the past three years. Emerging Contaminants Special Studies funding includes AMR funds (dotted slice) and Stormwater CECs funds (hashed slice). Total funding is $3,839,500.



Fishing on the Bay. Photograph by Shira Bezalel.

EMERGING CONTAMINANTS

Relevant Management Policies and Decisions

Regional Action Plans for emerging contaminants

Early management intervention, including green chemistry and pollution prevention

State and federal pesticide regulatory programs

State Water Board CEC Program

DTSC Safer Consumer Products Program

Recent Noteworthy Findings

The RMP is revising the CEC strategy that guides our monitoring and science. Discussions with stakeholders and science advisors have led to revisions to management questions and the tiered risk-based framework for CECs in the Bay. Draft chapters describe a four-element strategy consisting of 1) CEC monitoring and risk evaluation; 2) monitoring and modeling in contaminant pathways; 3) use of novel approaches to identify additional CECs, including nontarget analysis and new approach methodologies; and 4) review of the scientific literature and interactions with scientists around the world to learn from others and share expertise. We will complete the revision in 2024.

RMP monitoring revealed widespread occurrence of PFAS, also known as "forever chemicals," at parts per trillion concentrations in the waters of the Bay. The RMP analyzed Bay water in 2021 for 40 PFAS. Eleven were detected in water collected from 22 sites. Concentrations were generally consistent with similar studies globally. While levels in Bay water may not pose risks to wildlife, they do suggest concern for people who eat fish from the Bay. California has passed bans on PFAS in some products to reduce harmful exposures. Sustained, multi-matrix monitoring of this important class of CECs is a high priority for the RMP.

The RMP conducts exploratory studies of CECs in municipal wastewater effluent and urban stormwater runoff. Recently completed wastewater studies focused on sunscreen ingredients and bisphenols. Two of three sunscreens analyzed, oxybenzone and avobenzone, were detected in effluent from six Bay Area facilities. Five of 17 bisphenols were detected in effluent from the same facilities. A previous study at a single facility found higher levels of BPA, suggesting a decrease over the last 15 years. Meanwhile, findings from the RMP's multi-year stormwater CECs screening study are described in the 2023 RMP Update.

Priority Questions for the Next Five Years

1. Which CECs have the potential to adversely impact beneficial uses in San Francisco?
2. What are the sources, pathways and loadings leading to the presence of individual CECs or groups of CECs in the Bay?
3. What are the physical, chemical, and biological processes that may affect the transport and fate of individual CECs or groups of CECs in the Bay?
4. Have levels of individual CECs or groups of CECs changed over time in the Bay or pathways? What are potential drivers contributing to change?
5. Are the concentrations of individual CECs or groups of CECs predicted to increase or decrease in the future?
6. What are the effects of management actions?

MULTI-YEAR PLAN FOR EMERGING CONTAMINANTS

Special studies and monitoring in the RMP from 2020 to 2026. Numbers indicate budget allocations in $1000s. Budgets in parentheses represent funding or in-kind services from external sources (e.g., SEP funds). Budgets that are starred represent funding that has been allocated for the given study within other workgroups. Bold boxes indicate multi-year studies. Items shaded in yellow are considered high priority for 2025 funding and beyond. Dollar signs indicate projected future priorities for RMP special studies funding.

Element	Study	Funder	Questions addressed	2020	2021	2022	2023	2024	2025	2026
Strategy	CEC Strategy[1]	RMP	1-6	75	60	125	60	62	64	66
	Tires Strategy	RMP	1-6				10	10	10	10
	Stormwater Monitoring Strategy	RMP	1,2			50	55			
STORMWATER MONITORING AND MODELING										
Stormwater	Strategy-driven Stormwater CECs Monitoring and Modeling (multiple contaminant classes)	RMP WQIF	1,2				250	300 (100)	300 (100)	300 (87.2)
HIGH CONCERN CECs										
PFAS	PFAS: Synthesis and Strategy	RMP	1-6					107		
	Stormwater PFAS[2]	RMP	1,2	40	29.6	20				
	PFAS in Ambient Bay Water	RMP	1,4,6		50					
	PFAS in Influent, Effluent, Biosolids; Study TBD, est. value	BACWA	1,2,4,6		(135)	(290)				
	PFAS in Archived Sport Fish	RMP Water Brd	1,4			12.5 (20)	42			
	North Bay Margin Sediment PFAS[3]	SEP	1,2,4,6				(53)			
	Bay Water TOP Assay	RMP	1					67.2		
	PFAS Sources to Solutions	WQIF (proposal submitted)	1-6					(547)	(751)	(799)
	RMP Status and Trends[4]	RMP S&T	1,4			Water (wet) Eggs	Water (dry/wet) Sediment Prey fish Seals	Water (wet) Eggs Sport fish Seals	Water (dry)	Water (wet)

Element	Study	Funder	Questions addressed	2020	2021	2022	2023	2024	2025	2026
Organo-phosphate Esters	Stormwater Organophosphate Ester Flame Retardants[2]	RMP	1,2	40	29.6	20				
	OPE & Plastic Additive Wastewater Monitoring	RMP	1,2,4,6					95.4		
	OPEs: Synthesis and Strategy	RMP	1-6							75
	RMP Status and Trends[4]	RMP S&T	1,4		Water (dry)	Water (wet)	Water (dry/wet)	Water (wet)	Water (dry)	Water (wet)
MODERATE CONCERN CECs										
Alkylphenols & Alkylphenol Ethoxylates	Stormwater Ethoxylated Surfactants[2]	RMP	1,2	40	29.6	20				
	Followup of Multi-matrix Study	RMP	1,2,4			30	30			
Bisphenols	Bisphenols in Stormwater[2]	RMP	1,2	21	29.6	20				
	Bisphenols in Wastewater, Sediment	RMP	1,2	72						
	RMP Status and Trends[4]	RMP S&T	1,4		Water (dry)	Water (wet)	Water (dry/wet) Sediment	Water (wet)	Water (dry)	Water (wet)
LOW or POSSIBLE CONCERN CECs										
PBDEs	RMP Status and Trends[5]	RMP S&T	1,3,4			Eggs	Sediment	Sport fish		
Plastic Additives	Phthalates and Replacements in Water, Archived Sediment	RMP	1,4						100	
Personal Care & Cleaning	Sunscreens in Wastewater	MMP	1,2	(36.5)						
	QACs in Wastewater, Other Matrices	MMP NSF	1,2,4		(58.2) (20)					
	QACs & New Concerns in Bay Water, Wastewater	RMP	1,2							70
Construction Materials	Newly Identified Concerns such as Isothiazolinones	RMP	1							50
Chlorinated Paraffins	Chlorinated Paraffins (medium-long) in Sediment[3]	SEP	1				(53)			
Vehicles, Roadways	Tire, Roadway Contaminants Follow-up from NTA, Stormwater[2]	RMP	1,2	40	29.6	20				
	Tire Contaminants Wet Season Water Screen	RMP	1,2			50	40	50		50

Element	Study	Funder	Questions addressed	2020	2021	2022	2023	2024	2025	2026
(studies also listed in Tires MYP)	Newly Identified Tire Contaminants (Bay or Stormwater)	RMP	1,2							50
	Total Tire Rubber/Tire Chemical Indicators (Stormwater, Bay Wet Season Water, Sediment)	RMP	1,2							25
NONTARGET & OTHER STUDIES										
NTA (including followup targeted studies based on NTA findings)	NTA Data Mining of Water & Sediment Findings	RMP	1,2				45			
	Non-targeted Analysis of Bay Fish	RMP	1					23	50	
	Follow-up Targeted Study (data mining results)	RMP	1						50	
	Microplastic Additives NTA Study	RMP	1						120	
	RMP Status and Trends[4]	RMP S&T	1,4,6				Seals	Seals	Water	Water
Other	Toxicology	RMP	1		60				60	60
RELEVANT STUDIES IN OTHER WORKGROUPS										
Modeling (SPLWG)	Integrated Monitoring and Modeling Strategy - CEC Conceptual Model	RMP	1,2,4		50					
Modeling (SPLWG)	CEC Stormwater Load Modeling Exploration	RMP	2			25				
Strategy (MPWG)	Tires Strategy, Multi-Year Plan	RMP	1,2,3,6			25.5				
Modeling (PCBWG)	In-Bay Fate Model	RMP SEP WQIF	1,3,4,5,6		45	75	(408) (350)	(340)	(235)	
RMP-funded Special Studies Subtotal - ECWG				**328**	**318**	**367.5**	**532**	**714.6**	**754**	**756**
High Priority Special Studies for Future RMP Funding									**604**	**596**
RMP-funded Special Studies Subtotal – Other Workgroups				**0**	**95**	**125.5**	**0**	**0**		
MMP & Supplemental Environmental Projects Subtotal				**36.5**	**58.2**	**0**	**106**			
Pro-Bono & Externally Funded Studies Subtotal				**0**	**155**	**310**	**0**	**647**	**851**	**886.2**
OVERALL TOTAL				**364.5**	**531.2**	**677.5**	**638**	**1361.6**	**1605**	**1642.2**

1 – The CEC Strategy funds preparation of RMP CEC Strategy Revisions, Updates, and Memos; it also funds literature review, scientific conference attendance, and responses to information requests from RMP stakeholders. Preparation of a major revision to the CEC Strategy began in 2022, resulting in a higher funding request.
2 – The multi-year (2019-2022) stormwater study includes five groups of analytes: PFAS, ethoxylated surfactants, organophosphate esters, bisphenols (added year 2), and targeted stormwater analytes identified via non-targeted analysis. The total projected cost ($586k) is spread across five groups and four years.
3 – A SEP received in 2022 is funding sediment analysis of PFAS and chlorinated paraffins; the $106k budget is split between these classes.
4 – When a CEC class is included in the RMP Status and Trends monitoring activities for a particular year, we denote the relevant matrix. Water monitoring may occur in the wet and/or dry season (indicated by wet and dry, respectively). Pilot studies in prey fish and marine mammals (“seals”) are underway.

This short-term multi-year plan (MYP) responds to recent data revealing the magnitude of tire chemical/particle emissions and their toxicity to aquatic organisms. The plan synthesizes the tire-related studies in the ECWG and MPWG multi-year plans; we do not anticipate the need to highlight these studies in a tire-specific plan after 2027. Studies are synthesized here and also included in the MYPs of relevant workgroups.

TIRES

Relevant Management Policies and Decisions

DTSC Safer Consumer Products Program (tire chemicals, microplastics)

California's Statewide Microplastics Strategy adopted by the Ocean Protection Council (OPC) calls for a tires-specific pollution prevention strategy by 2023

CalRecycle Waste Tire Recycling Management Program implementation

State and Regional Water Board decisions on addressing tire-related chemicals or microplastics under the Clean Water Act

Recent Noteworthy Findings

Tires may be the biggest source of microplastic pollution globally. In the Bay Area, a recent RMP study estimated that vehicles release 15-18 million kg of tire wear particles annually. When it rains, stormwater runoff carries micro and nano-sized tire particles—and the toxic chemicals associated with them—from outdoor surfaces to creeks and the Bay.

Tire particles contain hundreds of chemicals, some of which are known or suspected to be toxic to aquatic organisms or to have toxic transformation products. Examples include N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine (6PPD), zinc, benzothiazoles, bisphenols, 1,3-diphenylguanidine, polyaromatic hydrocarbons (PAHs), and hexa(methoxymethyl)melamine.

RMP monitoring has detected tire particles and tire-related chemicals in Bay Area stormwater and in the Bay during the wet season. Additional Bay wet season monitoring of tire-related chemicals is in progress.

The RMP collaborated in a study that found a highly toxic-derived contaminant (6PPD-quinone) in Bay Area stormwater at levels lethal to coho salmon. In response to these data, DTSC has required manufacturers to seek safer ways to formulate tires. A growing body of data indicate that steelhead salmon, still migrating through the Bay to surrounding watersheds, are also sensitive to this contaminant.

At present, risks from other tire-related chemicals are largely unknown because tire formulations are proprietary. Furthermore, transformation products and their toxicity are not fully understood.

Studies exposing estuarine and freshwater test organisms to tire microparticles, nanoparticles, and leachate revealed lethal and sublethal effects (e.g., on reproduction, growth, and behavior) at concentrations believed to be environmentally relevant. Concentrations of tire particles in the Bay are currently unknown.

The OPC and RMP funded development of a stormwater conceptual model report that identified scientific information needs and enumerated a broad spectrum of potential measures to address tire pollution. A second RMP report included Bay Area-specific estimates of tire emissions and tire market information gleaned from a pro-bono UC Berkeley project, which is being used to

focus study designs by non-RMP scientists whose work can inform the RMP.

Priority Question for the Next Five Years

Do tire particles or chemicals have the potential to adversely impact beneficial uses in San Francisco Bay?

MULTI-YEAR PLAN FOR SHORT-TERM EFFORT ON TIRE-RELATED CHEMICALS AND PARTICLES

Tire-related studies in the RMP from 2017 to 2027. Numbers indicate budget allocations in $1000s. Budgets in parentheses represent funding or in-kind services from external partners. Budgets that are starred include items beyond tires. Items shaded in yellow are considered high priority for 2024 funding and beyond. Bold boxes indicate multi-year studies. *Studies are synthesized in this short-term MYP and are also included in the MYPs of relevant workgroups (ECWG, MPWG).*

Element	Study	Funder	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Strategy	Tires strategy	RMP ECWG							10	10	10	10	10
Monitoring	Tire contaminants in Bay wet season	RMP ECWG						50	40	50		50	
	Total tire rubber/tire chemical indicators (stormwater, Bay wet season, sediment)	RMP ECWG										25	75
	Tire and road contaminants (stormwater)	RMP ECWG			33	40	29.6	20					
	Newly identified tire contaminants (Bay or stormwater)	RMP ECWG										50	50
	RMP tires strategy	RMP MPWG						25.5					
	Stormwater conceptual model - all elements	RMP MPWG OPC				30* (30*)	40* (90*)						
	Microplastics regional study - all elements	RMP MPWG Moore/External	75* (518*)	(210*)	(340*)								
	Tire market synthesis to inform science (pro bono)	BEACN (UCB)					(20)						
	Green stormwater infrastructure: Evaluating the efficacy of rain gardens	EPA/External	(10*)					(62*)	(62*)	(62*)			
RMP-funded Special Studies Subtotal – Tires					**33**	**70**	**69.6**	**95.5**	**50**	**60**	**10**	**135**	**135**
High Priority Special Studies for RMP Funding											**10**	**85**	**135**
Pro-Bono & Externally Funded Studies Subtotal			**528**	**210**	**340**	**30**	**110**	**62**	**62**	**62**			
OVERALL TOTAL			**603**	**210**	**373**	**100**	**179.6**	**157.5**	**112**	**122**	**10**	**135**	**135**

*Includes items beyond tires

MICROPLASTIC

Relevant Management Policies and Decisions

State-wide microplastics strategy and state-wide drinking water monitoring

Plastic Pollution Prevention and Packaging Producer Responsibility Act (SB 54, Allen, 2022)

Local and state bans and other management actions on single-use plastics, including plastic bags, foam packaging materials, plastic straws

DTSC Safer Consumers Products Program decisions on regulation of chemicals in tires, food packaging, building materials

Federal policy on microplastics and microfiber pollution

State and Federal bans on microbeads

State-wide trash requirements

Municipal pollution prevention strategies including green stormwater infrastructure

Recent Noteworthy Findings

Plastics are among the most ubiquitous materials used in modern society. Microplastics, pieces of plastic under 5 mm in size, have been identified in virtually every environment on Earth. Microplastics are often derived from larger plastic items, such as tiny tire wear particles shed while driving, fibers shed from textiles during washing and drying, and fragments from litter. Tire particles may be the biggest global source of microplastics. Due to our car culture, scientists estimate that the US has the highest tire particle emissions in the world—7 to 12 pounds per person every year.

The San Francisco Bay Microplastics Project was completed in 2019, and found microplastics to be ubiquitous in Bay water, sediment, bivalves, and prey fish. This study quantified for the first time microplastics in urban stormwater runoff, and made the breakthrough discovery that concentrations in urban runoff were significantly higher than wastewater effluent. The vast majority of particles observed in urban stormwater runoff were suspected to be tire wear particles and fibers.

Additionally in 2020, a collaboration with University of Washington identified various tire ingredients present in Bay stormwater runoff, including 6PPD-quinone at concentrations that are lethal to a salmon species that was historically present in the Bay (coho). More recent data indicate that steelhead, a salmon species still migrating through the Bay to surrounding watersheds, are also sensitive to this chemical.

While fibers were the second most common class of microplastics observed in stormwater, there is minimal understanding of the major sources of fibers observed in urban stormwater.

Air transport of microplastics is a key data gap in our understanding of microplastic sources and pathways. Air transport is particularly important for tire wear particles and fibers because both types of particles have characteristics that make them easily suspended in the air and have the potential to be transported long distances. Other important remaining data gaps include exposure of Bay aquatic organisms and risk for adverse impacts, and the effects of current and future solutions implemented to reduce microplastic pollution.

Priority Questions for the Next Five Years

1. What are the levels of microplastics in the Bay? What are the risks of adverse impacts?
2. What are the sources, pathways, processes, and relative loadings leading to levels of microplastics in the Bay?
3. Are microplastic levels changing over time? What are the potential drivers contributing to changes?
4. What are the anticipated effects of management actions?

MULTI-YEAR PLAN FOR MICROPLASTICS

Microplastic studies and monitoring in the RMP from 2020 to 2026. Numbers indicate budget allocations in $1000s. Budgets in parentheses represent funding or in-kind services from external sources (e.g., SEP funds). Budgets that are starred represent funding that has been allocated within other workgroups. Bold boxes indicate multi-year studies. Items shaded in yellow are considered high priority for 2025 funding and beyond.

Element	Study	Funder	Questions Addressed	2020	2021	2022	2023	2024	2025	2026
Strategy	Microplastic Strategy	RMP Patagonia/OPC	1,2,3,4	20 (30)	10	37	13 (50)	16 (100)	17 (50)	17
	Tires Strategy (ECWG)	RMP	1,2			25.5	10*	10*	10*	10*
Bay Monitoring	Bivalves	RMP	1,3							
	Fish	RMP	1,3							
	Sediment	RMP/OPC U. Rovira I Virgili	1,3		3.5		(15)			40
	Water	RMP/OPC	1,3						65	
Characteri-zing sources, pathways, loadings, processes	Wastewater	SCCWRP/OPC	1,2,3		(26)					
	Stormwater	RMP OPC	1,2,3					68	51	(40)
	Stormwater Conceptual Model	RMP OPC	1,2,4	30 (30)	30 (90)					
	Evaluating efficacy of rain gardens	SFEP/EPA	2,4			(62)	(62)	(62)		
	Investigating clothing dryers as a source	Sea Grant/OPC	2,4					(170)	(230)	
	Air monitoring	RMP OPC/Sea Grant/NOAA	1,2							(40)
	Assessing Information on Ecological Impacts	RMP NSF/CCCSD	1	(50)	18 (7.5+50)					
	Characterize microplastic additives	RMP ECWG	1,4						120*	
	Tire market synthesis to inform science (pro bono)	UC Berkeley	1,2,4			(20)				
RMP-funded Special Studies Subtotal – MPWG				**50**	**61.5**	**62.5**	**13**	**84**	**133**	**57**
High Priority Special Studies for Future RMP Funding									**116**	**40**
RMP-funded Special Studies Subtotal – Other Workgroups							**10**	**10**	**130**	**10**
MMP & Supplemental Environmental Projects Subtotal										
Pro-Bono & Externally-funded Special Studies Subtotal				**110**	**173.5**	**82**	**127**	**332**	**280**	**80**
OVERALL TOTAL				**160**	**235**	**144.5**	**140**	**416**	**413**	**137**

NUTRIENTS

Relevant Management Policies and Decisions

Developing nutrient numeric endpoints and an assessment framework

Evaluating need for revised objectives for dissolved oxygen and other parameters

Identifying protective nutrient loads and potential management options for achieving those loads.

Recent Noteworthy Findings

High frequency sensors are providing continuous data at nine sites in South Bay and Lower South Bay. These data show that elevated phytoplankton biomass and low dissolved oxygen are frequently observed in Lower South Bay slough habitats and suggest that exchange with restored ponds introduces high phytoplankton biomass into sloughs, leading to increased respiration and the potential for low dissolved oxygen events.

A major harmful algal bloom (HAB) event in August 2022 resulted in severe water quality impacts and major fish kills. Increased HAB monitoring has been a major NMS priority and has resulted in substantial increases in HAB-related data since ~2015. Multiple HAB-forming organisms are commonly detected in the Bay (generally at low abundance); several HAB-toxins are also commonly detected in water samples and bivalves. On-going work is focused on understanding factors contributing to HAB occurrences.

Progress continues on numerical modeling to predict nutrient transport, cycling, and source apportionment; phytoplankton blooms; oxygen cycling; other biogeochemical processes; and characterize uncertainty in model predictions.

Priority Questions for the Next Five Years

1. What conditions in different Bay habitats would indicate that beneficial uses are being protected versus experiencing nutrient-related impairment?

2. In which subembayments or habitats are beneficial uses being supported? Which subembayments or habitats are experiencing nutrient-related impairment?

3. To what extent is nutrient over-enrichment, versus other factors, responsible for current impairments?

4. What management actions would be required to mitigate such impairments and protect beneficial uses?

5. Under what future scenarios could nutrient-related impairments occur and which of these scenarios warrant pre-emptive management actions?

6. What management actions would be required to protect beneficial uses under those scenarios?

7. What nutrient sources contribute to elevated nutrient concentrations in subembayments or habitats that are currently impaired, or would be impaired in the future by nutrients?

8. When nutrients exit the Bay through the Golden Gate, where are they transported and how do they influence water quality in coastal areas?

9. What specific management actions, including load reductions, are needed to mitigate or prevent current or future impairment?

The Nutrient Management Strategy (NMS) is a major collaborative regional science program. The RMP funds monitoring and special studies are complementary to the studies funded by the NMS.

MULTI-YEAR PLAN FOR NUTRIENTS

Special studies and monitoring in the RMP from 2020 to 2026. Numbers indicate budget allocations in $1000s. Budgets in parentheses represent funding or in-kind services from external sources (e.g., SEP funds). Budgets that are starred represent funding that has been allocated within other workgroups. Bold boxes indicate multi-year studies. Items shaded in yellow are considered high priority for 2024 funding and beyond.

Element	Study	Funder	Collaborations with other WGs	Questions Addressed	2020	2021	2022	2023	2024	2025	2026
Strategy	Program coordination	RMP		1-5							
Monitoring	Moored sensors	RMP		1	250	250	250	250	250	400	400
	HF mapping on the shoal	SEP		1,3			(185)				
	Water quality in the Bay	RMP S&T		1	250	250	258	265	274	283	292
Modeling	Nutrient Modeling	SEP	PCBWG	4,5				(408)*			
	HAB Model Development	SEP						252			
RMP-funded Special Studies Subtotal					**250**	**250**	**250**	**250**	**250**	**400**	**400**
High Priority Special Studies for RMP Funding										**400**	**400**
RMP Status and Trends for Nutrients					**250**	**250**	**258**	**265**	**274**	**283**	**292**
RMP-funded Special Studies Subtotal – Other Workgroups								**408**			
MMP & Supplemental Environmental Projects Subtotal							**185**	**252**			
Pro-Bono & Externally-funded Special Studies Subtotal[1]					**2200**	**2200**	**2200**	**2200**	**2200**	**2200**	**2200**
OVERALL TOTAL					**2450**	**2450**	**2635**	**2702**	**2450**	**2600**	**2600**

[1] Funding provided by BACWA, CCCSD, DSP, Regional San, City of Palo Alto, City of Sunnyvale, State Water Resources Control Board, and DWR-EMP for a range of studies that support the Nutrient Management Strategy. The descriptions of these projects are not included here for simplicity. More details about the projects being funded by the Nutrient Management Strategy can be found here: http://sfbaynutrients.sfei.org/books/nutrient-strategy-goals-and-work-elements

PCBs

Relevant Management Policies and Decisions

PCBs TMDL – support for appropriate changes to the TMDL by 2028

NPDES Municipal Regional Stormwater Permit and wastewater permit requirements

Focusing management actions and/or locations for reducing PCB impairment (upland)

Determining cleanup priorities (in-Bay)

Recent Noteworthy Findings

In 2019, shiner surfperch had a Bay-wide average PCB concentration 18 times higher than the TMDL target. These concentrations have resulted in an advisory from the Office of Environmental Health Hazard Assessment (OEHHA) recommending no consumption for all surfperch in the Bay. PCB concentrations in shiner surfperch and white croaker show limited signs of decline.

Urban stormwater is the pathway carrying the largest PCB loads to the Bay and has the highest load reduction goals. Concentrations of PCBs and mercury on suspended sediment particles from a wide range of watersheds have been measured as an index of the degree of watershed contamination and potential for effective management action. The three sites with the highest estimated particle PCB concentrations as of 2019 were Pulgas Pump Station South (8,220 ng/g), Industrial Rd Ditch in San Carlos (6,139 ng/g), and Line 12H at Coliseum Way in Oakland (2,601 ng/g).

Assessments of three “priority margin units” (Emeryville Crescent, San Leandro Bay [SLB], and the Steinberger Slough/Redwood Creek area [SS/RC]) established conceptual models as a foundation for monitoring response to load reductions and for planning management actions. A key finding was that PCB concentrations in sediment and the food webs in the Crescent and SLB could potentially decline fairly quickly (within 10 years) in response to load reductions from the watershed. In contrast, recovery in SS/RC appears likely to be ultimately limited by the relatively high PCB concentrations that prevail in the South Bay compared to other subembayments.

In spite of the expected responsiveness of SLB, extensive field studies have documented persistent sediment contamination that is likely due to continuing inputs from the watershed.

Priority Questions for the Next Five Years

1. What are the rates of recovery of the Bay, its segments, and in-Bay contaminated sites from PCB contamination?
    a. What would be the impact of focused management of PMU watersheds?
    b. What would be the impact of management of in-Bay contaminated sites (e.g., removing and/or capping hot spots), both within the sites and at a regional scale?

MULTI-YEAR PLAN FOR PCBs

Special studies and monitoring in the RMP from 2020 to 2026. Numbers indicate budget allocations in $1000s. Budgets in parentheses represent funding or in-kind services from external sources (e.g., SEP funds). Budgets that are starred represent funding that has been allocated within other workgroups. Bold boxes indicate multi-year studies. Items shaded in yellow are considered high priority for 2024 funding and beyond. ss – Steinberger Slough; sl – San Leandro Bay

Category	Study	Funder	Questions addressed	2020	2021	2022	2023	2024	2025	2026
General	Develop and update multi-year workplan and continued support of PCB Workgroup meetings	RMP	1a,b	10						
	In-Bay Fate Model	RMP SEP WQIF	1a,b		45	75	(136)	(136) (350)‡	(136) (340)‡	(235)‡
	Integrated Watershed-Bay Model (SPLWG)	SEP	1a,b		(200)*					
	Margins Ambient	RMP								
PMU	PMU Stormwater	SEP	1a							
	PMU Sport Fish Monitoring (3 PMUs)	S&T	1a					(~20[a])		
	Passive Samplers	RMP	1a	91ss	87sl					
	PMU Prey Fish Monitoring (4 PMUs)	RMP	1a			26ss[b]	37ss[c] 7sl[e]			
	PMU Sediment	RMP	1a,b			26ss[b]	38ss[c]	96		
PMU/General	Food Web Model	WQIF	1a,b					(71)‡	(71)‡	
RMP-funded Special Studies Subtotal – PCBWG				**101**	**132**	**127**	**82**	**96**		
High Priority Special Studies for Future RMP Funding									**0**	**0**
RMP-funded Special Studies Subtotal – Other Workgroups				**0**	**200**	**0**	**0**			
MMP & Supplemental Environmental Projects Subtotal				**0**	**0**	**0**	**136**	**136**	**136**	
Pro-Bono & Externally-funded Special Studies Subtotal				**0**	**0**	**0**	**0**	**421**‡	**411**‡	**235**‡
OVERALL TOTAL				**101**	**132**	**127**	**218**	**653**	**547**	**235**

[a] Shiner surfperch; [b] Sample collection; [c] Sample analysis and reporting; [d] WQIF; [e] piggybacking on S&T near-field prey fish sampling

‡ Funds from the San Francisco Bay Water Quality Improvement Fund (WQIF) will support in-Bay modeling at the levels indicated for three years (2023-2025).

SEDIMENT

Relevant Management Policies and Decisions

Long-Term Management Strategy for Dredged Material in SF Bay (LTMS) to comply with the Basin Plan

NOAA 2011 Programmatic Essential Fish Habitat Agreement & 2015 LTMS Amended Programmatic Biological Opinion

PCB TMDL

Mercury TMDL

Regional Restoration Plans[1]

Recent Noteworthy Findings

From 2019 to 2020, the RMP funded the USGS to compile Bay bathymetric data and calculate Bay-wide bathymetric change from the 1980s to the 2010s. This work showed that the Bay floor has been net erosional over the past several decades, losing approximately 34M m^3 of sediment. Suisun Bay showed the greatest amount of sediment loss (approximately 18M m^3) while Central Bay showed net accretion (approximately 5M m^3). These findings can be used by ecosystem managers to inform a variety of sediment-related issues, including restoration of tidal marshes, exposure of legacy contaminated sediment, and strategies for the beneficial use of dredged sediment.

In July 2020, the USGS conducted research in South San Francisco Bay to assess the dominant controls on suspended sediment flocculation and associated particle settling velocity, which impacts the degree to which the Bay bed is eroding or accreting sediment. Data collection included gathering information on suspended sediment flocculation, wave energy, and flow dynamics. The results show that the relationship between suspended sediment settling velocity and local flow turbulence can vary considerably based on the method used to determine settling velocity. The results from this project will be useful for calibrating numerical models that simulate Bay sediment transport processes.

The Workgroup recently completed the development of a Bay sediment conceptual model that highlights what is known and not known about sediment delivery and deposition dynamics at multiple spatial and temporal scales. The report identifies the data gaps that are considered most pressing to address in the near future, with an emphasis on fine-sediment supply for baylands habitat support. The results from this effort will be used to inform policy decisions and build frameworks for sediment management, monitoring, and numerical modeling.

Priority Management Questions for the Next Five Years

1. What are acceptable levels of chemicals in sediment for placement in the Bay, baylands, or restoration projects?

2. Are there effects on fish, benthic species, and submerged habitats from dredging or placement of sediment?

3. What are the sources, sinks, pathways and loadings of sediment and sediment-bound contaminants to and within the Bay and subembayments?

4. How much sediment is passively reaching tidal marshes and restoration projects and how could the amounts be increased by management actions?

5. What are the concentrations of suspended sediment in the Estuary and its segments?

In 2023, the Workgroup developed subquestions for questions 3 through 5 as part of the development of the Sediment Monitoring and Modeling Workplan (McKee et al. 2023). In 2024, questions 1 and 2 will be reviewed by the Workgroup to determine if they should continue to be management priorities.

[1] San Francisco Bay Restoration Authority Goals, Baylands Goals Update for Climate Change, Subtidal Habitat Goals Project, and Action 13 “Manage sediment on a regional scale and advance beneficial reuse” from the Estuary Blueprint.

MULTI-YEAR PLAN FOR SEDIMENT

Sediment Workgroup special studies for 2020 to 2027. Numbers indicate budget allocations in $1000s. Budgets in parentheses represent funding or in-kind services from external sources (e.g., SEP funds). Budgets that are starred represent funding that has been allocated within other workgroups. Bold boxes indicate multi-year studies. Highlighted boxes indicate an initial indication of High Priority Projects, which may be updated in subsequent years. The numbers in brackets correspond to the management subquestion the study addresses. See the Sediment Monitoring and Modeling Workplan [McKee et al. 2023] for details about the subquestions.

Element	Study	Funder	Questions addressed	2020	2021	2022	2023	2024	2025	2026	2027
Strategy	Sediment Monitoring Strategy	WQIF/SEP	1,3,4			(200)					
	Workgroup Strategy	RMP	1,2,3,4	10		10	10				
	Sediment Modeling Strategy	RMP	1,2,3,4	26							
	Sediment Conceptual Model	RMP BCDC/USACE	3,4,5	(142)	(747)				50 [3.3]		
Screening Values	Sediment Bioaccumulation Guidance	RMP	1	23							
Data Mining	DMMO Database Enhancement	RMP	1,2		40	20					
Beneficial Reuse	Beneficial Reuse	RMP	1,2		34						
Loading to the Bay	Monitor Local Tributary Suspended Load and Bedload	RMP	3						140 [3.1]		
	Monitor Tributary Suspended Load and Bedload Flux	RMP	3	(385)*							
	Model Tributary Suspended Load and Bedload Flux	RMP	3						82 [3.1]	100 [3.1]	50 [3.1]
	Monitor Sediment Flux at Key Locations in the Bay (e.g., major creek mouths downstream of head of tide, mudflats/shallows, major bridges, Golden Gate)	RMP SEP	3,4,5				52, 70	79 [5.4]	100 [3.2] 50 [3.3] 75 [5.4]	75 [5.4]	50 [3.2] 75 [3.6]

Element	Study	Funder	Questions addressed	2020	2021	2022	2023	2024	2025	2026	2027
	Model Current and Future Sediment Flux at Key Locations throughout the Bay	RMP SEP	3,4	45		(408)*					
Sinks & reservoirs	Monitor Sediment Deposition at Key Locations in the Bay (e.g., creek reaches downstream of head of time, mudflats/shallows)	RMP SEP	3,4		140	215	15, (120)	204 [4.2]	120 [4.4]	140 [4.4]	150 [4.2] 150 [4.4]
	Model Current and Future Sediment Deposition Dynamics throughout the Bay	RMP WQIF	3,4				(350)*‡	(340)*‡	(235)*‡		150 [4.3]
	Bathymetric Change Studies	RMP USGS	3,4	77, (5)							
	Bathymetric Data Collection	RMP	3						50 [3.5]		50 [3.5]
	Shoreline Change Studies	RMP	3						75 [3.4]	75 [3.4]	
Sediment characteristics	Mapping Bed Sediment Characteristics for Model Calibration	RMP	5						50 [5.2]	100 [5.2]	100 [5.2]
	Characterizing Impacts of Flocculation on Settling Velocity	RMP SEP	3,4,5	(264)					50 [5.3]	100 [5.3]	100 [5.3]
	Using Satellite Imagery to Analyze Turbidity and Suspended Sediment Concentration	RMP	5						120 [5.1]	120 [5.1]	
RMP-funded Special Studies Subtotal – Sediment				**181**	**214**	**245**	**147**	**283**	**962**	**710**	**875**
High Priority Special Studies for RMP Funding									**460**	**535**	**425**
RMP-funded Special Studies Subtotal – Other Workgroups				**385**	**0**	**408**	**350**	**340**	**235**		
RMP Supplemental Environmental Projects Subtotal				**406**	**0**	**200**	**120**	**0**			
Pro-Bono & Externally Funded Studies Subtotal				**5**	**747**	**0**	**0**				
OVERALL TOTAL				**592**	**961**	**445**	**267**	**283**	**962**	**710**	**875**

‡ San Francisco Bay Water Quality Improvement Fund (WQIF) project that supports contaminant, sediment, and nutrient modeling.

SOURCES, PATHWAYS AND LOADING

Relevant Management Policies and Decisions

Developing and refining pollutant loading estimates, including for CECs, for future policy or management plan updates (collaboration with Emerging Contaminants Workgroup)

Informing provisions of the current and future versions of the Municipal Regional Stormwater Permit (MRP)

Identifying sources, pathways, and high leverage areas to prioritize for management actions

Tracking effectiveness of load reduction and changes in CECs presence and concentration in small tributaries

Estimating present and future sediment loads to the Bay (collaboration with Sediment Workgroup)

Supporting boundary concentration and loading conditions for Priority Margin Unit (PMU) and in Bay modeling (collaboration with PCB Workgroup)

Recent Noteworthy Findings and Future Directions

Shifting Focus: The Sources, Pathways, and Loadings Strategy is being updated to address evolving information needs and an integrated monitoring and modeling approach. Field based studies conducted over the past several decades have focused primarily on locating, quantifying, and managing PCBs and mercury in the urban environment to support management actions. Going forward, an increasing emphasis will be placed on contaminants of emerging concern (CECs), along with tracking trends in PCB and mercury loading through a combination of methods development, monitoring, and conceptual and numerical modeling. Rather than considering monitoring and modeling separately, we are in the process of finalizing a new integrated watershed monitoring and modeling (IWMM) approach for data interpretation where stormwater sampling methods will be designed to support modeling tools and where modeling results will feedback into the modification of the field program. Other pathways such as large river loading, wastewater, and atmospheric deposition may also be considered. The draft management questions provided here reflect these broadened needs.

Modeling: Two models have been developed to date. The Regional Watershed Spreadsheet Model (RWSM), a calibrated average annual time step volume concentration model, has so far provided support for planning efforts for PCBs and mercury, trash assessments, copper, and microplastics. To maintain usefulness, the RWSM is being updated in 2023 and 2024 to reflect a more recent climatic period (1991-2020) and the land use development and redevelopment that has occurred in the past 20 years. The Watershed Dynamic Model (WDM) is a lumped parameter model for simulating large, complex regions with mixed land-use types, a wide range of contaminants, upland erosion and sediment transport, and in-stream processes at an hourly scale. The water and sediment modules of the WDM were completed in 2021 and 2022 for water years (WYs) 1995-2020. The WDM is now being recalibrated to include 2020 land use and expanded to include contaminants load simulation (PCBs and Hg as pilot cases). The ongoing CECs load modeling review project is focusing on investigating and recommending appropriate ways of combining limited monitoring data and modeling to estimate regional scale CEC loads. We have also begun developing a watershed-bay modeling strategy and designing a pilot application of a coupled watershed-bay model to simulate the fate of sediment and contaminants.

Monitoring: Stormwater sampling goals continue to shift towards characterizing CECs in stormwater as well as continuing to support legacy pollutant modeling. Due to a very wet winter in WY 2023, all RMP stormwater monitoring projects made significant progress. At three locations, samples were collected to help support calibration of the WDM for mercury and PCBs; a study will continue in WY 2024. A special stormwater study for PCBs both upstream and downstream of Oakland GE in the San Leandro Bay Priority Margin Unit (PMU) was also implemented; a study will also continue in WY 2024. Although no sampling occurred in WY 2023, planning is underway for sampling selected CECs in stormwater in the wet season of WY 2024 to support modeling regional loads

with suitable precision for comparison to other pathways.

Remote Sampler: RMP scientists and engineers have begun piloting innovative remote samplers that will reduce the need for intensive manual sampling during storms, and thus both increase capacity and reduce cost for stormwater monitoring. Two projects funded for 2023 included remote sampler development for CECs and for deployment in tidal areas. Trial deployments for both of these uses were conducted to test logistical feasibility. Trial deployments with actual sample collection for chemical measurements are expected to begin with the coming winter rains (WY 2024). Though key technological challenges remain, the initial designs show great promise.

Contaminants of Emerging Concern: Prior RMP studies have identified the presence of emerging contaminants in urban runoff and provided evidence that stormwater is an important pathway for CECs to reach the Bay. A four-year preliminary investigation of CECs in stormwater is culminating in 2023. Along with the results of this landmark study, the new remote sampler and the modeling projects mentioned above, all are feeding into the ongoing development of a stormwater CECs monitoring approach that integrates conceptual and computational modeling to cost-effectively answer management questions. These projects will feed into a 2023/2024 SPLWG strategy update to reflect the pivot toward CECs and to re-examine activities addressing legacy pollutants.

Priority Questions for the Next Five Years*

1) What are the sources, pathways, and loadings of pollutants and sediment to the Bay?

2) Which are the priority sources and pathways of pollutants that adversely impact or potentially adversely impact the Bay's environmental quality?

3) Are levels of individual pollutants or pollutant classes changing over time in the sources, pathways and loadings? What factors or management interventions have contributed to the change?

4) What are the effective management actions that can be implemented in the region to address pollutant pathways and sources, and where should they be implemented to have the greatest benefit?

MULTI-YEAR PLAN FOR SOURCES, PATHWAYS, AND LOADING

Sources, Pathways and Loadings Workgroup studies in the RMP from 2020 to 2026. Numbers indicate budget allocations in $1000s. Budgets in parentheses represent funding or in-kind services from external sources (e.g., SEP funds). Budgets that are starred represent funding that has been allocated for the given study within other workgroups. Items shaded in yellow are considered high priority for 2025 funding and beyond.

Element	Study	Funder	Collaboration with other Workgroups	Questions addressed	2020	2021	2022	2023	2024	2025	2026
Strategy	SPLWG strategy (formerly STLS coordination)	RMP			40	25	35	35	37	45	50
	SPLWG strategy report & management questions update	RMP	ECWG	1,2,3,4,5				45			
Monitoring	Monitoring to support regional loads and trends	RMP		1,3				10			
	POC reconnaissance monitoring	RMP		1,2,3,4	110	65	43				
	Tidal area remote sampler development	RMP		1,2,4				85	62	20	20
	Remote sampler purchase	RMP							180		
	Priority margin units (PMU) PCB monitoring	RMP		1,2,4	10						
	Priority margin units (PMU) PCB monitoring	SEP	PCBWG	1,2,4	37*						
Modeling	Modeling to support regional loads and trends (PCB/Hg)	RMP		3,5	100	150	90	130			
	WDM model maintenance	RMP		1					50	50	50
	CECs stormwater modeling	RMP		1			25				
	Advanced Data Analysis	RMP		1,2,3,4	50						
	Update San Francisco Bay region land-use map	SEP		2,4,5	(50)						
	Regional Watershed Spreadsheet Model update	SEP				(23)					
	Integrated watershed-bay modeling strategy and pilot implementation	SEP				(200)					
Integrated Studies	Integrated watershed monitoring and modeling strategy	RMP				50					

Element	Study	Funder	Collaboration with other Workgroups	Questions addressed	2020	2021	2022	2023	2024	2025	2026
	PCB/Hg monitoring and modeling to support load and trend assessment	RMP		1,3,5					217	167	100
RELEVANT STUDIES IN OTHER WORKGROUPS											
Monitoring	CECs stormwater monitoring and modeling	RMP WQIF‡	ECWG	1,2,4	181*	148*	100*	250*	300* (100)‡	300* (100)‡	300* (87.2)‡
Monitoring	Stormwater CECs monitoring strategy (approach)	RMP	ECWG				50*	55*			
Monitoring	Stormwater (method evaluation and monitoring)	RMP OPC	MPWG						68*	51*	40*
RMP-funded Special Studies Subtotal – SPLWG					**310**	**290**	**193**	**305**	**546**	**282**	**220**
High Priority Special Studies for RMP Funding										**282**	**220**
RMP-funded Special Studies Subtotal – Other Workgroups					**218**	**148**	**150**	**305**	**368**	**351**	**340**
MMP & Supplemental Environmental Projects					**50**	**223**					
Pro-Bono & Externally Funded Studies Subtotal											
OVERALL TOTAL					**360**	**513**	**193**	**305**	**546**	**282**	**220**

Photo by Shira Bezalel

STATUS AND TRENDS MONITORING

Relevant Management Policies and Decisions

Define ambient conditions in the Bay

Water Quality Assessment – 303(d) impairment listings or de-listings

Determination if there is a reasonable potential that a NPDES-permitted discharge may cause violation of a water quality standard

Evaluation of water and sediment quality objectives

Dredged material management

Development and implementation of TMDLs for mercury, PCBs, and selenium

Site-specific objectives and anti-degradation policies for copper and cyanide

Inform CEC tiered risk-based framework and CEC management actions

Recent Noteworthy Findings

In 2021, the RMP started to implement the revised S&T design by adding contaminants of emerging concern (bisphenols and organophosphate esters) to the Bay water sampling. Samples for PFAS were also collected as part of a special study and were added to the S&T design in 2023. Monitoring of CECs in the Moderate Concern tier has been added to every sampling matrix (water, sediment, biota) as part of the Status & Trends Program redesign.

A three-year pilot study to monitor CECs in Bay water during the wet season began in 2022. Samples were collected following three separate storm events from four targeted near-field stations (near where stormwater enters the Bay) and four stations along the spine of the Bay during the monthly USGS nutrients cruise. Samples are also to be collected in the dry season to allow comparison between CEC concentrations in wet and dry seasons to understand how long CECs are present in the Bay, and if they are found at levels of concern.

Bird eggs were collected in 2022 after a one year delay due to Covid. Sampling was limited to double-crested cormorants at three locations. Forster terns were dropped from the bird egg monitoring design as recommended in the S&T Review. In the spring of 2023, muscle tissue plugs were collected from sturgeon in Suisun Bay for selenium analysis. This effort, scheduled for 2022, was also delayed. Monitoring of Toxic contaminants in harbor seals is being considered for addition to the Status and Trends program and a pilot two-year special study began in 2023.

Priority Questions for the Next Five Years

1. What are concentrations and masses of priority contaminants in the Bay, its compartments, and its segments?

2. Are contaminants at levels of concern?

3. Are there particular regions of concern?

4. Have concentrations and masses increased or decreased?

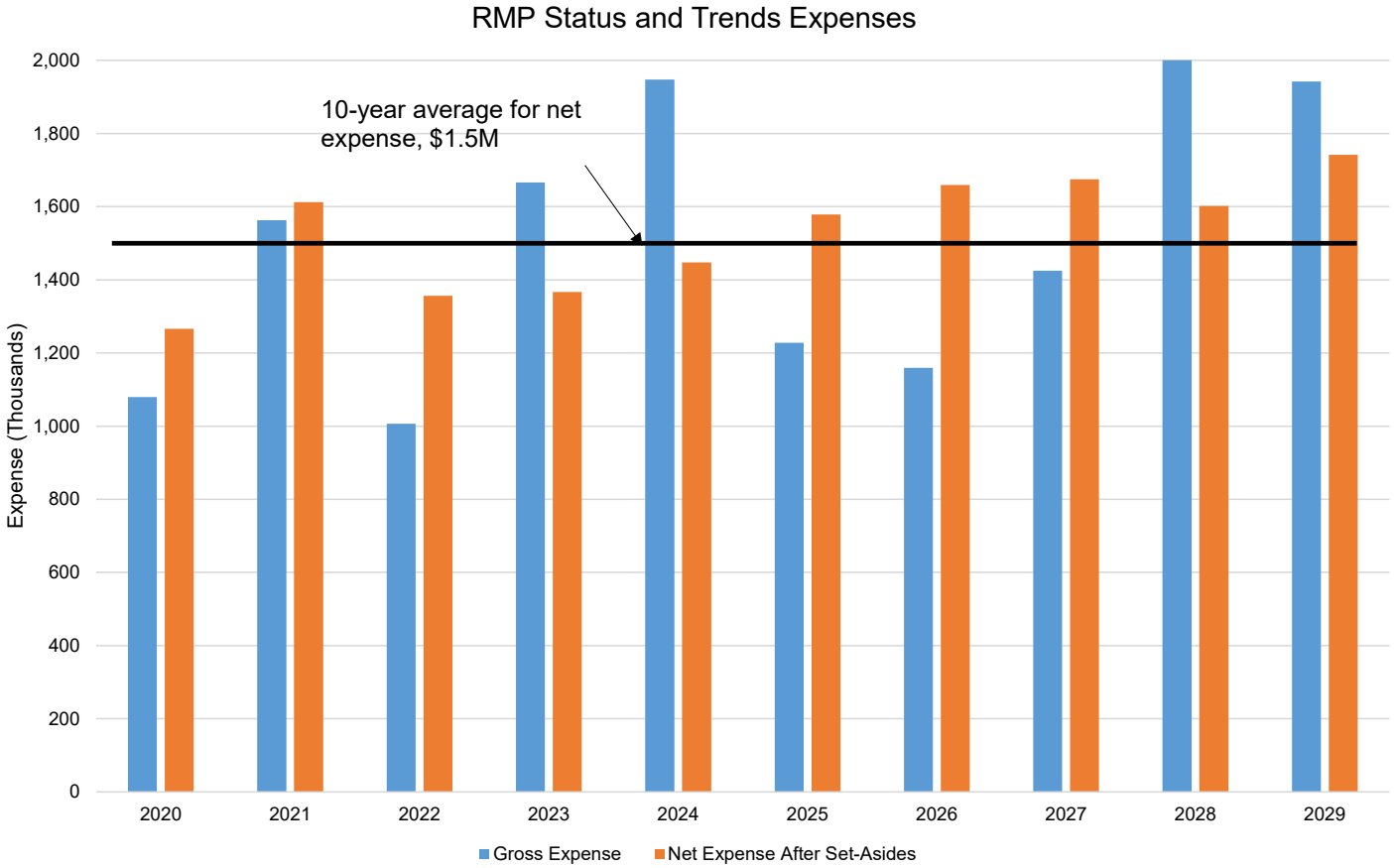
When recommending addition of any analyte to S&T, the following details need to be specified: relevance of the analyte to a management question, matrix to be monitored, and the frequency, minimum duration, and the spatial extent (e.g., all sites or a subset) of monitoring.

MULTI-YEAR PLAN FOR STATUS AND TRENDS MONITORING

Status and Trends Monitoring costs in the RMP from 2019 to 2029. Values for 2025-2029 are forecasts. Numbers indicate budget allocations in $1000s.

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Monitoring Type	*Actl*	*Actl*	*Actl*	*Actl*	*Actl*	*Actl*	*Fcst*	*Fcst*	*Fcst*	*Fcst*	*Fcst*
USGS Moored Sensor Network for Suspended Sediment	250	300	400	400	400	400	400	460	460	460	460
USGS Monthly Cruises for Nutrients and Phytoplankton	242	250	250	258	265	273	283	292	299	307	317
S&T North Bay Selenium			72	127		18		136		140	
S&T Water	216		243	25	257	27	265		309		328
Water-Wet season				127	60	135		143		152	
Water-CTR and Organics							88				
Water-Non-target analysis							12	30			
Water-Passives							51				
S&T Bird Eggs			256			195			200		
S&T Margins Sediment		319			110					235	
S&T Sediment					200					320	
S&T Target Sediment					95					190	
S&T Prey Fish					120					126	
S&T Sport Fish	405					560					650
S&T Harbor Seals						127					
Archives	84	62	84	43	80	56	85	60	90	63	95
Reporting	22	23	12	10	20	25	14	14	14	25	27
Lab Intercomparison Studies	55	37	28	22	60	82	30	25	52	82	63
Model Maintenance						50					
Grand Total	**1,274**	**991**	**1,345**	**1,007**	**1,667**	**1,948**	**1,228**	**1,160**	**1,424**	**2,100**	**1,940**
Set-Aside Funds Used	**0**	**88**	**0**	**0**	**300**	**500**	**0**	**0**	**0**	**500**	**200**
Set-Aside Funds Saved	**60**	**275**	**50**	**350**	**0**	**0**	**350**	**500**	**250**	**0**	**0**
Set-Aside Funds Balance	**653**	**928**	**978**	**1,328**	**1,028**	**528**	**878**	**1,378**	**1,628**	**1,128**	**928**
Net S&T Funding Needed	**1,340**	**1,178**	**1,395**	**1,357**	**1,367**	**1,448**	**1,578**	**1,660**	**1,674**	**1,600**	**1,740**

Commented [a1]: These numbers may need to change



Commented [a2]: This figure may look different if changes are made to S&T set asides to account for budgeting error.

Regional Monitoring Program for Water Quality in San Francisco Bay

Monitoring Design for the Status and Trends Monitoring Program (2018-2029); sampling frequency from 2022-2029 is reflective of changes made to the Program through the Status and Trends Review process.

Program	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
USGS Moored Sensor Network for Suspended Sediment (5 targeted sites)[1]												
Parameters: SSC, Water temperature, Salinity	X	X	X	X	X	X	X	X	X	X	X	X
USGS Monthly Cruises for Nutrients and Phytoplankton in Deep Channel (38 targeted stations)												
Parameters: CTD profiles, light attenuation, SSC, DO, Chl-a, Phytoplankton speciation, Nutrients (NO_2, NO_3, NH_4, PO_4, Si)[2]	X	X	X	X	X	X	X	X	X	X	X	X
Every 2 Years: Toxic Contaminants in Water – dry season (5 targeted stations and 17 random stations)												
MeHg, Se, Cu (dissolved & particulate fractions in 2017 and onwards); Cu only after 2019		X		X		X		X		X		X
CN, Hardness, SSC, DOC, POC		X		X	X	X	X	X		X		X
Chl-a		X		X		X		X		X		X
CECs – PFAS, bisphenols, organophosphate esters				X	X	X	X	X		X		X
Non-target analysis (5 stations)								?				
Aquatic Toxicity (9 stations)[3]		X						X				
CTR parameters (10 samples at 3 targeted stations)[4], including PCBs and PAHs								X				

Program	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Every 2 years: Toxic Contaminants in Water – wet season (5 targeted stations, 4 ambient stations)												
CECs – PFAS, bisphenols, organophosphate esters					X	X	X		?		?	
Non-target analysis									?			
Every 2 years: Selenium in Water, Clams, and Sturgeon (2 targeted North Bay stations)												
Water – dissolved and particulate Se, chl-a, SSC, DOC		X	X	X	X			X		X		X
Clam tissue – selenium, stable isotopes (δ13C, δ15N, δ34S)		X	X	X	X			X		X		X
Sturgeon tissue - selenium					X			X		X		X
Every 3 Years: Toxic Contaminants in Bird Egg Tissue												
Cormorant Eggs: Hg, Se, PCBs, PBDEs, PFAS, legacy pesticides[5] (3 targeted stations)[7]	X			X			X			X		
Tern Eggs: Hg, Se, PBDEs (variable fixed stations)[8]	X											
Every 5 Years: Toxic Contaminants in Near-field Bay Sediment (12 targeted near-field stations every 5 years)												
PFAS, bisphenols, TOC, N, % solids, grain size						X					X	
Every 5 Years: Toxic Contaminants in Bay Margin Sediments (12 random stations every 5 years/24 random station every 10 years)												
PFAS, bisphenols, TOC, N, % solids, grain size						X					X	
Ag, Al, As, Cd, Cu, Fe, Hg, MeHg, Mn, Ni, Pb, Se, Zn, PCBs			X								X	

Program	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Every 5 Years: Toxic Contaminants in Sediment (7 targeted stations and 10 random stations)[9]												
PFAS, bisphenols, TOC, N, % solids, grain size						X					X	
Ag, Al, As, Cd, Cu, Fe, Hg, MeHg, Mn, Ni, Pb, Se, Zn, PAHs, PCBs	X										X	
PBDEs (discontinued after 2023)	X					X						
Fipronil (discontinued after 2018)	X											
Every 5 Years: Toxic Contaminants in Sport Fish Tissue (7 targeted stations)												
Hg, Se, PCBs, PBDEs, dioxins		X					X					X
PFAS		X					X					X
Legacy pesticides[5]							X					X
Fipronil		X					?					
Every 5 Years: Toxic Contaminants in Prey Fish Tissue (4 targeted stations, 3 species)												
PFAS						X					X	
PCBs (PMUs only)						X					X	
Every 10 Years: Toxic Contaminants in Harbor Seals												
PFAS						SS	SS		X			

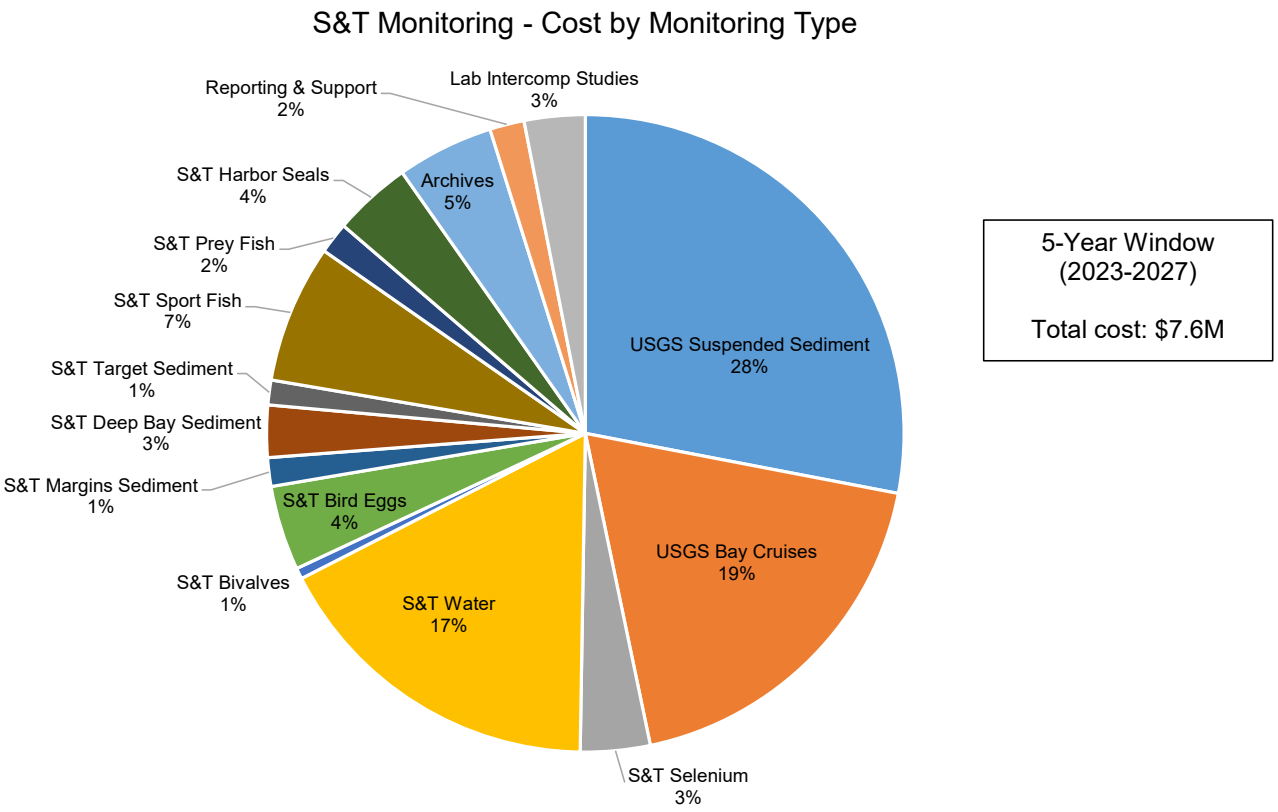
Notes:
"X" = Planned sampling event. "?" = Event that is planned but must be approved by the RMP Steering Committee before implementation. SS = Special Study being conducted to trial sampling methods. Additional parameters can be added to sampling events to support RMP Special Studies.

1. The RMP Status and Trend Program provides direct support to the U.S. Geological Survey (PI: Paul Work) for four SSC stations (Richmond Bridge, Pier 17, Alcatraz Island, Dumbarton Bridge). However, this contribution leverages SSC data at two more stations and salinity at eight stations funded by other partners. In addition, since 2012, the RMP has used Special Studies funds to add DO sensors at eight stations and nutrient-related sensors to three stations.
2. Monthly cruises are completed by the U.S. Geological Survey (PI: Brian Bergamaschi). Phytoplankton speciation and nutrient samples are collected at 14 stations.

3. Aquatic Toxicity is measured following EPA Method 1007.0 (*Americamysis bahia*).
4. CTR sampling occurs at the Sacramento River, Yerba Buena Island, and Dumbarton Bridge sites. Three samples collected at each site and one field blank.
5. "Pesticides" includes the suite of legacy pesticides that has been routinely measured by the RMP: Chlordanes (Chlordane, cis-; Chlordane, trans-; Heptachlor; Heptachlor Epoxide; Nonachlor, cis-; Nonachlor, trans-; Oxychlordane); Cyclopentadienes (Aldrin; Dieldrin; Endrin); DDTs (DDD(o,p'); DDD(p,p'); DDE(o,p'); DDE(p,p'); DDT(o,p'); DDT(p,p')); HCHs (HCH, alpha-; HCH, beta-; HCH, delta-; HCH, gamma-); Organochlorines (Hexachlorobenzene; Mirex).
6. Mussels (*Mytilus californianus*) are collected from Bodega Head State Marine Reserve, an uncontaminated "background" site of known chemistry, and are transplanted to seven targeted locations in the Bay. After ~100 days, mussels from the transplanted sites and a sample from Bodega Head are collected for analysis. Three of the seven transplant sites serve as back-ups in case something goes wrong with the transplants at the four primary sites. At the same time, resident clams (*Corbicula fluminea*) are collected from two sites in the Sacramento River and San Joaquin River.
7. Double-crested Cormorant (*Phalacrocorax auritus*) eggs are collected at three sites: Don Edwards National Wildlife Refuge, the Richmond-San Rafael Bridge, and Wheeler Island.
8. Forster's Tern (*Sterna forsteri*) eggs are typically collected from multiple sites in the Don Edwards National Wildlife Refuge and the Hayward Shoreline Regional Park.
9. Sediment samples are collected in the dry season (summer).

Abbreviations:

Ag: Silver
Al: Aluminun
As: Arsenic
Cd: Cadmium
CECs – Contaminants of emerging concern
Chl-a: Chlorophyll-a
CTD: Conductivity, Temperature, and Depth
CTR: California Toxics Rule, see pollutant list here
https://www.waterboards.ca.gov/northcoast/board_decisions/adopted_orders/pdf/2012/120813_Hatcheries_Att_A.pdf
Cu: Copper
DO: Dissolved Oxygen
DOC: Dissolved Organic Carbon
Fe: Iron
Hg: Mercury
MeHg: Methylmercury
Mn: Manganese
NH_4: Ammonia (dissolved)
Ni: Nickel
NO_2: Nitrite (dissolved)
NO_3: Nitrate (dissolved)
PAHs: Polynuclear Aromatic Hydrocarbons
Pb: Lead
PBDEs: Polybrominated Diphenyl Ethers
PCBs: Polychlorinated Biphenyls
PFAS – Perfluorinated alkyl substances
PFCs: Perfluorinated Compounds
PMU – Priority Margin Unit (Emeryville Crescent, San Leandro Bay, Redwood Creek/Steinberger Slough)
PO_4: Phosphate (dissolved)
POC: Particulate Organic Carbon
Se: Selenium
Si: Silica (dissolved)
SSC: Suspended Sediment Concentration
TN: Total Nitrogen
TOC: Total Organic Carbon
TP: Total Phosphorus
Zn: Zinc


S&T Monitoring - Cost by Monitoring Type
Reporting & Support 2%
Lab Intercomp Studies 3%
S&T Harbor Seals 4%
Archives 5%
S&T Prey Fish 2%
S&T Sport Fish 7%
S&T Target Sediment 1%
S&T Deep Bay Sediment 3%
S&T Margins Sediment 1%
S&T Bird Eggs 4%
S&T Bivalves 1%
S&T Water 17%
S&T Selenium 3%
USGS Bay Cruises 19%
USGS Suspended Sediment 28%
5-Year Window (2023-2027)
Total cost: $7.6M

Regional Monitoring Program for Water Quality in San Francisco Bay

Monitoring Design for the Status and Trends Monitoring Program (2018-2029); sampling frequency from 2022-2029 is reflective of changes made to the Program through the Status and Trends Review process.

Program	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
USGS Moored Sensor Network for Suspended Sediment (5 targeted sites)[1]												
Parameters: SSC, Water temperature, Salinity	X	X	X	X	X	X	X	X	X	X	X	X
USGS Monthly Cruises for Nutrients and Phytoplankton in Deep Channel (38 targeted stations)												
Parameters: CTD profiles, light attenuation, SSC, DO, Chl-a, Phytoplankton speciation, Nutrients (NO_2, NO_3, NH_4, PO_4, Si)[2]	X	X	X	X	X	X	X	X	X	X	X	X
Every 2 Years: Toxic Contaminants in Water – dry season (5 targeted stations and 17 random stations)												
MeHg, Se, Cu (dissolved & particulate fractions in 2017 and onwards); Cu only after 2019		X		X		X		X		X		X
CN, Hardness, SSC, DOC, POC		X		X	X	X	X	X		X		X
Chl-a		X		X		X		X		X		X
CECs – PFAS, bisphenols, organophosphate esters				X	X	X	X	X		X		X
Non-target analysis (5 stations)								?				
Aquatic Toxicity (9 stations)[3]		X						X				
CTR parameters (10 samples at 3 targeted stations)[4], including PCBs and PAHs								X				

Program	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Every 2 years: Toxic Contaminants in Water – wet season (5 targeted stations, 4 ambient stations)												
CECs – PFAS, bisphenols, organophosphate esters					X	X	X		?		?	
Non-target analysis									?			
Every 2 years: Selenium in Water, Clams, and Sturgeon (2 targeted North Bay stations)												
Water – dissolved and particulate Se, chl-a, SSC, DOC		X	X	X	X			X		X		X
Clam tissue – selenium, stable isotopes (δ13C, δ15N, δ34S)		X	X	X	X			X		X		X
Sturgeon tissue - selenium					X			X		X		X
Every 3 Years: Toxic Contaminants in Bird Egg Tissue												
Cormorant Eggs: Hg, Se, PCBs, PBDEs, PFAS, legacy pesticides[5] (3 targeted stations)[7]	X			X			X			X		
Tern Eggs: Hg, Se, PBDEs (variable fixed stations)[8]	X											
Every 5 Years: Toxic Contaminants in Near-field Bay Sediment (12 targeted near-field stations every 5 years)												
PFAS, bisphenols, TOC, N, % solids, grain size						X					X	
Every 5 Years: Toxic Contaminants in Bay Margin Sediments (12 random stations every 5 years/24 random station every 10 years)												
PFAS, bisphenols, TOC, N, % solids, grain size						X					X	
Ag, Al, As, Cd, Cu, Fe, Hg, MeHg, Mn, Ni, Pb, Se, Zn, PCBs			X								X	

Program	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Every 5 Years: Toxic Contaminants in Sediment (7 targeted stations and 10 random stations)[9]												
PFAS, bisphenols, TOC, N, % solids, grain size						X					X	
Ag, Al, As, Cd, Cu, Fe, Hg, MeHg, Mn, Ni, Pb, Se, Zn, PAHs, PCBs	X										X	
PBDEs (discontinued after 2023)	X					X						
Fipronil (discontinued after 2018)	X											
Every 5 Years: Toxic Contaminants in Sport Fish Tissue (7 targeted stations)												
Hg, Se, PCBs, PBDEs, dioxins		X					X					X
PFAS		X					X					X
Legacy pesticides[5]							X					X
Fipronil		X					?					
Every 5 Years: Toxic Contaminants in Prey Fish Tissue (4 targeted stations, 3 species)												
PFAS						X					X	
PCBs (PMUs only)						X					X	
Every 10 Years: Toxic Contaminants in Harbor Seals												
PFAS						SS	SS		X			

Notes:
"X" = Planned sampling event. "?" = Event that is planned but must be approved by the RMP Steering Committee before implementation. SS = Special Study being conducted to trial sampling methods. Additional parameters can be added to sampling events to support RMP Special Studies.

1. The RMP Status and Trend Program provides direct support to the U.S. Geological Survey (PI: Paul Work) for four SSC stations (Richmond Bridge, Pier 17, Alcatraz Island, Dumbarton Bridge). However, this contribution leverages SSC data at two more stations and salinity at eight stations funded by other partners. In addition, since 2012, the RMP has used Special Studies funds to add DO sensors at eight stations and nutrient-related sensors to three stations.
2. Monthly cruises are completed by the U.S. Geological Survey (PI: Brian Bergamaschi). Phytoplankton speciation and nutrient samples are collected at 14 stations.

3. Aquatic Toxicity is measured following EPA Method 1007.0 (*Americamysis bahia*).
4. CTR sampling occurs at the Sacramento River, Yerba Buena Island, and Dumbarton Bridge sites. Three samples collected at each site and one field blank.
5. "Pesticides" includes the suite of legacy pesticides that has been routinely measured by the RMP: Chlordanes (Chlordane, cis-; Chlordane, trans-; Heptachlor; Heptachlor Epoxide; Nonachlor, cis-; Nonachlor, trans-; Oxychlordane); Cyclopentadienes (Aldrin; Dieldrin; Endrin); DDTs (DDD(o,p'); DDD(p,p'); DDE(o,p'); DDE(p,p'); DDT(o,p'); DDT(p,p')); HCHs (HCH, alpha-; HCH, beta-; HCH, delta-; HCH, gamma-); Organochlorines (Hexachlorobenzene; Mirex).
6. Mussels (*Mytilus californianus*) are collected from Bodega Head State Marine Reserve, an uncontaminated "background" site of known chemistry, and are transplanted to seven targeted locations in the Bay. After ~100 days, mussels from the transplanted sites and a sample from Bodega Head are collected for analysis. Three of the seven transplant sites serve as back-ups in case something goes wrong with the transplants at the four primary sites. At the same time, resident clams (*Corbicula fluminea*) are collected from two sites in the Sacramento River and San Joaquin River.
7. Double-crested Cormorant (*Phalacrocorax auritus*) eggs are collected at three sites: Don Edwards National Wildlife Refuge, the Richmond-San Rafael Bridge, and Wheeler Island.
8. Forster's Tern (*Sterna forsteri*) eggs are typically collected from multiple sites in the Don Edwards National Wildlife Refuge and the Hayward Shoreline Regional Park.
9. Sediment samples are collected in the dry season (summer).

Abbreviations:

Ag: Silver
Al: Aluminun
As: Arsenic
Cd: Cadmium
CECs – Contaminants of emerging concern
Chl-a: Chlorophyll-a
CTD: Conductivity, Temperature, and Depth
CTR: California Toxics Rule, see pollutant list here
https://www.waterboards.ca.gov/northcoast/board_decisions/adopted_orders/pdf/2012/120813_Hatcheries_Att_A.pdf
Cu: Copper
DO: Dissolved Oxygen
DOC: Dissolved Organic Carbon
Fe: Iron
Hg: Mercury
MeHg: Methylmercury
Mn: Manganese
NH_4: Ammonia (dissolved)
Ni: Nickel
NO_2: Nitrite (dissolved)
NO_3: Nitrate (dissolved)
PAHs: Polynuclear Aromatic Hydrocarbons
Pb: Lead
PBDEs: Polybrominated Diphenyl Ethers
PCBs: Polychlorinated Biphenyls
PFAS – Perfluorinated alkyl substances
PFCs: Perfluorinated Compounds
PMU – Priority Margin Unit (Emeryville Crescent, San Leandro Bay, Redwood Creek/Steinberger Slough)
PO_4: Phosphate (dissolved)
POC: Particulate Organic Carbon
Se: Selenium
Si: Silica (dissolved)
SSC: Suspended Sediment Concentration
TN: Total Nitrogen
TOC: Total Organic Carbon
TP: Total Phosphorus
Zn: Zinc

PROGRAM MANAGEMENT

Approximately 10% of the total budget

Program management includes the following activities:

Program planning
- Preparing the Detailed Workplan and Multi-Year Plan

Contract and financial management
- Tracking expenditures versus budgets
- Developing and overseeing contracts and invoicing
- Providing financial updates to the RMP Steering Committee

Technical oversight
- Internal review by senior staff of reports, presentations, posters, workplans, memos, and other communications

Internal coordination
- Workflow planning
- Tracking deliverables and preparing RMP Deliverables Stoplight and Action items reports
- Staff meetings

External coordination
- Twenty meetings with external partners (SCCWRP, Wetlands RMP, SWAMP, and others) to coordinate programs and leverage RMP funds

Administration
- Office management assistance

Program Review
Periodically, the RMP conducts an overall peer review of the Program as a whole. Two external Program Reviews have been conducted to date, in 1997 and in 2003. The RMP has evolved considerably since the 2003 Review, with greatly enhanced planning processes that have made the Program much more forward-looking and thoroughly peer-reviewed.

A review of RMP governance was conducted in 2014 and a charter for the Program was adopted in 2015. An internal program review was conducted in 2016, focused on identifying new high priority technical areas and issues for the program to address. New science advisors, program partners, and technical focus areas were identified and will be further developed with the Technical Review Committee and Steering Committee.

The timing and scope of Program Reviews are determined by the Steering Committee. The Steering Committee does not consider a further External Program Review necessary at this time, as ongoing review of critical elements is well established.

Peer Review
Extensive peer review is a key to the cost-effective production of reliable information in the RMP. This peer review is accomplished through the following mechanisms.
- **Workgroups** include leading external scientists that work with stakeholders to develop workplans and provide feedback on project planning, implementation, and reporting
- The **Technical Review Committee** provides general technical oversight of the Program
- **Peer-reviewed publications** provide another layer of peer review for most significant RMP studies

GOVERNANCE

Approximately 10% of the total budget

RMP meetings provide a collaborative forum for communication among regulators, regulated entities, and scientists. This forum is provided by regular meetings of organizational and technical committees to track progress and guide future work. Additional information about the function and activities of each governance group can be found in Figures 1 and 3 in this booklet.

- **Steering Committee** – quarterly meetings to track progress, provide management direction, and track financials.
- **Technical Review Committee** – quarterly meetings to provide technical oversight.
- **Workgroups** – annual meetings to develop multi-year work plans, guide planning and implementation of special studies and Status and Trends monitoring, and provide peer-review of study plans and reports.
- **Strategy Teams** - stakeholder groups that meet as needed to provide frequent feedback on areas of emerging importance, and develop long-term RMP study plans for addressing these high priority topics. The RMP currently has active strategy teams for sport fish monitoring, small tributary loadings, and PCBs.

Photo by Jay Davis

ANNUAL REPORTING & COMMUNICATIONS

Approximately 10% of the total budget (+$85,000 in years when a full Pulse report is produced)

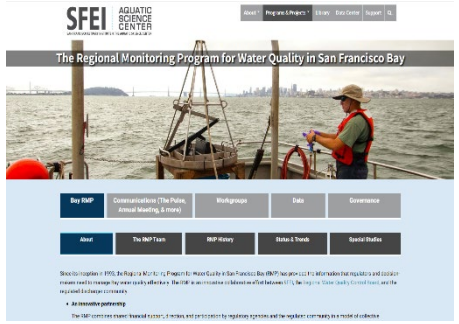
Includes the Pulse of the Bay, Annual Meeting, RMP Update, Multi-Year Plan, RMP website, Annual Monitoring Report, technical reports, journal publications, oral presentations, posters, & media outreach.

These platforms are used to make information from the RMP available to the following target audiences:

- Primary Audience
  - **RMP Participants**. Need information to encourage support for the RMP and water quality programs in the Bay. The Pulse, Annual Meeting, Multi-Year Plan, State of the Estuary report card, RMP website, newsletter, fact sheets, oral presentations, media outreach.
- Secondary Audiences
  - **Other regional managers**. Need information to inform their decisions and evaluate effectiveness of their actions. A target audience for all communication products.
  - **Regional law and policy makers**. Need information to encourage support for water quality programs in the Bay. The Pulse, media outreach.
  - **Regional Scientists**. Need to share information to increase understanding of water quality and maintain technical quality of the science. A target audience for all communication products.
  - **Media, public outreach specialists, educators**. Need information to encourage support for the RMP and water quality programs in the Bay, and to protect their health. A target audience for the Pulse, Multi-Year Plan, RMP web site, newsletter, fact sheets, media outreach.
  - **Managers and scientists from other regions**.

Highlights for the Next Five Years

- Pulse of the Bay (2024)
- RMP Update (2025)
- Continued website improvement



www.sfei.org/rmp

QUALITY ASSURANCE AND DATA SERVICES

Approximately 6% of the total budget for general support, plus funding in Status and Trends for handling S&T datasets

Data Services
Data management includes formatting, uploading, and reporting each year's Status and Trends data; managing, maintaining, and improving the RMP dataset to enable easy access to RMP data through CD3 (cd3.sfei.org); coordinating with statewide data management initiatives (e.g., SWAMP and CEDEN); and supporting quality assurance evaluation, data analysis, and RMP report production.

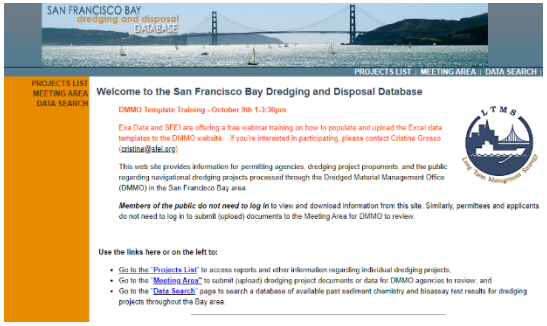
Quality Assurance
Quality assurance includes the review of data submitted by analytical laboratories; development and application of the QAPP; comparison of data to data quality objectives and prior results; review of congener ratios; and troubleshooting problems with the chemical analyses. Occasional special studies to assess sampling methods, analytical methods, or lab performance are conducted.

Online Data Access
CD3 (cd3.sfei.org) is an online visualization tool that makes the RMP data available to water quality managers, stakeholders, scientists, and the public. A data download tool allows users to customize their queries, generate charts, and easily download large quantities of data.

Recent Noteworthy Findings
The RMP's over 25-year dataset contains more than 6.5 million records standardized across all years. All data are stored in SFEI's Regional Data Center database, are comparable to statewide standards, and are regularly exchanged with CEDEN and WQX.

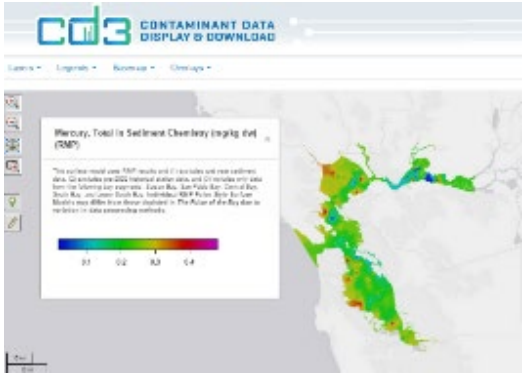
CD3 provides public access and visualizes RMP data along with relevant datasets from other programs.

DMMO Database and Website
In 2018, the Dredged Material Management Office (DMMO) dredged sediment testing database and website were transferred to SFEI's Regional Data Center. Near-term priorities include developing standardized data templates, uploading a backlog of data to the database, and integrating DMMO data into CD3. Ongoing costs include uploading new data and hosting and maintaining the system.



Priority Initiatives for the Next Five Years

- Efficiencies in Data Uploading and Formatting
- Enhancement of Data Access, Reporting, and Visualization Tools
- Coordination with SFEI's Environmental Informatics Program
- Hosting, managing, enhancing, and providing access to DMMO data



RMP STUDIES ASSISTING PERMITTEES WITH ADDRESSING SPECIFIC PERMIT CONDITIONS

Dredgers

Policy	Provision	Study
2011 Programmatic Essential Fish Habitat Agreement, Measure 7	Conduct bioaccumulation testing evaluations for in-Bay sediment disposal. Clearly define bioaccumulation triggers for testing and subsequent permitting decisions.	S&T Sediment Monitoring– determine ambient bay sediment concentrations for bioaccumulation testing thresholds
PCBs TMDL	Monitor PCB loads in dredged materials disposed in-Bay relative to TMDL allocation	S&T Sediment Monitoring – determine deep bay and margins sediment concentrations for in-Bay disposal limits; review of PCB bioaccumulation testing threshold; evaluation of PCB concentrations, masses, and movement from dredged areas
Mercury TMDL	Monitor mercury loads in dredged materials disposed in-Bay relative to TMDL allocation	S&T Sediment Monitoring– determine deep bay and margins sediment concentrations for in-Bay disposal limits
Long-Term Management Strategy	Establish how much dredged material can be disposed of in-Bay and where; review sediment guidelines for the beneficial reuse of dredged sediment; review requirements for PCB bioaccumulation testing	Sediment Conceptual Model, USGS Suspended Sediment Monitoring, Bay sediment budgets, Beneficial Reuse workshop, Floating Percentile Method assessment of chemistry results from dredged sediment, PCB bioaccumulation threshold analysis

RMP STUDIES ASSISTING PERMITTEES WITH ADDRESSING SPECIFIC PERMIT CONDITIONS

Industrial Wastewater Treatment Plants

Policy	Provision	Study
Mercury Watershed Permit	Better understand mercury fate, transport, the conditions under which methylation occurs, and biological uptake	S&T mercury monitoring in sediment and biota
Copper Action Plan	Investigate copper site specific objectives for water	S&T copper in water
North Bay Selenium TMDL	Monitor selenium in the food web to inform the TMDL	North Bay Selenium in Water, Clams, and Sturgeon

RMP STUDIES ASSISTING PERMITTEES WITH ADDRESSING SPECIFIC PERMIT CONDITIONS

Municipal Wastewater Treatment Plants

Policy	Provision	Study
Mercury Watershed Permit	Better understand mercury fate, transport, the conditions under which methylation occurs, and biological uptake	S&T mercury monitoring in sediment and biota
Copper Action Plan	Investigate copper site specific objectives for water	S&T copper in water
Nutrient Watershed Permit	Characterize nutrients and nutrient-related parameters in the Bay	Contributions to Nutrient Management Strategy studies

RMP STUDIES RELATED TO SPECIFIC PERMIT CONDITIONS

Urban Stormwater

MRP link: https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2022/R2-2022-0018.pdf

Policy	Provision	Study or linkage
Municipal Regional Stormwater Permit (MRP)	C.8. Pollutants of Concern Monitoring	Stormwater sampling for PCBs, Hg, and other POCs
		Emerging contaminants in stormwater, including PFAS, organophosphate esters, bisphenols, stormwater CECs (including tire ingredients), and ethoxylated surfactants. Development of a stormwater CEC monitoring and modeling plan
	C.11a/12.a. Assess Mercury / PCB Load Reductions from Stormwater	Stormwater sampling for PCBs and Hg at key locations around the Bay, develop the Watershed Dynamic Model POC module
	C.11e/12.f. Plan and Implement Green Infrastructure to Reduce Mercury / PCB loads	Stormwater sampling for PCBs and Hg; update the Regional Watershed Spreadsheet Model; develop the Watershed Dynamic Model POC module
	C.11f/12.h. Prepare Implementation Plan and Schedule to Achieve TMDL Wasteload Allocations	Update of the ABAG/MTC Bay Area land use layer and development of the Watershed Dynamic Model
	C.12.i. Fate and Transport Study of PCBs: Urban Runoff Impact on San Francisco Bay Margins	PCB Conceptual Models and field studies for Priority Margin Units—Emeryville Crescent, San Leandro Bay, and Steinberger Slough/Redwood Creek; In-Bay fate and transport modeling for PCBs, sediment, and CECs; Bay margins included in S&T sampling design for PCBs and CECs

RMP
REGIONAL MONITORING
PROGRAM FOR WATER QUALITY
IN SAN FRANCISCO BAY

sfei.org/rmp

Regional Monitoring Program for Water Quality in San Francisco Bay

2024 Detailed Workplan and Budget

Final December 2023

SFEI Contribution #1159

SFEI | AQUATIC SCIENCE CENTER
SAN FRANCISCO ESTUARY INSTITUTE & THE AQUATIC SCIENCE CENTER
4911 Central Ave, Richmond, CA 94804, p: 510-746-7334 f: 510-746-7300

Summary

In 2024, the Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) is entering its 32nd year of collecting data and communicating information to support water quality management decisions. This Detailed Workplan and Budget describes the activities that will be completed in 2024, the proposed funding levels, and the deliverables for each task.

The *planned* revenue from RMP fees for 2024 is $4,156k, with additional supplemental fees of $339k from municipal wastewater and $100k from municipal stormwater bringing the total revenue to $4,596k. The *expected* revenue is $5,216k as shown in Table 1 and Figures 1-2, which is reduced by $200k to account for the lower volume of dredged sediment being disposed of in the Bay, per the Long-Term Management Strategy (LTMS) plan. The $200k figure is a placeholder and the dredger contribution will be updated when we receive the final in-Bay dredge disposal volumes for calendar year 2023 (typically in March of the following year). The majority of the expenses in 2024 (71%) will be for Status and Trends monitoring and special studies (Tasks 6-7). The cost for running the RMP (Tasks 1-5) is $115k higher in 2024 than 2023 and funding allocations have been shifted slightly within each subtask.

Table 1: Bay RMP 2024 Budget by Task.

	Grand Total
1. Program Management	$369,500
2. Governance	$415,000
3. QA and Data Services	$280,000
4. Annual Reporting	$222,000
5. Communications	$214,000
6. S&T Monitoring	$1,947,500
7. Special Studies	$1,768,074
8. S&T Reserves	$0
9. Unallocated	$55
Grand Total for Expenses	**$5,216,074**
Revenue from Fees	$3,956,641
Supplemental POTW Payments for AMR Program (FY24)	$339,488
Supplemental Stormwater Payments for CEC Monitoring	$100,000
Contribution from Set-Aside Account	$500,000
Undesignated Funds	$320,000
Grand Total for Revenue	**$5,216,129**

Figure 1: Bay RMP 2024 Revenue and Expenses.

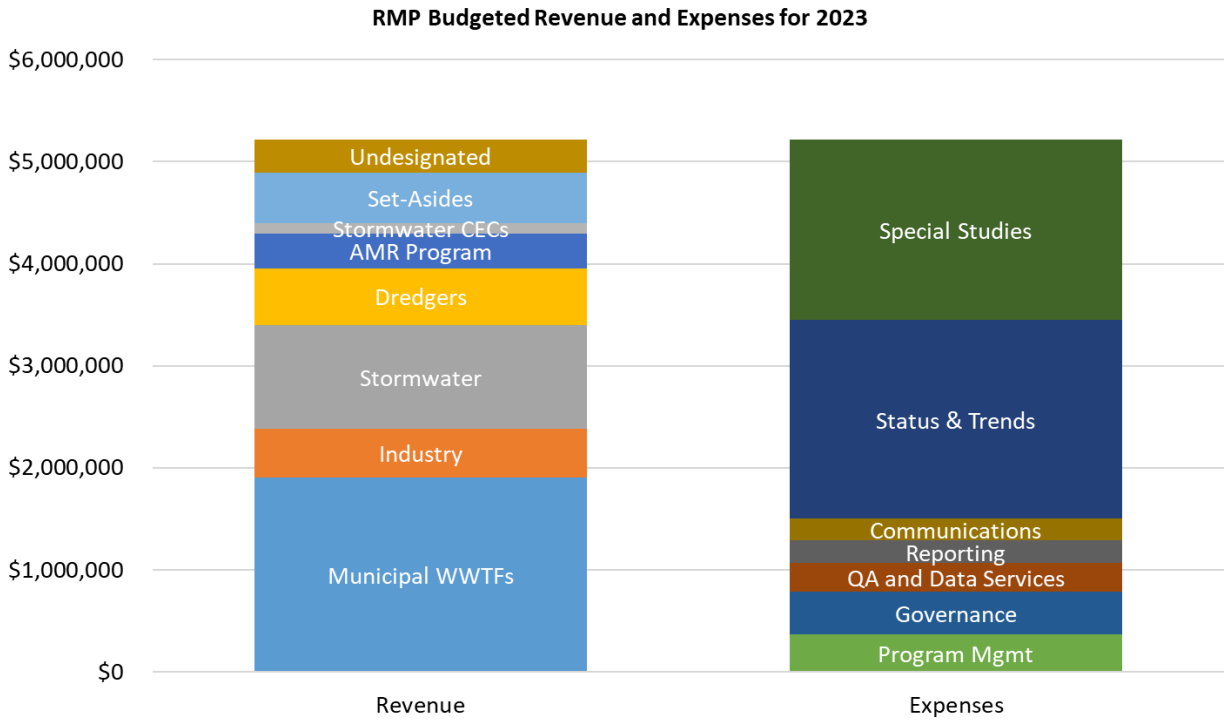
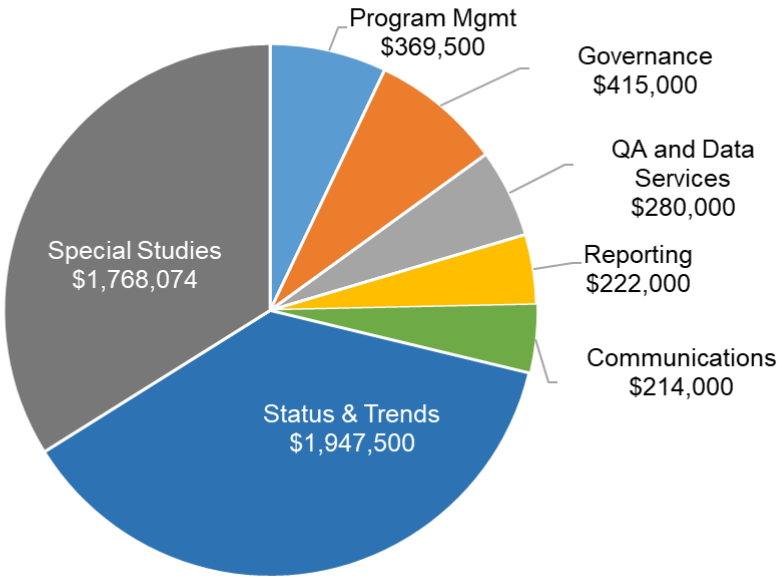


Figure 2: Bay RMP 2024 Budget by Task.



2024 Revenue

The total expected revenue for the RMP in 2024 is $5,216,129. The breakdown of this revenue between participant fees, interest income, contributions from the designated set-asides funds, and Undesignated Funds is shown in Table 2.

a. Participant Fee Revenue

The target fee revenue for the RMP in 2024 is $4,156,642. The manner in which the fees are divided up between Program Participants is shown in Figure 3. Fees were increased by 3% relative to the 2023 budget as approved by the Steering Committee on October 20, 2021.

b. Amended Monitoring & Reporting Order for RMP CEC studies (BACWA)

For FY2024, the RMP will receive approximately $339,488 of supplemental funding from the municipal wastewater agencies under the Amended Alternate Monitoring and Reporting (AMR) Program. The intended use of these funds is emerging contaminants studies.

c. Municipal Regional Stormwater Permit CEC monitoring (BAMSC)

For FY2024, the RMP will receive $100,000 of supplemental funding from the municipal stormwater agencies as outlined in the Municipal Regional Stormwater Permit 3.0. The intended use of these funds is emerging contaminants studies.

d. Interest Revenue

RMP funds earn interest from the Local Agency Investment Fund. Similar to 2023, this interest will not be included in the budget. Instead, the interest will accumulate in the Undesignated Funds account. Accounting for interest as income during the year was confusing to staff and risky because the income was not guaranteed. This money will be available for the Steering Committee to use at its discretion but it will first be saved as Undesignated Funds. The potential for using interest revenue to fund a contribution to the Status and Trends Set-Aside account is discussed later in this document.

e. Designated Reserve Funds
    i. Dredger Reserve Fund

Dredging activity and in-Bay disposal of dredged material is variable in time. In years where there is a lot of activity, any dredger fees that are greater than the target fees are stored in the Dredger Reserve Fund. These funds are held in reserve and can only be used to pay for shortfalls in dredger fees in future years. The balance of the Dredger Reserve Fund is negative because dredger fees in 2018 through 2023 were lower than target fees. The 2024 budget assumes that dredger fees will fall $200k below the target of $756,509 due to a reduced amount of sediment being dredged and disposed of in the Bay. This is an approximation based on in-Bay disposal volumes in 2019 and 2021. Revenue (and expense) in the budget may need

to be revised based on actual fees from in-Bay disposal. The 2024 dredger fees, and whether there is a shortfall beyond the planned $200k, will be adjusted in early 2024.

ii. Set-Aside Funds

The RMP uses designated funds (called "Set-Asides") to smooth out the year-to-year expenses of the Status and Trends program. Rather than having a spike in expenses when multiple activities overlap in a single year, the Steering Committee designates some funds to be set aside in light years and withdrawn in years with a lot of monitoring. In 2024, the Status and Trends monitoring costs are higher than average so $500k will be withdrawn from the S&T Designated Reserve. This withdrawal is discussed more in the section on Status and Trends expenses.

f. Undesignated Funds

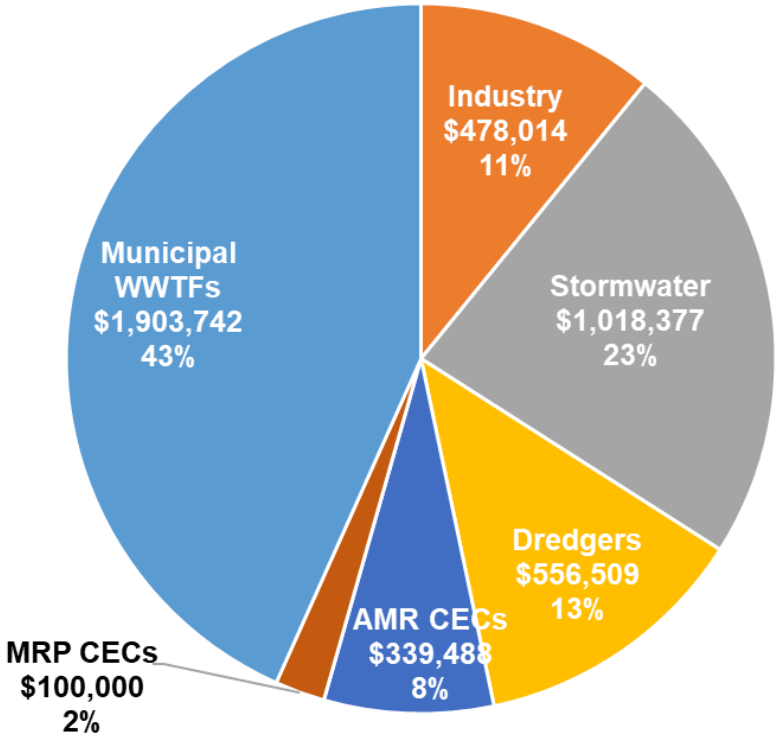
The RMP maintains a balance of Undesignated Funds for contingencies. Higher than anticipated revenues and elimination or reduction of lower priority elements sometimes leads to accumulation of funds that can be used for high priority topics at the discretion of the Steering Committee. In August 2023, $180k was approved by the Steering Committee to be moved from Undesignated Funds to fund the SPLWG Remote Sampler Purchase. The funds will be used for the purchase of remote samplers for RMP stormwater work to support CECs monitoring in Bay Area watersheds and urban runoff monitoring in tidal zones. Sampler purchase/construction will be done under the oversight of the Stakeholder and Science Advisory Team as well as the TRC and SC. The current balance of Undesignated Funds (after removal of the $180k) is $910k.

Table 2: 2024 RMP Revenue.

Revenue Category	**Subcategory**	**Amount**
Participant Fees	Municipal wastewater	$1,903,742
Participant Fees	Industrial wastewater	$478,014
Participant Fees	Stormwater	$1,018,377
Participant Fees	Dredgers*	$556,509
Supplemental POTW Payments for AMR Program (FY24)	Municipal wastewater	$339,488
Supplemental Stormwater Payments for CEC Monitoring (FY24)	Municipal Stormwater	$100,000
Interest Income		$0
Designated Reserve Funds	Set-Aside Funds for S&T Monitoring	$500,000
Designated Reserve Funds	Dredger Reserve Funds	$0
Undesignated Funds		$320,000
TOTAL REVENUE		**$5,216,129**

*This value does not represent the full 18% dredger contribution but rather the expected contribution from the USACE and non-USACE dredgers for in-Bay placement ($200k less than the full contribution).

Figure 3: Bay RMP 2024 Fee Allocations for Program Participants.



2024 Programmatic Tasks

RMP expenses fall into three broad categories: programmatic expenses, Status and Trends monitoring, and special studies. This section details the budgets for programmatic expenses for 2024.

The programmatic budget covers the following tasks:

- Program management
- Governance
- Quality Assurance (QA) and Data Services
- Annual reporting
- Communications

The total cost to implement these tasks in 2024 is $1,500k. This budget is $115k higher than the 2023 budget. The cost increases are summarized in Table 3. The budgets for Program Management, Governance, QA and Data Services, and Communication were all increased for 2024 to account for staff salary increases. The Annual Reporting task budget increased from 2023. The Pulse Of The Bay will be produced in 2024, which costs more than the RMP Update.

Table 3: RMP 2024 Programmatic Budget Compared to the 2023 Budget.

	2023 Budget	2024 Budget	Difference
1. Program Management	$351,100	$369,500	$18,400
2. Governance	$396,800	$415,000	$18,200
3. QA and Data Services	$270,000	$280,000	$10,000
4. Annual Reporting	$165,000	$222,000	$57,000
5. Communications	$202,500	$214,000	$11,500
Total	$1,385,400	$1,500,500	$115,100

1. Program Management

Program management subtasks include program planning, contract and financial management, technical oversight, internal and external coordination, and administration. The total expense for these tasks is $369.5k, which is $18.4k more than the 2023 budget (Table 4). Costs for the subtasks were modified based on previous years budgets and an increase in Internal Coordination. Approximately one-third of the cost for this category is fiduciary oversight of program expenses and contractors. These financial management funds also support staff time to manage funds and contracts for Supplemental Environmental Projects (SEPs) that are carried out by the RMP.

The major deliverables that will be completed under subtasks 1a and 1b include the Multi-Year Plan and Detailed Annual Workplan, quarterly financial updates to the Steering Committee, quarterly tracking of deliverables and action items, and contract management. Funds for technical oversight allow for senior staff to provide an internal review of the many reports, presentations, posters, workplans, memos, and other communications coming out of the RMP. The funds for external coordination cover participation in meetings with external partners to coordinate programs and leverage RMP funds (e.g., coordinating work on the Pulse and other reports, coordination with SCCWRP, and serving as liaison to the Wetland RMP).

2. Governance

Governance subtasks include convening, coordinating, and facilitating Steering Committee, Technical Review Committee, and Workgroup meetings. Tasks and deliverables include preparing agendas and agenda packages, participating in meetings, writing meeting summaries, following up on action items, reviewing minutes from past meetings, reviewing special study proposals, and coordinating with committee chairs, advisors, and key stakeholders. This budget item also includes honoraria and travel for external advisors. The total budget for these tasks is $415k which is 4% more than the 2023 budget (Table 4). The cost of workgroup meetings ($306k) accounts for nearly 74% of this task. The budget for staff time to prepare materials and proposals and attend workgroup meetings is $246k; the budget for honoraria and travel for external science advisors is $60k. The Emerging Contaminants and Sources, Pathways, and Loadings Workgroups will continue to meet for two days. Budgets for every workgroup were increased to accommodate an increasing amount of inter-workgroup coordination.

3. QA and Data Services

Quality assurance and data management are critical foundations for the scientific investigations of the RMP. The total cost for these tasks is $280k, $10k more than 2023. The major quality assurance tasks for 2024 are keeping the Quality Assurance Project Plan up to date and preparing QA summaries for datasets. In addition to processing new data, the RMP needs to maintain the millions of records generated since it began in 1993. Database maintenance includes incorporating updates and corrections to data, including re-analyzed results and updates implemented by CEDEN/SWAMP. RMP staff also maintain and enhance

web-based data access and visualization tools, such as CD3, and an automated system to handle data submittals from the laboratories.

DMMO Database Support will continue in 2024. Special study funding in 2018 was used to migrate the DMMO database and website to the SFEI server. RMP funding ensures an updated and secure platform for the database. Benefits to the RMP include better access to sediment testing records in the DMMO database and more efficient invoicing methods for dredger fees. Ongoing funding for this project is included as part of the QA and Data Services task. The funding requested in 2024 is $54k and will be used to update data templates, data uploads, and database structure. DMMO agencies are also identifying staff that can help with these efforts so the burden does not fall solely on the RMP.

4. Annual Reporting

The total cost for these tasks is $222k. This budget is $57k more than it was in 2023. A *Pulse of the Bay* will be produced in 2024 and released at the Annual Meeting in October. The *Pulse of the Bay* is more expensive to produce than *RMP Update*. The *Pulse of the Bay* will contain articles on a theme chosen by the Steering Committee plus updated indicators of water quality in the Bay.

Tasks related to the Annual Meeting include developing the meeting agenda, coordinating speaker participation, managing logistics, advertising the meeting, preparing presentations, and staffing the meeting. The 2024 budget for the Annual Meeting is $90k, $5k more than 2023 to account for increasing costs associated with hosting the meeting.

5. Communications

Communications tasks include implementing the RMP Communications Strategy, approved by the Steering Committee in July 2014. The total cost for these tasks in 2024 is $214k, $14k more than the 2023 budget. The 2024 budget is higher because RMP staff are increasingly being asked to communicate RMP results to an increasing number of agencies and media outlets. In addition, funds were added to the Outreach Products subtask to provide support for graphic design staff who help produce our reports and factsheets. Deliverables include the distribution of RMP information to stakeholders, natural resource managers, and the public through multiple media channels (e.g., website, publications, email newsletters, fact sheets, social media).

Stakeholder engagement is critically important to addressing the information needs of RMP participants. Tasks include preparing for and attending RMP stakeholder meetings (e.g., BACWA, BAMS, BPC, LTMS, WSPA, and RB2), as well as communicating directly with stakeholder representatives.

Other communications tasks include responding to inquiries for RMP data and reports, and producing summary information on important topics in convenient formats. Participation in workshops and conferences for SWAMP, SETAC, ACS, and other professional organizations

allows sharing of RMP information, gathering of information from other investigators on the latest advances in monitoring and understanding, and identification of opportunities for collaboration with and funding from other organizations. Presentations at local meetings and to local audiences are also important for collaboration and information dissemination to scientific partners. Funding for this task also supports maintenance of the RMP website.

Table 4: Bay RMP 2024 Programmatic Budget by Subtask.

Task	Subtask	Direct Cost	Labor	2024 Total
1. Program Management	A. Budget and Workplan Development		$49,000	$49,000
	B. Contract and Financial Management		$74,000	$74,000
	C. Technical Oversight		$76,500	$76,500
	D. Internal Coordination		$122,000	$122,000
	E. External Coordination	$3,500	$36,500	$40,000
	F. Administration	$2,800	$5,200	$8,000
2. Governance	A. SC meetings	$1,500	$53,000	$54,500
	B. TRC meetings	$1,500	$53,000	$54,500
	C. WG meetings	$3,000	$61,000	$64,000
	D. External Science Advisors	$60,000		$60,000
	E. Emerging Contaminants WG		$55,000	$55,000
	F. Microplastics WG		$14,000	$14,000
	G. PCB WG		$23,000	$23,000
	H. Sediment WG		$42,500	$42,500
	I. Sources, Pathways, Loadings WG		$47,500	$47,500
3. QA and Data Services	A. Quality Assurance System		$40,000	$40,000
	B. Online Data Access: CD3		$75,000	$75,000

	C. Database Maintenance		$65,000	$65,000
	D. Updates to SOPs and Templates		$46,000	$46,000
	E. DMMO Database Support		$54,000	$54,000
4. Annual Reporting	A. RMP Pulse Report	$20,000	$112,000	$132,000
	B. Annual Meeting	$20,000	$70,000	$90,000
5. Communications	A. Communications Plan Implementation	$15,000	$38,000	$53,000
	B. Stakeholder Engagement		$30,000	$30,000
	C. Responses to Information Requests		$23,500	$23,500
	D. Outreach Products	$1,000	$18,000	$19,000
	E. Presentations at Conferences and Meetings	$16,000	$53,000	$69,000
	G. RMP Website Maintenance		$19,500	$19,500
Grand Total		$144,300	$1,356,200	$1,500,500

2024 Status and Trends Monitoring and Reserve Funds

In 2020, the Steering Committee and Technical Review Committee began reviewing the Status and Trends (S&T) Program to identify how the program could be altered to accommodate the inclusion of CECs. This review resulted in recommended changes to the sampling matrices, frequency, and analytes included in the S&T Program. The sampling frequency for each matrix is shown in Figure 4. 2024 monitoring will include year 2 of a pilot study to monitor toxic contaminants in harbor seals.

Figure 4: RMP Status and Trends Monitoring Schedule

In 2024, based on the revised S&T design, wet weather water sampling, bird eggs, and sport fish collections are scheduled to occur. In addition, the RMP provides annual support to the USGS for suspended sediment and nutrient monitoring. This support will continue in 2024. We are also including $82k for laboratory intercomparison studies. The most likely intercomparison studies will include comparison of selenium analysis methods, and ongoing comparison of CEC analytical methods for water. The total cost for S&T monitoring in 2024 will be $1,947k. Funds will be deducted ($500k) from the S&T set-aside account to offset the high cost of the S&T activities in 2024.

More information about each of the S&T tasks is provided in the line item budget (Table 5) and the sections below.

USGS Sacramento Support: Continuous Monitoring of Suspended Sediment ($400k)

This work is led by Dr. Paul Work of the USGS California Water Science Center. The USGS maintains four suspended-sediment stations in the Estuary with RMP funding (Richmond Bridge, Alcatraz Island, Pier 17, and Dumbarton Bridge). This funding leverages suspended sediment monitoring at two other stations (Mallard Island and Benicia Bridge) and salinity at seven stations that are funded by other partners. Funding for these activities is provided by the U.S. Army Corps of Engineers directly to the USGS. The contribution in 2024 is $400k and will support ongoing suspended sediment monitoring in the Bay.

USGS Menlo Park Support: Monthly Basic Water Quality ($273k)

This work is led by Dr. Brian Bergamaschi of the USGS California Water Science Center. Monthly water sampling is conducted to evaluate the spatial and temporal trends of water quality parameters at fixed stations throughout the Bay-Delta system. Measurements include salinity, temperature, dissolved oxygen, suspended sediment, and phytoplankton biomass. This information is needed to follow the seasonal and inter-annual changes in water quality and estuarine habitat, which may influence biological communities and the distribution and reactivity of trace contaminants.

The RMP pays a fraction of the total cost of these cruises. The RMP, Nutrient Management Strategy, and USGS California Water Science Center recently expanded an existing agreement that now includes the monthly Bay cruises. A multi-year agreement was implemented in FY2022.

Wet Weather Water Sampling ($135k)

The Status and Trends schedule includes wet weather water sampling at targeted sites near stormwater inputs into the Bay, as well as ambient Bay stations. Water samples will be collected following two storms from targeted locations, including stations in Lower South Bay, and sent to laboratories for analyses of bisphenols, organophosphate esters, and PFAS for S&T and tire contaminants in the Bay for a two year special study (WYs 2023-2024). Samples will also be collected from ambient Bay stations during the Bay-wide nutrient cruises that occur closest to the storm event.

Dry Season Water Sampling ($27k)

In 2024, four Bay stations and four near-field stations will be sampled once in the dry season as verification of the expected presence or absence of contaminants from the stormwater and wastewater loading pathways. Dry season sampling will occur at stations that overlap with the wet season sampling so that concentrations can be compared and used to model the dominant processes in the wet and dry seasons. Water samples will be collected and sent to laboratories for analyses of bisphenols, organophosphate esters, and PFAS for S&T and tire contaminants in the Bay for a two year special study (WYs 2023-2024). Samples will be collected from ambient Bay stations during a Bay-wide nutrient cruise.

North Bay Selenium in Water, Clams, and Sturgeon ($18k)

Sampling for selenium will be paused in 2024 for a review of the data collected through 2022. In addition, funds will be used to find analytical partners able to analyze small tissue sample masses associated with non lethal sampling techniques used for sampling sturgeon muscle tissue. Sampling is expected to resume in 2025.

2024 Bird Eggs ($195k)

The Status and Trends schedule calls for bird egg monitoring every three years. The last bird egg samples were scheduled for collection in 2021, however sampling was conducted in 2022 instead of the planned sampling in 2021 due to challenges related to the pandemic and to wait for the results of the S&T review process. Three cormorant colonies that have been sampled since the late 1990s (including non-RMP and RMP studies) are targeted for continued sampling: Suisun Bay (near Wheeler Island), San Pablo Bay (Richmond Bridge), and South Bay/Lower South Bay. The nesting colonies in Suisun Bay and South Bay/Lower South Bay are in flux so locations have changed slightly over the years to accommodate for changing locations and access. In 2022, eggs were collected at Rich Island in Suisun Bay (1.5 miles east of Wheeler Island), Richmond Bridge, and pond N3A/N4A (9 miles north of pond A9/A10). Egg tissue will be analyzed for mercury, selenium, PCBs, PCDD/Fs, PFAS, and legacy pesticides. The total cost for the field collection and laboratory analyses will be $165k. The cost for quality assurance and data management will be $30k.

2024 Sport Fish ($560k)

The Status and Trends schedule calls for sport fish sampling every five years. Fish will be collected from 11 target locations in the Bay and sent to laboratories for analyses of mercury, selenium, PCBs, PCDD/Fs, PBDEs, PFAS, and legacy pesticides. Subcontracts for collection/logistics and laboratories ($420k) make up the majority of the cost. The cost to QA and manage the data from this sampling effort will be $55k.

Laboratory Intercomparison Studies ($82k)

Laboratory intercomparison studies increase confidence in analytical methods and results, act as an insurance policy for unforeseeable changes in analysis procedures and analytical contractors, and provide many other benefits. Potential intercalibration studies for 2024 include method comparisons for selenium and interlab comparisons for CEC samples.

Sample Archive ($56k)

The RMP stores archives of sediment, bivalve, bird egg, and sport fish samples, as well as other miscellaneous samples in archives for potential future analyses. Short-term archives (< 10 years) are stored at Schaefer's Meat and Storage in Oakland. Long-term archives are stored at the National Institute of Standards and Technology (NIST) in Charleston, South Carolina. Costs in 2024 will cover continued storage fees for the archives as well as labor to manage the archives and the archive database. The cost includes subcontractor support from AMS to add samples to the archives and support ongoing organization and purging of samples. This task also includes time for the Data Services team to update and improve the archived sample tracking system.

Field Sampling Report and Support ($25k)

At the end of the field season, RMP staff will update the Sampling and Analysis plans for each S&T activity completed. They will also compile all of the Field Sampling Reports produced by our partners, which document where samples were collected and any complications during field sampling. Clear documentation of field sampling effort is part of the overall quality assurance system for the Program.

Watershed Dynamic Model Maintenance ($50k)

Funds to maintain the Watershed Dynamic Model (WDM) were suggested to be added to S&T in 2023. The maintenance tasks will be proposed by April 2024 and submitted to the Steering Committee for approval after consultation with the SPLWG. A log of model improvements and modifications will be updated by the end of 2024. Model simulations of updated time series will be uploaded to SFEI's data portal.

Table 5: Bay RMP 2024 Status and Trends Budget by Subtask.

Task	Subtask	Direct Cost	Subcontract	Labor	2024 Total
6. S&T Monitoring	A. USGS Sacramento Support		$400,000		$400,000
	B. USGS Menlo Park Support		$273,000		$273,000
	C. Dry Season Water Sampling		$13,000	$9,000	$22,000
	D. Dry Season Water Sampling Data Mgmt			$5,000	$5,000
	E. Wet Season Water Sampling		$40,000	$80,000	$120,000
	F. Wet Season Water Sampling Data Mgmt			$15,000	$15,000
	G. Bird Egg Sampling		$125,000	$40,000	$165,000
	H. Bird Egg Sampling Data Mgmt			$30,000	$30,000
	I. S&T Laboratory Intercomparison Studies	$10,000	$40,000	$32,000	$82,000
	J. Sample Archive	$48,000	$0	$8,000	$56,000
	K. S&T Field Sampling Report & Support			$25,000	$25,000
	L. Sport Fish Sampling	$5,000	$420,000	$80,000	$505,000
	M. Sport Fish Sampling Data Mgmt			$55,000	$55,000
	N. North Bay Se Monitoring			$15,000	$15,000
	O. North Bay Se Data Mgmt			$3,000	$3,000

	P. Harbor Seals Sampling	$1,500	$94,000	$21,000	$116,500
	Q. Harbor Seals Sampling Data Mgmt			$10,000	$10,000
	R. Model Maintenance			$50,000	$50,000
	TOTAL	$64,500	$1,405,000	$478,000	$1,947,500

2024 Special Studies

The total costs for special studies in 2024 will be $1,768k and there is a budget of $1,628k. Figure 5 shows how these costs are distributed across the seven focus areas. Workgroup strategy funds were overlooked during the special studies 2024 budget process in summer 2023. Additional funding for the $140k overage will be covered by funds from the Undesignated Reserve. Additional details on each of the studies are provided in the line item budget (Table 6).

Figure 5: RMP Special Studies Funding for 2024 by Focus Area.

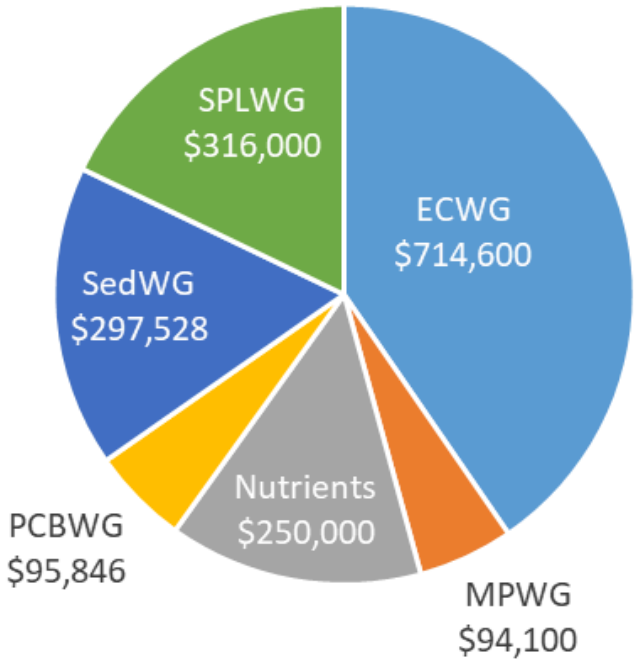


Table 6: Bay RMP 2024 Special Studies Budget by Subtask.

Workgroup	Task	Direct Costs	Labor	Subcontracts	Total
Strategy	CECs Strategy		$62,000		$62,000
Strategy	Tires Strategy		$10,000		$10,000
Strategy	Microplastic Strategy		$16,000		$16,000
Strategy	Sediment Workplan		$15,000		$15,000
Strategy	SPLWG Strategy		$37,000		$37,000
ECWG	Stormwater CECs Monitoring and Modeling 2024	$2,000	$298,000		$300,000
ECWG	Tire and roadway contaminants in wet season Bay water Year 3	$4,750	$35,250	$10,000	$50,000
ECWG	OPEs, Bisphemols, and Other Plastic Additives in Wastewater	$7,000	$53,400	$35,000	$95,400
ECWG	PFAS Synthesis and Strategy	$1,000	$106,000		$107,000
ECWG	PFAS in Bay Water using the TOP Assay		$47,300	$19,900	$67,200
ECWG	Nontargeted analysis of SF Bay Fish Year 1	$5,000	$8,000	$10,000	$23,000
Nutrients	Moored sensor high-frequency observation network		$250,000		$250,000
MPWG	Microplastics Stormwater Monitoring Pilot (Yr 1)	$6,200	$58,900	$13,000	$78,100
SedWG	Spatial Variability of Sediment Accretion in SFB Restorations			$203,528	$203,528

SedWG	Continuous Suspended Sediment and Wave Monitoring in South and Lower South San Francisco Bay - Yr 3	$805	$62,863	$15,332	$79,000
SPLWG	Integrated Monitoring & Modeling for PCBs and Hg	$8,650	$171,350	$37,000	$217,000
SPLWG	Tidal Area Remote Sampler Pilot - Year 2	$5,891	$56,109		$62,000
PCBWG	Monitoring of Sediment Deposition in SLB PMU		$95,846		$95,846
	Total	$41,296	$1,383,018	$343,760	$1,768,074

Studies highlighted in red are funded or partially funded with the $339k of Supplemental POTW Payments for the AMR Program (FY24).

Appendix A. Special Study descriptions for 2024 projects.

Workgroup	Study Name	Budget	Summary	Deliverables
Emerging Contaminants	Stormwater Contaminants of Emerging Concern (CECs) Monitoring and Modeling 2024	$300,000 (RMP) $100,000 (WQIF)	This project will begin implementing the RMP stormwater CECs integrated modeling and monitoring program. This proposal is a placeholder for completing and implementing the integrated modeling and monitoring program in wet season 2023/2024 (October 2023-September 2024) that will be defined by the Stormwater CECs Approach. It includes scopes and budgets for four specific tasks for which we request early release of funds to initiate implementation in summer 2023. It briefly outlines remaining tasks, which will be developed in concert with the completion of the Approach. These tasks will be developed under the oversight of	Task 1: scopes and budgets presented for SST review and SC approval. Task 2: summaries from SST meetings, the two RMP presentations, and the conference presentation. Task 3 will be integrated into the Stormwater

			the SST in parallel with the Approach and brought to the TRC and SC for approval.	CECs Approach draft report to be completed in fall 2023 and final report to be completed by spring 2024.
Emerging Contaminants	Tire and Roadway Contaminants in Wet Season Bay Water Year 3	$50,000	6PPD-quinone and other toxicologically relevant contaminants derived from tires have been observed in Bay Area stormwater and in wet season Bay water samples from 2021 and 2022. As part of its Status and Trends (S&T) program, the RMP is undertaking a pilot monitoring effort to quantify a number of contaminants in Bay water samples collected following storm events to provide information on the impact of stormwater discharges on Bay contaminant concentrations. This proposed study, the third and final year in a multi-year monitoring effort, would leverage the pilot S&T effort to evaluate more fully the concentrations of tire and roadway contaminants in Bay water during the wet season. Results will indicate whether these stormwater-derived contaminants reach concentrations of concern within receiving waters, filling a data gap relevant to the RMP's tiered risk-based framework for emerging contaminants. Results will be shared with the California Department of Toxic Substances Control's Safer Consumer Products Program, which seeks data to support its evaluation of tire chemical ingredients.	Update sampling plan, field sampling, lab analysis, QA/QC, data management, data upload, presentation at ECWG 2025, draft and final report

Emerging Contaminants	OPEs, Bisphenols, and Other Plastic Additives in Wastewater	$95,400	Plastic additives are an extensive group of chemicals used in the production of plastics for a variety of consumer, commercial, and industrial applications. Many of the chemical classes that comprise plastic additives, especially organophosphate esters (OPEs) and bisphenols, are ubiquitous in the environment. In addition, many of these compounds are known to be toxic and exhibit a variety of effects on humans and animals. The RMP has previously found OPEs and bisphenols in wastewater, stormwater, and ambient Bay water. The RMP currently classifies both as a Moderate Concern within the RMP tiered risk-based framework for emerging contaminants. To build on these previous efforts, we propose a study to assess the concentrations of OPEs, bisphenols, and other plastic additives in Bay Area wastewater effluent. Analysis of OPEs is a particularly high priority to allow for an assessment of the relative importance of stormwater versus wastewater pathways to the Bay. Leveraging a study of OPEs to include other plastic additives is a cost-effective way to gain more information on a broader list of widely used and potentially toxic compounds.	Develop sampling plan, field sampling, lab analysis, QA/QC, data management, draft report, final report, presentation at ECWG 2026
Emerging Contaminants	PFAS Synthesis & Strategy	$107,000	This proposed synthesis and strategy revision would provide an updated synthesis of PFAS monitoring data in the Bay, identification of priority information gaps needed to inform monitoring and management, development of a conceptual model framework identifying source categories associated with pathways for PFAS to reach the Bay, and an updated strategy for RMP monitoring of PFAS.	A report (draft due March 2025, final due July 2025) that includes synthesis summary tables, interpretation of results in context of literature review and conceptual model, and recommended monitoring strategy. Project updates will also

				be presented at the 2024 and 2025 April ECWG meetings.
Emerging Contaminants	PFAS in Bay Water using the TOP Assay	$67,200	Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are fluorine-rich, chemically stable compounds widely used in consumer, commercial, and industrial applications, and are ubiquitous in the environment. Two of the most studied PFAS, perfluorooctanoic sulfonate (PFOS) and perfluorooctanoic acid (PFOA), are considered highly toxic, and other members of the class are predicted to have similar toxicity. The RMP has found PFAS in biota, water, and sediment as well as stormwater and wastewater. The RMP classifies PFAS as a Moderate Concern in the tiered risk-based framework due to concentrations in Bay biota linked to potential risks. A recently completed RMP analysis of PFAS in Bay water supported the continued prioritization of Bay monitoring for this class. However, most of the studies to date have focused on targeted methods analyzing up to 40 individual PFAS. The use of the total oxidizable precursors (TOP) assay provides a means to indirectly quantify a broad suite of PFAS precursors that break down to detectable compounds. This method has been used in recent Bay Area wastewater studies to demonstrate the presence of significant concentrations of unknown PFAS in this pathway. We propose a study to assess the levels of PFAS precursors in Bay water to supplement existing Status and Trends (S&T) monitoring of target PFAS and better characterize the presence of this class.	Develop sampling plan, field sampling (2023 dry season), lab analysis (2023 dry season), QA/QC, data management, preliminary findings presented to ECWG 2024, field sampling (2024 wet season), lab analysis (2024 wet season), QA/QC, data management, draft report, final report.

Emerging Contaminants	Non-targeted Analysis of San Francisco Bay Fish Year 1	$23,000 (Year 1 only)	Contaminants in sport fish may have both human health and ecological implications. The RMP has been monitoring selected contaminants in sport fish for many years but has never done any non-targeted analysis of this matrix. This two-year study would leverage 2024 Status and Trends sport fish monitoring to collect sport fish samples for non-targeted analysis. This type of analysis will provide a means to identify unanticipated contaminants that may merit follow-up targeted monitoring and compare San Francisco Bay fish contaminant profiles with those of fish from other locations such as the Great Lakes. Anticipated study outcomes would include priorities and recommendations for future investigations of newly identified CECs of potential concern observed in sport fish.	Develop sampling plan, sample collection, lab analysis, data analysis, presentations to ECWG & TRC, draft and final manuscripts/ RMP technical report.
Microplastics	Microplastics in Stormwater Pilot	$78,100	To provide a better characterization of microplastics in stormwater and inform estimates on the magnitude of loads, and to support the State effort to develop standardized stormwater sampling methods, the proposed field study will start addressing these concerns by taking simultaneous point (single-depth) and depth integrated samples at two field sites during one storm each and comparing the microplastics content of these samples using advanced laboratory techniques that characterize tire wear and other fine particles.	Develop conceptual model and refine study design, site selection and field reconnaissance, sample collection, lab analysis, draft and final technical report.
Nutrients	Moored sensor high-frequenc y observation network	$250,000	Bay-wide cruises have been critical to our understanding of the system. The Bay is spatially and temporally heterogeneous, however, and monthly measurements miss changes in water quality that are driven by short time scale processes, including tidal forcing, wind, and biological cycles. The eight sensors in the moored, high-frequency observation network in South Bay collect water quality data every 15 minutes and contribute to our	Sensor maintenance; data management

			understanding of Bay processes that affect nutrient and chlorophyll dynamics.	
Sediment	Spatial variability of sediment accretion in San Francisco Bay restorations	$203,528	One of the key sediment management questions for San Francisco Bay is whether available sediment is sufficient to attain suitable elevations for marsh vegetation establishment and to keep pace with sea-level rise. Although large-scale restoration has been taking place in San Francisco Bay for decades, measurements of decadal-scale rates of accretion within areas where tidal exchange has been restored are limited. We propose to investigate accretion rates for a range of marsh restoration sites and estimate the volume of sediment in those sites. Our overall objectives are to 1) investigate the amount of accretion that has occurred within marsh restorations, 2) investigate the sediment characteristics in restorations, 3) estimate the mass and volume of sediment retained in these restorations; and 4) produce data sets for testing numerical models of sediment transport between the Bay and marsh restorations at 5 restoration marsh sites. Final site selection will be done in coordination with the RMP Sediment Workgroup and the WRMP and will depend on factors such as site accessibility and suitability for the study. Results will be useful for prioritizing marsh restoration sites, understanding bay-wide sediment budgets, and understanding sediment accretion in restorations region-wide, and their resilience to sea-level rise.	Data releases (September 2025); Draft report (March 2026); Presentation to the RMP (Spring or Fall 2026); Presentation to Bay Delta Science or State of the Estuary Conference (2026)

Sediment	Continuous Suspended Sediment Concentration and Wave Monitoring in South and Lower South San Francisco Bay - Year 3	$79,000	This proposed project would support continued data collection and calibration refinement for an additional seven months in 2024, which is needed to develop robust turbidity-SSC relationships. Once completed, these site-specific calibrations will expand continuous SSC monitoring to shallow areas of the SB and LSB, which play an important yet understudied role in Bay sediment dynamics. The collection of high frequency wave data will further inform sediment dynamics on the shoal, which are strongly influenced by wind waves. This project will support the maintenance of instruments and collection of SSC samples from the recently established SB shoal turbidity station directly offshore from Eden Landing, and collection of SSC samples at seven pre-existing turbidity stations, several of which have been collecting turbidity data since 2015.	15 minute SSC time series data release (summer 2024), Report detailing data collection and turbidity to SSC calculations (fall 2024), Presentation to the RMP Sed WG (spring 2025), Publicly available wave height and period data from one station South Bay (summer 2024).
Sources Pathways and Loadings	Integrated Monitoring and Modeling to Support PCBs and Mercury Watershed Loads Uncertainties Assessment and Monitoring Design	$217,000	Continue integrated monitoring and modeling efforts on PCBs and Hg by conducting stormwater monitoring to support loads estimation, estimating model uncertainty, evaluating model sensitivities to parameters and data gaps, and providing PCBs and Hg monitoring design recommendations. There are two phases proposed. Addresses all five Management Questions (MQs).	WY 2024 samples collected, lab analysis, QA, & data management, draft Phase 1 report, final Phase 1 report, draft phase 2 report, final phase 2 report.
Sources Pathways and Loadings	Tidal Area Remote Sampler Pilot - Year 2	$62,000	Deploy the SFEI Mayfly - a remote sampler that addresses the challenges of sampling in tidal areas - at eight sites to capture water samples for PCB and Hg analysis. Will solidify our experience in field deployment of these samplers and an SOP will be developed to transfer to the municipalities. Primarily addresses MQ1.	Pilot test during rainy season, presentation to the SPLWG, data upload to CEDEN, draft report, final report.

PCB	Monitoring of Sediment Deposition in San Leandro Bay Intertidal Areas	$95,846	Horizon markers, temporary surface elevation tables, and sediment traps to characterize sedimentation processes near loading tributaries and in more ambient areas. Initial data from this effort is needed to support validation of a sediment transport and fate model for SLB planned for completion in Q2 of 2024	Technical report

RMP SUPPLEMENTAL ENVIRONMENTAL PROJECT CANDIDATE LIST Updated 08-14-23

Project	Estimated Budget Range	Nexus Keywords	Geography	Matrix	Oversight Group	Project Lead	Year Proposed
Projects that have been reviewed by a RMP workgroup, and/or the Technical Review Committee, (as indicated in the Oversight Group column) and approved by the Steering Committee.							
Identification and Pilot Monitoring of High-Priority Current Use Agricultural Pesticides in Region 2	$75,000 - $125,000	Emerging Contaminants, Pesticides	North Bay	Stormwater	ECWG	SFEI	2014
Monitoring for Halogenated Azo Dyes in Bay Sediments	$65,000 - $130,000	Emerging Contaminants, Azo dyes,	Whole Bay	Sediment	ECWG	SFEI	2020
Monitoring Microplastics in San Francisco Bay Sport Fish	$50,000- $200,000	Microplastic, Sport Fish	Whole Bay	Sport fish	MPWG	SFEI/U. Toronto	2019
Tire Particle/Contaminant Fate and Transport	$90,000 - $115,000	Microplastics	Whole Bay	Particles	MPWG	SFEI	2021
Size Distribution of Microplastic Particles in SF Bay	$65,000 - $105,000	Microplastics	Whole Bay	Particles	MPWG	SFEI	2023
Biogeochemical transformation rates in San Francisco Bay	$50,000 - $300,000	Nutrients	Whole Bay	Water	Nutrients	SFEI	2021
Richmond Harbor PCB Conceptual Model Development	$50,000- $100,000	PCBs, Central Bay	Richmond Harbor	Sediment, Fish, Water	PCBWG	SFEI	2018

Project	Estimated Budget Range	Nexus Keywords	Geography	Matrix	Oversight Group	Project Lead	Year Proposed
Filling Bathymetry Data Gaps	$50,000-$250,000	Bathymetry	Whole Bay	Sediment	SedWG	USGS	2019
Toxicity Reference Value Refinement	$30,000	Toxicity, Dredged sediment, Beneficial reuse	Whole Bay	Sediment	SedWG	SFEI	2019
Estimation of future sediment loadings from local tributaries	$70,000	Sediment, future conditions	Whole Bay	Water	SedWG	SFEI	2021
Napa and Sonoma Sediment Loads	$138,500	Watershed sediment supply	North Bay	Sediment	SedWG	SFEI	2022
Sediment Conceptual Model(s) for Individual San Francisco Bay Segments and Subembayments	modular	Sediment	Whole Bay	Sediment	SedWG	SFEI	2023
Identifying mechanisms controlling selenium bioavailability at the base of the food web in North versus South San Francisco Bay	$112,000	Selenium, Bioavailability, South Bay	North and South Bay	Water	SeWG	USGS	2020
Use of Remote Stormwater Sampling Devices to Improve Temporal Coverage of Sampling	Year 1: $160,000 Year 2: $120,000	PCBs, methods development, remote samplers	Whole Bay	Stormwater	SPLWG	SFEI	2017; revised 2022

Project	Estimated Budget Range	Nexus Keywords	Geography	Matrix	Oversight Group	Project Lead	Year Proposed
Develop a Statistical Model for Trends Evaluation	$35,000-$50,000	Stormwater flows, pollutant loads, PCBs	Whole Bay	Stormwater	SPLWG	SFEI	2018
Mallard Island Monitoring for Loads and Trends	$150,000 - $200,000	Sediment load, Delta, PCBs, Hg, Se, Pesticides microplastics, CECs, Bay mass balance	North Bay	Sediment	SedWG SPLWG ECWG	SFEI	2020
Nutrient exchanges between SFB and the coastal ocean (export, import)	$50,000-$300,000	Nutrients	Central, South Bays	Surface Water	Nutrients	SFEI	2023
Expanded water quality monitoring to support nutrient management decisions	$50,000-$300,000	Nutrients	Whole Bay	Surface Water	Nutrients	SFEI	2023
Biogeochemical transformation rates in San Francisco Bay: field studies and/or synthesis/interpretation	$50,000-$300,000	Nutrients	Whole Bay	Surface Water	Nutrients	SFEI	2023

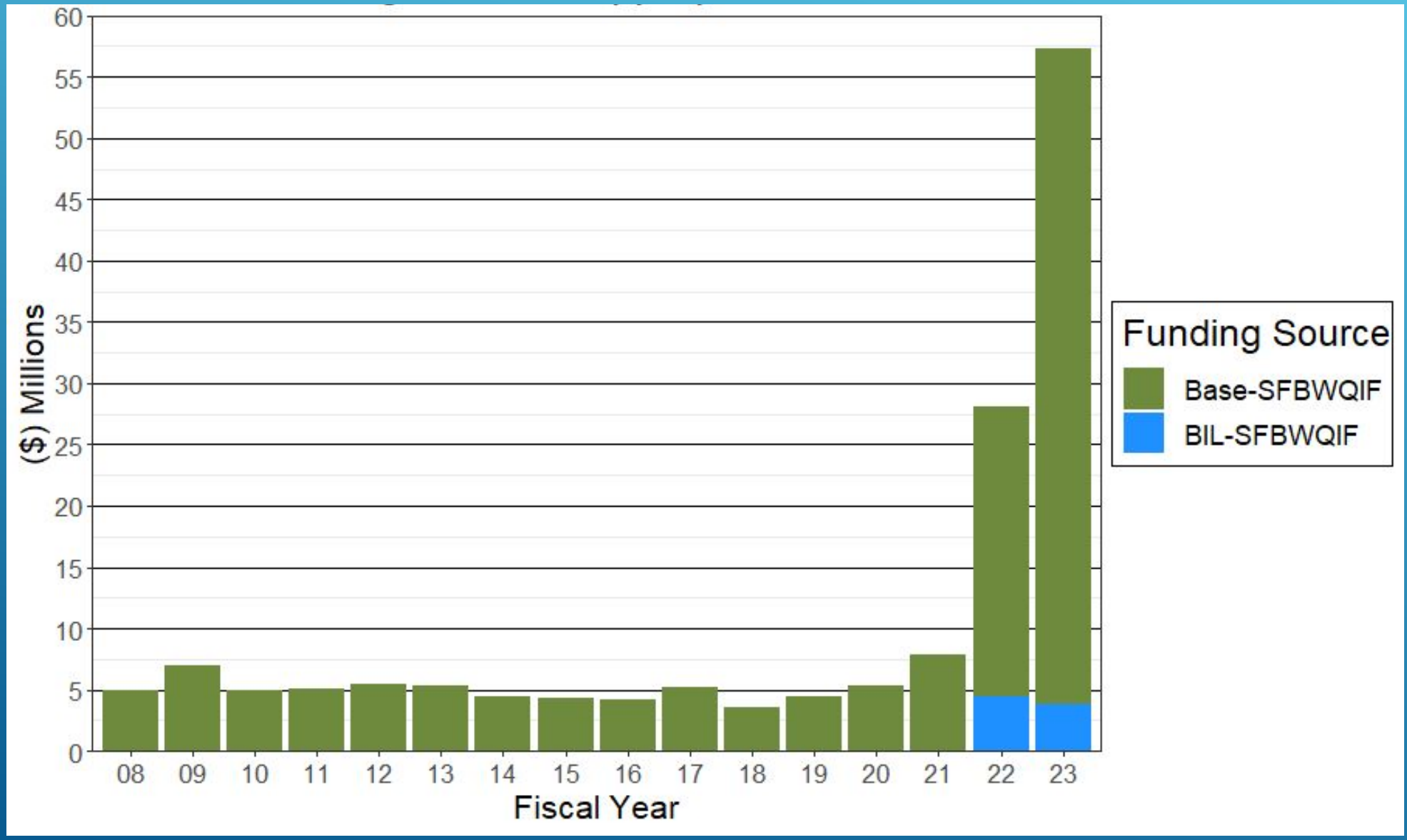
SAN FRANCISCO BAY PROGRAM OFFICE
Fiscal Year 2024 Draft Annual Priority List
US EPA Region 9

- TRC Meeting
- December 7, 2023
- Luisa Valiela, valiela.luisa@epa.gov

Timeline Leading to Priority List

- National Defense Authorization Act (NDAA) passed Dec. 2022
- NDAA is legislation that included authorization for a new San Francisco Bay Program Office at EPA R9
  - Legislative language also included direction to EPA to create an Annual Priority List which identifies needed projects and studies
  - In creating the list, EPA should consider recommendations from:
    - SFEP, SF Water Board, SFBRA, other stakeholders

Congressional Appropriations to Date



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

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

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)

What We are Asking of You

- Feedback on the draft Annual Priority List
- Any suggestions for other venues/stakeholders to present list to this year or in future years
- Recommendations for regular updates on funding allocations to priorities

Next Steps

- Present at other stakeholder meetings
- Finalize list in Winter/Spring 2024
- Summer 2024 begin putting in place grants to recipients that address priorities

DRAFT
EPA REGION 9 SAN FRANCISCO BAY PROGRAM OFFICE
FY24 ANNUAL PRIORITY LIST

- In December of 2022, the Fiscal Year 2023 National Defense Authorization Act (NDAA) was signed into law and authorized the establishment of San Francisco Bay Program Office, specifically with this language:

(1) Establishment

The Administrator shall establish in the Environmental Protection Agency a San Francisco Bay Program Office. The Office shall be located at the headquarters of Region 9 of the Environmental Protection Agency.

- The authorizing language in the NDAA set out certain expectations for the Program Office including an annual priority list to direct funding towards:

The annual priority list shall include the following:

(A) Projects, activities, and studies, including restoration projects and habitat improvement for fish, waterfowl, and wildlife, that advance the goals and objectives of the San Francisco Bay Plan, for-

(i) water quality improvement, including the reduction of marine litter;
(ii) wetland, riverine, and estuary restoration and protection;
(iii) nearshore and endangered species recovery; and
(iv) adaptation to climate change.

And consult with and consider the recommendations of-

(A) the Estuary Partnership;
(B) the State of California and affected local governments in the San Francisco Bay estuary watershed;
(C) the San Francisco Bay Restoration Authority; and
(D) other relevant stakeholder involved with the protection and restoration of the San Francisco Bay estuary.

- EPA has developed this list to reflect mutual priorities identified in the CCMP, the Water Board's Basin Plan, the Restoration Authority's stated objectives, and Implementation Plan of the San Francisco Bay Joint Venture.

Priority Projects, Activities and Studies Needed to Restore San Francisco Bay and Build Its Climate Resilience

Project/Activity/Study	**Link to CCMP**
Wetlands Regional Monitoring Program	Action 8: Implementing a Wetlands Regional Monitoring Program Action 10: Protect, restore, and enhance tidal marsh habitat
Beneficial Reuse of Dredged Material Support	Action 6: Manage sediment and soil on a regional scale and advance beneficial use.
Nutrient Management Strategy	Action 20: Advance nutrient management in the Estuary.
Subtidal eelgrass and oyster reef restoration	Action 4: Implement climate adaptation projects that prioritize natural and nature-based strategies. Action 9: Protect, restore, and enhance intertidal and subtidal habitats.
BRRIT	Action 3: Overcome challenges to accelerate implementation of climate adaptation projects that prioritize natural and nature-based strategies.

	Action 9: Protect, restore, and enhance intertidal and subtidal habitats.
Large scale tidal wetlands restoration	Action 4: Implement climate adaptation projects that prioritize natural and nature-based strategies. Action 7: Decrease carbon emissions and subsidence in the Delta and increase carbon sequestration on natural and agricultural lands. Action 12: Maximize habitat benefits of managed ponds and other non-tidal wetlands and waters.
In-Bay Monitoring of Pollutants, including trash, and Algal Species under the Regional Monitoring Program	Action 20: Advance nutrient management in the Estuary. Action 21: Address emerging contaminants in the Estuary's waters.
Large scale shoreline resilience, multi-benefit projects	Action 1: Plan for increased climate resilience that incorporates natural resource protection. Action 4: Implement climate adaptation projects that prioritize natural and nature-based strategies.
Large scale implementation of urban green stormwater infrastructure	Action 19: Manage stormwater with low impact development and green stormwater infrastructure. Action 23: Reduce trash and marine debris in the Estuary
Special studies/projects for addressing PFAS in SF Bay	Action 21: Address emerging contaminants in the Estuary’s waters. Action 22: Reduce human health risks due to legacy contaminants and contaminants in fish.
Special studies/projects for addressing PCBs under TMDL implementation plan	Action 22: Reduce human health risks due to legacy contaminants and contaminants in fish.

Deliverables - recently completed!

- 2021 Cu & CN rolling averages
- RMP Participation Letters/Reports to BACWA and WSPA
- 2023 Honoraria payments and gifts to science advisors
- Q4 updates to to RMP webpage
- Updates to the sample archive database

Deliverables - overdue

- MTC Bay Area Land Use Update (SEP)
- STLS Regional Model Development
- Stormwater monitoring strategy for CECs
- Regional Watershed Spreadsheet Model (SEP)

Deliverables – delayed

- DMMO database enhancements
- STLS WY21 POC Recon. Monitoring - ADA Update
- Lab analysis of ethoxylated surfactants
- QA Summary Report for 2022 S&T

Deliverables – due before next meeting (4/15)

- Final Margins Report
- PFAS in Archived Sport Fish
- 2019-2020 Selenium Data Report
- NTA Sediment Report
- QA Summary Report for 2021 S&T Activities
- Stormwater manuscript
- San Leandro Bay PCB Recovery Report
- SFEI QAPP 2023 Update
- CEC Modeling Exploration Report

Bay RMP Deliverables Stoplight Report_new

	Focus Area	Project	Task	Deliverable	Assigned To	Due Date	Old Due Date	Days overdue	Due Date Extended (external delay)	Due Date Extended (internal delay)	# of extensions	Status	Comments
1	142758	RMP SEP	20. MTC Bay Area Land Use Update	Collect and transform data relevant to RMP Stakeholders	Tony Hale	04/30/23	03/31/21	1016			3		10/13/23 - SFEI met with MTC. MTC will be releasing the dataset with our (SFEI) enhancements/fixes per Kearey dataset would be published to data.ca.gov soon "a few weeks" 9/29/23 - Tony has added Tom M. and Amy K. to email communications with MTC. Still no specific release date.
2		Bay RMP (2023)	Special Study: STLS Regional Model Development	Model data collation and preparation	Jay Davis	08/30/23							10/25/23 - Tan's departure delayed deliverables associated with this project. Revised timeline in development.
3		Bay RMP (2022)	Special Study: Stormwater monitoring strategy for CEC's	Final strategy document	Kelly Moran	09/01/23							9/6/23 - Tan's departure delayed deliverables that went into the development of this strategy document. Requires insights from ongoing modeling and data science special studies. Pending additional remote sampler design to improve functionality for other CECs. Remote sampler had some technical challenges and we are looking to our advisors for consultation on priorities and next steps. Revised timeline depends on hiring process.
4		Bay RMP (2020)	6. Status and Trends Monitoring	Final Margins report	Don Yee	10/15/23	12/31/21	741			6		1/11/24 - Data services will prioritize the reanalysis. 9/6/23 - Re-analyses on some ancillary vs target analytes to be done. Limited staff capacity to do the statistical reanalysis requested. 8/16/23 - Sent to Richard L. and Luisa V. for feedback.
5		Bay RMP (2023)	Special Study: STLS Regional Model Development	Control measures impact estimation	Jay Davis	10/30/23							10/25/23 - Tan's departure delayed deliverables associated with this project. Revised timeline in development.
6		Bay RMP	**2020 S&T Design Report**	Final Report	Melissa Foley	11/01/23	06/20/23	205			?		10/11/23 - Internal SFEI review comments due by 10/18. 7/18/23 - Waiting on comments from Tom Grieb. Moving forward incorporating comments from others. Revised timeline to completion is 9/30/23.
7		Bay RMP (2023)	Special Study: STLS Regional Model Development	Final modeling report and data sharing portal	Jay Davis	12/30/23							10/25/23 - Tan's departure delayed deliverables associated with this project. Revised timeline in development.
8		RMP SEP	24. Regional Watershed Spreadsheet Model	Updated model and Final Technical Report	Alicia Gilbreath	12/31/23							Jan. 2023 - Waiting for land use update SEP issue date 6/5/2021.
9		Bay RMP (2023)	Special Study: Ground work CEC Stormwater/ Stormwater monitoring for CECs strategy	Final Brief Report as a presentation to SST and an appendix to Stormwater CEC approach	Kelly Moran	12/31/23							1/9/24 -Delayed until completion of the Stormwater CECs approach final strategy document (SS 2022).
10		Bay RMP (2024)	1. Program Management	Update Deltek Program Plans for Open RMP Years	Beth Ebiner	01/24/24							
11		Bay RMP (2023)	22. Nutrients moored sensors	Sensors deployed, downloaded, maintained, and calibrated	Dave Senn	01/30/24							
12		Bay RMP (2023)	3. QA and Data Services	QAPP Update	Don Yee	01/31/24	04/30/23	256			5		1/9/24 - working to finalize updates from AXYS (GC-MSMS method for PCBs pesticides etc.) 11/30/23 - Sent to labs for review. 10/24/23 - Working with Becky and Adam on details of additions for new analytes. Revised timeline to completion 10/31. 9/6/23 - Draft in progress, waiting on updates on target MDLs. 8/16/23 - Late request to add PFAS TOP, estimated to be completed by 9/15/23.
13		Bay RMP (2023)	D. 2023 Dry season Bay Water Cruise Data Mgmt	Process and upload dry season Bay water cruise data	Adam Wong	01/31/24							
14		Bay RMP (2024)	G. 2024 Bird Egg Sampling	Complete contracts	Amy Kleckner	01/31/24							
15		Bay RMP (2024)	38. NTA of SF Bay Fish, Yr 1	Complete Sampling and Analysis Plan	Rebecca Sutton	01/31/24							
16		RMP SEP	15. North Bay Selenium Clam and Water Data Management and Reporting	Report	Jay Davis	02/28/24	12/01/21	771			6		1/8/2024 - Draft under review 10/24/23 - Internal SFEI review underway. Estimate completion by end of year. 8/16/23 - Jay is reviewing draft report from Melissa. Estimated completion by end of September.
17		Bay RMP (2020)	41. Selenium in North Bay clams and water	Technical Report	Melissa Foley	02/28/24	06/30/21	925			8		1/8/24 - Draft under review 10/11/23 - Internal SFEI review comments due 10/18. 9/6/23 - Draft still in review. 7/18/23 - Jay has a draft. A 2019-2022 report will need additional funding (2024?) to complete. Want to include USGS data but still waiting on USGS to post the data, w/ no timeline for that.
18		Bay RMP (2021)	3. QA and Data Services	QA Summary Report for 2021 S&T Activities	Don Yee	02/28/24	09/30/22	468			7		1/9/24 - Waiting on ancillary data to be QA'd by DS. 10/24/23 - Many 2021 datasets are still pending various steps in the QA process. AXYS Bps & OPEs just added to review list, chl-a CN still in completeness check, POC in formatting. 9/6/23 - Data has been delivered from AXYS, waiting on DS to confirm which data sets have been received.
19		Bay RMP (2021)	Selenium in Clams	Task 4. Draft Report	Amy Kleckner	02/28/24	12/31/22	376			1		10/24/23 - Waiting for DS to complete QA. delayed to allow for 2022 collections before working on the report
20		Bay RMP (2022)	Special Study: STLS WY21 POC Recon Monitoring	Final report	Alicia Gilbreath	02/28/24	06/30/23	195			2		1/9/24 - Lester to follow up with Lisa Sabin to discuss next steps. 12/5/23 - WB and BAMSC are interested in providing input but need more time to coordinate. 7/18/23 - In Dec 2021 it was decided to forgo the report and instead update data for the ADA.
21		Bay RMP (2022)	Special Study: CEC modeling exploration	Report	Pedro Avellaneda	02/28/24	12/31/22	376					1/9/24 - Sent out for external review, comments requested by 1/31/24. 10/11/23 - Internal document under review. Draft report should be completed by the end of the year. 9/6/23 - Draft is still under internal review. 7/18/23 - Becky partway through review. Kelly and Lester need to review and Pedro needs to edit. Important for Stormwater CEC strategy.
22		Bay RMP (2023)	5. Communications	RMP Update to LTMS	Amy Kleckner	02/28/24					2		1/8/24 - Meeting pushed back due to low expected attendance. 11/30/23 - Meeting tentatively scheduled for 1/4/24. 10/24/23 - Email request to meet sent on 9/26. No response.
23		Bay RMP (2023)	H. Nearfield and margins sediment & prey fish data mgmt.	Process and upload sampling data	Adam Wong	02/28/24							

	Focus Area	Project	Task	Deliverable	Assigned To	Due Date	Old Due Date	Days overdue	Due Date Extended (external delay)	Due Date Extended (internal delay)	# of extensions	Status	Comments
24		Bay RMP (2023)	M. Ambient Bay sediment data mgmt.	Process and upload sampling data	Adam Wong	02/28/24							
25		Bay RMP (2024)	G. 2024 Bird Egg Sampling	Sampling and Analysis Plan	Amy Kleckner	02/28/24							
26		Bay RMP (2024)	2. Governance	March TRC Meeting	Amy Kleckner	03/11/24							
27			I. S&T Laboratory Intercomparison Studies	Presentation to the TRC on findings from IC studies.	Don Yee	03/26/24							
28		Bay RMP (2023)	Special Study: Suspended Sediment in LSB-Year 2	Publically available 15-minute SSC time series from eight stations in South Bay and Lower South Bay	Melissa Foley	03/30/24							
29		RMP SEP	29. PFAS in Archived Sport Fish Communications Supplement	Manuscript	Miguel Mendez	03/31/24	12/31/23				1		1/8/24 - Draft under review 10/24/23 - Draft manuscript expected by early Nov. Submission for publication by the end of the year. 9/7/23 - Draft manuscript estimated to be out for review in mid October. Poster presentation at SETAC 4/30-5/4
30		RMP SEP	30. Analysis and Reporting of NTA Sediment Data	Manuscript	Ezra Miller	03/31/24	12/31/23				1		1/8/24 - In prep and distributing to analytical partners for review. Continuation of 3018-036.
31		RMP SEP	30. Analysis and Reporting of NTA Sediment Data	Fact Sheet	Ezra Miller	03/31/24	12/31/23				1		1/8/24 - In prep and distributing to analytical partners for review.
32		Bay RMP (2021)	Special Study: CEC in Urban Stormwater Year 3	Task 5. Final manuscript	Rebecca Sutton	03/31/24	07/01/23	194			3		1/9/24 - Internal review complete, waiting on revisions from one reviewer/partner, and will distribute for external review by end of Jan. 10/24/23 - Draft manuscript to the RMP for review estimated by 11/30, then final draft for journal submission by 12/31. 4/18/2023 - Preliminary data interpretation led one analytical partner to reanalyze samples. All data have been received, most has completed QA review, and manuscript preparations are underway.
33		Bay RMP (2021)	21. Impact of Remediation Actions on San Leandro Bay Recovery from PCB Contamination	Task 5: Final technical report	Diana Lin	03/31/24	12/31/22	376			3		1/11/24 - Internal review is complete, Stanford is leading the revisions. PCBWG to review in Feb and aiming for final report in Mar. 2024. 10/24/23 - Undergoing internal review, next to be reviewed the PCBWG. 8/16/23 - Partners at Stanford still working on the draft. Estimate completion by end of 2023.
34		Bay RMP (2022)	3. QA and Data Services	QA Summary Report for 2022 S&T Activities	Don Yee	03/31/24	09/30/23	103			1		10/24/23 - Waiting on bird egg data and PFAS archive data.
35		Bay RMP (2022)	Special Study: CEC in Urban Stormwater Year 4	Management summary	Rebecca Sutton	03/31/24	09/30/23	103			1		1/9/24 - Expect after manuscript is submitted, manuscript draft expected to be distributed for external review by end of Jan. 9/6/23 - Draft manuscript is expected in October. Final manuscript expected to be submitted for publication by the end of the year.
36		Bay RMP (2022)	Special Study: Tire-related contaminants in Bay water (wet season)	Final stormwater manuscript	Rebecca Sutton	03/31/24	09/30/23	103			2		1/9/24 - Internal review complete, waiting on revisions from one reviewer/lead author, and will distribute for external review by end of Jan. 10/24/23 - Draft manuscript to the RMP for review by 11/30, then a final draft for journal submission by 12/31. 9/6/23 - Draft manuscript is expected in October. Final manuscript expected to be submitted for publication by the end of the year.
37		Bay RMP (2023)	PFAS in Archived Sport Fish	Task 6. Final report	Miguel Mendez	03/31/24	12/30/23	12			1		1/8/24 - Draft under review 10/24/23 - Draft manuscript expected by early Nov. Submission for publication by the end of the year. Deliverable will be satisfied thru manuscript for SEP 29.
38		Bay RMP (2024)	5. Communications	Q1 RMP eUpdate	Amy Kleckner	03/31/24							
39		Bay RMP (2024)	5. Communications	Updates to RMP and NMS websites - Q1	Martin Trinh	03/31/24							
40		Bay RMP (2024)	J. 2024 Sample Archive	Short-term RMP sample archive purging	Martin Trinh	03/31/24							
41		Bay RMP (2024)	N. NB Se Monitoring	All 2022/23 Se samples analyzed	Amy Kleckner	03/31/24							
42		RMP SEP	25. Sediment Deposition on South Bay Marsh (Whales Tail)	Final Report	Melissa Foley	04/01/24							10/23/23 - Work is being done by Lacy and Thorne (USGS) Draft report estimated to be completed by Feb 2023.
43		Bay RMP (2023)	Special Study: Sediment Delivery to Marshes in C&N Bays: project expansion	Data release: Bay shallows and marsh-top SSC data (PCMSC)	Melissa Foley	04/15/24					1		Jessie Lacy and Karen Thorne (USGS) conducting this work
44		Bay RMP (2023)	Special Study: Sediment Delivery to Marshes in C&N Bays: project expansion	Data release: deposition, accretion, and vegetation characteristics (WERC)	Melissa Foley	04/15/24					1		Jessie Lacy and Karen Thorne (USGS) conducting this work
45		Bay RMP (2024)	1. Program Management	2024 Q1 RMP Financial Report	Beth Ebiner	04/15/24							
46		Bay RMP (2024)	1. Program Management	Update Deltek Program Plans for Open RMP Years	Beth Ebiner	04/25/24							
47		Bay RMP (2024)	1. Program Management	SC Meeting Stoplight Report	Amy Kleckner	04/25/24							
48		Bay RMP (2024)	2. Governance	April SC Meeting	Amy Kleckner	04/28/24							
49		Bay RMP (2021)	Selenium in Clams	Task 5. Final Report	Amy Kleckner	04/30/24	02/28/23	317			1		delayed to allow for 2022 collections before working on the report
50		Bay RMP (2023)	J. Sample Archive	(1) Update documentation and template (2) General upkeep and maintenance for tools and data (3) Set up User Accounts and Help Desk (4) Manage internal and external data requests	michaelw@sfei.org	04/30/24							1/9/24 - Archive samples for 2023 S&T delivered in December. Archive database updates pending Michael on leave until April.

	Focus Area	Project	Task	Deliverable	Assigned To	Due Date	Old Due Date	Days overdue	Due Date Extended (external delay)	Due Date Extended (internal delay)	# of extensions	Status	Comments
51		Bay RMP (2023)	Ethoxylated surfactants in ambient water, margin sediment, wastewater, Part 2 (year 2of 2)	Task 3. Complete laboratory analysis of samples	Diana Lin	04/30/24	01/30/24	-19					1/11/24 - Per 2023 discussions with Lee F. (Duke) the new deadline for lab analysis has been defined as April 2024. 5/29/23 - Duke University will be conducting analysis.
52		Bay RMP (2023)	Ethoxylated surfactants in ambient water, margin sediment, wastewater, Part 2 (year 2of 2)	Task 4. QA/QC and data management	Diana Lin	04/30/24							
53		Bay RMP (2023)	Nontargeted Data Mining	Task 3. Presentation to ECWG on additional targets	Rebecca Sutton	04/30/24							
54		Bay RMP (2023)	Special Study: Suspended Sediment in LSB-Year 2	Report detailing data collection, turbidity-to-SSC calibrations, and limited, descriptive interpretation	Melissa Foley	04/30/24							
55		Bay RMP (2024)	3. QA and Data Services	2024 QAPP Update	Don Yee	04/30/24							
56		Bay RMP (2024)	R. WDM Model Maintenance	Proposed maintenance tasks list and budget sent to COW and SC for approval	Pedro Avellaneda	04/30/24							Include Lester for these deliverables. Products are minimal 1-2 pages.
57		Bay RMP (2024)	51. PFAS in Bay Water using the TOP Assay	Presentation of preliminary findings at ECWG	Rebecca Sutton	04/30/24							
58		Bay RMP (2024)	51. PFAS in Bay Water using the TOP Assay	Collect wet season samples	Rebecca Sutton	04/30/24							
59		Bay RMP (2024)	30. Integrated Monitoring & Modeling for PCBs and Hg Phase 1	WY2024 samples collected	Alicia Gilbreath	04/30/24							
60		Bay RMP (2024)	31. Tidal Area Remote Sampler Pilot - Yr 2	Pilot testing during rainy season	Don Yee	04/30/24							
61		Bay RMP (2022)	Special Study: PCB In-Bay contaminant modeling (SLB)	Draft Report	Jay Davis	05/01/24	05/01/22	620					8/16/23 - Draft report to be completed by May 2024. Revised timeline approved by the PCBWG in June 2023. 5/29/23 - A revised deliverable timeline will be developed under the guidance of the PCBWG at the spring meeting on 6/6/23. Work in 2022 focused on developing a proposal and workplan for in-Bay modeling as part of the WQIF project. Actual modeling work has begun in Q1 of 2023.
62		Bay RMP (2022)	Special Study: PCB In-Bay contaminant modeling (SLB)	Final report	Jay Davis	05/01/24							8/16/23 - Draft report to be completed by May 2024. Revised timeline approved by the PCBWG in June 2023.
63		Bay RMP (2024)	E. WY24 Wet season water sampling	Collect samples	Jennifer Dougherty	05/01/24							
64		Bay RMP (2024)	L. 2024 Sport Fish Monitoring	Complete Sampling and Analysis Plan	Jay Davis	05/01/24							
65		Bay RMP (2024)	37. Tire and Roadway Contaminants in Wet Season Bay Water, Yr 3	WY24 samples collected	Rebecca Sutton	05/01/24							
66		Bay RMP (2023)	Special Study: Sediment Delivery to Marshes in C&N Bays: project expansion	Final Presentation to RMP Sediment Workgroup	Melissa Foley	05/30/24					1		Jessie Lacy and Karen Thorne (USGS) conducting this work
67		Bay RMP (2024)	30. Integrated Monitoring & Modeling for PCBs and Hg Phase 1	Presentation to SPLWG	Alicia Gilbreath	05/30/24							
68		Bay RMP (2024)	31. Tidal Area Remote Sampler Pilot - Yr 2	Update presentation at SPLWG on the results to date	Don Yee	05/30/24							
69	Emerging Contaminants	RMP SEP	19. Quaternary Ammonium Compounds (QACs) in Bay Area Wastewater	Present data at ECWG	Diana Lin	05/31/24	05/31/22				1		Additional funding from NSF increased the scope of the project. The ECWG agreed to the suggested revised due dates for the deliverables so they can include the additional data.
70		Bay RMP (2021)	F. 2021 Bird Egg Data Mgmt	Processing and upload bird egg data	Adam Wong	05/31/24	10/31/22	437			3		1/9/24 - All samples have been delivered to the labs. AXYS: PFAS data has been reported, PCBs and PBDEs expected end of Jan., pesticides? Hg and Se results from MLML are with SFEI DS. 11/30/23 - Samples shipped to USGS, FedEx delays caused samples to arrive at USGS completely thawed. USGS will ship to the analytical partners in Dec. Dry ice shortage causing delay. 10/23/23 - USGS received draft permit from APHIS. Checking in with AXYS to make sure it has everything needed to get samples shipped back to USGS. Subsamples will then be shipped to other labs.
71		Bay RMP (2024)	2. Governance	ECWG Meeting	Rebecca Sutton	05/31/24							
72		Bay RMP (2024)	2. Governance	Microplastics WG Meeting	Diana Lin	05/31/24							
73		Bay RMP (2024)	2. Governance	SPLWG Meeting	Alicia Gilbreath	05/31/24							
74		Bay RMP (2024)	2. Governance	Sediment WG Meeting	Scott Dusterhoff	05/31/24							
75		Bay RMP (2024)	R. WDM Model Maintenance	Present proposed update to the SPLWG	Pedro Avellaneda	05/31/24							
76		Bay RMP (2024)	50. Stormwater CECs Monitoring & Modeling 2024	Presentation to ECWG/SPLWG	Rebecca Sutton	05/31/24							
77		RMP SEP	23. Integrated Watershed Bay Modeling Strategy and Pilot Implementation	Report	Lester McKee	06/01/24	12/31/23	11					8/16/23 - Draft report to be completed by June 2024. Lester McKee will replace Tan Zi as lead author. Revised timeline discussed with Tom Mumley.

	Focus Area	Project	Task	Deliverable	Assigned To	Due Date	Old Due Date	Days overdue	Due Date Extended (external delay)	Due Date Extended (internal delay)	# of extensions	Status	Comments
78		Bay RMP (2021)	Special Study: Nutrients Light Attenuation and moored sensors	Task 2: Technical memo evaluating the potential utility of remote-sensed products for estimating surface turbidity and light attenuation.	Dave Senn	06/01/24	12/31/22	376			3		10/24/23 - Work is underway, timing has been delayed as the need to prioritize permit related work over the last few months. Still waiting on WQIF funding approval. New estimated timeline to completion is 6/2024. 5/29/23 - Funding from a new WQIF grant (est. start date 7/2023) will support generating RS turbidity/Kd data. those data will then be analyzed as part of this project. We propose shifting the technical memo due date to 12/2023 as it lines up well with the anticipated workflows of both projects.
79		Bay RMP (2024)	L. 2024 Sport Fish Monitoring	Complete contracts	Beth Ebiner	06/01/24							
80		Bay RMP (2024)	2. Governance	PCB WG Meeting	Jay Davis	06/03/24							
81		Bay RMP (2024)	2. Governance	June TRC Meeting	Amy Kleckner	06/23/24							
82		Bay RMP (2021)	26. Integrated watershed modeling and monitoring implementation strategy	Complete integrated watershed modeling and monitoring implementation strategy - Final report	Lester McKee	06/30/24	09/01/21	862			5		8/16/23 - Draft report to be completed by June 2024. Lester McKee will replace Tan Zi as lead author. Revised timeline discussed with Tom Mumley.
83		Bay RMP (2024)	5. Communications	Q2 RMP eUpdate	Amy Kleckner	06/30/24							
84		Bay RMP (2024)	5. Communications	Updates to RMP website - Q2	Martin Trinh	06/30/24							
85		Bay RMP (2024)	G. 2024 Bird Egg Sampling	Successful collection of samples.	Amy Kleckner	06/30/24							Josh Ackerman USGS PI
86		Bay RMP (2024)	I. 2024 S&T Lab Intercomp Studies	Complete Study Design	Don Yee	06/30/24							
87		Bay RMP (2024)	K. 2024 S&T Field Sampling Report & Support	Post wet field season garage clean up	Martin Trinh	06/30/24							
88		Bay RMP (2024)	K. 2024 S&T Field Sampling Report & Support	Annual Lab Clean Up	Martin Trinh	06/30/24							
89		Bay RMP (2024)	40. OPEs, BP, and Other Plastic Additives in Wastewater	Complete Sampling and Analysis Plan	Rebecca Sutton	06/30/24							
90		Bay RMP (2024)	1. Program Management	2024 Q2 RMP Financial Report	Beth Ebiner	07/24/24							
91		Bay RMP (2024)	1. Program Management	Update Deltek Program Plans for Open RMP Years	Beth Ebiner	07/25/24							
92		Bay RMP (2024)	1. Program Management	SC Meeting Stoplight Report	Amy Kleckner	07/25/24							
93		Bay RMP (2024)	2. Governance	July SC Meeting	Amy Kleckner	07/25/24							
94		Bay RMP (2023)	Nontargeted Data Mining	Task 4. Spreadsheet of compiled data mining results	Rebecca Sutton	07/30/24							
95		Bay RMP (2024)	**A. USGS Sacramento Support**	Contract - Continuous suspended sediment monitoring at 5 stations	Amy Kleckner	07/31/24							
96		Bay RMP (2024)	**B. USGS Menlo Park Support**	Contract - Monthly measurements of basic water quality at 38 stations	Amy Kleckner	07/31/24							
97		Bay RMP (2022)	Special Study: PCBs in sediment and fish SS/RC	Technical Report	Jay Davis	08/01/24							10/31/23 - We have received the sediment data from AXYS, but per Adam "there's programming work goin on to resubmit the fish data."
98		Bay RMP (2024)	C. 2024 Dry season water sampling	Complete contracts	Jennifer Dougherty	08/01/24							
99		Bay RMP (2024)	C. 2024 Dry season water sampling	Complete Sampling and Analysis Plan	Jennifer Dougherty	08/28/24							
100		Bay RMP (2023)	Special Study: PCBs in sediment and fish SS/RC (Year 2)	Final Technical Report	Jay Davis	08/30/24							10/31/23 - We have received the sediment data from AXYS, but per Adam "there's programming work goin on to resubmit the fish data."
101	Emerging Contaminants	RMP SEP	19. Quaternary Ammonium Compounds (QACs) in Bay Area Wastewater	Technical Memo	Diana Lin	08/31/24	08/31/22				2		1/8/24 - Draft report received from Anna (UMN?), coordinating data delivery with DS. Additional funding from NSF increased the scope of the project. The ECWG agreed to the suggested revised due dates for the deliverables so they can include the additional data.
102		Bay RMP (2021)	DMMO Database	DMMO Database Enhancements	Cristina Grosso	08/31/24	12/31/21	741			4		1/11/24 - Still waiting on final templates from Exa, expect to get them by end of Jan, Given Michael will be on leave for 1.5 months completion now expected end of summer 2024 12/5/23 - Exa templates are in final review stages.
103		Bay RMP (2024)	4. Annual Reporting	RMP Pulse Draft	Jay Davis	08/31/24							
104		Bay RMP (2024)	5. Communications	RMP Update to BACWA	Amy Kleckner	08/31/24							
105		Bay RMP (2024)	5. Communications	RMP Update to BPC	Amy Kleckner	08/31/24							
106		Bay RMP (2024)	I. 2024 S&T Lab Intercomp Studies	Complete contracts	Beth Ebiner	08/31/24							
107		Bay RMP (2024)	50. Stormwater CECs Monitoring & Modeling 2024	Presentation to SC/TRC	Rebecca Sutton	08/31/24							
108		Bay RMP (2024)	24. Microplastics Stormwater Monitoring Pilot	Complete Sampling and Analysis Plan	Diana Lin	08/31/24							
109		Bay RMP (2022)	Special Study: Sediment delivery to marshes in C&N Bay	Report	Melissa Foley	09/01/24	12/01/23	41					Jessie Lacy and Karen Thorne (USGS) doing the work

	Focus Area	Project	Task	Deliverable	Assigned To	Due Date	Old Due Date	Days overdue	Due Date Extended (external delay)	Due Date Extended (internal delay)	# of extensions	Status	Comments
110		Bay RMP (2024)	4. Annual Reporting	2024 Annual Meeting Agenda	Jay Davis	09/01/24							
111		Bay RMP (2024)	L. 2024 Sport Fish Monitoring	Successful collection of samples	Jay Davis	09/01/24							
112		Bay RMP (2024)	38. NTA of SF Bay Fish, Yr 1	Collect Samples	Rebecca Sutton	09/01/24							
113		Bay RMP (2023)	Special Study: Sediment Delivery to Marshes in C&N Bays: project expansion	Report (draft paper) investigating the relationships between SSC in the shallows, SSC at long-term channel stations, and sediment accretion on marshes	Melissa Foley	09/15/24					1		Jessie Lacy and Karen Thorne (USGS) conducting this work
114		Bay RMP (2024)	4. Annual Reporting	RMP Pulse Final and send to printer	Jay Davis	09/20/24							
115		Bay RMP (2024)	2. Governance	September TRC Meeting	Amy Kleckner	09/22/24							
116		Bay RMP (2023)	3. QA and Data Services	QA Summary Report for 2023 S&T Activities	Don Yee	09/30/24							
117		Bay RMP (2023)	Special Study: STLS WY21 POC Recon Monitoring	Laboratory analysis, QA, & Data Management	Alicia Gilbreath	09/30/24							
118		Bay RMP (2024)	5. Communications	Q3 RMP eUpdate	Amy Kleckner	09/30/24							
119		Bay RMP (2024)	5. Communications	RMP Update to BAMSC	Amy Kleckner	09/30/24							
120		Bay RMP (2024)	5. Communications	RMP Update to LTMS	Amy Kleckner	09/30/24							
121		Bay RMP (2024)	5. Communications	RMP Update to WSPA	Amy Kleckner	09/30/24							
122		Bay RMP (2024)	5. Communications	RMP Update at RB2 Meeting	Amy Kleckner	09/30/24							
123		Bay RMP (2024)	5. Communications	Updates to RMP website - Q3	Martin Trinh	09/30/24							
124		Bay RMP (2024)	C. 2024 Dry season water sampling	Collect samples	Jennifer Dougherty	09/30/24							
125		Bay RMP (2024)	N. NB Se Monitoring	Sampling and analysis proposal for 2025 S&T Monitoring presented to TRC	Amy Kleckner	09/30/24							
126		Bay RMP (2024)	40. OPEs, BP, and Other Plastic Additives in Wastewater	Collect Samples	Rebecca Sutton	09/30/24							
127		Bay RMP (2024)	30. Integrated Monitoring & Modeling for PCBs and Hg Phase 1	Lab analysis, QA, & data mgmt.	Alicia Gilbreath	09/30/24							
128		RMP SEP	32. Temporal variability in sediment delivery to a North and Central SF Bay Salt Marsh	Data made publicly available	Melissa Foley	10/01/24							
129		Bay RMP (2024)	4. Annual Reporting	Annual Meeting	Amy Kleckner	10/16/24							
130		Bay RMP (2024)	2. Governance	October SC Meeting	Amy Kleckner	10/20/24							
131		Bay RMP (2024)	1. Program Management	Update Deltek Program Plans for Open RMP Years	Beth Ebiner	10/24/24							
132		Bay RMP (2023)	37. Tire and roadway contaminants in wet season Bay water (year 2 of 2)	Task 4. QA/QC, data management, and data upload	Rebecca Sutton	10/30/24							
133		Bay RMP (2023)	F. 2023 Wet season water data mgmt.	Process and upload wet season water sampling data	Adam Wong	10/31/24							
134		Bay RMP (2024)	**F. WY24 Wet season water data mgmt.**	Process and upload wet season water sampling data	Adam Wong	10/31/24							
135		Bay RMP (2024)	K. 2024 S&T Field Sampling Report & Support	Post dry field season garage clean up	Martin Trinh	10/31/24							
136		Bay RMP (2024)	1. Program Management	2025 Multi-Year Plan	Amy Kleckner	11/01/24							
137		Bay RMP (2024)	1. Program Management	2025 Detailed Workplan and Budget	Amy Kleckner	11/01/24							
138		Bay RMP (2024)	1. Program Management	2024 Q3 RMP Financial Report	Beth Ebiner	11/01/24							
139		Bay RMP (2024)	1. Program Management	SC Meeting Stoplight Report	Amy Kleckner	11/01/24							
140		Bay RMP (2024)	**M. 2024 Sport Fish data mgmt.**	Process and upload sampling data	Adam Wong	11/01/24							
141		Bay RMP (2024)	42. Continuous SSC and Wave Monitoring in SB and LSB, Yr. 3	Report	Scott Dusterhoff	11/01/24							
142		Bay RMP (2023)	Ethoxylated surfactants in ambient water, margin sediment, wastewater, Part 2 (year 2of 2)	Task 6. Final report	Diana Lin	11/30/24							
143		Bay RMP (2024)	2. Governance	December TRC Meeting	Amy Kleckner	12/09/24							

	Focus Area	Project	Task	Deliverable	Assigned To	Due Date	Old Due Date	Days overdue	Due Date Extended (external delay)	Due Date Extended (internal delay)	# of extensions	Status	Comments
144		Bay RMP (2023)	Special Study: STLS WY21 POC Recon Monitoring	Wet season water samples collected and sent to the labs for analysis	Alicia Gilbreath	12/30/24							
145		Bay RMP (2023)	Special Study: Sediment Delivery to Marshes in C&N Bays: project expansion	Presentation to Bay Delta Science or State of the Estuary Conference	Melissa Foley	12/30/24							Jessie Lacy and Karen Thorne (USGS) conducting this work
146		Bay RMP (2024)	P. PFAS and NTA in Marine Mammals (Yr 2)	Sample collection	Rebecca Sutton	12/30/24							
147		Bay RMP (2022)	Special Study: Ethoxylated surfactants in ambient water, margin sediment, wastewater. Part 2	Final Report	Diana Lin	12/31/24	08/31/23	133			2		10/24/23 - Revised timeline. Draft report in development. Delay from analytical laboratory to analyze remaining sediment and wastewater samples, expected final laboratory results by end of spring 2024. Final report expected 12/31/24. 7/18/23 - Jennifer D. collecting samples this week. Waiting for updated dataset from DS to begin report. Plan is to start drafting report as soon as data is received from DS but Duke U. has still not analyzed sediment and second round of wastewater. A draft may be completed by end of the year, but final report not expected until later.
148		Bay RMP (2022)	Special Study: DMMO Database Enhancements	Make testing results accessible on the DMMO website	Cristina Grosso	12/31/24	12/31/22	376			3		1/11/24 - Need to complete task 3021-046 first, timeline updated. 9/11/23 - Don't foresee any issues with completing these tasks on budget and schedule. However, the DMMO Project Team has asked us to prioritize the data template testing and database enhancement work first.
149		Bay RMP (2023)	Special Study: Sediment Flux Richmond Bridge	Data release	Scott Dusterhoff	12/31/24	05/11/23	245			1		9/15/23 - Per David Hart at USGS: work will not move forward in WY24, but do expect it to happen in WY25 as part of a larger project with the possibility of increased funding from other groups.
150		Bay RMP (2024)	1. Program Management	RMP Participation Letters for BACWA and WSPA Agencies	Amy Kleckner	12/31/24							
151		Bay RMP (2024)	1. Program Management	Honoraria Payments to Science Advisors	Amy Kleckner	12/31/24							
152		Bay RMP (2024)	3. QA and Data Services	Online Data Access CD3	Cristina Grosso	12/31/24							
153		Bay RMP (2024)	3. QA and Data Services	Database Maintenance	Adam Wong	12/31/24							
154		Bay RMP (2024)	3. QA and Data Services	Updates to SOPs and Templates	Adam Wong	12/31/24							
155		Bay RMP (2024)	3. QA and Data Services	DMMO Database Support	Cristina Grosso	12/31/24							
156		Bay RMP (2024)	5. Communications	Q4 RMP eUpdate	Amy Kleckner	12/31/24							
157		Bay RMP (2024)	5. Communications	Updates to RMP website - Q4	Martin Trinh	12/31/24							
158		Bay RMP (2024)	**H. 2024 Bird Egg Data Mgmt**	Processing and upload bird egg data	Adam Wong	12/31/24							
159		Bay RMP (2024)	J. 2024 Sample Archive	Update RMP Archives database	michaelw@sfei.org	12/31/24							
160		Bay RMP (2024)	K. 2024 S&T Field Sampling Report & Support	Field Reports Reviewed and posted to website	Amy Kleckner	12/31/24							
161		Bay RMP (2024)	L. 2024 Sport Fish Monitoring	Sport Fish Report	Jay Davis	12/31/24							
162		Bay RMP (2024)	R. WDM Model Maintenance	Update model development log	Pedro Avellaneda	12/31/24							
163		Bay RMP (2024)	31. Tidal Area Remote Sampler Pilot - Yr 2	Data upload to CEDEN	Don Yee	12/31/24							
164		Bay RMP (2024)	1. Program Management	2024 Q4 RMP Financial Report	Beth Ebiner	01/31/25							
165		Bay RMP (2024)	**D. 2024 Dry season water Data Mgmt**	Process and upload dry season water sample data	Adam Wong	01/31/25							
166		Bay RMP (2024)	40. OPEs, BP, and Other Plastic Additives in Wastewater	Final Report	Rebecca Sutton	01/31/25							
167		Bay RMP (2024)	31. Tidal Area Remote Sampler Pilot - Yr 2	Draft Report	Don Yee	01/31/25							
168		Bay RMP (2023)	Special Study: STLS WY21 POC Recon Monitoring	Interpretation & reporting for BAMSC	Alicia Gilbreath	02/28/25							
169		Bay RMP (2024)	**Q. Marine Mammals data mgmt.**	Process and upload sampling data	Adam Wong	02/28/25							
170		Bay RMP (2024)	51. PFAS in Bay Water using the TOP Assay	Final Report	Rebecca Sutton	02/28/25							
171		Bay RMP (2024)	21. Monitoring of Sediment Deposition in SLB Intertidal Areas	Draft Report	Don Yee	02/28/25							
172		Bay RMP (2024)	I. 2024 S&T Lab Intercomp Studies	Presentation to the TRC on findings from IC studies.	Don Yee	03/01/25							
173		Bay RMP (2024)	3. QA and Data Services	QA Summary Report for 2024 S&T Activities	Don Yee	03/31/25							
174		Bay RMP (2024)	31. Tidal Area Remote Sampler Pilot - Yr 2	Final Report	Don Yee	03/31/25							
175		RMP SEP	32. Temporal variability in sediment delivery to a North and Central SF Bay Salt Marsh	Final Report	Melissa Foley	04/01/25							
176		RMP SEP	26. PFAS & Chlorinated Paraffins in Bay Sediment	Report	Rebecca Sutton	04/04/25							

	Focus Area	Project	Task	Deliverable	Assigned To	Due Date	Old Due Date	Days overdue	Due Date Extended (external delay)	Due Date Extended (internal delay)	# of extensions	Status	Comments
177		Bay RMP (2024)	37. Tire and Roadway Contaminants in Wet Season Bay Water, Yr 3	Presentation at ECWG	Rebecca Sutton	04/30/25							
178		Bay RMP (2024)	39. PFAS Synthesis & Strategy	Final Report	Rebecca Sutton	04/30/25							
179		Bay RMP (2024)	21. Monitoring of Sediment Deposition in SLB Intertidal Areas	Final Report and data upload	Don Yee	04/30/25							
180		RMP SEP	27. High speed mapping of water quality parameters on the eastern shoal of South San Francisco Bay	Data release	Ariella Chelsky	06/30/25							
181		RMP SEP	27. High speed mapping of water quality parameters on the eastern shoal of South San Francisco Bay	Technical Report	Ariella Chelsky	06/30/25							
182		Bay RMP (2023)	PFAS and NTA in Marine Mammals (year 1 of 2)	Task 5. Draft manuscript(s)	Rebecca Sutton	06/30/25							
183		Bay RMP (2023)	Special Study: STLS WY21 POC Recon Monitoring	Final report	Alicia Gilbreath	06/30/25							
184		Bay RMP (2024)	P. PFAS and NTA in Marine Mammals (Yr 2)	S&T study design recommendations (technical memo), presentation to TRC.	Rebecca Sutton	06/30/25							
185		Bay RMP (2024)	40. OPEs, BP, and Other Plastic Additives in Wastewater	QA/QC and Data Management	Rebecca Sutton	06/30/25							
186		RMP SEP	28. SF Bay Sediment Transport and Fate Modeling	Technical Report	Dave Senn	09/05/25							
187		Bay RMP (2023)	37. Tire and roadway contaminants in wet season Bay water (year 2 of 2)	Task 7. Final short report	Rebecca Sutton	09/30/25							
188		Bay RMP (2023)	PFAS and NTA in Marine Mammals (year 1 of 2)	Task 6. Final manuscript(s)	Rebecca Sutton	09/30/25							
189		Bay RMP (2024)	44. Spatial variability of sediment accretion in SFB restorations	Data release: soil properties, digital elevation models, and RTK GPS data	Scott Dusterhoff	09/30/25							
190		Bay RMP (2024)	44. Spatial variability of sediment accretion in SFB restorations	Report	Scott Dusterhoff	03/31/26							
191		Bay RMP (2024)	40. OPEs, BP, and Other Plastic Additives in Wastewater	Presentation at ECWG	Rebecca Sutton	04/30/26							
192		Bay RMP (2024)	38. NTA of SF Bay Fish, Yr 1	Presentation to ECWG and TRC	Rebecca Sutton	04/30/26							
193		RMP SEP	31. Investigating HABs in SF Bay	Data made publicly available	Dave Senn	06/30/26							
194		RMP SEP	31. Investigating HABs in SF Bay	Technical Report	Dave Senn	06/30/26							
195		Bay RMP (2024)	38. NTA of SF Bay Fish, Yr 1	Final Manuscript	Rebecca Sutton	09/30/26							
196		Bay RMP (2024)	44. Spatial variability of sediment accretion in SFB restorations	Presentation to RMP	Scott Dusterhoff	09/30/26							

Bay RMP Action Items Stoplight Report_New

	Primary	Deliverable	Assigned To	Due Date	Old Due Date	Days overdue	# of extensions	Due Date Extended (external delay)	Due Date Extended (internal delay)	Status	Comments	Meeting Date
1	SC Action Items 11/1/23	Schedule a first COW meeting (to include Richard L. and Dave S.) to brainstorm types of events, level of effort, and ways to pull in other groups.	Jay Davis	12/31/23								11/01/23
2	Action Items 9/19/23	Share revised draft of margins report after reanalysis	Don Yee	12/31/23								**09/19/23**
3	SC Action Items from 11/02/2022	Discuss event-based monitoring planning at the December 2023 TRC meeting and January 2024 meeting	Jay Davis	01/26/24								11/02/22
4	MYP Action Items 11/1/23	Provide guidance to workgroups on the new two-tiered project proposal format	Jay Davis	01/31/24								11/01/23
5	SC Action Items 11/1/23	Send out calendar invitations to active SC and TRC members for 10/16/24 RMP Annual Meeting	Martin Trinh	01/15/24								11/01/23
6	Action Items 12/7/23	Discuss formation of a PFAS WG	Jay Davis	01/18/24								**12/07/23**
7	Action Items 12/7/23	Schedule COW meeting with Richard, Dave, Amy & Jay to discuss Event Based monitoring plans	Jay Davis	01/31/24	12/31/23	11	1					**12/07/23**
8	MYP Action Items 11/1/23	Revisit and discuss NTA and Passive Samplers for S&T 2025/2026	Jay Davis	08/31/24								11/01/23
9	MYP Action Items 11/1/23	Revisit/discuss future model maintenance, equipment maintenance, continuation of S&T pilot studies, and selenium funding before 2025 MYP update	Amy Kleckner	08/31/24								11/01/23
10	Action Items from 06/20/23	Post updated SEP list to RMP website	Martin Trinh	06/30/24	09/04/23	129	2				1/11/24 - Will be added after a key resources and documents tab is added to special studies page in the new design. 10/25/23 - Prioritized behind new SFEI website template updates. 9/6/23 - will include in Q3 website updates. Extend due date until 9/30.	06/20/23
11	November 2022 Meeting											11/02/22
12	**November MYP/SC**											11/01/23
13	**June 2023 TRC**											**06/20/23**
14	**September 2023 TRC**											**09/19/23**
15	**December 2023 TRC**											**12/07/23**