



**RMP**  
**REGIONAL MONITORING**  
**PROGRAM FOR WATER QUALITY**  
**IN SAN FRANCISCO BAY**

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**Regional Monitoring Program for Water Quality  
in San Francisco Bay**

**2024 Detailed Workplan and Budget**

*Final December 2023*

SFEI Contribution #1159

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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
<b>Grand Total for Expenses</b>	<b>\$5,216,074</b>
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
<b>Grand Total for Revenue</b>	<b>\$5,216,129</b>

Figure 1: Bay RMP 2024 Revenue and Expenses.

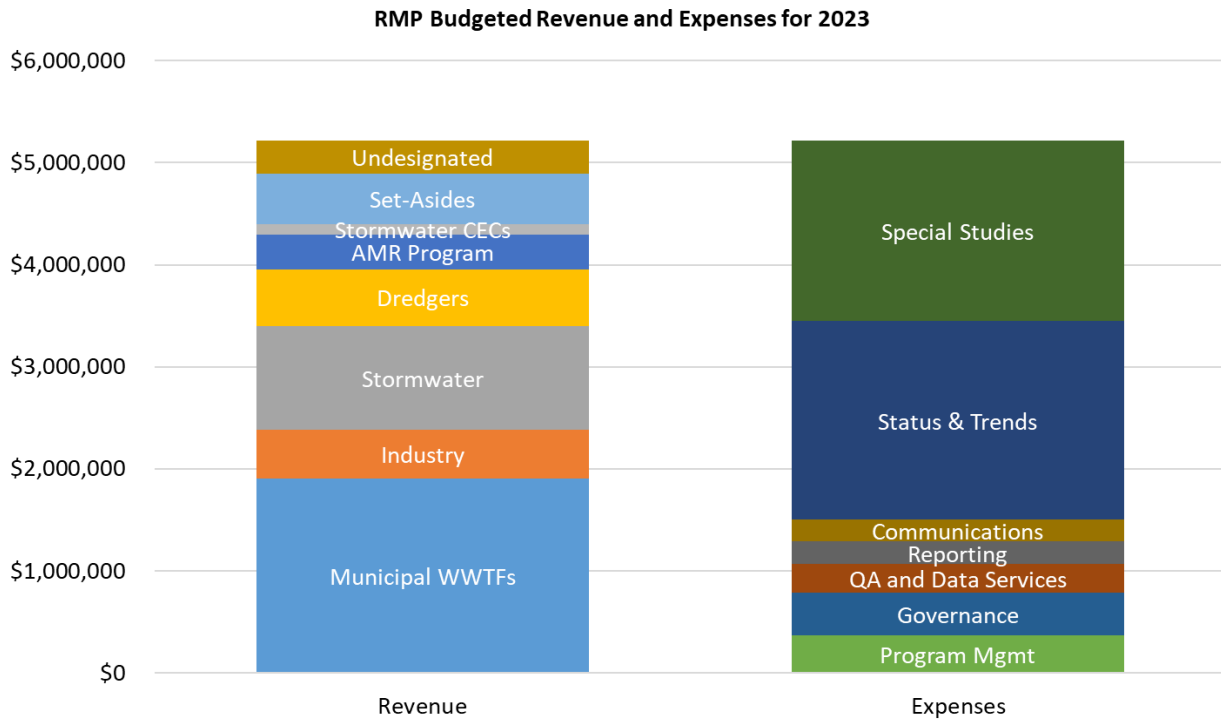
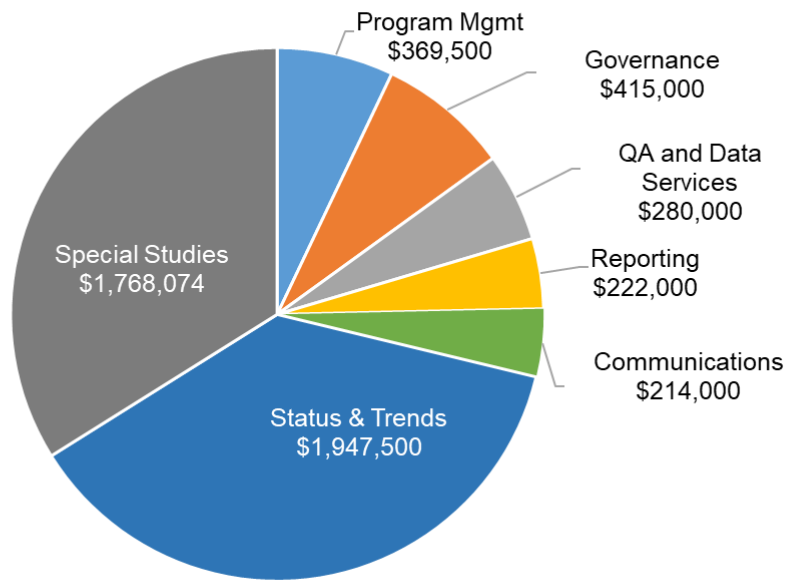


Figure 2: Bay RMP 2024 Budget by Task.



## 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 (BAMS)

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

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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.

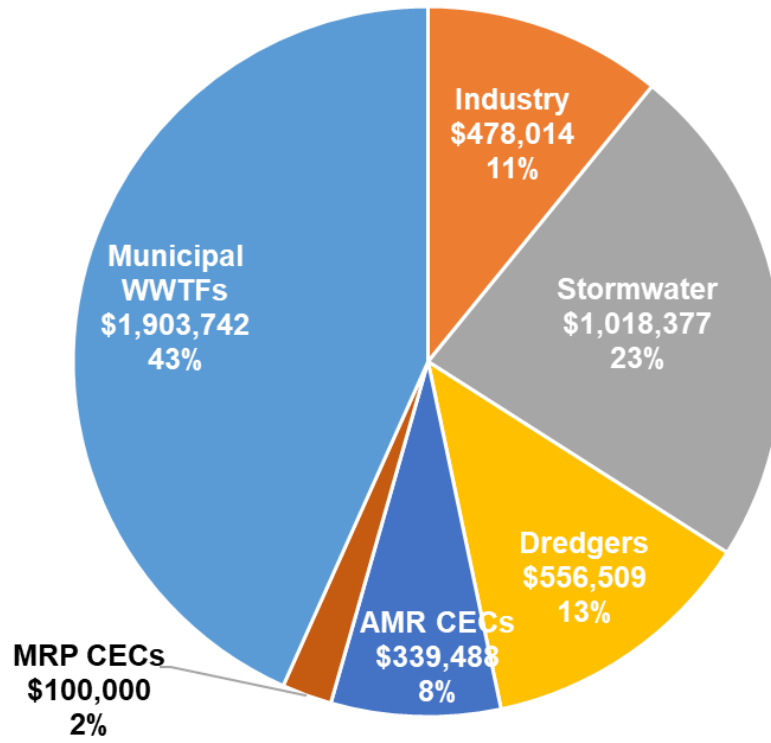
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Table 2: 2024 RMP Revenue.

<b>Revenue Category</b>	<b>Subcategory</b>	<b>Amount</b>
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 (FY23)	Municipal wastewater	\$339,488
Supplemental Stormwater Payments for CEC Monitoring (FY23)	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
<b>TOTAL REVENUE</b>		<b>\$5,216,129</b>

\*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

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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

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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

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	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.



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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

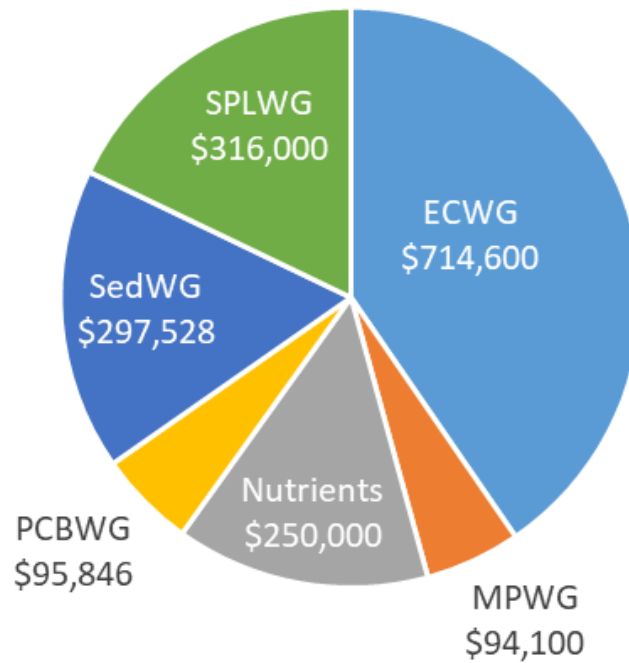
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P. Harbor Seals Sampling	\$1,500	\$94,000	\$21,000	\$116,500
Q. Harbor Seals Sampling Data Mgmt			\$10,000	\$10,000
R. Model Maintenance			\$50,000	\$50,000
<b>TOTAL</b>	<b>\$64,500</b>	<b>\$1,405,000</b>	<b>\$478,000</b>	<b>\$1,947,500</b>

**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.



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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, Bisphenols, 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

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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
<b>Total</b>		\$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

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			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

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Emerging Contaminants	OPEs, Bisphenols, and Other Plastic Additives in Wastewater	\$95,400	<p>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.</p>	<p>Develop sampling plan, field sampling, lab analysis, QA/QC, data management, draft report, final report, presentation at ECWG 2026</p>
Emerging Contaminants	PFAS Synthesis & Strategy	\$107,000	<p>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.</p>	<p>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</p>

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				be presented at the 2024 and 2025 April ECWG meetings.
Emerging Contaminants	PFAS in Bay Water using the TOP Assay	\$67,200	<p>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&amp;T) monitoring of target PFAS and better characterize the presence of this class.</p>	<p>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.</p>

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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-frequency 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



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			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)

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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.

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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
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