RMP Multi-Year Planning Workshop

1 November 2023

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1. Introductions and Review Goals (15 minutes)

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Multi-Year Planning Workshop – Goals

- Review Program priorities
- Identify RMP priority information needs for 2024-2026
- Review process for updating the MYP and workgroup strategies
- Discuss Status & Trends ongoing design tweaks
- Discuss 2024 workgroups and special study funding based on Program priorities.

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2. Setting the Stage – Planning for 2024 and Beyond (20 minutes)

Desired outcome:

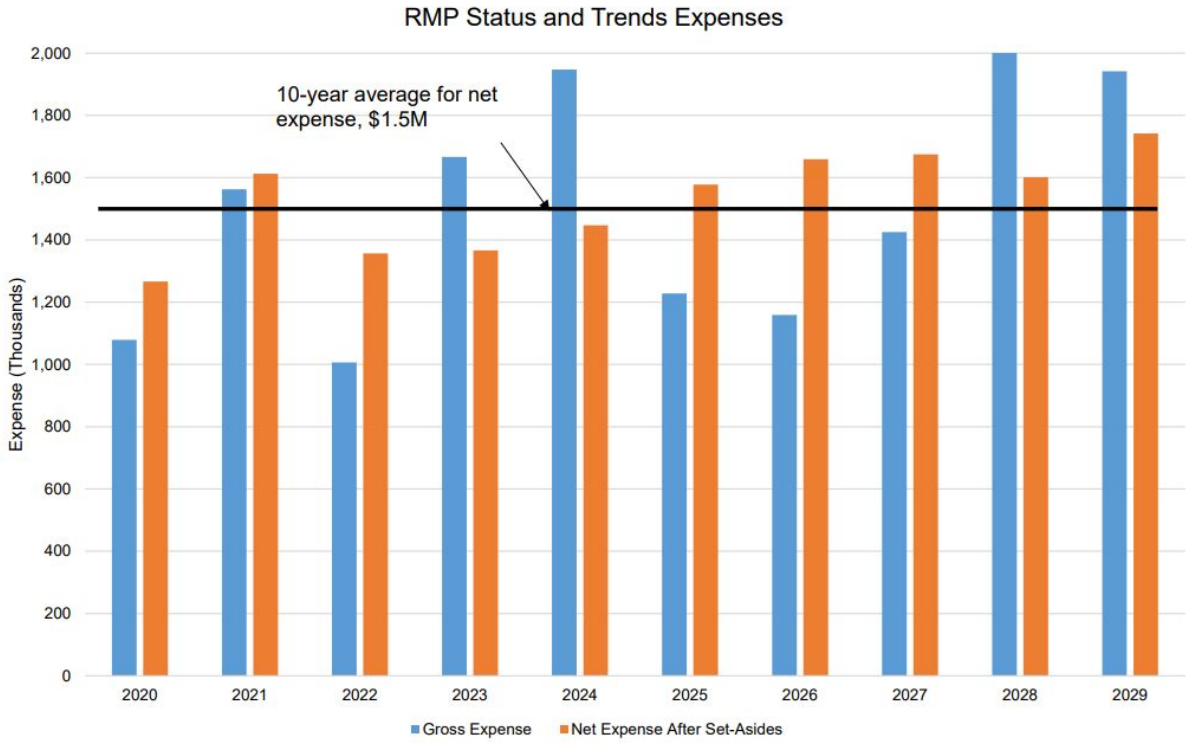
- Informed Committee

RMP Budget - 2024

- Core fees - $4.16M
- CEC monitoring supplement - $440k
- SEPs - ? (in 2023 = $370k)
- WQIF proposals

Status & Trends

- Updated S&T design being implemented
- Pilot studies in final year of sampling



WQIF - Destination Clean Bay, PFAS Sources to Solutions

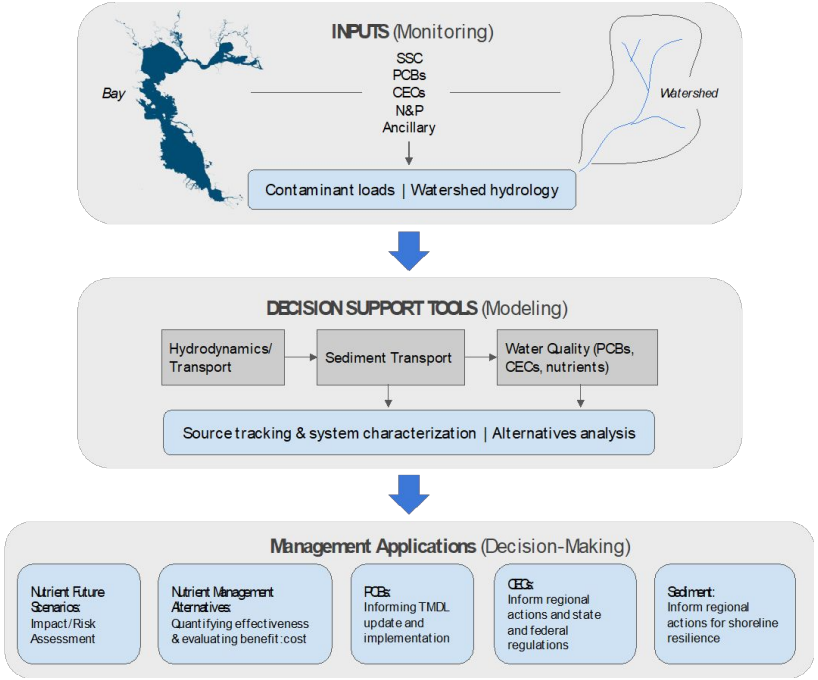


Figure 1. PFAS Sources to Solutions is made of three interconnected tasks to support the eventual reduction in PFAS use and corresponding improvements to Bay water quality.

Additional funds: SF Bay Program Fund

Special Studies 2024 and beyond

- Stormwater CECs Monitoring and Modeling
- OPEs, Bisphenols, and Other Plastic Additives in Wastewater
- Microplastics Stormwater Monitoring Pilot
- Non targeted analysis of SF Bay Fish
- Sediment Accretion in SF Bay Restorations
- Sediment Deposition in San Leandro Bay
- PCB and Mercury Watershed Load Monitoring and Modeling
- Nutrient Moored Sensor Network
- PFAS Synthesis & Strategy
- PFAS in Bay Water using the TOP Assay
- Tire and Roadway Contaminants in Wet Season Bay water
- Tidal Area Remote Sampler
- Remote Sampler Purchase

Workgroup Strategy Updates

- Updates to workgroup strategies and management questions are well under way

PCB Workgroup

Sediment Workgroup

Sources, Pathways, and Loadings Workgroup

Emerging Contaminants Workgroup

Microplastics Workgroup

Updates from Stakeholder Meetings

- BACWA

POTENTIAL FUTURE DRIVERS	
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	2024
Wetland restoration permits and regional monitoring	TBD
Tribal and subsistence use as beneficial uses	TBD

} Need for baseline information: especially modeling

Synthesis to support de-listing

Need for baselines to support modeling

Updates from Stakeholder Meetings

- BAMSC
  - Modeling PCB and Hg loading more broadly not just PMUs
  - Data on PCB inputs from Phase 2 watersheds
  - Supplementing BMP effectiveness tracking across counties
  - CECs monitoring data to determine “sources” to support regulators and legislation
  - SLR adaptation - linking NBS to GSI
  - Linking to waste-related regulations (foodware, compost)

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3. Information Priorities for 2024-2026 (20 minutes)

Desired outcome:

- Consensus on priority information needs for 2024-2026

Management Drivers – High Priority

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

Management Drivers – Other

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
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

Management Drivers – Potential Future

POTENTIAL FUTURE DRIVERS	
Specific CECs, e.g., PFAS	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

*

Microplastic consideration for 2030 303(d) list? (discussed at April SC)

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4. Status & Trends and Other Long-term Projects (30 minutes)

Desired outcome:

- Discussion of items that will impact the budget

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 Intercomp 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**

Summary of Changes from 2023 MYP

1. NB Selenium budget reduced from $131k to $18k
    a. Sampling paused to allow for analysis of sturgeon samples, reporting, and review of data thru 2023
2. NTA and Passive Samplers (for water) delayed until 2025 and 2026
    a. Need to find new analytical partners
3. Bivalves removed ($21k)
4. Bird eggs budget increased from $160k to $195k (a closer estimate of what the cost of this effort will be based on costs from 2022 sampling and analysis)
5. Sport fish budget increased from $531k to $560k
    a. Added $20k for Shiner Surfperch PMU monitoring and $9k for expanding the sport fish archiving plan
6. Harbor seals budget reduced to match proposal ($300k to $127k)
7. Added Model Maintenance budget of $50k in 2024

Pieces to Review

1. Pilot studies
    - Wet season water, harbor seals
2. NB selenium
3. Non-target analysis

Other Long-term Funding Needs?

- Model maintenance beyond 2024
- Equipment maintenance

What level of sustained funding is needed?
Who reviews priorities for maintenance?

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Break (10 minutes)

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5. Multi-Year Plan and Workgroup Strategy Updates (60 min)

Desired outcomes:

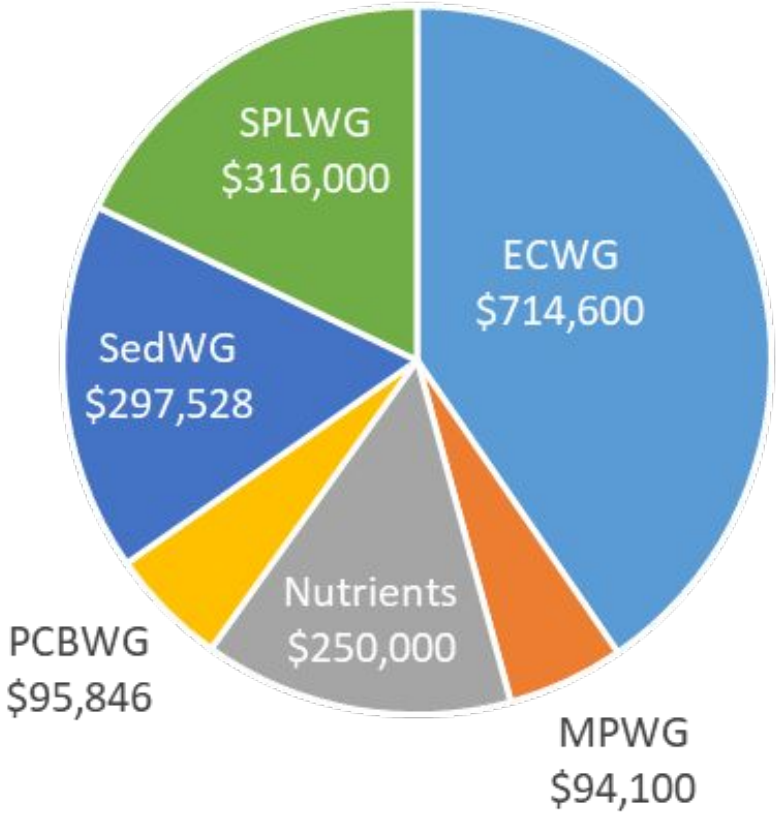
- Provide guidance on priorities and funding levels for workgroups
- Provide feedback on the Draft MYP

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.

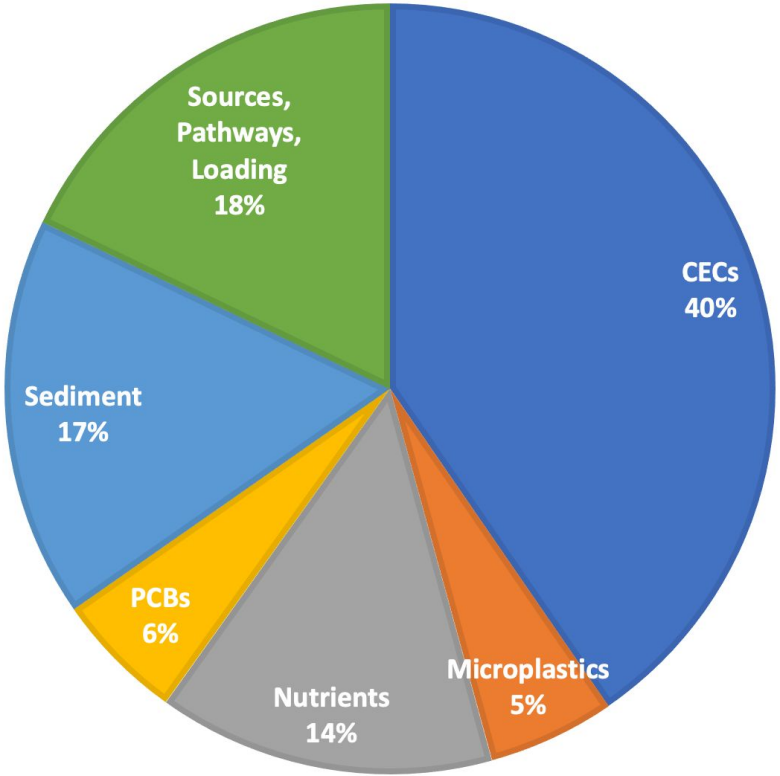
FOCUS AREA	2021	2022	2023	2024	2025	2026
	Budget	*Budget*	*Budget*	*Budget*	*Forecast*	*Forecast*
Emerging Contaminants	$338,000	$320,000	$638,000	$714,600	$734,000	$756,000
Microplastic	$61,500	$35,500	$13,000	$94,100	$133,000	$57,000
Nutrients*	$250,000	$250,000	$250,000	$250,000	$400,000	$400,000
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**

Special Studies 2024



Total Budget =
$1,768,074

Special Studies 2024



ECWG

- Strategy discussions: 2 ECWG meetings, 2 subgroup meetings (2022-23)
- Status of Management Questions: Revised MQs drafted; further refinement is possible based on ECWG feedback
- **Status of Strategy Revision: 2 chapters reviewed in April, draft expected in January, final document in April**
- Current projects with overlap: Stormwater monitoring (SPLWG)
- Planned future projects with overlap: Stormwater monitoring & modeling (SPLWG, MPWG), in-Bay modeling (PCBWG), tire material and contaminants monitoring (MPWG, SPLWG - 2026)

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)			
	Marine Mammals (PFAS and Nonpolar NTA)[4]	RMP S&T	1,4,6				57.75	63.25		
	Bay Water TOP Assay	RMP	1					67.2		
	PFAS Sources to Solutions	WQIF (proposal submitted)	1-6					(547)	(751)	(799)

Element	Study	Funder	Questions addressed	2020	2021	2022	2023	2024	2025	2026
	PFAS Air Monitoring (~$50-150k)	SEP proposal	1,2							
	Agricultural (Biosolids) PFAS in Water & Sediment of North Bay Margins (~$100-200k)	SEP proposal	1,2,3							
	RMP Status and Trends[5]	RMP S&T	1,4			E, wet	W, S, wet	E, F, wet	W	wet
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		
	OPE Air Monitoring (~$50-150k)	SEP proposal	1,2,3,6							
	OPEs: Synthesis and Strategy	RMP	1-6							75
	RMP Status and Trends[5]	RMP S&T	1,4		W	wet	W, wet, prey	wet	W	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[5]	RMP S&T	1,4		W	wet	W, S, wet	wet	W	wet
LOW or POSSIBLE CONCERN CECs										
PBDEs	RMP Status and Trends[5]	RMP S&T	1,3,4			E	S	F		
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	MMP NSF	1,2,4		(58.2) (20)					
	QACs & New Concerns in Bay Water, Wastewater[6]	RMP	1,2							40

Element	Study	Funder	Questions addressed	2020	2021	2022	2023	2024	2025	2026
Pesticides	Ag Pesticides in Water & Sediment of North Bay Margins (~$100k)	SEP proposal	1,2							
	Antimicrobials in Bay Water, Wastewater[6]	RMP	1,2							30
Brominated Azo Dyes	Archived Sediment (~$60k)	SEP proposal	1							
Building Materials	Isothiazolinone Biocides and Other Contaminants in Stormwater (~$50k)	U Iowa SEP Proposal	1,2							
	New concerns	RMP	1							50
Chlorinated Paraffins	Chlorinated Paraffins (medium-long) in Sediment[3]	SEP	1				(53)			
Vehicles, Roadways (studies also listed in Tires MYP)	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
	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)	Marine Mammals (PFAS and Nonpolar NTA)[4]	RMP S&T	1,4,6				57.75	63.25		
	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	

Element	Study	Funder	Questions addressed	2020	2021	2022	2023	2024	2025	2026
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**	**734**	**756**
High Priority Special Studies for Future RMP Funding									**604**	**596**
RMP-funded Special Studies Subtotal – Other Workgroups				**0**	**95**	**125.5**	**0**			
MMP & Supplemental Environmental Projects Subtotal				**36.5**	**58.2**	**0**	**514**			
Pro-Bono & Externally Funded Studies Subtotal				**0**	**155**	**310**	**350**	**987**	**1086**	**886.2**
OVERALL TOTAL				**364.5**	**626.2**	**803**	**1396**	**1701.6**	**1820**	**1642.2**

Proposed Target: $700K

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 will fund sediment analysis of PFAS and chlorinated paraffins; the $106k budget is split between these classes.
4 – The non-targeted analysis of marine mammal tissues includes investigations of PFAS (targeted and suspect screening) and nonpolar compounds; budgets are split between PFAS and NTA categories.
5 – When a CEC may be included in the the RMP Status and Trends monitoring, there is a code in the cell denoting the matrix for which monitoring is proposed: W = water; S = sediment; B = bivalve; E = eggs; F = fish. A review of the Status and Trends design has resulted in expected modifications over future years. New codes include "wet," or pilot wet season water monitoring, and "prey," indicating potential inclusion of this matrix in future years.
6 – A special study suggested for 2026 could analyze cleaning product ingredients including QACs and other antimicrobials; costs are split among these groups.

SPLWG

- Strategy meetings: First meeting held in April, **next meeting will be held in early December**
- **Pre-meetings: to be done in late November**
- Status of Management Questions Update: Revised MQs agreed upon at SPLWG
- **Status of Strategy Update: Outline sent to core group in August, draft underway and will be finished in November**
- **Status of MYP Update: Draft submitted for RMP review**
- Current projects with overlap: CEC stormwater groundwork (ECWG), IWBMS (PCBWG, ECWG, SedWG, MPWG)
- Planned future projects with overlap: CECs in stormwater M&M, WDM application, MPs monitoring in stormwater

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					

	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**		
High Priority Special Studies for RMP Funding										**282**	**220**
RMP-funded Special Studies Subtotal – Other Workgroups					**218**	**148**	**150**	**305**	**368**	**351**	**340**
RMP Supplemental Environmental Projects					**50**	**223**					
OVERALL TOTAL					**360**	**513**	**193**	**305**	**546**		

Photo by Shira Bezalel

Proposed Target: $300K

SedWG

- Strategy meetings: 1/31 (Part 1. MQ3-5), 2/8 (MQ 1-2), 3/23 (Part 2. MQ 3-5), next meeting will be held in Jan 2024 (MQ1-2)
- Status of Management Questions Update: MQs 3-5 have been expanded based on WG input, MQs 1-2 will be revisited in early 2024
- Status of Workplan Development: Will be completed in November 2023 (currently finalizing the document)
- Status of MYP Update: Completed in October 2023 based on the draft Workplan
- Current projects with overlap: In-Bay model (PCBWG), IWBMS (SPLWG)
- Planned future projects with overlap: In-Bay model (PCBWG), WDM applications (SPLWG)

MULTI-YEAR PLAN FOR SEDIMENT

Sediment Workgroup special studies for 2020 to 2027. Numbers indicate budget allocations in $1000s. Budgets in parentheses represent funding o kind services from external sources (e.g., SEP funds). Budgets that are starred represent funding that has been allocated within other workgroups. Bold boxe indicate multi-year studies. Highlighted boxes indicate an initial indication of High Priority Projects, which may be updated in subsequent years. The numbers brackets correspond to the management subquestion the study addresses. See the Sediment Monitoring and Modeling Workplan [McKee et al. 2023] for det 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]
RMP-funded Special Studies Subtotal – Sediment				**181**	**214**	**245**	**147**	**283**	**842**	**590**	**875**
High Priority Special Studies for RMP Funding									**390**	**415**	**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**	**623**	**1077**	**590**	**875**

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

Proposed Target: $300K

MPWG

- Strategy discussions: April MPWG meeting, July subgroup meeting
- Related efforts: OPC-funded state macro- and microplastics strategy; dryer microfiber study; Next Gen WQIF bioretention rain garden study
- Status of Management Questions: Revised MQs finalized in April
- Status of Strategy Revision: Draft shared Sept; final document in February
- Current projects with overlap: Stormwater monitoring Yr1 (SPLWG, ECWG)
- Planned future projects with overlap: Stormwater monitoring Yr2 (SPLWG, ECWG)
- Future projects and funding will be coordinated with OPC-funded statewide plastics monitoring efforts

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	1,2,3							
	Fish	RMP								
	Sediment	RMP/OPC U. Rovira I Virgili)			3.5		(15)			40
	Water	RMP/OPC							65	
Characterizing sources, pathways, loadings, processes	Wastewater	SCCWRP/OPC	1,2,3		(26)					
	Stormwater	RMP OPC						*68*	*51*	*(40)*
	Stormwater Conceptual Model	RMP OPC		30 (30)	30 (90)					
	Evaluating efficacy of rain gardens	SFEP/EPA				(62)	(62)	(62)		
	Investigating clothing dryers as a source	Sea Grant/OPC						(170)	(230)	
	Air monitoring	RMP OPC/Sea Grant/NOAA								(40)
	Assessing Information on Ecological Impacts	RMP NSF/CCCSD		(50)	18 (7.5+50)					
	Characterize microplastic additives	RMP ECWG							120*	
	Tire market synthesis to inform science (pro bono)	UC Berkeley				(20)				
RMP-funded Special Studies Subtotal – MPWG				**50**	**61.5**	**62.5**	**13**	**84**	**133**	**57**
High Priority Special Studies for Future RMP Funding								**68**	**133**	**40**
RMP-funded Special Studies Subtotal – Other Workgroups							**10**	**10**	**130**	**10**
Externally-funded Special Studies Subtotal				**110**	**173.5**	**82**	**127**	**333**	**280**	**80**
OVERALL TOTAL				**160**	**235**	**144.5**	**150**	**427**	**523**	**147**

Proposed Target: $100K

PCBWG

- Strategy and MQs are updated
- WG meeting date(s): will meet in December for a modeling update and update from the WB on the plan for the TMDL
- Current projects with overlap: In-Bay model (ECWG, SedWG, Nutrients), IWBMS (SPLWG)
- Planned future projects with overlap: In-Bay model (ECWG, SedWG, Nutrients)

MULTI-YEAR PLAN FOR PCBs

Special studies and monitoring in the RMP from 2019 to 2025. 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**	
RMP-funded Special Studies Subtotal – Other Workgroups				**0**	**200**	**0**	**0**			
RMP 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**	**371**	**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).

Proposed Target: $0K

2025 total should be $547K

MULTI-YEAR PLAN FOR NUTRIENTS

Special studies and monitoring in the RMP from 2020 to 2025. 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
Strategy	Program coordination	RMP		1-5						
Monitoring	Moored sensors	RMP		1	250	250	250	250	400	400
	HF mapping on the shoal	SEP		1,3			(185)			
	Water quality in the Bay	RMP		1	250	250	258	265	274	283
Modeling	Nutrient Modeling	SEP	PCBWG	4,5				(408)*		
RMP-funded Special Studies Subtotal					**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**
RMP-funded Special Studies Subtotal – Other Workgroups								**408**		
RMP Supplemental Environmental Projects Subtotal							**185**			
Pro-Bono & Externally-funded Special Studies Subtotal[1]					**2200**	**2200**	**2200**	**2200**	**2200**	**2200**
OVERALL TOTAL					**2450**	**2450**	**2635**	**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

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**

Discussion

- Stick with the current workgroup structure?
- Stick with the status quo funding distribution across workgroups?
  - Guidance to Workgroups: target amount is highly probable, can still propose beyond that
- Is anything missing?
- Should the Workgroups think bigger this year with SF Bay Program funds in mind?
- Can staff pre-identify SEP proposals (with key stakeholder input)?

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6. Workgroup Scheduling and Priority Agenda Items (15 minutes)

- Scheduling update
- Priority agenda items

Desired outcome:

- Input on workgroup agendas and coordination

Workgroup Meeting Schedule Ideas

- ECWG and SPLWG overlap for CEC monitoring-related updates and special study discussion (early April)
- Other WG meetings spaced more evenly to prevent staff burnout
- SPLWG late May meeting focused on legacy contaminants

Workgroup Priority Agenda Items

- MQ and Strategy updates
- MYP development
- Review 2025 proposals
- Review relevant related proposals (from other WGs)
- Project updates (in progress and completed)

Workgroup Meetings: Tentative Schedule

ECWG		April WG	
SPLWG	Dec Strategy	April WG1	May WG2
SedWG	Jan? Strategy		May WG
Microplastics		April WG	
PCBWG	Dec Check-in		May WG

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7. Summary and Action Items (10 minutes)

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Lunch Break (1 hour)

Bay RMP Steering Committee Meeting

1 November 2023

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Agenda Summary:

1. Introductions and review goals of the meeting (10 min)
2. Approve meeting summary & set future meeting dates (10 min)
3. Confirm Chair and Vice-Chair and review the Charter (30 min)
4. TRC Meeting summary (10 min)
5. RMP Financial Update (15 min)
6. Discuss detailed workplan and budget for 2024 (15 min)
7. Remote sampler purchase update (10 min)
8. Event Based Monitoring (15 min)

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9. Communications Update (30 min)
10. Deliverables and Action Items (5 min)
11. Plan Agenda items (5 min)
12. Plus/Delta (5 min)
13. Adjourn

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1. Introductions and Review Goals for the Meeting (10 minutes)

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2. Approve Meeting Summary and Future Meeting Dates (10 minutes)

Desired outcomes:

- Approve meeting summary
- Confirm future SC meeting and Annual Meeting dates

Meeting Schedule

Scheduled Steering Committee meetings:

Proposed Steering Committee meetings: (3rd Monday)

January 22, 2024

April 15, 2024

Next Technical Review Committee meeting - *December 7*

2024 Annual Meeting – October 16 or 17??

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3. Confirm Chair and Vice-Chair and Review RMP Charter (30 minutes)

Desired outcomes:

- Select Chair and Vice Chair
- Discussion of potential emeritus role for interested retired Steering Committee members

Bay Sediments: Past a Tipping Point

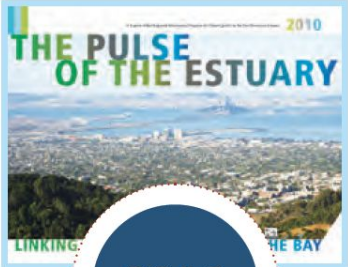
2009

RMP Contaminant Data Download and Display (CD3) tool released

Municipal Regional Stormwater Permit approved

PCBs TMDL approved

Linking the Watersheds and the Bay



2010

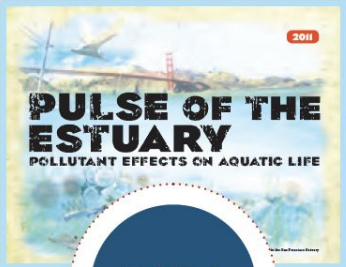
PCB Workgroup

303(d) LIST

Added: Trash

Removed: Nickel

Pollutant Effects on Aquatic Life



2011

David Senn

Sudden Clearing of Estuarine Waters (Schoellhamer)

Steering Committee Chair: Tom Mumley

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4. TRC Meeting Summary (10 minutes)

Desired outcome:

- Informed committee

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1. WG Strategy Updates & MYP Workshop plans (20 minutes)
2. S&T Monitoring Update (15 minutes)
3. Communications Update (30 minutes)
4. Status of Deliverables and Action Items (5 minutes)
5. Plan Agenda Items for Future Meetings (5 minutes)
6. Preview of Annual Meeting Presentations (60 min)

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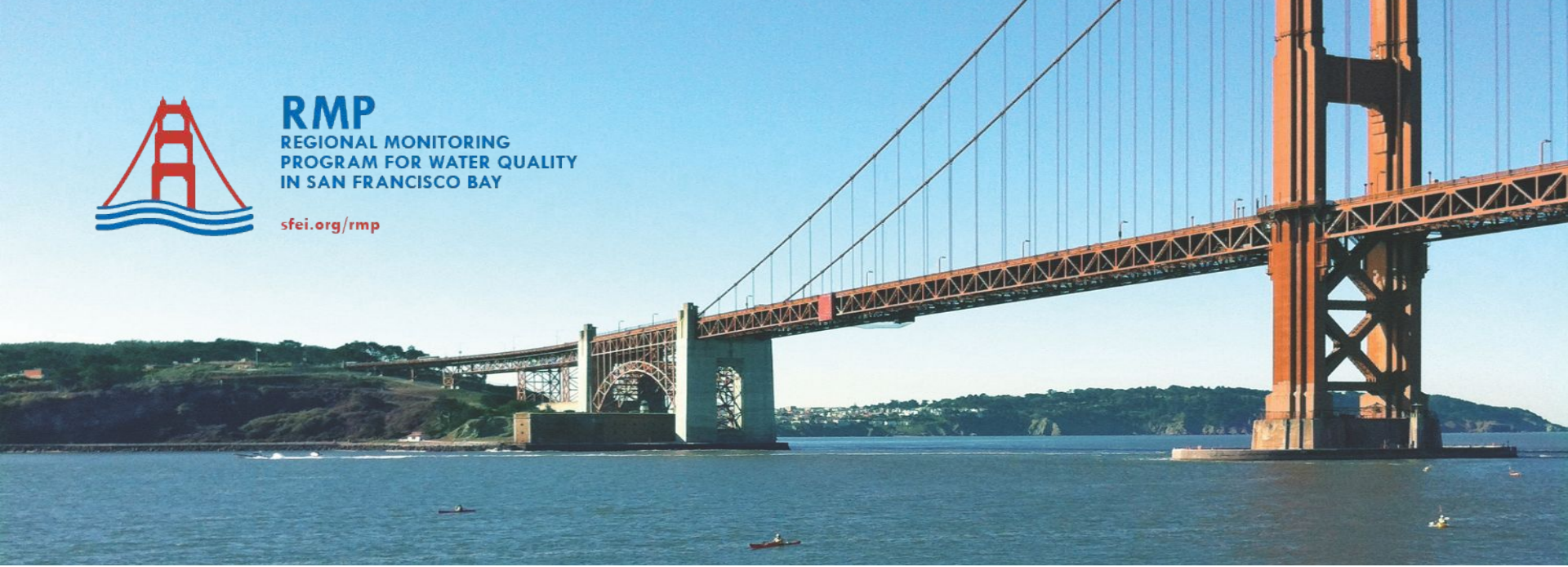
5. RMP Financial Update for Q3 (15 minutes)

Desired outcome:

- Informed committee

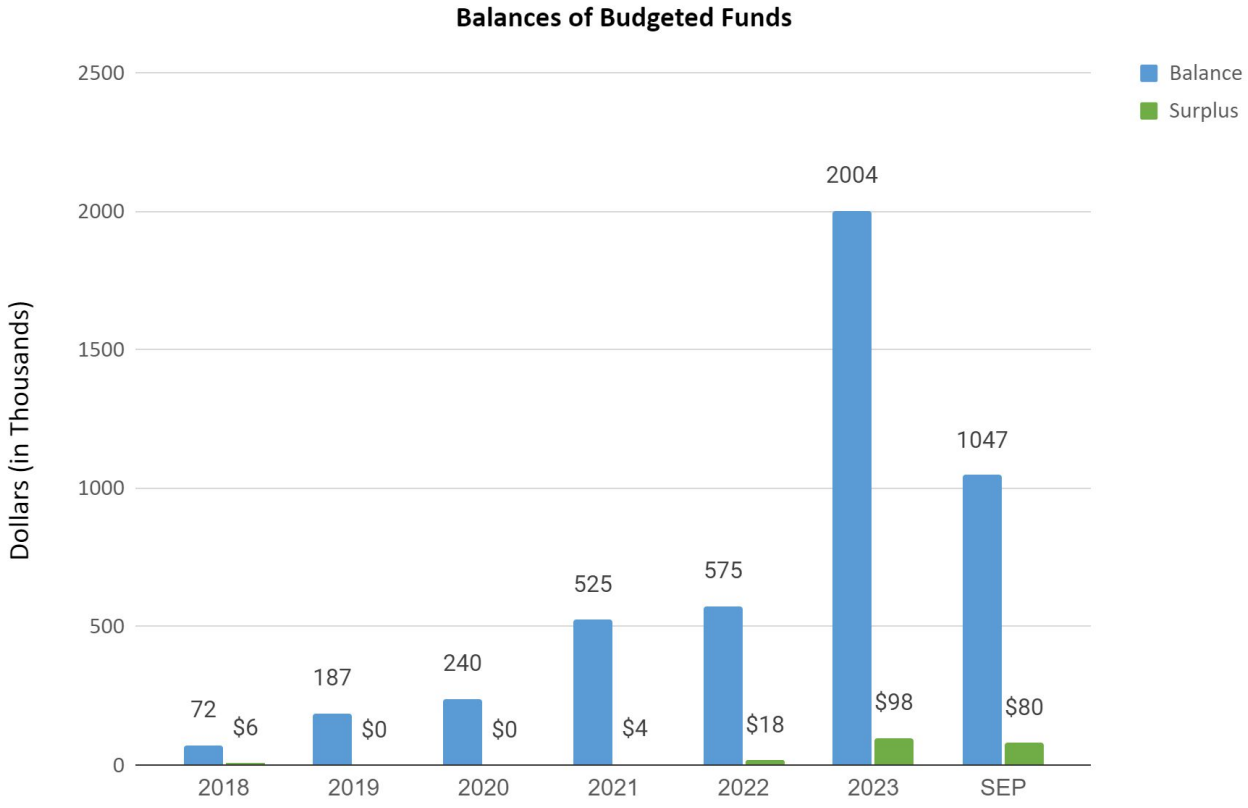


Steering Committee Meeting
November 1, 2023

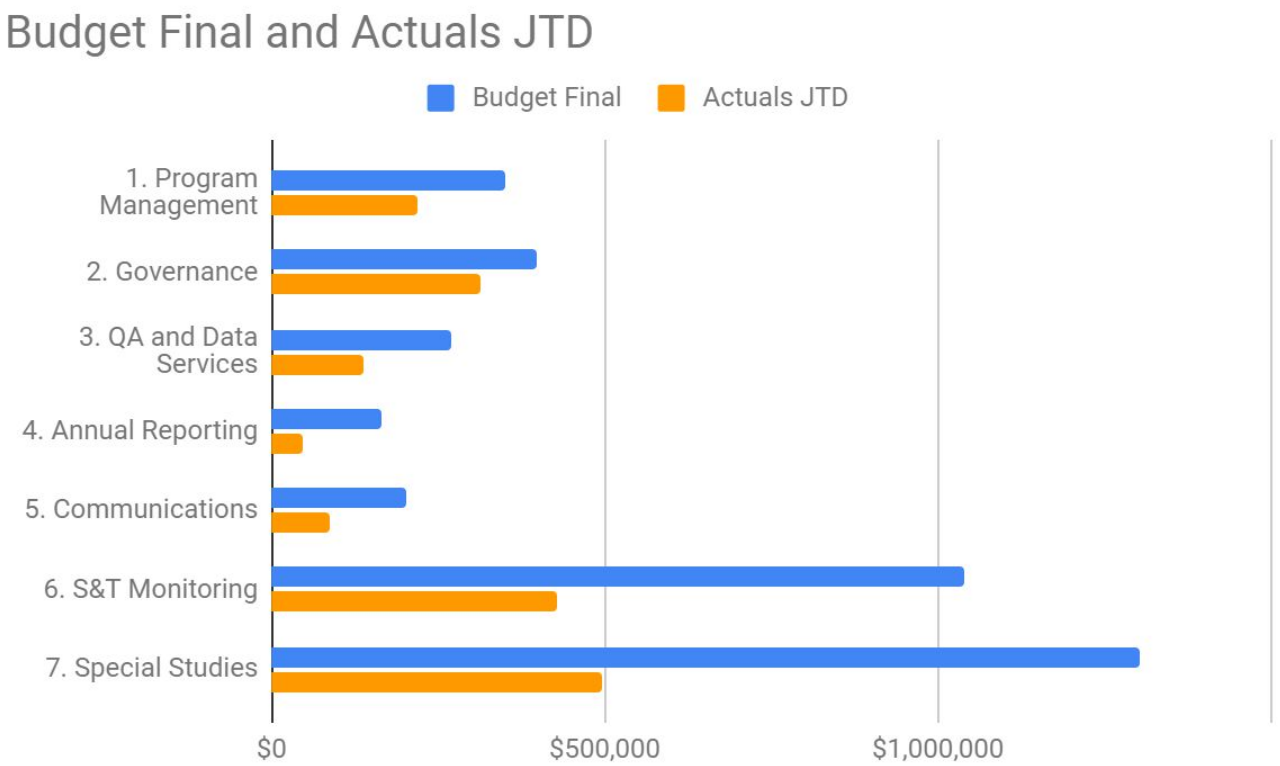
Item # 5

Financial Update

The Big Picture



2023 Budget and Expenses



Key Points

2023 Budget

- 46% expended
- 78% of invoiced fees received
- There is a surplus of $98k due to $118,250 in SEP funds supporting part of task 45 Sediment Delivery

Key Points

2022 Budget

- 79% expended
- 100% of 2022 invoiced fees received
- There's a surplus of $18k (reduced

Key Points

2021 Budget

- 85% expended
- 99% of 2021 invoiced RMP fees have been collected. We anticipate the final $5,504 San Francisco Marina invoice to be paid in 2023

Key Points

2020 Budget

- 94% expended
- 100% of fees have been collected

Key Points

2019 Budget

- 95% expended
- 100% of fees have been collected

Key Points

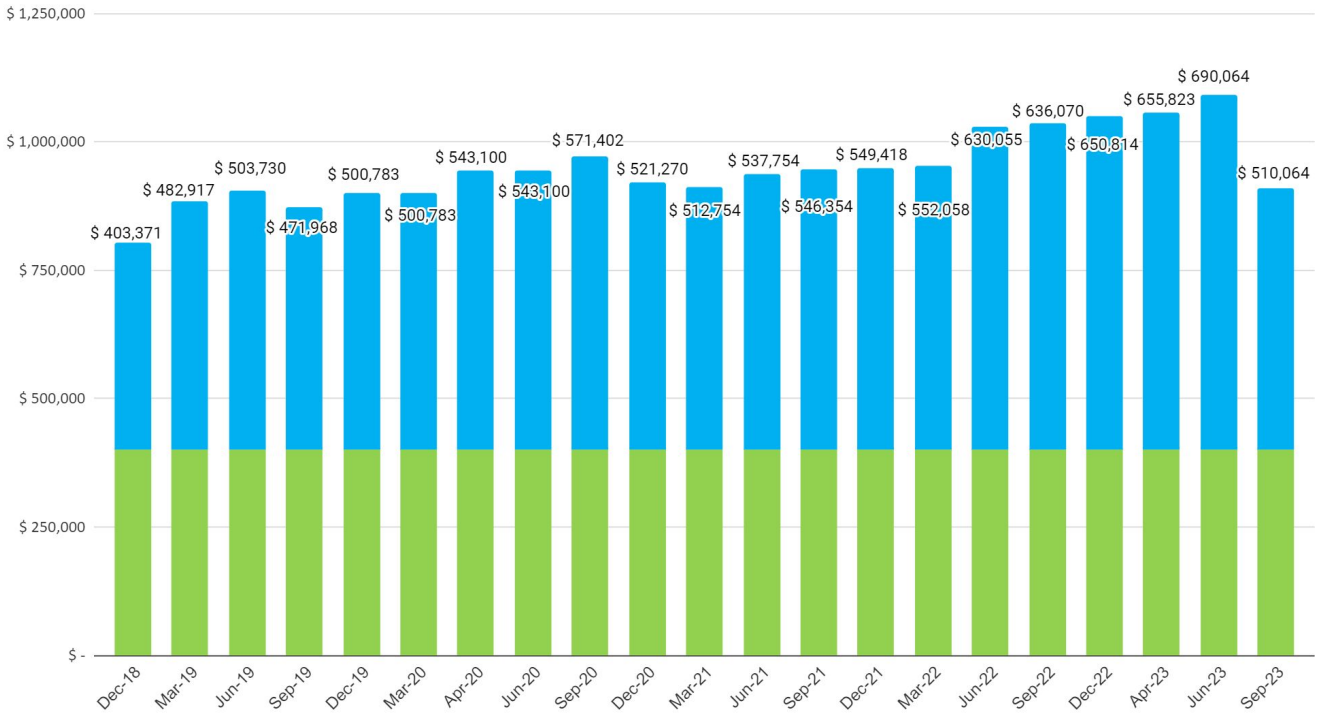
2018 Budget

- 98% expended
- 100% of fees have been collected
- Waiting on 1 final invoice and then will unencumber balance to reserve

Unencumbrances

- No requests this quarter

Undesignated Funds Balance



Undesignated Funds Changes

- Q1 LAIF interest of $34,081 (2.74% rate)
- Q2 LAIF interest of $38,160 (3.15% rate)
- Q3 LAIF interest totals will be reported next quarter (3.59% rate)

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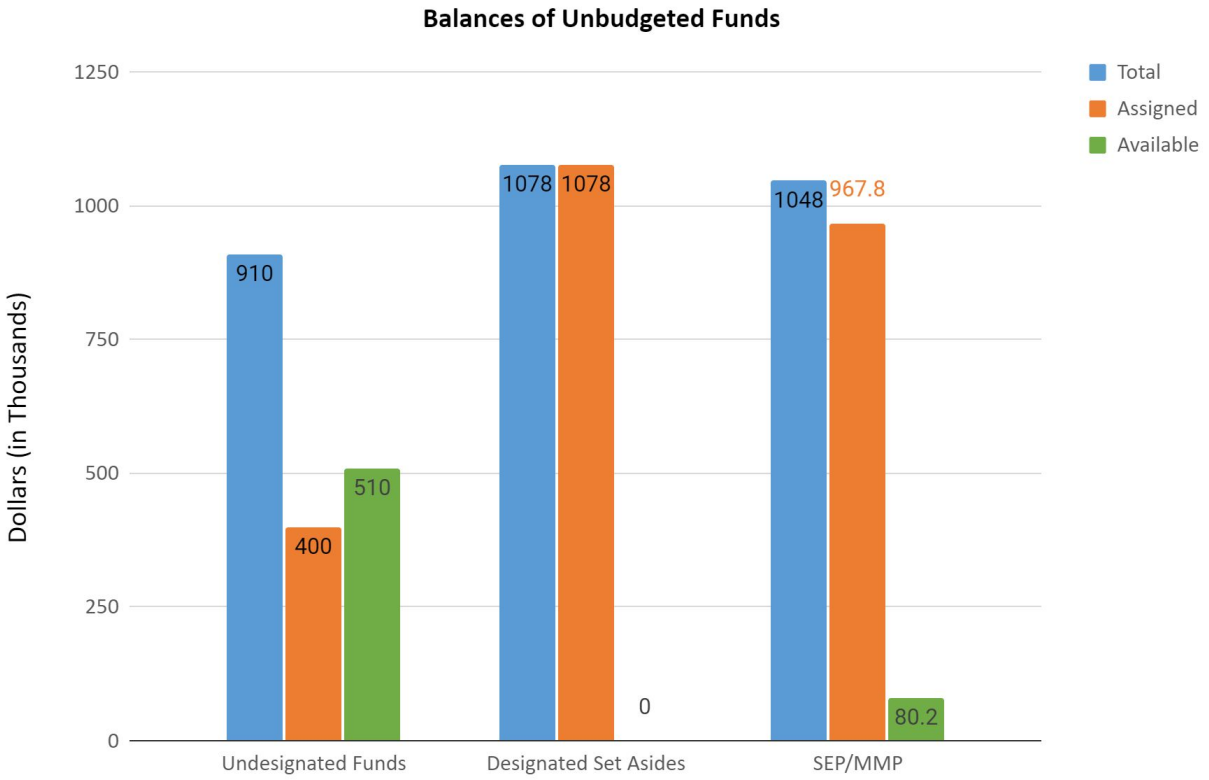
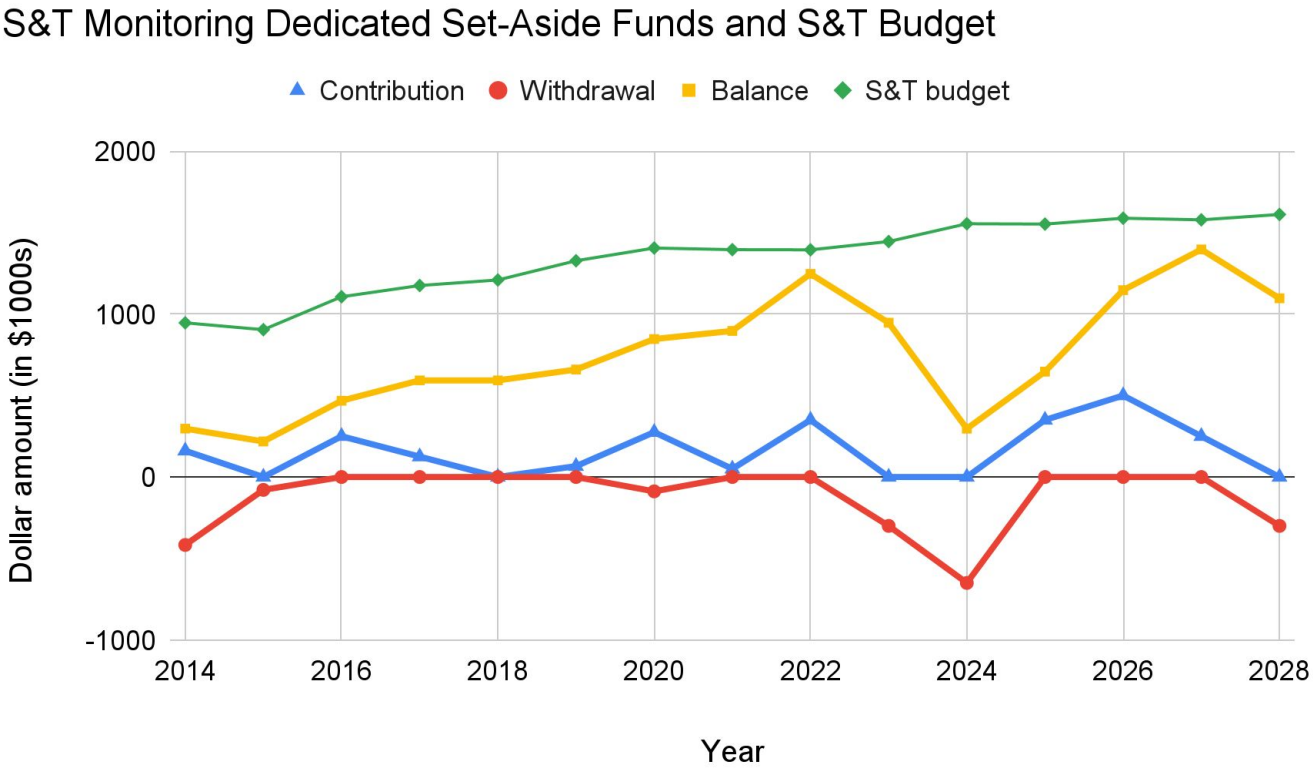
Unbudgeted Funds Summary



S&T Set Aside Funds



Requests to Steering Committee

- Request for early release of 2024 task 030 stormwater funds: **$139,800** of the total **$217,000** task budget.
  - Labor: **$94,150**
    - $71,820 - Subtask B. Stormwater monitoring and data mgmt
    - $22,330 - Subtask D. Project Mgmt
  - Direct Costs: **$8,650**
  - Subcontracts: **$37,000**

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6. 2024 Budget and Workplan (15 minutes)

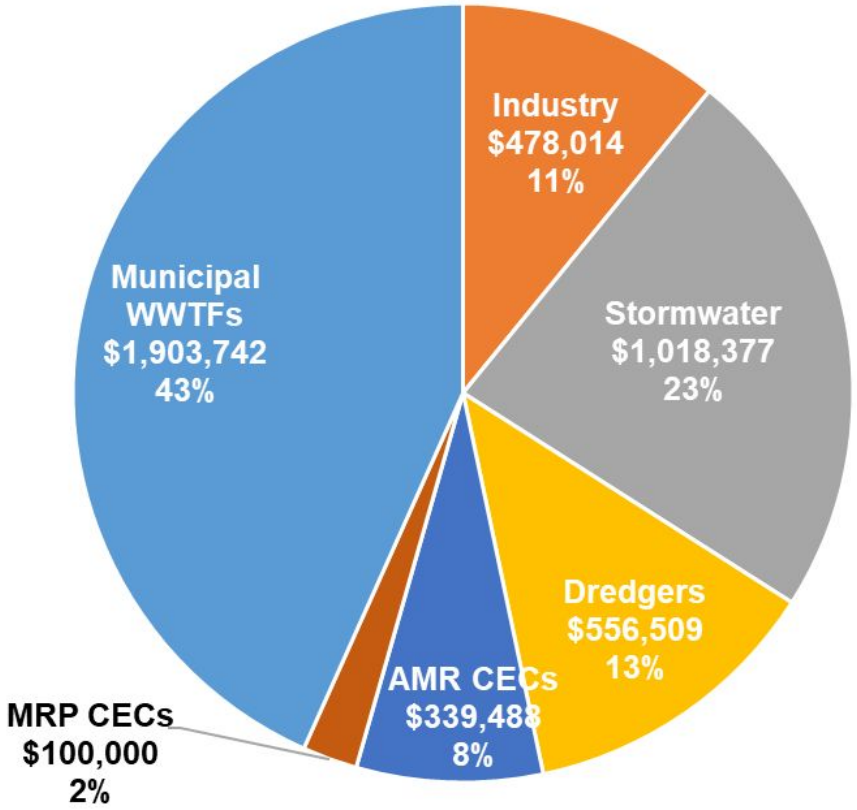
Desired outcome:

- Approval of 2024 workplan and budget

Proposed 2024 Budget

- Revenue = **$5,216,129** (includes assumed dredger shortfall)
  - $3,956,642 Core fees
  - $339,488 AMR
  - $100,000 MRP
  - $500,000 S&T set aside fund
  - $320,000 Undesignated reserve
- Expenses = $5,216,074
- Balance = $55

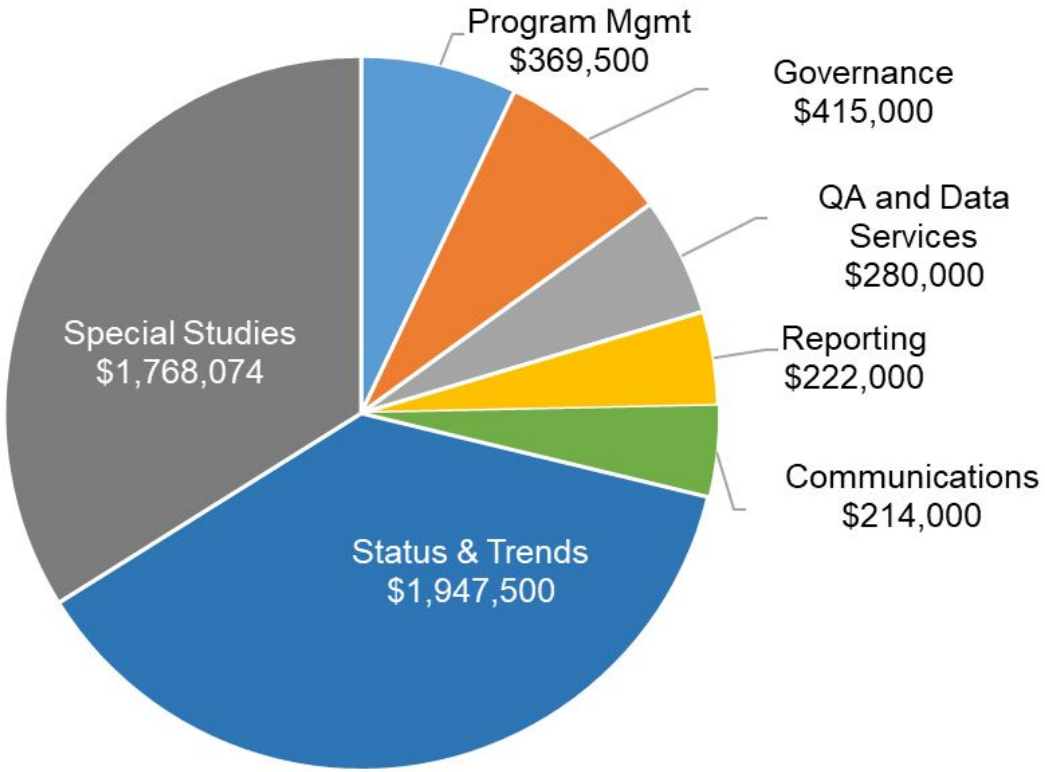
2024 Revenue - Planned



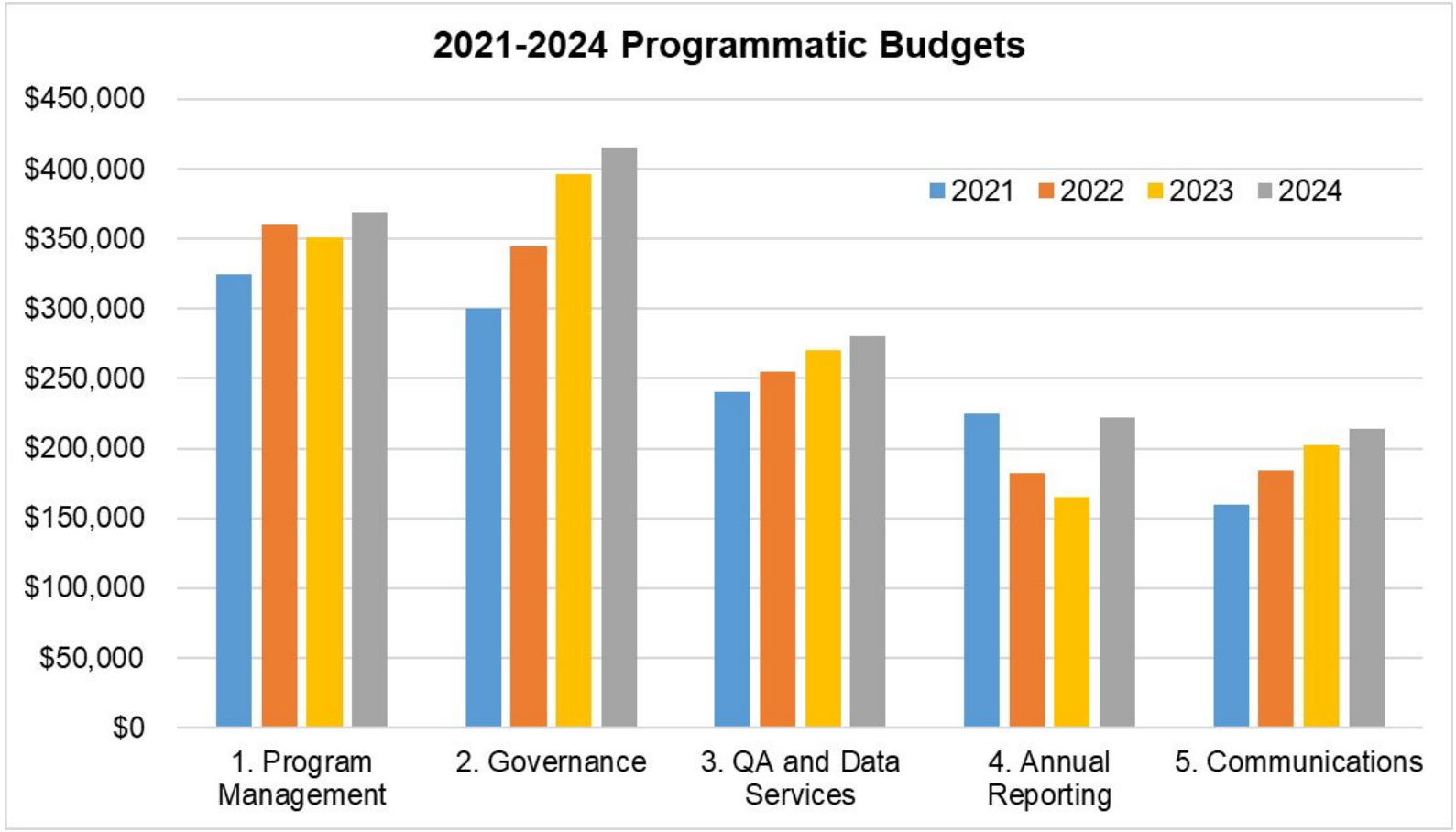
Total =
$5,216,129

Proposed 2024 Budget

Total Expenses=
$5,216,074



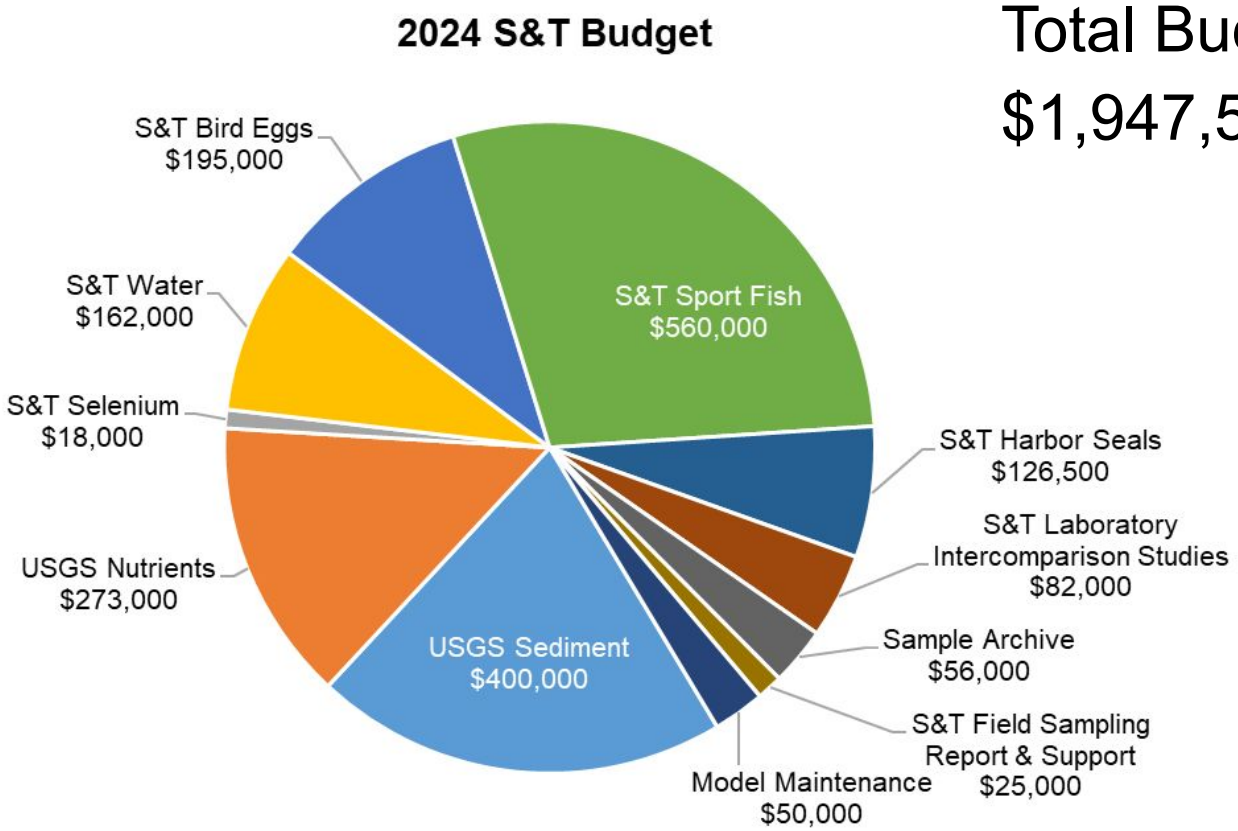
2024 Program Implementation Costs



Status & Trends 2024

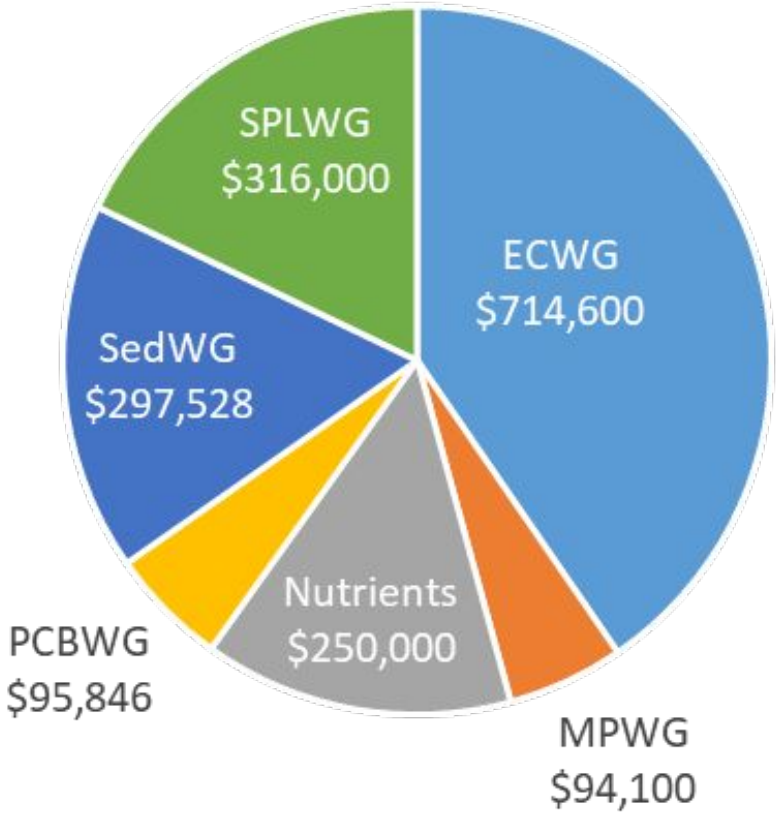
- USGS Moored Sensor Network for Suspended Sediment
- USGS Monthly Cruises for Nutrients and Phytoplankton
- Toxic Contaminants in Water – Wet Season
- Toxic Contaminants in Cormorant Egg Tissue
- Toxic Contaminants in Sport Fish
- Toxic Contaminants in Harbor Seals
- Model Maintenance

S&T Program Budget



Total Budget = $1,947,500

Special Studies 2024



Total Budget =
$1,768,074

Discussion

- Questions?
- Recommended changes?

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7. Remote Sampler Purchase Update (10 minutes)

Desired Outcome:

- Informed Committee

Remote Sampler Purchase Update

- Following up on discussion at the August SC meeting
- Stormwater CECs Stakeholder-Science Advisory Team (SST) met on 9/21 and recommended:
  - Continuing with the SFEI Mayfly portable remote sampler
  - Conducting pilot sampling with current design this year
  - In parallel, working on improvements to address contamination (a few CECs chemicals)
- Plan to build up to 10 SFEI Mayfly samplers this winter
  - Using separate (non-capital) funds for sampler improvements work

Remote Sampler Purchase Update

- Remote sampler purchase plan to support WY 2025 depends on outcomes of
  - Pilot deployments this water year
  - SFEI Mayfly improvement work
  - Stormwater CEC Approach (particularly number of analytes per location, as most parameters require individual containers)
- Future considerations
  - To minimize CEC contamination, may need two different sets of SFEI Mayfly samplers
  - ISCO samplers could be needed due to the practical limit on the number of containers that can be attached to an SFEI Mayfly
  - Permanent ISCO installations may be recommended at a few locations
- Current budget ($180K) may cover all sampler purchases, but would be unlikely to be sufficient to cover building permanent installations
  - No budget adjustments recommended at this time

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8. Event-based Monitoring

(15 minutes)

Desired outcome:

- Agree on planning process to develop RMP strategy for event-based monitoring

Event-based Monitoring

- Define the need - what events?
- Past precedent
  - Used to have a $50K contingency fund every year
  - High-flow year loading studies (Mallard Island, Guadalupe)
- Want to apply lessons learned from NMS response to HABs
- Process?
  - Form a small COW?
  - Staff bring strawman to TRC?

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9. Communications (30 minutes)

Desired outcomes:

- Feedback on the 2023 Annual Meeting and RMP Update
- Decision on theme for Pulse in 2024

RMP Update 2023

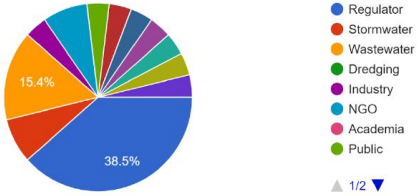
- Any feedback?
- Same number of copies as 2021?

Annual Meeting

- 110 in person
- 168 via Zoom

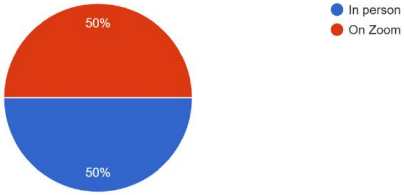
Which of the following categories best describes your affiliation?

26 responses



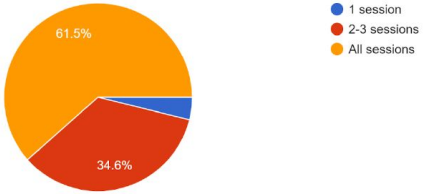
How did you attend the meeting?

26 responses



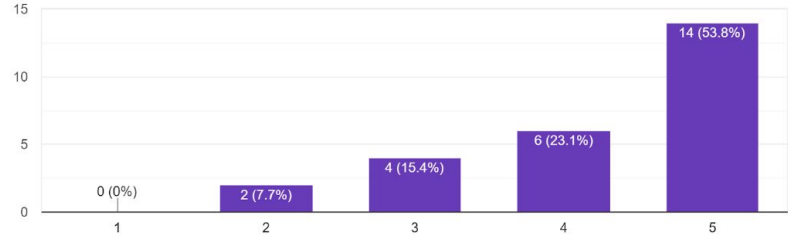
How much of the meeting did you attend? (session = a set of presentations & discussion organized by a theme)

26 responses



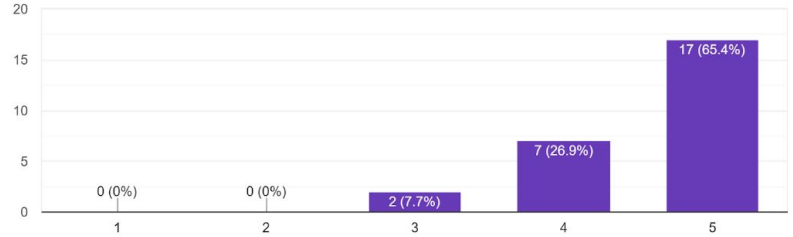
What was your general level of satisfaction with the meeting?

26 responses



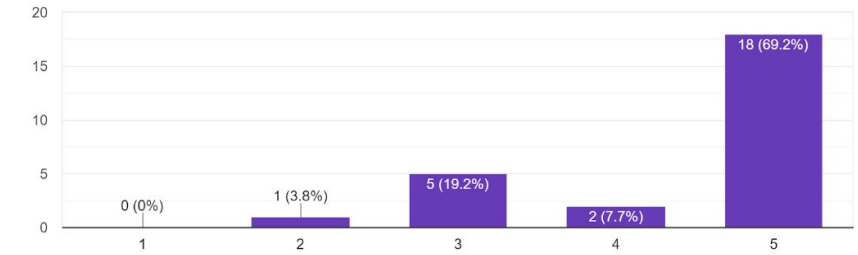
How informative and useful was this meeting's content?

26 responses



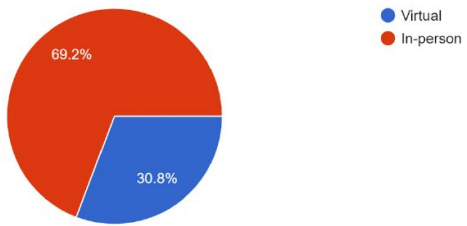
How was the general organization of the meeting?

26 responses



If you've attended Annual Meetings before, do you prefer a virtual or in-person meeting format?

26 responses

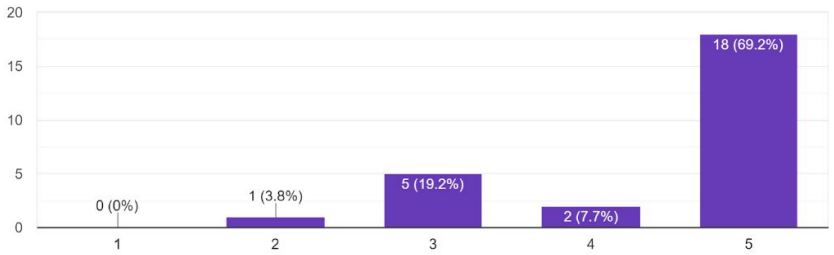


What did you enjoy/appreciate about the meeting? (e.g., speakers, discussion, Q&A)

- The technical presentations were very informative
- The relevancy of the topics and the deep dives
- amazing speakers! great discussion!
- Seeing some of the people doing this important work
- I liked the topic and speakers, the DTSC speaker was especially good.
- Quality and content of presentation, Excellent speakers/moderators, Fantastic staff, crew and delicious food!
- well organized and informative presentations and chatting with others during the breaks
- Enthusiastic and engaging presenters and scientific info and data presented for all knowledge levels; great topics
- It was a great lineup of speakers and topics. I thought the time allotted to the speakers and Q&A was perfect.
- Frankly, all of it. The meeting was interesting and engaging.
- that you recorded and will post all the presentations
- Networking opportunities
- lectures on sedimentation and pollutants in fish tissue samples
- It was nice to hear about all of the study results, typically we are in the lab and deal with the actual samples so this was a great overview.
- great venue and speakers, well organized and timed
- The panel discussions.
- Speakers; seeing the range of investigations from contaminant trends in the Bay all the way upstream to efforts to identify souces
- great range of topiocs
- The speaker presentations were excellent.
- SPEAKERS
- Speakers - history
- Speakers and topics

How was the general organization of the meeting?

26 responses



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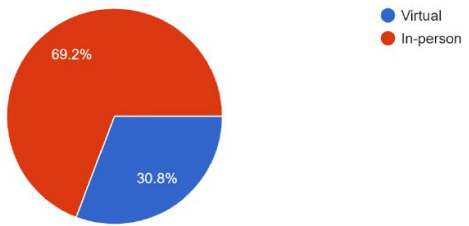

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- The panel discussions.

SC Feedback?

Pulse 2024

- Staff proposal: CECs
- Similar to the 2013 Pulse
- An updated go-to guide to CECs in the Bay
- 10-year cycle seems right

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10. Deliverables and Action Items (5 minutes)

Desired outcomes:

- Informed committee
- Feedback on progress and due dates

Deliverables - just completed!

- Nearfield Margins sediment & Preyfish - SAP SFEI Contribution No. 1141
- Water Cruise - SAP SFEI Contribution No. 1139
- PFAS and NTA in Marine Mammals sample collection
- Annual Meeting
- RMP Update

Deliverables - overdue

- QA Summary Report for 2021 S&T
- QA Summary Report for 2022 S&T
- MTC Bay Area Land Use Update (SEP)

Deliverables – delayed

- RWSM updated model
- Nutrients light attenuation and moored sensors
- Ethoxylated Surfactants Final Report
- Sediment Delivery to Marshes - data releases
- CEC modeling exploration

Deliverables – due before next meeting

- NTA Sediment Data Manuscript and Fact Sheet
- DMMO database enhancements
- 2023 QAPP Update
- S&T Design Report
- PFAS in Archived Sport fish manuscript
- CECs in Urban Stormwater

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11. Future agenda Items (5 minutes)

Desired outcome:

- Identify future agenda items, including science updates

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12. Plus/Delta (5 minutes)

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Thank you!