



# RMP

REGIONAL MONITORING  
PROGRAM FOR WATER QUALITY  
IN SAN FRANCISCO BAY

[sfei.org/rmp](http://sfei.org/rmp)

## RMP Steering Committee

July 19, 2017

9:30 AM – 4:00 PM

### REMOTE ACCESS

Audio by Phone: (415) 594-5500, Access Code 943-326-397#

Slides: <https://join.me/sfei-conf-cw1>

### AGENDA

1.	<b>Introductions and Review Agenda</b>	9:30 Tom Mumley
2.	<b>Decision: Approve Meeting Summary from April 26, 2017 and confirm/set dates for future meetings.</b>  Scheduled meetings: TRC: 9/14/17 SC/Multi-Year Planning: 11/1/17 - <i>review draft agenda, attached</i> TRC: 12/14/17 SC: 1/25/18 Proposed meetings: SC: Thursday, 4/26/18  Materials: See agenda package page 1  Desired outcome: <ul style="list-style-type: none"><li>• Approve meeting summary, confirm existing meeting dates, and set dates for future meetings.</li><li>• Feedback on agenda for 11/1/17 Multi-Year Planning workshop.</li></ul>	9:35 Tom Mumley
3.	<b>Information: TRC Meeting Summary</b>  Topics discussed at the most recent TRC meeting included: <ul style="list-style-type: none"><li>• Special Studies for 2018</li><li>• List of Eligible RMP Projects for SEPs</li><li>• Changes to the Status and Trends Design</li><li>• Scope of Work for Sediment Supply Synthesis</li></ul> Materials: See agenda package page 10  Desired Outcome: Informed committee	9:45 Phil Trowbridge

4.	<p><b>Information: RMP Financial Update for 2017 Quarter 2</b></p> <p>The RMP Financial Update report summarizes the balance of budgeted and reserved RMP funds as well as its cash position. An update on the FY17 Audit for SFEI will be provided if completed in time.</p> <p>Materials: <b><i>Financial Memo will be distributed on 7/17/17 under separate cover</i></b></p> <p>Desired outcome: Informed committee</p>	9:55 Lawrence Leung Phil Trowbridge
5.	<p><b>Discussion: Prepare for decision on 2019-2021 Fees</b></p> <p>RMP fees are set by the Steering Committee every three years. RMP target fees for 2017 and 2018 were approved in November 2014. In November 2017, the Steering Committee will need to set the target fees for 2019, 2020, and 2021. In July 2016, the SC reviewed projections of RMP expenses in 2019-2021 and preliminarily agreed to a fee increase of 3% per year for 2019, 2020, and 2021.</p> <p>Materials: See agenda package page 17</p> <p>Desired Outcome: Informal agreement on fee increases for 2019-2021 in preparation for a formal vote on 11/1/17.</p>	10:15 Philip Trowbridge
6.	<p><b>Decision: Approve Special Studies for 2018</b></p> <p>Between 3/1/17 and 6/6/17, workgroups met to develop proposals for special studies in 2018. The Nutrient Management Strategy Science Advisors and Nutrient Technical Workgroup also met to develop the NMS FY18 workplan. On 6/8/17, the TRC reviewed all the proposals put forward by the workgroups and recommended a suite of studies for 2018. The TRC also prioritized unfunded studies in the event that additional monies become available. The Steering Committee will review the recommended studies, make any adjustments they deem warranted, and then approve the special studies for 2018.</p> <p>Materials: See separate memo sent 7/7/17 with summary of special studies</p> <p>Desired outcome: Approve a suite of special studies for 2018 and identify additional studies worthy of funding in the event that additional monies become available.</p>	10:30 Phil Trowbridge
7.	<p><b>Decision: Approve the list of Eligible RMP Studies for SEP Funding</b></p> <p>The RMP maintains a list of projects that have been vetted by Workgroups and/or the TRC but were not funded. This list of projects is a resource to the Water Board as they negotiate Supplemental Environmental Projects. The list will be revised by adding proposed projects for 2018 that were not funded and by removing any older projects that are no longer priorities.</p> <p>Materials: See <b>agenda package page 28</b></p> <p>Desired outcome: Approve a list of eligible RMP projects for SEP funding.</p>	11:30  Philip Trowbridge
	<b>Lunch (provided)</b>	12:00

8.	<p><b>Science Update: PCBs in Priority Margin Unit Areas</b></p> <p>The RMP has completed conceptual model reports for two priority margin units (Emeryville Crescent and San Leandro Bay). An extensive field study is also underway in San Leandro Bay. Recent findings will be presented.</p> <p>Materials: None</p> <p>Desired Outcome: Informed committee</p>	12:30 Jay Davis
9.	<p><b>Decision: Approve Changes to Status and Trends Monitoring Design</b></p> <p>The TRC has recommended changes to the S&amp;T long-term design. The major change is to skip sediment toxicity and benthic community sampling in 2018. The SC should review and approve the proposed changes. There was not consensus about whether to hold all future sediment cruises in the summer or to continue to alternate between winter and summer. Direction from the Steering Committee on this decision would be helpful.</p> <p>Materials: See <b>agenda package page 49</b></p> <p>Desired outcome: Approval of revised S&amp;T Monitoring Design</p>	1:30 Philip Trowbridge
10.	<p><b>Discussion: Update on 2017 Pulse, Annual Meeting, and Upcoming Reports &amp; Communications Products</b></p> <p>Brief updates will be given on the upcoming Pulse report, Annual Meeting, and other RMP communications products.</p> <p>Materials: See <b>agenda package page 51</b></p> <p>Desired Outcomes: Informed committee</p>	2:00 Jay Davis
11.	<p><b>Information: Update on the Delta RMP and MOU between SFEI and the Delta Science Program for Bay-Delta Science Integration</b></p> <p>The Steering Committee has requested a presentation on the Delta RMP's priorities and monitoring programs. In addition, SFEI and the Delta Science Program recently entered into a Memorandum of Agreement to promote integration of science initiatives between the Bay and Delta.</p> <p>Materials: None</p> <p>Desired outcome: Informed committee</p>	2:30 Philip Trowbridge

12.	<p><b>Discussion: Strategize about Actions to Minimize the Impact of Federal Funding Cuts on the RMP</b></p> <p>The RMP is already starting to feel the impacts of reduced federal investment in monitoring programs for suspended-sediment. Additional cuts are likely. The RMP cannot absorb the cost of these federal programs without scaling back special studies. The purpose of this agenda item is to discuss actions that the Steering Committee or its member agencies can take to prevent federal funding cuts and to set guidance on the role of the RMP if federal funding is cut for crucial monitoring programs.</p> <p>Materials: None</p> <p>Desired outcomes: Action items for SC members and their agencies to forestall federal funding cuts. Guidance on what the role of the RMP should be if federal monitoring programs are cut.</p>	3:00  Tom Mumley
13.	<p><b>Discussion: Status of RMP Deliverables and Action Items</b></p> <p>Materials: See <b>agenda package page 53</b></p> <p>Stoplight reports are also available online:  <a href="https://sites.google.com/a/sfei.org/rmp-operations/home/deliverables-tracking">https://sites.google.com/a/sfei.org/rmp-operations/home/deliverables-tracking</a>  <a href="https://sites.google.com/a/sfei.org/rmp-operations/home/action-items">https://sites.google.com/a/sfei.org/rmp-operations/home/action-items</a></p> <p>Desired outcome: Informed committee about the status of RMP deliverables</p>	3:30 Phil Trowbridge
14.	<p><b>Discussion: Plan agenda items for future meetings</b></p> <p>Desired Outcome: Identify future agenda items</p>	3:45 Jay Davis
15.	<p><b>Discussion: Plus/Delta</b></p>	3:55
16.	<p><b>Adjourn</b></p>	4:00

Recently Completed RMP Reports/Products

- Sun, J.; Davis, J. A.; Bezalel, S. N.; Ross, J. R. M.; Wong, A.; Fairey, R.; Bonnema, A.; Crane, D. B.; Grace, R.; Mayfield, R. 2017. Contaminant Concentrations in Sport Fish from San Francisco Bay, 2014. SFEI Contribution No. 806. June 2017. Published online: <http://www.sfei.org/documents/contaminant-concentrations-sport-fish-san-francisco-bay-2014>.
- Gilbreath, A., J. Hunt, D. Yee, and L. McKee. 2017. Pollutants of Concern Reconnaissance Monitoring: Final Progress Report for Water Years 2015 and 2016. Contribution No. 817. San Francisco Estuary Institute, Richmond, CA. June 2017. Published online: <http://www.sfei.org/documents/pollutants-concern-reconnaissance-monitoring-final-progress-report-water-years-2015-and>
- Yee, D., A. Gilbreath, L. McKee, and J. Davis. 2017. Conceptual Model to Support PCB Management and Monitoring in the San Leandro Bay Priority Margin Unit: Phase I. SFEI Contribution No. 830. San Francisco Estuary Institute, Richmond, CA. June 2017. Published online: <http://www.sfei.org/documents/conceptual-model-support-pcb-management-and-monitoring-san-leandro-bay-priority-margin>
- McKee, L. J.; Bonnema, A.; David, N.; Davis, J. A.; Franz, A.; Grace, R.; Greenfield, B. K.; Gilbreath, A. N.; Grosso, C.; Heim, W.; et al. 2017. Long-term variation in concentrations and mass loads in a semi-arid watershed influenced by historic mercury mining and urban

pollutant sources. *Science of The Total Environment* 605-606: 482–497 . SFEI Contribution No. 831. DOI: 10.1016/j.scitotenv.2017.04.203. <http://www.sfei.org/documents/long-term-variation-concentrations-and-mass-loads-semi-arid-watershed-influenced-historic>

- Sun, J.; Pearce, S.; Trowbridge, P. 2017. RMP Field Sampling Report 2016. SFEI Contribution No. 826. San Francisco Estuary Institute: Richmond, CA. Published Online: <http://www.sfei.org/documents/rmp-field-sampling-report-2016>
- Davis, J. A.; Yee, D.; Gilbreath, A. N.; McKee, L. J. 2017. Conceptual Model to Support PCB Management and Monitoring in the Emeryville Crescent Priority Margin Unit. SFEI Contribution No. 824. San Francisco Estuary Institute: Richmond, CA. April 2017. Published online: <http://www.sfei.org/documents/conceptual-model-support-pcb-management-and-monitoring-emeryville-crscent-priority-margin>.
- De La Cruz, S.; Woo, I.; Flanagan, A.; Mittelstaedt, H. 2017. Assessing the Impact of Periodic Dredging on Macroinvertebrate-Prey Availability for Benthic Foraging Fishes: Final Study Plan and Preliminary Pilot Study Results. U.S. Geological Survey: Vallejo, CA. June 2017. Published online: <http://www.sfei.org/documents/assessing-impact-periodic-dredging-macroinvertebrate-prey-availability-benthic-foraging>
- Yee, D.; Franz, A.; Wong, A.; Ross, J.; Trowbridge, P. 2017. 2017 Quality Assurance Program Plan for the Regional Monitoring Program for Water Quality in San Francisco Bay. SFEI Contribution No. 828. San Francisco Estuary Institute: Richmond, CA. June 2017. Published online: <http://www.sfei.org/documents/2017-quality-assurance-program-plan-regional-monitoring-program-water-quality-san-francisco-bay>.
- RMP 2016 Bird Egg Data is available in CD3. [Direct link to Sum of PBDEs data](#). Go to [cd3.sfei.org](http://cd3.sfei.org). Click on “Direct Download Tool” and select the project called “2016 RMP EEPS Pilot Study”.
- RMP 2016 Bivalve Data is available in CD3. [Direct link to Selenium data](#). For whole dataset, go to [cd3.sfei.org](http://cd3.sfei.org). Click on “Direct Download Tool” and select the project called “2016 RMP Status and Trends”.
- RMP POC 2015 Stormwater Data is available in CD3. [Direct link to Sum of PCBs data](#). For whole dataset, go to [cd3.sfei.org](http://cd3.sfei.org). Click on “Direct Download Tool” and select the project called “STLS Monitoring RMP WY2015”
- RMP POC 2016 Stormwater Data is available in CD3. [Direct link to Sum of PCBs data](#). For whole dataset, go to [cd3.sfei.org](http://cd3.sfei.org). Click on “Direct Download Tool” and select the project called “STLS Monitoring RMP WY2016”
- **Released CD3 v3.1** – new functionality includes a link for sharing a map query. For example, this [link](#) displays RMP Status and Trends sediment PBDEs data (2002-2014). Sharing links are a convenient way to reference data in a report or distribute a project’s dataset.

#### Other Reports of Interest

- Trowbridge, P., Shimabuku, I., Wheeler, S., Knight, E., Nielsen, K., Largier, J., Sutula, M., Valiela, L., Nutters, H. 2017. Summary of Workshop on Monitoring for Acidification Threats in West Coast Estuaries: A San Francisco Bay Case Study. October 19-20, 2016, San Francisco Estuary Institute, Richmond, CA. <http://www.sfei.org/documents/summary-workshop-monitoring-acidification-threats-west-coast-estuaries-san-francisco-bay>



**RMP Steering Committee Meeting**

April 26, 2017

San Francisco Estuary Institute

**Meeting Summary**

**Attendees**

SC Member	Affiliation	Representing	Present
Jim Ervin	City of San Jose	POTW-Large	No
Leah Walker	City of Petaluma	POTW-Small	<b>Yes</b>
Karin North**	City of Palo Alto	POTW-Medium	<b>Yes</b>
Adam Olivieri	BASMAA / EOA, Inc.	Stormwater	No
Peter Carroll	Tesoro Martinez Refinery	Refineries	<b>Yes</b>
John Coleman	Bay Planning Coalition	Dredgers	<b>Yes</b>
Jessica Burton Evans	US Army Corps of Engineers	USACE	<b>Yes</b>
Tom Mumley*	SFB Regional Water Quality Control Board	Water Board	<b>Yes</b>

\* Chair, \*\* Vice Chair

**Guests and Staff**

- Naomi Feger - SFBWQCB
- Phil Trowbridge - SFEI
- Jay Davis -SFEI
- Ila Shimabuku -SFEI
- Lawrence Leung - SFEI
- Rebecca Sutton - SFEI
- Diana Lin - SFEI
- Alicia Gilbreath - SFEI
- Don Yee - SFEI
- Chris Sommers - BASMAA (remote access)
- Lester McKee - SFEI (remote access)

## 1. Introductions and Review Agenda

There were no changes to the agenda made at the beginning of the meeting. However, the first few agenda items ran long and the SC decided to move item seven to after lunch and only briefly cover item eight (update on PCBs).

One Committee member mentioned that, due to Adam Olivieri's absence at the April 26 SC meeting, there was no representation from stormwater. This sparked a discussion about the need for either an official list of alternates or a protocol to address the absence of representatives at future SC and TRC meetings. A suggested mode of action was, once a representative has identified their inability to attend a future meeting, they are to (1) select an alternate, (2) notify Tom Mumley, Karin North, and Phil Trowbridge of their alternate, (3) brief the alternate on all relevant RMP matters and upcoming decisions, and (4) arrange a phone call with Phil Trowbridge in advance of the meeting to review the agenda.

### **Action Item**

- Review the RMP charter and re-establish a protocol for alternates at RMP governance meetings. (Phil Trowbridge, 5/8/2017)

## 2. Decision: Approve Meeting Summary from January 17, 2017 and confirm/set dates for future meetings

There were no suggestions or edits regarding the January SC meeting summary before it was approved.

Tom Mumley reviewed the list of upcoming Steering Committee and Technical Review Committee meeting dates. After a discussion whereby John Coleman communicated that he could attend SC meetings held on the second and fourth Tuesdays of the month and Karin North communicated that she cannot attend SC meetings on Wednesdays, the farthest-out proposed SC meeting date was moved from Wednesday, January 24, to Thursday, January 25, 2018.

John Coleman informed the Committee that he cannot attend the July 19 SC meeting and plans to have Betty Kwan represent him.

Jessica Burton Evans notified the Committee that Jim Mazza has been newly appointed as the chief of the Dredged Material Management Office (DMMO) and that there has been discussion of Jim representing the US Army Corps of Engineers (USACE) on the RMP's Technical Review Committee.

Ila Shimabuku quickly highlighted a few changes to the RMP landing page on the SFEI website which involved (1) approved meeting materials that are now visible next to the links of the associated meeting and (2) a "sticky" list of commonly-used publications that will appear above the grand list of RMP publications.

## **Decisions**

- Karin North motioned to approve the meeting summary from January 17, 2017. Jessica Burton Evans seconded the motion. The motion for approval was carried by all present members.
- January 25, 2018, was approved by all present members for 2018's 1st quarter Steering Committee Meeting. (Consensus)

## **Action Items**

- Upload the approved January 17 SC meeting summary to the public meetings Google Drive folder and the calendar event on the SFEI website. (Ila Shimabuku, 5/2/17)
- Create website and Google calendar events for the January 25, 2018, Steering Committee meeting. (Ila Shimabuku, 5/8/2017)
- Hold a phone call with Jim Mazza and Jessica Burton Evans to discuss James' attendance at the June, and future, TRC meetings. (Phil Trowbridge, 5/15/17)
- Share July SC agenda items two weeks early (July 5th) with John Coleman and Betty Kwan. Hold a phone call with John and Betty to review the July SC agenda ahead of time. (Phil Trowbridge, 7/3/17)

## **3. Information: TRC Meeting Summary**

Phil Trowbridge quickly summarized the March 9 Technical Review Committee meeting and highlighted a few key items from the meeting: the South Bay margins study design, an added agenda item to discuss the addition, if any, of RMP monitoring efforts to observe the effects of the large amount of precipitation in the 2017 Water Year, and planning for sediment toxicity and benthos monitoring. One Committee member reported that the Water Board's official recommendation is to not list the SF Bay as a category five impaired water body for water toxicity due to insufficient sediment-toxicity data (the Water Board was only able to consider data from pre-2010) and the absence of "full triad" - chemical, toxicity, and benthos - data.

## **4. Information: RMP Financial Update for 2017 Quarter 1**

Phil Trowbridge presented the "Big Picture" of RMP financials by showing the overall balance and surplus for each year from 2014 - 2017. Phil highlighted that \$134,585 from 2016 funds could be unencumbered, due to surpluses from the RMP Update, the RMP Annual Meeting, and others. He also mentioned that the expected, combined roll-over from 2014 (deficit of ~\$5,000) and 2015 (surplus of ~\$16,000) is around \$11,000. He addressed one Committee member's concerns with keeping budget-years separate by explaining that, historically, the RMP had absorbed past years' funds into current budgets but that practice caused excessive back calculating when doing retrospective assessments. Separating the budget-years was more practical. Lawrence Leung covered the summary of balances in the RMP's reserved funds and items for approval (see "Decisions").

A question about SEP funds allocation from one Committee member sparked a discussion which resulted in a suggestion for the Water Board to eliminate oversight fees when SEP funds are designated to the RMP in order to make the RMP a more desirable recipient of SEP funds.

### **Decisions**

- Karin North motioned to approve the 2016 write-off of a \$804 Caltrans invoice. Peter Carroll seconded the motion. The motion for approval was carried by all present members.
- Karin North motioned to approve the unencumbering of \$134,585 of left-over 2016 RMP funds and their adding them to the reserve. Peter Carroll seconded the motion. The motion for approval was carried by all present members.

## **5. Information: Workgroup Meetings and Multi-Year Plan budgets from 2018**

Phil Trowbridge presented the 2017 workgroup season schedule as well as the workgroup's planning budget vetting process used to assign funds to specific projects.

### **Action Items**

- Share EEWG meeting materials with dredging representatives. (Phil Trowbridge, 5/8/2017)

## **6. Discussion: Next Steps Toward a Monitoring Strategy for Sediment**

Phil Trowbridge began the discussion around sediment studies by reminding the Committee of the EPA-funded Healthy Watersheds-Resilient Baylands project on sediment needs for restoration as well as the importance that sediment studies carry for USACE and dredgers. He summarized the "sediment portfolio" by presenting past, present, and proposed sediment studies, and highlighted the overlap in research questions that sediment studies share with the Exposure and Effects Workgroup (EEWG).

Most of the sediment discussion centered on planning funds for the two upcoming project proposals: (1) the Sediment Supply Synthesis (SSS) and (2) the Healthy Watersheds and Resilient Baylands program (HWRB) which is currently in progress. David Schoellhamer has requested \$30,000 - \$40,000 of Federal Fiscal Year funds from USGS to carry out the SSS. The RMP is looking for a similar amount to fund SFEI staff (Jeremy Lowe, Lester McKee, and Scott Dusterhoff) to augment David's work through additional work on the HWRB. Phil informed the Committee that the SSS needs to be completed by October so that the findings could inform the multi-year plan and budget for sediment work that will be developed at the Multi-Year Planning workshop in November 1, 2017.

Jessica Burton Evans communicated the USACE's interests in the following sediment-related projects: Total Suspended Solids monitoring, the SSS, and studies that help forecast dredge volumes in navigational channels.

After discussing the specifics of the SSS and HWRB, the Committee decided that the RMP should use \$40,000 of the RMP's Undesignated Funds to support SFEI staff's involvement in the SSS. The Committee also decided that, if the USGS cannot fund the SSS (decision scheduled for week of May 1), Committee members would explore other options to support David Schoellhamer's SSS work, at least through to the end of 2017. These other options include, preferably, funding from USACE, as well as funding from the RMP or a combination of USACE and RMP funds. The RMP funds in question could come from the RMP's Undesignated Funds or, if available, Supplemental Environmental Project Funds.

One Committee member recommended that the RMP reach out to Brenda Goeden at BCDC and Beth Christian at the San Francisco Bay Regional Water Quality Control Board to learn about the sand-transport studies being developed in response to sand mining.

Another committee member expressed a wish for a unifying, integrated platform that is incorporated into larger strategies, such as the Bay-wide sediment strategy, in order to identify funding and labor overlaps across interested and involved parties. Such a platform could help to systematically identify opportunities for collaboration.

#### **Decision**

- Tom Mumley motioned to approve up to \$40,000 of the RMP's Undesignated Funds to augment direct funding to USGS for the proposed Sediment Supply Synthesis. Karin North seconded the motion. The motion for approval was carried by all present members.
- At the current time, the TRC appropriately serves as an advising workgroup for sediment-related projects. (Consensus)

#### **Action Items**

- Add the issue of "contaminant transport" to the fourth of the proposed sediment research questions. (Phil Trowbridge, 5/8/2017)
- Arrange a phone call with Jessica Burton Evans, David Schoellhammer, and the navigation program manager to discuss the USACE's involvement in the USGS Sediment Supply Synthesis. (Phil Trowbridge, 5/8/17)
- Reach out to Brenda Goeden at BCDC and Elizabeth Christian at the Water Board regarding the study design of the future sand-transport monitoring effort. (Phil Trowbridge, 6/1/17)

Lunch

## 7. Decision: Future Direction for Exposure and Effects Workgroup (EEWG)

Jay Davis gave a brief history of the EEWG workgroup and introduced a discussion aimed at obtaining the Steering Committee's approval for maintaining the existence of the EEWG, as well as revising and approving its priority research questions for the next five years. Jay commenced this discussion by mentioning the main issues that stakeholders have historically had with the EEWG: the EEWG runs a “potpourri” of studies, and there’s lacking stakeholder interest and participation with frequent participation turnover. The overlap with the Emerging Contaminants Workgroup (ECWG) and the sediment work was also mentioned as cause for concern or opportunity for project coordination and merged meeting schedules.

One possible solution that was discussed was inviting technical, permanent, and highly-engaged participants to join the EEWG. The following were mentioned as possible desired options for additional representatives: a member of the DMMO, BCDC, or BACWA; a sediment quality and/or quantity advisor; and an expert in restoration and/or wetland monitoring. One Committee member recommended stronger links between the ECWG and the EEWG by changing the formats of their meetings to be either back-to-back or combining the meetings in a way that’s more time-effective for participants. Another recommended changing the name of the “Exposure and Effects Workgroup” to the “Sediment Exposure and Effects Workgroup” to attract interest from the dredging community or having a sediment subcommittee be part of the EEWG that would only attend part of the EEWG meeting and serve as an advisory panel on sediment-related issues. There was also discussion about getting better integration of the sediment toxicity and chemistry data collected by dredgers and the data collected by the RMP. Currently, the dredgers use a different toxicity test and collect samples from deeper depths. The group briefly discussed HABs and phycotoxins as other possible exposures for which effects could be evaluated.

Jay’s proposal was to maintain the EEWG to provide oversight on hotspot-, CEC-, and dredging-related work. Dropping Harry Ohlendorf from the list of advisors and dropping acidification as a charge to EEWG, and having a back-to-back meeting with ECWG next year were among recent changes. Overall, the Committee agreed that the EEWG answers enough management questions to justify its existence if the focus is kept on studies that directly address management questions. The Committee was generally in favor having the sediment group be comprised of physical transport experts, the ECWG be comprised of chemical experts, and the EEWG be comprised of biological experts.

### Action Items

- Reach out to key stakeholder groups and recruit more attendees for the EEWG meeting. (Phil Trowbridge, 5/5/2017)
- Add agenda item to May 9 EEWG meeting: provide a quick summary of the recent ECWG meeting. (Phil Trowbridge, 5/1/2017)
- Modify language in the Proposed Questions for the Exposure and Effects Workgroup (for the next Multi-Year Plan) from “Are there any indications of ecological effects caused by exposure to mixtures of contaminants in the Bay?” to “Are there any indications of

ecological effects caused by exposure to specific chemicals or mixtures of contaminants in the Bay?" (Jay Davis, 5/8/17)

## 8. Science Update: PCBs in Priority Margin Unity (PMU) Areas (shortened for timekeeping purposes)

In order to save time, Jay Davis spent five minutes, rather than the originally allotted forty-five, to quickly summarize a few results from the PCB PMU study from Summer 2016. He highlighted data showing PCBs in surface sediment which showed that the hotspots from 1998 are still present, as well as a PCB hotspot with spatial heterogeneity close to Oracle Arena.

## 9. Information/Decision: Plans for 2017 Pulse, Annual Meeting, and Upcoming Reports & Communications Products

Jay Davis presented the current draft schedule of the 2017 RMP Annual Meeting and asked for input on the agenda. Committee members mentioned Jim Kelly, Rob Lawrence, Dave Tucker, Mike Carlin, Steve Ritchie, Loretta Barsamian, and Russ Flegal as desired invitees. The Committee's recommendations on the agenda are summarized below:

**Session 1:** Jay Davis to moderate. Bridgette DeShields and Luisa Valiela were also mentioned as possibilities.

**Session 2:** Jan O'Hara to moderate.

**Session 3:** David Senn to moderate leaving Rusty, Lissa, and Morgaine to give their talks as planned.

**Session 4:** Eric Dunlavey to moderate. Kelly Moran to give a talk on informing management actions in the third slot, which could include pollution prevention.

Jay then presented the most up-to-date outline of the 2017 Pulse of the Bay and welcomed any feedback.

One suggestion for the margins article was to tell a narrative about (1) driving interests (contaminants like PCBs in the channels and mudflats with a nexus in watersheds), (2) how margins work is now part of much larger questions due to wetland restoration, sea-level rise, and other changes, and (3) looking forward at where the RMP is headed. Committee members also suggested moving the third piece of the margins outline, "RMP focus on water quality impairments and improvements," to be the first, bumping the other two down. One Committee member reminded that the interests should begin with TMDLs as a main driver. The general suggestion for the margins article is to steer away from using wetlands subject material and focus more on intertidal areas, margins, PMUs, the delivery of contaminants from watersheds to the margins, and how margins work has stayed consistent with TMDL and hotspot drivers.

Another committee member wanted to make sure that the RMP's initial spine-monitoring work would be included in the Pulse. Also, pre-RMP (1987) items were suggested for inclusion on the timeline: Bay Protection, UCSC Flegal, etc.

Committee members cautioned that the nutrients article should focus on how current work has laid the foundation for future projects.

Jay Davis finished the Pulse discussion by notifying the committee of a future request for review of the Pulse draft articles starting on May 16.

### **Action Items**

- Research whether there's bike parking at the David Brower Center and email Jessica Burton Evans any findings. (Ila Shimabuku, 6/1/17)
- Send the outline of the Pulse to Naomi Feger, Peter Carroll, and Jim Ervin for review. (Jay Davis, 5/15/17)

## **10. Discussion: Status of RMP Deliverables and Action Items**

Phil Trowbridge brought attention to the three major, delayed deliverables - the Alternative Flame Retardants Study, the Biogeochemical Mapping project, and the Sturgeon Derby and Muscle Plug Reports - as well as one delayed action item - direct monitoring of beneficial uses. One committee member made a point to suggest the continuation of interim reports as platforms for data visibility on projects with longer timelines for publication.

### **Decision**

- Remove the direct monitoring of beneficial uses in South Bay from the list of RMP action items. (Consensus)

## **11. Discussion: Plan agenda items for future meetings**

The Delta RMP, wetlands monitoring, and a PCBs science update were all listed as agenda items for future SC meetings.

## **12: Discussion: Plus/Delta**

For future SC meetings, the Committee suggested that (1) Phil Trowbridge or Jay Davis quickly review the timeline and agenda with Tom Mumley and Karin North to confirm the amounts of time allotted for each agenda item and (2) start meetings earlier - around 9:30. Start with science updates to ensure that there is enough time for these items.



## RMP Multi-Year Planning Workshop

November 1, 2017  
9:00 AM – 12:00 PM

### REMOTE ACCESS

Audio by Phone: (415) 594-5500, Access Code 943-326-397#

Slides: <https://join.me/sfei-conf-cw1>

### AGENDA

1.	<p><b>Goals, ground rules</b></p> <p>Goals:</p> <ul style="list-style-type: none"> <li>▪ Provide overarching guidance to the TRC and Workgroups for selection of special studies for 2019.</li> <li>▪ Begin to establish a general framework for planning in 2020 and beyond.</li> </ul> <p>Ground rules:</p> <ul style="list-style-type: none"> <li>▪ Work together to keep the meeting on time and in focus to meet the goals</li> </ul>	9:00 Tom Mumley
2.	<p><b>Discussion: Anticipated management decisions and policies, and related information needs</b></p> <p>The Draft Multi-Year Plan contains a list of upcoming management decisions relevant to the RMP. Steering Committee members will be asked to talk their highest priorities and to identify any issues that are missing from the list. The RMP Manager will provide an update on any of issues identified during stakeholder meetings.</p> <p>Materials: Draft 2018 Multi-Year Plan</p> <p><b>Desired outcome:</b> Consensus on management drivers and deadlines for the RMP</p>	9:05 Tom Mumley, Group
3.	<p><b>Discussion: Specific program priorities for 2019 and general priorities for 2020-2021</b></p> <p>A brief overview of each item will be presented by Jay or Phil as each is discussed.</p> <ul style="list-style-type: none"> <li>● Projected revenue and budgets for status and trends and special studies (10 mins)</li> <li>● Status and trends – (10 mins)</li> <li>● Special study topics                         <ul style="list-style-type: none"> <li>○ Sediment/Dredging – (15 mins)</li> <li>○ Emerging Contaminants &amp; Microplastics – (15 mins)</li> <li>○ Exposure and Effects – (15 mins)</li> <li>○ Selenium – (10 mins)</li> <li>○ PCBs (and Dioxin, Mercury) – (10 mins)</li> <li>○ Small Tributary Loads – (10 mins)</li> <li>○ Nutrients – (10 mins)</li> </ul> </li> </ul> <p>Materials: Draft 2018 Multi-Year Plan</p> <p><b>Desired outcome:</b> Agreement on content of table on page XX of MYP ( priorities expressed as rough dollar allocations for special study areas over the next five years).</p>	10:00 Tom Mumley, Group
4.	<p><b>Summary, Action Items, Adjourn Planning Session</b></p>	11:45
	<p><b>Lunch</b></p>	12:00



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**Bay RMP Technical Review Committee Meeting**

June 8, 2017

San Francisco Estuary Institute

**Meeting Summary**

**Attendees**

<b>TRC Member</b>	<b>Affiliation</b>	<b>Representing</b>	<b>Present</b>
Nirmela Arsem	EBMUD	POTWs	No
Rod Miller	SFPUC	POTWs	Yes
Tom Hall	EOA, Inc.	POTWs	Yes - (remote access)
Ross Duggan	SFPUC	POTWs	Yes
Eric Dunlavey	City of San Jose	POTWs	Yes
Bridgette DeShields*	Integral Consulting	Refineries	Yes
Chris Sommers	BASMAA (EOA, Inc.)	Stormwater	Yes
Shannon Alford	Port of SF	Dredgers	Yes
Ian Wren	San Francisco Baykeeper	NGOs	Yes
Naomi Feger	SFB RWQCB	Water Board	Yes
Luisa Valiela	US EPA	US-EPA IX	Yes

\*Chair

**Guests and Staff**

- Brian Anderson - UCD (remote access)
- Steve Bay - SCCWRP (remote access)
- Dave Schoellhamer - USGS (remote access)
- Phil Trowbridge - SFEI
- Jay Davis - SFEI
- Jennifer Sun - SFEI
- Don Yee - SFEI
- Becky Sutton - SFEI (remote access)
- Diana Lin - SFEI
- Lester McKee - SFEI (remote access)
- Adam Wong - SFEI

## 1. Introductions and Review Agenda

After introductions, Bridgette DeShields called for any changes to the agenda. There were none.

## 2. Decision: Approve Meeting Summary from March 9, 2017 and confirm/set dates for future meetings.

Comments were solicited for the March 9, 2017 Technical Review Committee meeting summary, but there were none. Chris Sommers motioned to approve the summary, Luisa Valiela seconded, all were in favor.

September 14 and December 14 of 2017 were agreed upon for the next two meeting dates. Using the second thursday of each third month was tentatively agreed to as a recurring meeting date, but the issue will be revisited during the September meeting.

## 3. Information: SC Meeting Summary from April 26, 2017

Phil Trowbridge presented a summary of the April 26, 2017 Bay RMP Steering Committee meeting. No questions were raised.

## 4. Discussion: Presentation of Special Studies Proposals Recommended by Workgroups

Phil Trowbridge began this item by presenting figures on the available budget for special studies for 2018 (1076k from Core RMP funds, 289k intended for emerging contaminants work from AMR funding). He then discussed how he had organized the proposals for presentation into functional groups rather than by the originating workgroup. Phil presented brief summaries for each of the proposals by group:

### Functional Groups for Proposals



Questions focused on the sediment proposals because they did not go through a workgroup approval process. Steve Bay (M-AMBI Benthic Assessment), Brian Anderson (Sediment toxicity causes), and David Schoellhamer (Lower South Bay sediment flux and Mallard Island monitoring) were available by phone to provide additional information.

The main clarifications were regarding the M-AMBI benthic index, sediment flux, and causes of sediment toxicity proposals. The M-AMBI project's range of \$21-50k could be split into \$21k for calibrating the index for use with existing SF Bay SQO data and \$29k for applying the index and generating a report. The sediment flux work would be performed over three years, but project cost could not be split up and funded from different budget years. A large portion of the cost was for equipment that would need to be purchased in the first year. Data analysis and reporting would occur in the third year. The only way to ensure that the RMP received a product for its investment is to commit funds for the whole study. Dave also described the differences in instrumentation at the various proposed funding levels: Option 1 would replace existing equipment and continue to operate the site (some improvement of understanding flocculation would be possible with this new equipment); Option 2 would add a vertical profiler and "floc cam"; Option 3 would add acoustic velocity instrumentation and add more robust measurements of SSC. Additionally, he also clarified that there would not be significant cost savings from not working on a peer reviewed report, as the interpretation would already require a document for consumption by the RMP. Finally, there was some discussion about the causes of sediment toxicity proposal. The discussion centered around how the tool would be used after it was developed. Participants asked how the RMP would "operationalize" the test on S&T sediment samples and what that would cost. There was interest in focusing the effort on sediment toxicity to hotspot areas where the causes might be easier to determine.

The other explanation of note was that four of the emerging contaminant projects were preemptively collecting samples during the margins cruise currently in progress. Collection of field samples had to start early to take advantage of the cruise. Phil acknowledged the risk associated with this task but explained that the projects were ranked as high priority and no alternatives were available.

Phil then explained that the workgroups were asked to recommend (but prioritize) projects above the available funding level, and that some projects were approved with a high and low budget. At the high end, the proposal requests were numbers were ~70% above the actual funds available, primarily because the planning budget was larger than the actual budget and because of the unanticipated sediment projects.

## 5. Decision: Recommendation for Special Studies for 2018

The committee provided two options (Option A and Option B) for funding special studies in 2018, shown in the attached tables. The major differences between the two options were:

- Option A allocated \$120k to the Lower South Bay sediment flux proposal (which resulted in reduced or zero funding for a few other studies).

- Option B did not fund the sediment flux proposal and increased funding for nutrients projects to \$400k, provided partial funding for the Richmond PMU Conceptual Model, and increased funding for hosting and visualizing the DMMO database.

The three proposals not recommended for any funding were the causes of sediment toxicity, ocean acidification strategy development, and analysis of DMMO PCB data. All other projects were either recommended for full or partial funding in one of the options.

## 6. Decision: Update List of RMP Projects Eligible for Supplemental Environmental Project Funding and Recommend Allocation of Existing SEP Funds

Phil Trowbridge led the discussion of adding recommended but unfunded proposals to the SEP list. He also solicited input on removing currently listed projects. Seven projects were added, six of which represented fully funding projects that were only partially funded by RMP core funds. Although there was discussion about several existing SEP projects, there was no final decision to remove any. The updated list will be presented to the Steering Committee in July.

## 7. Decision: Changes to the Status and Trends Monitoring Design for 2017- 2023

Phil Trowbridge presented proposed changes to upcoming RMP Status and Trends monitoring for approval by the TRC. Discontinuing PBDE analysis in bivalves had consensus approval. It was also agreed to only monitor nutrients during the Water Cruise at the Golden Gate site. Fipronil (addition) and legacy pesticides (removal) were marked for revisitation after results from the current margins cruise.

There was a conversation about moving all future sediment cruises to summer sampling. Maintaining the current plan (alternating between winter and summer every four years) would allow for better characterization of the range of conditions, while consistently sampling during summer would increase trends power, as well as providing for more streamlined logistics. However, there was not a consensus among the TRC members. Phil will follow-up offline, as planning for a sediment cruise in early 2018 would need to begin soon.

Last was a discussion about the removal of sediment toxicity and benthic macroinvertebrate analysis from the upcoming sediment cruise. While there was an extensive conversation about alternative work regarding the SQO lines of inquiry (to be continued at the multi-year planning meeting), there was consensus that these two analyses should be skipped for the 2018 sediment cruise. The rationale was that interpretation of the results of these tests is highly uncertain. Resources should not be spent on collecting more data until the interpretation methods are established.

### Action Items:

- Update the S&T design with the consensus adjustments: discontinuing PBDE analysis in bivalves; curtailing nutrient monitoring during the Water Cruise; and skipping sediment toxicity and benthos for the 2018 sediment cruise.

- Add an agenda item to a future TRC meeting about CTR parameters for RPA.
- Add particulate selenium to the target list for the 2017 Water Cruise.
- Change S&T design table to note that bird eggs were tested in 2016, not 2015.
- Present a proposal to the TRC for testing archived tern eggs from 2016 for PBDEs. Determine the cost for analysis and data management. Review trends graphs to determine the value of getting more data.
- Follow-up with TRC members to reach resolution on summer vs winter for the 2018 sediment cruise.
- Discuss focusing RMP efforts with SQOs to hotspots during the Multi-Year Planning meeting.

## 8. Discussion: Comments on 2017 Pulse Articles and Update on Annual Meeting Planning

Jay Davis presented an update on the progress for the 2017 Pulse and Annual Meeting (October 6, 2017). Chris Sommers provided feedback on the 25th anniversary article, and Jay asked that others provide feedback as soon as possible, and no later than June 15.

## 9. Discussion: Comments on Proposed Scope of Work for Sediment Supply Synthesis

Funding for this project was allocated by the SC previously. Comments were requested on the scope of work. Lester McKee gave a brief overview of the proposed scope of work for a sediment supply synthesis document. Phil asked for feedback by 6/9/17 so that the proposal could be sent to the SC for approval.

## 10. Information: Status of Deliverables and Action Items

Phil Trowbridge presented the most recent version of the deliverables scorecard and action items (stoplight) report. There were no questions.

TRC Recommendations for 2018 RMP Special Studies - Option A.

Workgroup	Proposal Name	Funding Request	Core RMP Funds	AMR Funds	Comments/Rank
ECWG	Emerging Contaminants Strategy	\$65,000	\$65,000		
ECWG	Current Use Pesticides and Wastewater Contaminants in Margin Sediment and Water	\$128,970		\$128,970	
ECWG	Pharmaceuticals in Wastewater Data Analysis & Reporting	\$30,000		\$30,000	
ECWG	Non-targeted Analysis of Sediment and Related Studies	\$101,000		\$101,000	
ECWG	Characterizing Unknown PFASs in SF Bay Sediment	\$49,700		\$2,500	Archiving samples, \$50k to analyze. Add to SEP list.
ECWG	Nonylphenol Ethoxylates in Margin Sediments	\$9,600		\$2,500	Archiving samples, \$54k to analyze. Add to SEP list.
SPLWG	Small Tributaries Loading POC Watershed Characterization Reconnaissance Monitoring	\$245,000-\$320,000	\$205,000		For a combination of data analysis and monitoring.
SPLWG	STLS POC Stormwater- Regional Watershed Spreadsheet Model Support	\$7,000	\$7,000		
SPLWG	Planning Support for Stormwater Alternative Flame Retardants Conceptual Model	\$13,000-\$16,000	\$13,000		
SPLWG	STLS POC Stormwater- Trends strategy development	\$75,000-\$95,000	\$45,000		\$20k for Guad analysis, \$25k for scoping (Task 3). 2nd Trends Model as SEP.
SPLWG	Small Tributaries Loading Program Management	\$32,000	\$32,000		
EEWG	Exposure and Effects Workgroup Strategy Coordination and Technical Support	\$10,000	\$10,000		
EEWG	Causes of Sediment Toxicity to Amphipods: Clay vs. Contaminant Effects	\$34,170			
EEWG	Support for Sediment Bioaccumulation Evaluations	\$30,000	\$30,000		
EEWG	Synthesis of Benthic Community Data in the Whole of SFB using the M-AMBI Index	\$21,000 - \$50,000	\$21,000		Task 1 in 2018. Tasks 2 and 3 in out-years or as SEP.
Nutrients	Ship-Based Sampling and Sample Analysis	\$177,000	\$350,000		Lumped allocation to all nutrient projects
Nutrients	Open-Bay and Slough Moored Sensors: Data Analysis, Interpretation, and Maintenance	\$342,000			
Microplastic	Microplastics in San Francisco Bivalves	\$45,600	\$21,570	\$24,030	
Sediment	Hosting and Support for Dredged Material Management Office (DMMO) Database	\$16,000 - \$60,000	\$16,000		
Sediment	Improved Lower South Bay Suspended-Sediment Flux Measurements	\$197,208 - \$441,230	\$120,000		\$120k for year 1 (or to be combined with other \$ to get to \$197,000). Add to SEP list.
Sediment	Mallard Island Suspended-Sediment Monitoring	\$30,490	\$30,490		
Other	Monitoring Design to Assess Acidification Threats in San Francisco Bay	\$10,000			
PCBs	PCB Strategy Coordination and Technical Support	\$10,000	\$10,000		
PCBs	Richmond Harbor Priority Margin Unit Conceptual Model Development	\$60,000			Possible SEP for all or half of CM report.
PCBs	Analysis of DMMO PCB Data	\$31,600			Possible SEP.
PCBs	San Leandro Bay Fish Diet Analysis	\$21,000	\$21,000		
Selenium	Selenium Strategy Coordination and Technical Support	\$10,000	\$10,000		
Selenium	North Bay Synthesis	\$35,000	\$35,000		
Selenium	Selenium in White Sturgeon Muscle Plugs from 2016 and 2017	\$35,000	\$35,000		
<b>Total</b>			<b>\$1,077,060</b>	<b>\$289,000</b>	
<b>Available Funding</b>			<b>\$1,076,000</b>	<b>\$289,000</b>	

**TRC Recommendations for 2018 RMP Special Studies - Option B.**

Workgroup	Proposal Name	Funding Request	Core RMP Funds	AMR Funds	Comments/Rank
ECWG	Emerging Contaminants Strategy	\$65,000	\$65,000		
ECWG	Current Use Pesticides and Wastewater Contaminants in Margin Sediment and Water	\$128,970		\$128,970	
ECWG	Pharmaceuticals in Wastewater Data Analysis & Reporting	\$30,000		\$30,000	
ECWG	Non-targeted Analysis of Sediment and Related Studies	\$101,000		\$101,000	
ECWG	Characterizing Unknown PFASs in SF Bay Sediment	\$49,700		\$2,500	Archiving samples, \$50k to analyze. Add to SEP list.
ECWG	Nonylphenol Ethoxylates in Margin Sediments	\$9,600		\$2,500	Archiving samples, \$54k to analyze. Add to SEP list.
SPLWG	Small Tributaries Loading POC Watershed Characterization Reconnaissance Monitoring	\$245,000-\$320,000	\$205,000		For a combination of data analysis and monitoring.
SPLWG	STLS POC Stormwater- Regional Watershed Spreadsheet Model Support	\$7,000	\$7,000		
SPLWG	Planning Support for Stormwater Alternative Flame Retardants Conceptual Model	\$13,000-\$16,000	\$13,000		
SPLWG	STLS POC Stormwater- Trends strategy development	\$75,000-\$95,000	\$45,000		\$20k for Guad analysis, \$25k for scoping (Task 3). 2nd Trends Model as SEP.
SPLWG	Small Tributaries Loading Program Management	\$32,000	\$32,000		
EEWG	Exposure and Effects Workgroup Strategy Coordination and Technical Support	\$10,000	\$10,000		
EEWG	Causes of Sediment Toxicity to Amphipods: Clay vs. Contaminant Effects	\$34,170			
EEWG	Support for Sediment Bioaccumulation Evaluations	\$30,000	\$30,000		
EEWG	Synthesis of Benthic Community Data in the Whole of SFB using the M-AMBI Index	\$21,000 - \$50,000	\$21,000		Task 1 in 2018. Tasks 2 and 3 in out-years or as SEP.
Nutrients	Ship-Based Sampling and Sample Analysis	\$177,000	\$400,000		Lumped allocation to all nutrient projects
Nutrients	Open-Bay and Slough Moored Sensors: Data Analysis, Interpretation, and Maintenance	\$342,000			
Microplastic	Microplastics in San Francisco Bivalves	\$45,600	\$21,570	\$24,030	
Sediment	Hosting and Support for Dredged Material Management Office (DMMO) Database	\$16,000 - \$60,000	\$55,000		
Sediment	Improved Lower South Bay Suspended-Sediment Flux Measurements	\$197,208 - \$441,230			Add to SEP list.
Sediment	Mallard Island Suspended-Sediment Monitoring	\$30,490	\$30,490		
Other	Monitoring Design to Assess Acidification Threats in San Francisco Bay	\$10,000			
PCBs	PCB Strategy Coordination and Technical Support	\$10,000	\$10,000		
PCBs	Richmond Harbor Priority Margin Unit Conceptual Model Development	\$60,000	\$30,000		\$30k needed from 2019 or a SEP.
PCBs	Analysis of DMMO PCB Data	\$31,600			Add to SEP list.
PCBs	San Leandro Bay Fish Diet Analysis	\$21,000	\$21,000		
Selenium	Selenium Strategy Coordination and Technical Support	\$10,000	\$10,000		
Selenium	North Bay Synthesis	\$35,000	\$35,000		
Selenium	Selenium in White Sturgeon Muscle Plugs from 2016 and 2017	\$35,000	\$35,000		
<b>Total</b>			<b>\$1,076,060</b>	<b>\$289,000</b>	
<b>Available Funding</b>			<b>\$1,076,000</b>	<b>\$289,000</b>	



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DATE: July 11, 2016  
TO: RMP Steering Committee  
FROM: Philip Trowbridge, RMP Manager  
RE: Projected RMP Expenses and Fees for 2016-2023

**Introduction**

RMP fees are set by the Steering Committee (SC) every three years. In November 2017, the Steering Committee will need to set the target fees for 2019, 2020, and 2021. The purpose of this memo is to estimate the RMP expenses for 2019-2021 so that the SC can make an informed decision about what the total fees should be in these years. This information is being presented more than a year in advance so that SC members have time to discuss fee increases with their Boards. Also, direction from the SC on 2019-2021 fees is needed to set preliminary budgets for the Multi-Year Planning workshop on November 1, 2016.

**Executive Summary**

1. For 2016-2018, the Steering Committee approved fee increases of 3% per year but also phased out Cooling Water discharger fees. The result was an increase in RMP fees at an annualized rate of 1.8% per year.
2. The current balance of Undesignated Funds (“the Reserve”) is \$802k.
3. For 2019-2021, calculations show that the current level of expenditures with fee increases of 2% per year would use up \$596k of the Reserve by the end of 2021 and all of it by 2022 or 2023. Fee increases of 3% per year and utilization of \$373k of the Reserve would cover the current level of expenses through 2021. Finally, fee increases of 4% per year would generate revenue greater than expenses.
4. New funding for Supplemental Environmental Projects and supplemental wastewater agency contributions for emerging contaminants studies are intended to increase RMP budgets, not to replace core funding. Regardless, these new funding sources are already mostly offset by the loss of Cooling Water fees and expected shortfalls in Dredger fees.
5. The loss of the entire Cooling Water Participant Group means that the cost allocation percentages need to be changed for the first time since the Program started in 1992.

### Approved Fees for 2016-2018

On November 13, 2014, the SC approved fee increases of 3% per year for 2016-2018. The total fees for these years were set at \$3,521k, \$3,626k, and \$3,735k. However, these fee increases were promptly offset by another SC decision to reduce the fees paid by Cooling Water dischargers. Cooling Water dischargers have been responsible for a cost allocation of 4% of the total fees. The last remaining Cooling Water discharger will cease operations in 2018 and, therefore, will no longer have RMP participation as a permit condition. The SC decided that it was better to gradually phase out the Cooling Water fees over several years than to have an abrupt loss of \$149k in revenue after 2018. Therefore, the cost allocation for Cooling Water was reduced to 2% in 2016, 1.5% in 2017, and 0.5% in 2018. The lost revenue was not made up by the other Participants. The net effect was that fees over this 3-year period will rise at an annualized rate of 1.8% instead of 3.0% as planned. In absolute terms, \$292k of Cooling Water fees will be lost over the three-year period, followed by a permanent loss of \$149k per year.

Table 1: Approved RMP Fees for Participant Groups for 2015-2018

Participant Group	2015	2016	2017	2018
Municipal Wastewater	\$1,503,925	\$1,549,043	\$1,595,514	\$1,643,379
Stormwater	\$803,233	\$827,330	\$852,149	\$877,714
Dredgers	\$598,152	\$616,096	\$634,579	\$653,617
Industrial Discharges	\$375,981	\$387,261	\$398,878	\$410,845
Cooling Water	\$136,720	\$140,822	\$145,047	\$149,398
Reduced CW Fees	\$0	-\$70,411	-\$90,654	-\$130,723
Total	\$3,418,011	\$3,450,140	\$3,535,514	\$3,604,230

## **Estimated RMP Expenses and Fees for in 2019-2023**

In order to inform the decision about fees for 2019-2021, RMP expenses in each year between 2019 and 2023 were estimated following the steps and assumptions outlined below. Rather than limit the analysis to 2019-2021, the expense projections were extended to 2023 in order to span the full range of RMP monitoring activities. The RMP's most expensive monitoring program, sport fish tissue monitoring, now occurs every five years. Sport fish were monitored in 2014 and will next be monitored in 2019. Given this schedule, it made sense to estimate expenses for 2016-2023, which spans the five year interval starting in 2019.

### Methods and Assumptions

- Estimate the 2017-2023 budgets for yearly RMP activities. The yearly RMP activities consist of program management, governance, data management, annual reporting (including the Pulse Report), and communications. The budgets for these activities were inflated by 2.7% per year using the approved 2016 budgets as the basis. The budgets for the Pulse and RMP Update reports were also inflated at 2.7% per year using the cost of the 2015 Pulse and the 2016 RMP Update reports as the basis. The rationale for the 2.7% inflation rate is provided below.
- Estimate the variable costs for RMP Status and Trends (S&T) monitoring in each year based on what it cost to do the work in previous years after adjusting for inflation (2.7%). This information came from the estimated costs of S&T activities in the Multi-Year Plan.
- Assume that \$1,200k of funding per year (in 2016 dollars) is needed for RMP special studies. The Steering Committee has allocated \$1,020k, \$1,228k, \$1,682k, \$1,193k, and \$926k for special studies in 2012, 2013, 2014, 2015, and 2016, respectively. The funding level for 2016 is an outlier and represents a reaction to reduced revenue from Cooling Water participants and a shortfall in Dredger fees. The average budget for special studies for 2012-2015 was \$1,280k. In 2017, the RMP workgroups proposed \$1,517k worth of proposals for special studies.
- Convert all costs to real dollars in each year by adjusting for inflation. The future cost estimates are sensitive to the inflation rate but, of course, the inflation rate in the future is unknown. In the past, the Bay Area Consumer Price Index (CPI)<sup>1</sup> increased an average of 2.7% per year over the 19-year period of 1997-2015. Most recently, the five-year average from 2010 to 2015 and the year-over-year CPI increase between April 2016 and April 2015 were also both 2.7%/year<sup>1</sup>. Therefore, CPI increases of 2.7% per year occur consistently in the Bay Area and this inflation rate was assumed for estimates of future purchasing power.

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<sup>1</sup> <http://www.abag.ca.gov/planning/research/cpi.html>

- Calculate the net RMP expenses in real dollars in each year after accounting for set-asides and interest income. Set-asides are funds that the Steering Committee “saves” in years with low S&T monitoring costs to be used in later years with high S&T monitoring costs. Therefore, the net expense for S&T in a year will be the actual expense plus any funds set-aside for future years and minus any previously set-aside funds that will be used in that year. A nominal amount of interest income (\$10k in 2015 dollars) was also assumed to offset a small portion of the expenses.

The second step of the study was to match up the estimated expenses with the total fees for 2014-2023 that have been or would be collected. Fees between 2014 and 2018 are known. Fees from 2019-2023 were estimated for different scenarios.

- The first scenario was that fees for 2019-2021 would increase at 2%, which is less than inflation but equal to what the SC approved for 2014 and 2015.
- The second scenario was that fees for 2019-2021 would increase at 3%, which is approximately the current rate of inflation and equal to what the SC approved for 2016-2018.
- The last scenario was that fees for 2021 would increase at 4%, which is faster than inflation in order to make up for past years when RMP fees increased slower than inflation. Cumulatively, between 1997 and 2016, RMP fees have grown 20% slower than the actual rate of inflation. For 2016-2018, RMP fees will increase by 1.8% per year, which is 30% lower than inflation.

The phase out of Cooling Water fees between 2016 and 2018 was accounted for in this analysis. Specifically, the 2016-2018 fees reflect the reduced Cooling Water contribution. For 2019-2021, zero contribution is assumed for Cooling Water Participants and the projected increase in total fees was calculated for the remaining Participant Groups only<sup>2</sup>.

The third step of the study was to compare the estimated fee revenue and net expense for each year between 2016 and 2023 for each of the three fee scenarios. If expenses were higher than revenue in a year, the deficit was calculated and was assumed to be made up by funds from the RMP reserve funds until the \$802k current balance of those funds was exhausted. This comparison was used to show which fee scenarios would require the RMP to draw upon reserve funds and how long the reserve funds would last.

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<sup>2</sup> For example, assuming a 2% fee increase from 2018 to 2019, the Cooling Water fees paid in 2018 were first subtracted from the 2018 total, then the adjusted 2018 total was increased by 2% to calculate the 2019 fees.

## Results

Table 2 shows the RMP approved budgets for 2014-2016 along with the projected expenses for 2017-2023. In 2016, the gross expenses are budgeted to be \$2,927k; and, after adjusting for set-asides and interest revenue, the net expenses will be \$3,167k. The total net expenses for the RMP are expected to increase to \$3,778k by 2019 and \$3,952k by 2021 in order to keep up with inflation.

Table 3 shows the three different scenarios for fee increases and how the fee revenue would compare to net expenses. Each of the scenarios is explained below.

- For the first scenario, 2% increase in fees per year, the total fees would be less than expenses in every year. Unless expenses were cut by an average of \$120k each year, all RMP reserve funds (\$802k) would be needed to fill the funding gap and would be exhausted by 2023.
- For the second scenario, 3% increase in fees per year, the total fees would initially be less than expenses but would catch up by 2022. A total of \$373k would need to be taken from reserves during 2017-2021.
- For the third scenario, 4% increase in fees per year, the total fees would initially be less than expenses but would catch up by 2020. A total of \$245k would need to be taken from reserves during 2017-2019, after which the reserve would begin to accumulate funds. At the end of 2023, the reserve balance would be \$325k higher than it was in 2016.

The projected expenses in Tables 2 and 3 are sensitive to the assumed rate of inflation. An average rate of 2.7% was assumed for this analysis. If the rate were to actually be 3%, the results would be different. In particular, the first scenario (2% increase in fees per year) would fully deplete the reserve funds balance by 2022. What actually happens in future years depends on the actual rate of inflation that occurs in each year. Inflation rates as high as 5.4% have occurred in the Bay Area (2001).

**Table 2: RMP Budgets in 2014-2015 and Projected Expenses in 2016-2013 (\$'000)**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Line Item	Budget	Budget	Budget	Forecast						
1. Program Management	\$666	\$432	\$393	\$404	\$415	\$426	\$437	\$449	\$461	\$474
2. Governance		\$280	\$272	\$279	\$286	\$294	\$302	\$310	\$319	\$327
3. Data Management	\$318	\$355	\$322	\$331	\$340	\$349	\$358	\$368	\$378	\$388
4. Annual Reports and Conferences	\$348	\$89	\$79	\$81	\$83	\$86	\$88	\$90	\$93	\$95
Pulse or RMP Update Report*		\$125	\$85	\$132	\$90	\$139	\$95	\$147	\$100	\$155
5. Communications		\$166	\$160	\$164	\$168	\$173	\$177	\$182	\$187	\$192
6. S&T Monitoring**	\$993	\$1,078	\$691	\$875	\$1,312	\$1,173	\$856	\$1,122	\$1,236	\$1,146
7. Special Studies***	\$1,682	\$1,193	\$926	\$1,232	\$1,266	\$1,300	\$1,335	\$1,371	\$1,408	\$1,446
<b>Subtotal</b>	<b>\$4,007</b>	<b>\$3,718</b>	<b>\$2,927</b>	<b>\$3,498</b>	<b>\$3,960</b>	<b>\$3,939</b>	<b>\$3,649</b>	<b>\$4,039</b>	<b>\$4,181</b>	<b>\$4,223</b>
S&T Set-Aside Revenue	-\$417	-\$79			-\$225	-\$150		-\$75	-\$175	-\$120
S&T Set-Aside Expense	\$161		\$250	\$125			\$225			
Interest Revenue	-\$7	-\$10	-\$10	-\$11	-\$11	-\$11	-\$11	-\$12	-\$12	-\$12
<b>Total Net Expenses</b>	<b>\$3,744</b>	<b>\$3,629</b>	<b>\$3,167</b>	<b>\$3,612</b>	<b>\$3,724</b>	<b>\$3,778</b>	<b>\$3,862</b>	<b>\$3,952</b>	<b>\$3,994</b>	<b>\$4,090</b>

Inflation rate for 2017-2023 was assumed to be:

2.7% <http://www.abag.ca.gov/planning/research/cpi.html>

\* Cost for Pulse and RMP Update reports are based on budgets for 2015 Pulse and 2016 RMP Update.

\*\* For S&T costs in 2014, the value shown is the actual cost, which was \$157k less than budget (\$1,150k).

\*\*\* For Special Studies, 2014 values are actuals, 2015-2106 values are budgeted, and 2017-2023 are forecast assuming a need for \$1,200k in 2016 \$.

**Table 3: Comparison of Projected RMP Fee Revenue and Expense in 2016-2013 For Different Scenarios (\$'000)**

A. Fees Increase Slower than CPI (2% per year)

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Fees	\$3,351	\$3,418	\$3,450	\$3,536	\$3,604	\$3,657	\$3,730	\$3,805	\$3,881	\$3,959
Total Net Expenses	\$3,744	\$3,629	\$3,167	\$3,612	\$3,724	\$3,778	\$3,862	\$3,952	\$3,994	\$4,090
Funding Gap	-\$393	-\$211	\$283	-\$77	-\$120	-\$120	-\$132	-\$147	-\$113	-\$132
RMP Reserve Balance			\$802	\$725	\$606	\$485	\$354	\$206	\$93	\$0

B. Fees Increase at CPI (3%)

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Fees	\$3,351	\$3,418	\$3,450	\$3,536	\$3,604	\$3,693	\$3,804	\$3,918	\$4,036	\$4,157
Total Net Expenses	\$3,744	\$3,629	\$3,167	\$3,612	\$3,724	\$3,778	\$3,862	\$3,952	\$3,994	\$4,090
Funding Gap	-\$393	-\$211	\$283	-\$77	-\$120	-\$85	-\$58	-\$34	\$41	\$66
RMP Reserve Balance			\$802	\$725	\$606	\$521	\$463	\$429	\$470	\$536

C. Fees Increase Faster than CPI (4%)

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Fees	\$3,351	\$3,418	\$3,450	\$3,536	\$3,604	\$3,729	\$3,878	\$4,033	\$4,195	\$4,362
Total Net Expenses	\$3,744	\$3,629	\$3,167	\$3,612	\$3,724	\$3,778	\$3,862	\$3,952	\$3,994	\$4,090
Funding Gap	-\$393	-\$211	\$283	-\$77	-\$120	-\$49	\$16	\$81	\$200	\$272
RMP Reserve Balance			\$802	\$725	\$606	\$557	\$573	\$654	\$854	\$1,127

Red text indicates that total fees are less than RMP net expenses.

## **Other Financial Windfalls and Deficits**

Other factors in the decision about future fees are any new revenue that the Program is scheduled to receive and any expected funding shortfalls.

### New Funding Sources

One new funding source is money for Supplemental Environmental Projects (SEP). Starting in 2015, for enforcement actions, parties have the option to direct up to half of the penalty to the RMP as a SEP. Total SEP revenue is expected to be between \$100k and \$200k per year. However, the funds must be used for studies that are “above and beyond” what the RMP would normally do and cannot replace core RMP fees.

Another new funding source are extra payments from wastewater agencies in exchange for reduced monitoring for certain priority pollutants in compliance with an alternative monitoring requirement (AMR) permit condition. This program could provide between \$200k and \$300k annually. The intended use of these funds is to increase monitoring and special studies for contaminants of emerging concern.

Therefore, both of the new sources of revenue are intended to increase the RMP budget, not to replace core fees.

### Known Deficits

Cooling Water contributions to the Program will be phased out between 2016 and 2018. The Cooling Water Participants have been responsible for 4% of the budget, which will be \$149k in 2018. The SC has decided that the lost Cooling Water fees will not be made up by the other Participant Groups. This decision was tantamount to a Program budget cut of 4% or approximately \$150k per year. The loss of these fees is already accounted for in the calculations.

The RMP is unlikely to receive the full amount of expected fees from Dredgers in 2017. Dredger fees are calculated from in-Bay disposal volumes, which have been declining over time. The process for changing the fee schedule to address this issue has been delayed. Also, contributions for dredging from the U.S. Army Corps of Engineers have not changed since 1992 and now are \$150k below the equivalent value after accounting for inflation. Overall, the expected shortfall in Dredger fees will be \$150k and \$250k per year until a new fee schedule is approved. If RMP reserves (\$802k) are used to cover this shortfall, all of the reserves would be exhausted in 3-5 years.

### Changes in Cost Allocation Percentages

One effect of the phase out of Cooling Water fees is that the cost allocation percentages for the Program, which have been in place since 1992, need to be updated. The cost allocation percentages are important because these numbers are used to calculate the fees for each Participant Group. The process for setting RMP fees is for the SC to set the total budget for the Program. Then, the total budget is divided up between the different Participant Groups based on cost allocation percentages. Finally, each Participant Group has a formula for dividing up the total fees between individual agencies or organizations. The cost allocation percentages for each group have not been changed since the Program began.

Table 2 shows the proposed new cost allocation percentages. The new numbers divide up the 4% of the budget that was formerly assigned to Cooling Water to the other Participant Groups in proportion to the amount that each group contributes to the Program. The increased percentages do not mean that the remaining Participant Groups will be responsible for covering the lost Cooling Water fees. The new numbers just reflect the fact that the contributions from the remaining groups will make up the total budget and, therefore, their percentages need to sum to 100%, not 96%.

Table 4: Cost Allocation Percentages Before and After the Cooling Water Fee Phase-Out

Participant Group	Cost Allocation Percentages	
	Before CW Phase Out (2015)	After CW Phase Out (2019)
Municipal Wastewater	44.0%	45.8%
Stormwater	23.5%	24.5%
Dredgers	17.5%	18.2%
Industrial Discharges	11.0%	11.5%
Cooling Water	4.0%	0.0%

Note: These cost allocation percentages have been rounded to one decimal place. The round off will cause slight deviations between the fees calculated by multiplying the total fees by these percentages versus the fees that would be calculated by increasing the fee for each Participant Group separately. For example, the largest deviation is for Industrial Discharges, where calculating the 2019 fee by increasing the 2018 fee by 3% would be \$423,170 versus \$424,709 calculated by multiplying the total 2019 fees (\$3,693,121) by 11.5% (\$424,709). This discrepancy is a one-time issue associated with changing to the new cost allocation percentages.

**Recommendations**

1. The Steering Committee should confirm the approved fees for 2017 and 2018.

Participant Group	2017	2018
Municipal Wastewater	\$1,595,514	\$1,643,379
Stormwater	\$852,149	\$877,714
Dredgers	\$634,579	\$653,617
Industrial Discharges	\$398,878	\$410,845
Cooling Water	\$54,393	\$18,675
Total	\$3,535,514	\$3,604,230

2. RMP fees for 2019-2021 should increase at 3% per year to maintain the current pace of work. The proposed fees for each Participant Group are shown below. The Steering Committee will need to make this decision in November 2017. The remaining Participant Groups will not cover the loss the Cooling Water fees.

Participant Group	2019	2020	2021
Municipal Wastewater	\$1,691,450	\$1,742,193	\$1,794,459
Stormwater	\$904,815	\$931,959	\$959,918
Dredgers	\$672,148	\$692,313	\$713,082
Industrial Discharges	\$424,709	\$437,450	\$450,574
Cooling Water	\$0	\$0	\$0
Total	\$3,693,121	\$3,803,915	\$3,918,033
Percent Increase	3%	3%	3%

3. New cost allocation percentages for the Participant Groups should be adopted starting in 2019.

Participant Group	Cost Allocation Percentages	
	Before Cooling Water Phase Out (2015)	After Cooling Water Phase Out (2019)
Municipal Wastewater	44.0%	45.8%
Stormwater	23.5%	24.5%
Dredgers	17.5%	18.2%
Industrial Discharges	11.0%	11.5%
Cooling Water	4.0%	0.0%

## Supplemental Environmental Projects Through the RMP

### Introduction

In October 2015, the Water Board and SFEI entered into an agreement that made the RMP an authorized Supplemental Environmental Project (SEP) funds administrator. Therefore, for an enforcement action against a discharger, the discharger has the option to direct up to half of the penalty to the RMP as a SEP. The State Water Resources Control Board SEP Policy requires a nexus between the violation and the SEP. There is nexus between the RMP and violations in general because the RMP studies a water body that is potentially affected by violations in the San Francisco Bay region. For smaller violations with Mandatory Minimum Penalties (MMP), this general nexus is sufficient and the funds may be assigned to any study (subject to the “above and beyond” requirement described below). For larger Settlements that are negotiated between the Water Board and the discharger, studies with a more specific nexus to the violation (e.g., geographical) need to be identified through the RMP planning process.

### SEP Budgeting Process

For MMP payments, SFEI will receive the funds and save them separately from the base RMP fees. The Steering Committee will allocate the accumulated funds to a project of its choosing through its normal budgeting process. Separate MMP payments may be combined to jointly fund a larger project. MMP payments may also be combined with Settlements (described below) to jointly fund a larger project.

For Settlements, the Water Board will request a list of eligible projects that have been vetted by the RMP to present as options during the negotiations. If the Water Board and the discharger agree to implement one of the RMP projects, the project will be incorporated into the Settlement Agreement. Funds for the project will be sent to the RMP after the Settlement Agreement is fully executed. These funds cannot then be allocated by the Steering Committee to any other project. The RMP Manager will communicate with the SC members about upcoming settlements as much as possible without compromising the negotiations.

**Requirements for RMP Projects to be Eligible for SEP Funding**

- The SEP Policy requires that the SEP must “go above and beyond” other applicable obligations of the discharger that proposes to satisfy a part of its monetary penalty with a SEP.
- SEP funds must be used to implement only those elements of the Program that would not otherwise be implemented through the base funding for the Program.
- To be eligible for SEP funding, RMP projects must have been reviewed and recommended by the Steering Committee but not funded.
- SEP funds may not be used to satisfy any permit requirements for any permittees but may augment a basic permit compliance study to make it more rigorous and comprehensive than it otherwise would have been.
- For Settlements, the project must be acceptable to both the Water Board and the discharger and must have a nexus to the violation.
- The project must implement or support implementation of the RMP’s Multi-Year Plan.

The Steering Committee will maintain a list of eligible projects that can be used during settlement negotiations. The list will reflect the priority science needs of the RMP at that time.

The Steering Committee can update the list at anytime but at least once per year in July after the special studies for the following year are selected. The Steering Committee will have to the option to add the studies that were recommended but not funded to the list and to delete some older studies that are no longer a priority.

**List of RMP Projects Eligible for Supplemental Environmental Project Funding**

In the following table, the proposed projects are grouped into the following categories:

- Projects that have been reviewed ~~and recommended~~ by a RMP workgroup, ~~and~~ the Technical Review Committee, ~~and/or~~ Nutrient Management Strategy Steering Committee
- ~~Projects that have received some level of review by a RMP workgroup~~
- Additional Project Ideas from RMP staff

Project	Estimated Budget Range	Nexus Keywords	Oversight Group	Year Recommended
<b>Projects that have been reviewed <del>and recommended</del> by a RMP workgroup and the Technical Review Committee</b>				
Harmful Algae Bloom (HAB) investigation in San Francisco Bay	\$100,000-\$200,000	Nutrients, Harmful Algal Blooms, South Bay	NMS	FY2018 (first proposed in FY2017, but scope updated for FY2018)
Determining protective dissolved oxygen levels for fish in creeks and sloughs of Lower South Bay	<del>\$240,000</del> <b>\$50,000-\$180,000</b>	Nutrients, Fish Habitat, South Bay	NMS	FY2018 (first proposed in FY2017, but scope updated for FY2018)
<b>Monitoring Water Quality in the South Bay Eastern Shoals with High-Frequency Moored and Boat-Based Sensors</b>	<b>\$70,000-\$250,000</b>	<b>Nutrients, South Bay</b>	<b>NMS</b>	<b>FY2018</b>

Proposed changes shown in yellow.

Monitoring Bisphenol Compounds in Stormwater and Wastewater Pathways	\$40,000- <b>\$80,000</b>	Emerging Contaminants, Stormwater and Wastewater Pathways	ECWG TRC	2017
Identification and Pilot Monitoring of High-Priority Current Use Agricultural Pesticides in Region 2	\$75,000- \$125,000	Pesticides, North Bay	ECWG TRC	2014
<b>Characterizing PFASs in San Francisco Bay Seals and Sediment</b>	<b>\$80,000- \$160,000</b>	<b>Emerging Contaminants, South Bay</b>	<b>ECWG TRC</b>	<b>2018</b>
<b>Nonylphenol Ethoxylates in Bay Margin Sediment</b>	<b>\$50,000- \$75,000</b>	<b>Emerging Contaminants, South Bay</b>	<b>ECWG TRC</b>	<b>2018</b>
<b>Azo Dyes in Bay Margin Sediments</b>	<b>\$50,000- \$75,000</b>	<b>Emerging Contaminants, South Bay</b>	<b>ECWG TRC</b>	<b>2018</b>
<b>Monitoring Microplastics in San Francisco Bay Sport Fish</b>	<b>\$100,000- \$200,000</b>	<b>Microplastic, Sport Fish, Whole Bay Region</b>	<b>MPWG TRC</b>	<b>2018</b>
Monitoring Microplastics in Margin Sediments	\$50,000	Microplastic, Margins	MPWG TRC	2016
<del>Monitoring Microplastics in San Francisco Bay</del>	<del>\$80,000- \$1,000,000 0</del>	<del>Microplastic, Wastewater, Stormwater</del>	<del>MPWG TRC</del>	<del>2017</del>

Proposed changes shown in yellow.

<b>Develop a Statistical Model for Trends Evaluation</b>	<b>\$35,000- \$50,000</b>	<b>Stormwater flows, pollutant loads, PCBs</b>	<b>STLS SPLWG TRC</b>	<b>2018</b>
Bay Area Stream Gage Monitoring Needs Assessment and Feasibility Analysis	1-yr design: \$179,000- \$311,000 2-yr design: \$243,000- \$467,000	Stormwater flows, pollutant loads, model calibration	STLS SPLWG TRC	2017
<del>Stormwater Emerging Contaminants Monitoring</del>	<del>\$42,000- \$394,000</del>	<del>Microplastics, CECs</del>	<del>STLS SPLWG ECWG TRC</del>	
Expanded Pilot Testing of Remote Stormwater Sampling Devices	Year 1: \$100,000- 200,000 Year 2: \$70,000- 140,000	PCBs, methods development for lowered stormwater sampling costs	STLS SPLWG TRC	2017
Update Land Use Maps for the San Francisco Bay Region	\$95,000- \$170,000	Basic data for many aspects of loads estimation, planning, management and policy decisions	STLS SPLWG TRC	2017

Proposed changes shown in yellow.

Assessment of the Benthic Community in San Francisco Bay Using New Analytical Tools	\$30,000- \$50,000	Sediment Toxicity, Benthic Community, Whole Bay region	EEWG TRC	2018
Richmond Harbor PCB Conceptual Model Development	\$50,000- \$100,000	PCBs, Central Bay	PCB WG TRC	2018
Synthesis of PCB Measurements in Dredged Sediments Compiled in the DMMO Database	\$30,000- \$50,000	PCBs, Whole Bay region	PCB WG	2018
PCB Priority Margin Unit Field Study in Steinberger Slough	\$100,000- \$200,000	PCB, Margin Areas	PCB WG TRC	2017
PCB Study of San Leandro Bay Margin Area, Phase 3	\$50,000- \$20,000- \$100,000	PCB, Margin Areas	PCB WG TRC	2017
Margins Monitoring for PCBs in Prey Fish	\$150,000- \$250,000 \$200,000	PCB, Margin Areas	PCB WG TRC	2017
Selenium South Bay Synthesis and Food Web Sampling	\$100,000- \$200,000	Selenium, South Bay	Se WG TRC	2017
Selenium Analysis in Archived Sturgeon Muscle Plugs	\$13,000	Selenium, North Bay	Se WG TRC	
Application of Bioanalytical Tools in Lower South Bay	\$200,000	Ecological Effects, Methods Development	EEWG TRC	

Proposed changes shown in yellow.

<b>Improved Lower South Bay Suspended-Sediment Flux Measurements</b>	<b>\$75,000- \$275,000</b>	<b>Sediment loads, Wetland restoration, South Bay</b>	<b>TRC</b>	<b>2018</b>
<b>Additional Project Ideas</b>				
Mallard Island Loads Study (Proposal of potential joint interest between Region 2 and Region 5) (Note, this concept has not received complete STLS review and has not been discussed with the Delta RMP)	\$140,00- \$190,000	PCBs, Hg, Se, Pesticides microplastics, CECs, Bay mass balance	STLS SPLWG ECWG TRC Delta RMP	2017
<b>Evaluating Emerging Contaminants in Reverse Osmosis Concentrate</b>	<b>\$50,000- \$200,000</b>	<b>Emerging Contaminants</b>	<b>ECWG TRC</b>	<b>2018</b>

## Detailed Project Descriptions

Projects are grouped by oversight workgroup

### *Nutrient Management Strategy*

#### Harmful Algae Bloom (HAB) investigation in San Francisco Bay

The record-setting and long-lived toxic algae bloom along the US west coast in Spring/Summer 2016 clearly illustrated the severe impacts of harmful algal blooms (HABs). It also illustrated how the factors that lead to HABs developing and persisting are complex and difficult to predict. A major outstanding question is why the offshore bloom did not affect the Bay more than it did. Many of the same species are routinely detected in the Bay and conditions are favorable for these algae to grow. Understanding the mechanisms that control harmful algae growth and production in the Bay is essential for assessing the risk of major HAB events occurring in the Bay, both now and under future conditions. Therefore, this project will conduct a series of investigations of HABs in the Bay to:

- Develop improved understanding of the source(s) of HAB-forming organisms and toxins in San Francisco Bay (SFB)
- Through a combination of observational data or experiments, characterize the growth requirements and toxin production of priority HAB-forming organisms, and identify conditions that have inhibited large-scale blooms from developing in SFB

The types of investigations to be completed have been vetted through the Nutrient Management Strategy Science Plan and discussed extensively over the past two years with experts (collaborators and advisors), including at a May 31-June 1 2017 HABs workshop at SFEI. The high-priority investigations that have not been completed due to lack of funds are listed below:

1. Expanded biota sampling for improved understanding of toxin sources, spatio-temporal variability, and food web exposure.
2. Continuous deployment of the Imaging Flow CytoBot (IFCB) in Central Bay: building moored capacity and establishing a coastal end-member signal.
3. Determine whether SFB hosts internal sources of Alexandrium in the form of cysts in sediments.
4. Determine if coastal Pseudo-nitzschia or Alexandrium isolates can grow in SFB, or face obstacles beyond low-light and strong-mixing.

Depending on the funding available, scalability of the projects, and leveraging opportunities, 2-4 of the investigations listed above will be completed for this Supplemental Environmental Project.

Determining protective dissolved oxygen levels for fish in creeks and sloughs of Lower South Bay.

Over the past 3 years, SFEI has been monitoring DO and other parameters throughout LSB. Low dissolved oxygen levels commonly occur in LSB sloughs for short periods of time (~hours). Although tidal transport plays an important role in moving around water masses with very different dissolved oxygen levels, the actual causes of the low DO excursions in LSB sloughs are currently poorly understood. Extensive fish survey data is also available for areas of Lower South Bay, collected by UC Davis researchers over the past 3+ years, funded initially by the South Bay Salt Pond Restoration Program and more recently by the San Jose-Santa Clara Regional Wastewater Facility. These two datasets, although collected as part of unrelated studies, nonetheless provide complementary information about DO levels and fish populations in Lower South Bay.

In April 2017 SFEI held an expert workshop to launch an effort to develop the scientific foundation to evaluate DO-related habitat quality in Lower South Bay (LSB), and in particular in its sloughs and creeks. During the lead-up to and during the workshop, the SFEI and UC Davis datasets served as the basis for developing conceptual models for spatial and temporal variability of dissolved oxygen concentrations and fish abundance and assemblage. The workshop yielded valuable input that is guiding the current round of work.

This project would be a continuation of the FY17 workshop project. The low to intermediate funding level (\$50k-\$100k) would support additional DO and fish related data analysis by UC Davis and SFEI, and also support reconvening a subset of the the external experts in Fall 2017 to comment on and finalize the technical report. The high cost project (\$180k) would include the expanded interpretation and follow-up technical team meeting, and also allow for a modest level of additional data collection, either targeted additional fish/benthos sampling, or collection of additional DO data to maximize the alignment between DO data spatial/temporal coverage and fish survey data.

Monitoring water quality in the South Bay eastern shoals with high-frequency moored sensors and boat-based sensors

Past studies have shown that South Bay's broad shoals are areas where phytoplankton biomass commonly reaches much greater levels than in the adjacent deep channel, due in part to the shallower water column and relatively higher light levels. However, measurements along the shoals are not part of routine monitoring, limiting our ability to accurately assess condition, estimate gross primary production, and calibrate models. This study will use a combination of sensors on a fixed mooring and on moving vessels to obtain high resolution water quality data in the shoal areas.

One component of the project will be deploying a water quality mooring along South Bay's eastern shoal, in collaboration with researchers from USGS. The mooring will be deployed for two 4-month windows (Jan-Apr; Jul-Oct) with maintenance trips scheduled every 3-4 weeks. To minimize cost, we will, as much as possible, use instrumentation and deployment equipment already owned by the two groups. The cost for this part of the project would be \$80k-\$100k.

Another component of the project will be high-resolution biogeochemical mapping along South Bay shoals. Work will include 7-15 survey days, timed to coincide with key periods of interest during mooring deployments. The cost for this part of the project would be \$70k-\$150k.

The two components of the project can be implemented separately or together depending on the amount of funding available. The full range of costs is \$70k-\$250k.

### *Emerging Contaminants Workgroup*

#### Monitoring Bisphenol Compounds in Stormwater and Wastewater Pathways

Bisphenols are a class of widely used endocrine-disrupting compounds, commonly found in polycarbonate plastics and epoxy resins, and frequently detected in many environmental matrices. Bisphenol A (BPA) is a high-production volume compound, and use volumes of several BPA alternatives have increased in recent years. Previous monitoring for bisphenols in the Bay has been limited to BPA, using methods with detection limits that are above a current toxicity threshold for BPA, and has evaluated only ambient Bay water and effluent at a single wastewater treatment plant. In 2016, the RMP funded a 2017 study to analyze BPA and 15 alternative BPA compounds in ambient Bay water, using a novel analytical method with lowered detection limits and the broadest assessment of bisphenols available. However, bisphenols and alternative bisphenol compounds in potential pathways remains a significant data gap. Worldwide, wastewater effluent has been identified as a dominant pathway for bisphenols to enter surface waters, and due to the ubiquity of bisphenol compounds in use and high concentrations of bisphenols in urban litter, urban stormwater runoff likely contributes an additional source of bisphenols entering the Bay. Together with the ambient Bay water data, data about bisphenol and alternative bisphenol concentrations in Bay pathways will help to place bisphenols within the RMP's tiered risk framework. This information would play an important role in understanding the causes of observed concentrations in ambient Bay water, and

identifying areas where potential management actions can be focused to control levels of bisphenols and alternative bisphenol compounds entering the Bay.

This study would monitor BPA and 15 alternative BPA compounds in stormwater and wastewater. The total cost for monitoring stormwater and wastewater is estimated to cost \$40k. Monitoring 8 sites for stormwater is estimated to cost about \$13k, while monitoring 5 wastewater treatment plants for wastewater is estimated to cost about \$8.5k. Data Management and Reporting is estimated to cost \$18.5k. The budget for this project can be scaled up or down based on the number of matrices and samples analyzed.

#### Identification and Pilot Monitoring of High-Priority Current Use Agricultural Pesticides in Region 2

The RMP's CEC Strategy uses a tiered risk framework to rank the relative concern associated with emerging contaminants in the Bay. Current use pesticides (CUPs) are listed in Tier I (Possible Concern), excluding fipronil and pyrethroids (Moderate Concern and Low Concern, respectively). Relatively few current use pesticides have been monitored in the Bay; the CEC Strategy suggests screening level monitoring efforts for Tier I contaminant families to determine their concentration in ambient Bay water and sediment, effluent, runoff, and biota.

There are over 1,000 CUPs in existence; therefore, prioritizing which to monitor in the Bay is essential. The Department of Pesticide Regulation has developed a tool that combines spatially-explicit use data for agricultural pesticides with USEPA aquatic life benchmarks to provide a systematic prioritization of potential risks to wildlife. (Urban use data is not available at this spatial resolution.)

We propose employing this tool to prioritize and map agricultural pesticide use in Region 2. Pilot water and sediment monitoring can then be conducted within the tidally-influenced portion of a major agricultural tributary, and within the Bay near the point of discharge and within the relevant embayment. A previous RMP pesticide mapping exercise indicated the majority of agricultural pesticides were applied in Napa County, suggesting monitoring be focused on the Napa River and subsequently San Pablo Bay.

A key consideration is the loads of pesticides potentially discharged via the Napa River relative to those discharged via the Sacramento-San Joaquin River Delta. If the same pesticides are used in both regions, the Napa River might be considered a relatively minor pathway for pesticides to enter the Bay. However, a comparison of both the previous RMP pesticide mapping exercise and a more recent prioritization for the agriculturally-similar Russian River watershed with DPR's current prioritization for pesticides

potentially discharged to the Bay via the Delta suggests that while there is some overlap, there are also notable differences in the types of pesticides used in the Napa River and Delta watersheds. These usage differences suggest the Napa River may contribute different types and levels of pesticides to the Bay, with a unique array of potential risks that should be evaluated.

#### Characterizing PFASs in SF Bay Seals and Sediment

Perfluoroalkyl and polyfluoroalkyl substances (PFASs) are an important class of chemicals that are widely used in industrial, commercial and residential applications. They are of concern because they are highly persistent and many are associated with a myriad of health effects. Some of the highest concentrations in the world of perfluorooctane sulfonate (PFOS) have been observed in Bay seals and cormorants. The RMP routinely monitors for about a dozen of the ~3,000 PFASs in use today. This study will use recently developed methods to provide a more comprehensive picture of the complete suite of PFASs in sediment and seals from the Lower South Bay. This is of critical importance as manufacturers phase out the use of PFOS and perfluorooctanoic acid (PFOA) in favor of alternative PFASs. Very little is known about these alternatives – both in terms of chemical structure and production volumes. Hence this study will produce a unique dataset for identifying the presence of these alternatives. Use of this novel method will be critical for tracking the use of this very pervasive and toxic class of compounds.

#### Nonylphenol Ethoxylates in Margin Sediments

Nonylphenol ethoxylates (NPEs) and related compounds are nonionic surfactants that were once widely used in industrial and household laundry detergents; key NPEs are ubiquitously detected in Bay water, sediment, and bivalve samples. Currently, these compounds are classified as Moderate Concern (Tier III) compounds in the RMP Strategy, and it has been suggested that concentrations of these compounds may be decreasing from voluntary phase-out of NPEs from laundry detergents. However, there are many other potential sources of NPEs. Moreover, preliminary results from a 2016 RMP special study suggest that Bay samples contain a broad, complex mixture of NPEs and related compounds, including more ethoxylated NPEs that have not been targeted for monitoring in the Bay. This proposed study will analyze archive sediments from the Lower South Bay margin areas for a broad suite of NPEs and related compounds. These margin sites receive considerable wastewater and stormwater discharges, and are more likely to reflect contamination of current uses of chemicals. Analysis of NPEs and related compounds will provide information to help determine whether NPEs should continue to be classified as Tier III contaminants, and additional information about the influence of ongoing sources of contamination, including effluent and runoff.

### Azo Dyes in Bay Margin Sediments

This proposed SEP project will focus on a targeted chemical analysis of dyes on the margin sediment samples that are being examined via non-targeted analysis. Duke University has recently developed a method that covers a range of selected azobenzene-based disperse dye compounds, partly in response to recent detections of dyes as contaminants in household dust. Dr. Ferguson of Duke University has found these dyes at high ppb concentrations in house dust, similar to levels measured for ubiquitous brominated flame retardants. Despite ubiquitous use in consumer products, there is little information regarding the presence of disperse dyes in the environment. Of note, some of these dye compounds and their breakdown products have mutagenic properties, suggesting ecotoxicity concerns. In addition, azo dyes have been identified as potential candidate chemicals in multiple product categories in California's Safer Consumer Products Priority Product Work Plan. There is a notable dearth of data on environmental levels of these compounds.

### Evaluating Emerging Contaminants in RO Concentrate

Concerns over water supply and water scarcity have led to a growing interest among regional water managers to develop local water supplies, including increased recycled water use. However, the advanced treatment methods needed to purify wastewater effluent for reuse produce concentrated waste streams. Reverse osmosis concentrate (ROC), the concentrated waste stream produced when wastewater is treated by reverse osmosis, has levels of salts and contaminants about six times higher than typical wastewater effluent. Safe, cost-effective disposal of this concentrate currently represents a significant barrier to the wider adoption of this technology.

This proposed study would evaluate the effects of ROC treatment processes on a wide range of chemicals using non-targeted analysis techniques. The Santa Clara Valley Water District has funded a project to develop a Reverse Osmosis Concentrate Management Plan. One component of this project is a pilot study of an advanced oxidation process unit and engineered open-water treatment cells for the removal of contaminants in ROC. We are proposing to conduct a novel non-targeted analyses to the pilot study to screen for the occurrence and transformation of a broad range of chemical classes before and after these treatment processes. Results of the study will provide valuable information about the chemical processes occurring during these treatment processes and the fate of compound classes that are not being monitored for the original study.

### ***Microplastics Workgroup***

#### Monitoring Microplastics in San Francisco Bay Sport Fish

Plastic has become a way of life in modern society. Annual global plastic production was estimated to be 299 million tons in 2013; nearly a third of plastic production (75 to 80 million tons) is used for plastic packaging including single-use items. Plastic does not readily degrade but it does fragment into smaller and smaller particles. Until recently, in the Bay Area, concern was primarily focused on management of larger plastic debris, while smaller plastic debris, referred to as microplastic (<5 mm wide) went largely unnoticed. However, in 2015, the RMP conducted a limited special study to monitor microplastic in treated effluent from 8 wastewater treatment facilities and 9 ambient Bay surface water locations. The concentrations of microplastic in the Bay were higher than similar studies of the Great Lakes and Chesapeake Bay. These findings resulted in considerable media attention and spurred policy actions at a State and Federal level. The RMP followed up this limited pilot study in 2016 by developing management questions and conducted a one-day workshop to vet these questions and determine consensus priorities for future work. These priorities were articulated in the 2016 RMP Microplastic Strategy document that has been reviewed by an external expert panel and RMP stakeholders. In 2016, SFEI was able to secure funding (\$880,000) to begin a two-year project addressing several aspects of the microplastic strategy including an evaluation of microplastic in sediment, water, effluent, stormwater and prey fish; however, a high priority element, the monitoring of sportfish was not included based on the timing of the grant. The RMP will sample sportfish in 2019. Funding for a Supplemental Environmental Project will allow us to leverage existing RMP sportfish monitoring and enable us to analyze sportfish for microplastic. This information will be important for assessing human health risks.

### ***Sources Pathways and Loadings Workgroup / Small Tributaries Loading Strategy Team***

#### Develop a Statistical Model for Trends Evaluation

A key task for regional stormwater management is to assess how regional scale pollutant loads to the Bay are changing through time (and consequently how Bay Water Quality is changing). Recent RMP efforts have led to progress towards determining a methodology for tracking regional trends. This progress was made by completing a trend analysis using a statistical modeling effort for one extensively monitored Bay Area watershed, the Guadalupe River. That analysis resulted in valuable information as to how much of a change could be identified (given the natural variability of pollutant loads across storms and across years) and what the sampling program must look like to detect those changes. However, the Guadalupe River is a large and complex Bay Area watershed, and therefore represents just one type of watershed in the Bay Area. Results for the Guadalupe River analysis will not apply to all

watersheds regionally. As such, a similar analysis is desired on a second, smaller and less complex watershed (Zone 4 Line A in Hayward, CA). This project would refine and complete the statistical trend analysis for Zone 4 Line A, to serve as a second test case for monitoring program design and methodology for evaluating loading trends in individual watersheds. The characterization of the variance in load predictability observed in Z4LA will advance our understanding of the range of uncertainty in estimating loads and trends in the region. Results from the two watershed analyses will be used to develop a sampling program for trends assessment over time, and will enable us to make an estimate of field, lab, and data management costs for such a program going into the future.

#### Bay Area Stream Gage Monitoring Needs Assessment and Feasibility Analysis

Information on urban storm water flow, either measured or estimated using modeling, is fundamental to policy development, planning and environmental management and supports drainage engineering, pollutant loading estimates, and models of transport and fate of pollutants. In the Bay Area, the majority of flow data have been collected by the USGS and partner flood control and water supply agencies in less urbanized larger watersheds mainly in support of flood risk analysis, the operation of water supply systems, and riparian flows for fish and wildlife. Presently there are 12 watershed being gauged by USGS and six others being gauged by flood control and water district staff or consultants to support these issues. Flow data are not being collected in the smaller highly urban watersheds that fringe the Bay that have rainfall-runoff characteristics that are distinctly different to larger nonurban watersheds. This project aims to fill these data gaps. A planning effort in Phase 1 of the project (\$35k) will 1) identify the range of data needs, uses, and gaps, 2) develop a sampling framework (number of watersheds, desired watershed characteristics), 3) generate a draft list of watersheds and potential sampling sites, 4) complete a reconnaissance of the potential monitoring sites, and 5) prioritize a final list of sampling sites. Flow monitoring would begin in the second phase, costing approximately \$16k per site per wet season or \$26k per site per year if dry weather flow is desired as well. In addition, there would be an initial one time startup cost of \$20k per site for purchase and installation of equipment. These estimated costs are based on the USGS doing monitoring in WY 2018 and would increase by ~4% in subsequent years going forward, and as such, we recommend including the USGS field chief from Santa Cruz at each of the planning meetings. Estimates costs: Year 1: \$179-311k; subsequent years: \$64-156k; suggested monitoring period 4 years.

#### Expanded Pilot Testing of Remote Stormwater Sampling Devices

Stormwater sampling in urbanized small tributaries around SF Bay over the past 15 years has revealed some tributaries episodically yield relatively high pollutant concentrations and loads. These highly unpredictable releases of pollutants during certain storms are hypothesized to be associated with pollutant release and transport from source areas that likely make up <1% of the watershed area. Although further sampling in these watersheds may reveal predictable patterns, the highly episodic nature of these releases makes

capturing these events using a storm based grab sampling approach infeasible since it might take many years (sampling nearly all moderate to large storms) to see another release. However, such watersheds are of high management interest both in locating and abating sources and also in measuring success such as reduced loads. To support the development of the STLS Trends Strategy and evaluation of trends over time, and to further investigate loads in watersheds with episodic pollutant transport events, a form of continuous sampling is needed that has an acceptably low likelihood of missing these “rare” release events. Two options being considered are passive sediment samplers (the Hamlin and Walling samplers) and Super Composite stormwater samples (captured using refrigerated portable autosamplers such as ISCO brand). The passive sediment samplers work by enhancing sedimentation of fine sediment particles from the water column and could be cost effective for measuring trends in particle concentrations but are not suitable for directly evaluating loading trends. For loads, the best option may be flow-paced, small aliquot super-composites captured and analyzed using just 2-6 samples per wet season. The super composites could individually be analyzed and applied to the flow data to estimate seasonal and annual loads. This proposal aims to develop and test the use of these two methods and make recommendations for future use. The watersheds of Ettie Street Pump Station, Pulgas Pump Station South, or Sunnyvale East Channel may be candidates for methods development and testing. Estimated budget is \$80k per watershed during the start-up year and \$50k per watershed for subsequent years but final budgets would be influenced by the final scope and the sampling locations chosen. For example, there would be additional costs at the pump station sites for improved characterization of flow and confined space entry. Estimated costs including data management costs based on 1 or 2 pump station sites for year 1: \$100-200k; year 2: \$70-140k.

#### Update Land Use Maps for the San Francisco Bay Region

Geographic information on land use forms the basis of data and information generated to inform many planning, management, and policy decisions. For example, the areas of various land use types are being used as basic inputs for modeling stormwater runoff volumes, pollutant loads, and estimates of loads reduced under various management scenarios. The first comprehensive information on Bay Area land use was released by ABAG in 1995, updated in 2000, and again in 2005 to reflect the (then) latest information of land use on a parcel basis. The objective of the 2005 update was to support the earthquake preparedness program and associated HazUS earthquake modeling and was based on parcel assessments and farm land mapping and monitoring program (FMMP) data that dated from 2003, rendering it more than 12 years old at present. The data set has since been used for all kinds of applications (both inside and outside of ABAG), most of which it was never designed to support. For example, this 2005 data set was used to estimate regional suspended sediment loads (Lewicki and McKee, 2009), to support the BASMAA 2013 IMRs, and as the basis for RWSM PCB and Hg loads (Wu et al, 2015), and remains the only regional data set for planning, management, and policy decisions. However, given land use is constantly evolving in the Bay Area due to new and redevelopment (for example, the nine county Bay Area

Proposed changes shown in yellow.

population has expanded by about 0.6 million people from 2005-2015), this data set is in need of a major update. Users of the ABAG 2005 data comparing to modern aerial imagery often notice large areas that were assigned some kind of industrial land use are now covered with houses or modern commercial or business parks. This proposal aims to generate a one time regional update of basic land use information for the Bay Area to support planning and assessment needs within the stormwater community and to support the “Plan Bay Area” sustainable communities mapping needs of ABAG/MTC. But what is ultimately needed is a regular update process (perhaps every 5 years) that reflects constantly changing economic and social conditions. The project would likely be carried out through a collaboration between SFEI and ABAG/MTC staff and would include two phases; a planning phase which would include needs assessment and methods development with input from BASMAA MRP permittees, Water Board staff, EPA staff, ABAG/MTC staff, and other interested parties (BCDC, BAAQMD, county congestion management agencies, CALTRANS), and a product's development phase. The anticipated methods would combine parcel assessor data with satellite imagery. Estimated cost for the planning phase would be about \$20k; the second phase is estimated to cost between \$75-150k depending on the outcomes of the needs assessment and the choice of methods.

#### Mallard Island Loads Study (Proposal of potential joint interest between Region 2 and Region 5)

*(Note, this concept has not received complete STLS review and has not been discussed with the Delta RMP)*

Pollutants derived from legacy and current human activities and chemical use in the Central Valley watershed (the Sacramento and San Joaquin River drainages) pass into San Francisco Bay via a 900 m wide channel adjacent to Mallard Island near Pittsburg, Contra Costa County. In 2010, the RMP completed a six year monitoring study at this location (Water Years 2002-06, 2010) by collecting water samples during storms and analyzing these for suspended sediments, PCBs, OC pesticides, PAHs, PBDEs, dioxin/furans, mercury speciation (total, dissolved, methyl and acid labile), and selenium and making use of long term monitoring data collected on the edge of the ship channel by the USGS (turbidity) and the DWR (tide height, salinity among other parameters). At the conclusion of the study six years ago, remaining information gaps included the need for monitoring larger storms to better estimate maximum loading rates during very wet years when the yolo bypass is flowing and to better estimate average annual loads, uncertainties over the selenium loads and speciation, the likelihood of trends in PCB and Hg pollutant loadings given trends in suspended sediment concentrations and loads, the complete lack of loading information on nutrient concentrations and loads during storm events, and the lack of information on current use pesticides (pyrethroids, carbaryl and fipronil) and contaminants of emerging concern including microplastics. Addressing some or all of these information gaps will have benefits for management of the Bay including refinement of the mass balances for each of these pollutants, supporting a better understanding of nutrient baselines and trends associated with changing wastewater treatment practices, and providing data to construct or refine Bay TMDLs. In addition, there might be benefits

for the Delta RMP program including (a) the general ancillary benefits the Delta program could realize from free availability of Bay RMP-collected data, (b) confirmation and further refinement of the methylmercury loss rate and (c) the potential benefits if the Bay and Delta RMP programs were to collaborate in design, decision-making, and the funding of the project (Note, this last benefit has no precedent and may add additional costs and coordination burdens that may overwhelm the potential information benefits to each program). The estimated costs including data management costs: \$140-190k per wet season depending on chosen suite of pollutant analyses, funding sources and coordination needs.

### *Exposure and Effects Workgroup*

#### Assessment of the Benthic Community in San Francisco Bay Using New Analytical Tools

Evaluation of macrobenthic community condition is an integral component of sediment quality assessment, and is a required element of the Sediment Quality Objectives (SQO) assessment framework. We do not, at present, have robust and validated tools to interpret macrobenthic community health in over half of San Francisco Bay Estuary. Consequently, the status of the benthic community in most of the Bay is a major datagap. We propose to update the SQO assessments of San Francisco Bay by incorporating a newly revised version of the M-AMBI (Multivariate AZTI Marine Biotic Index) benthic index designed to work in multiple estuarine habitats across the United States. To do this we will follow a three step process. The first step is to calibrate the M-AMBI across the estuary's different habitats and integrate the M-AMBI scores into the SQO assessment framework. The second step is a synthesis of benthic community data and revision of SQO assessment trends using the new, calibrated M-AMBI. The third step is preparation of a final report. The report will include recommendations on the incorporation of the revised M-AMBI for benthic community assessments associated with the SQO program and other assessment studies in the San Francisco Bay Estuary. Steps 2 and 3 are unfunded and would be completed as a Supplemental Environmental Project. The successful integration of this new benthic tool will allow for the first time, a robust SQO assessment of the potential impacts of toxic, sediment-bound chemicals on the macrobenthic resources of the San Francisco Bay Estuary.

## ***PCB Workgroup***

### Richmond Harbor PCB Conceptual Model Development

The goal of RMP PCB Strategy work over the next few years is to inform the review and possible revision of the PCB TMDL and the reissuance of the Municipal Regional Permit for Stormwater (MRP), both of which are tentatively scheduled to occur in 2020. Conceptual model development for a set of four representative priority margin units (PMUs) will provide a foundation for establishing an effective and efficient monitoring plan to track responses to load reductions and also help guide planning of management actions. The Emeryville Crescent was the first PMU to be studied in 2015-2016. The San Leandro Bay PMU was second (2016-2017). The third will be Steinberger Slough in San Carlos (2018). The purpose of this study would be to complete the fourth and final conceptual model for Richmond Harbor. The report will also summarize conclusions across all four PMUs.

### Synthesis of PCB Measurements in Dredged Sediments Compiled in the DMMO Database

The Dredged Material Management Office (DMMO) maintains a database that compiles sediment chemistry testing data from all dredging projects in San Francisco Bay. This rich database has only recently been released to the public. This study would synthesize the available information from the DMMO database to evaluate PCB concentrations from dredging projects, to compare their concentrations ranges to other areas (e.g., open water and margin ambient sites), and to estimate the mass of PCB removed from the Bay by dredging. These data would provide valuable information to confirm the PCB TMDL assessment that dredging results in a net loss of PCBs from the Bay and to leverage data already collected to evaluate the current conceptual model of PCBs in the Bay.

### PCB Priority Margin Unit Field Study in Steinberger Slough.

The RMP PCB Strategy calls for investigations of four priority margin units. Due to funding constraints, we have planned to complete the work on one unit per year. SEP funding would allow us to accelerate the pace of work. RMP and SEP funding has been identified to begin work in the first and second units (Emeryville Crescent and San Leandro Bay) and to develop a conceptual model for the third unit (Steinberger Slough). However, SEP funds are needed for a field study at Steinberger Slough. The field study will consist of an intensive field collection effort to measure PCBs in sediment, water and/or biota to resolve information gaps and set baselines. Total cost: \$100,000 - \$200,000

### PCB Study of San Leandro Bay Margin Area, Phase 3

During 2016, the RMP funded an intensive field sampling effort in San Leandro Bay. Samples were collected of water, sediment, prey fish, sport fish, and benthos. The available funding to date allowed for analysis of the water, sediment, and fish samples. Additional funding is needed to analyze fish gut samples (~\$15k) and benthic macroinvertebrate samples (~\$50k), and to prepare a report. The different analyses can be spread out over time as funding allows.

### Margins Monitoring for PCBs in Prey Fish

The PCB Strategy for the Bay was heavily influenced by the finding that PCB concentrations were high in the tissues of small prey fish in the margin areas. The 2010 RMP study of prey fish was limited due to budget constraints. For this project, a more comprehensive prey fish sampling effort would be conducted. The data would support conceptual model development in priority margin units and identify hot-spots for PCBs around the Bay. This study was recommended in the PCB Synthesis and discussed by the PCBWG, but was not pursued because of the limited funding available for PCB special studies. Total cost: \$150,000- \$200,000

### *Selenium Workgroup*

#### Selenium South Bay Synthesis and Food Web Sampling.

The RMP Multi-Year Plan calls for projects in 2018 and 2019 to synthesize existing data on selenium in South Bay and to collect data to fill information gaps. The purpose of these projects is to set the stage for considering a selenium TMDL for South Bay. Total cost: \$100,000 - \$200,000

### *Technical Review Committee*

#### Improved Lower South Bay Suspended-Sediment Flux Measurements

Lower South Bay (LSB) sediment flux monitoring and research began in WY 2009 at Dumbarton Bridge (DMB) due to the importance of knowing the sediment supply for the nearby South Bay Salt Ponds Restoration Project. Recent work has shown that accounting for flocculation of suspended sediment in the water column may be critical for accurately measuring net sediment transport. For example, preliminary analyses that estimate flocculation indicate that LSB could be accumulating sediment rather than losing sediment as previously thought. Therefore, validating this new method that takes flocculation into account is critical for past and proposed Lower South Bay sediment flux monitoring.

To quantify the effect of flocculation on LSB sediment flux computations we propose two years of suspended-sediment flux monitoring at DMB with a augmented sampling program that will continuously observe in-situ floc size, particle size distributions, SSC, and turbidity through entire flood-ebb cycles during spring and neap tides of each season. RMP funding is available for the first year of the project but not the second year nor for a final interpretive report. Also, the RMP funding does not cover replacement of existing sensors at two depths with a vertical profiler. The main benefit of the vertical profiler is that it would provide 20-60 measurements of SSC throughout the water column. Our present estimate of the settling parameter and flocculation uses only two points within the water column. Vertical profiles of SSC and water velocity would greatly improve the accuracy of the sediment flux calculations. An added benefit of the profiler is that it would reduce biofouling on the instruments.

Additional funding could be used to add the vertical profiler (\$80k), support data collection in year 2 (\$120k), and/or produce the final interpretative report (\$75k).

**Table 1: Regional Monitoring Program for Water Quality in San Francisco Bay  
Summary of the Study Design for the Status and Trends Monitoring Program (2014-2023)  
Recommended Changes from the TRC Shown in Yellow**

Program	2014	2015	2016	2017	2018	2019	2020		2021	2022	2023
<b>Continuous: Basic Water Quality (5 targeted sites) <sup>a</sup></b>											
Water temperature, Salinity, SSC	X	X	X	X	X	X	X		X	X	X
<b>Monthly: Basic Water Quality in Deep Channel (38 targeted sites)</b>											
CTD profiles, light attenuation, SSC, DO, Chl-a, Phytoplankton speciation, Nutrients (NO <sub>2</sub> , NO <sub>3</sub> , NH <sub>4</sub> , PO <sub>4</sub> , Si) <sup>b</sup>	X	X	X	X	X	X	X		X	X	X
<b>Every 2 Years: Toxic Contaminants in Water (5 targeted sites and 17 random sites)</b>											
MeHg, Cu, Se (diss.&part.), CN, Hardness, SSC, DOC, POC. Chl-a and Nutrients (NH <sub>4</sub> , NO <sub>3</sub> , NO <sub>2</sub> , TN, PO <sub>4</sub> , TP, Si) (at GG site only).		X		X		X			X		X
Aquatic Toxicity (9 stations) <sup>c</sup>		X		X		X			X		X
PCBs, PAHs, Pesticides											X
CTR parameters (10 samples at 3 targeted stations) <sup>d</sup>		X									?
<b>Every 2 years: Toxic Contaminants in Bivalve Tissue (7 targeted sites) <sup>e</sup></b>											
Se, PAHs, PBDEs (discontinue PBDEs starting in 2018)	X		X		X		X			X	
PCBs	X									X	
<b>Every 3 Years: Toxic Contaminants in Bird Egg Tissue</b>											
Cormorant Eggs: Hg, Se, PCBs, PBDEs, PFCs (3 targeted sites) <sup>f</sup>		<del>X</del>	X		X				X		
Tern Eggs: Hg, Se, PBDEs (variable fixed sites) <sup>g</sup>		<del>X</del>	X		X				X		
<b>Every 4 Years: Toxic Contaminants in Sediment (7 targeted sites and 20 random sites) <sup>h</sup></b>											
Ag, Al, As, Cd, Cu, Fe, Hg, MeHg, Mn, Ni, Pb, Se, Zn, PAHs, PCBs, Pesticides, TOC, N, % Solids, Grain Size	X				X					X	
PBDEs	X				X						
Fipronil (special study in 2014, use margins data to decide about 2018)	X				?					?	
Sediment Toxicity <sup>i</sup> (postpone sediment toxicity in 2018)	skipped				skipped					X	
Benthic Macroinvertebrates <sup>j</sup> (postpone benthos in 2018)	skipped				skipped					X	
<b>Every 5 Years: Toxic Contaminants in Sport Fish Tissue (7 targeted sites)</b>											
Hg, Se, PCBs, PBDEs, PFCs, Dioxins	X					X					

**Notes:**

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

- a. The RMP Status and Trend Program provides direct support to the U.S. Geological Survey (PI: Dave Schoellhamer) for 5 SSC stations. However, this contribution leverages SSC data at 2 more stations and salinity at 8 stations funded by other partners. In addition, since 2012, the RMP has used Special Studies funds to add DO sensors at 6 stations and nutrient-related sensors to 3 stations.
- b. Monthly cruises are completed by the U.S. Geological Survey (PI: Jim Cloern). Phytoplankton speciation and nutrient sampling only occurs at 14 of stations.
- c. Aquatic Toxicity is measured following EPA Method 1007.0 (*Americamysis bahia*).
- d. CTR sampling occurs at the Sacramento River, Yerba Buena Island, and Dumbarton Bridge sites. Sampling for CTR was planned for 2015 but this effort was canceled to reduce program costs.
- e. Mussels (*Mytilus californianus*) are collected from Bodega Head State Marine Reserve, an uncontaminated "background" site of known chemistry, and are transplanted to 7 targeted locations in the Bay. After ~100 days, mussels from the transplanted sites and a sample from Bodega Head are collected for analysis. Three of the 7 transplant sites serve as back-ups in case something goes wrong with the transplants at the 4 primary sites. At the same time, resident clams (*Corbicula fluminea*) are collected from 2 sites in the Sacramento River and San Joaquin River.
- f. Double-crested Cormorants (*Phalacrocorax auritus*). Cormorant eggs are collected at three sites: Don Edwards National Wildlife Refuge, the Richmond-San Rafael Bridge, and Wheeler Island.
- g. Forster's Tern (*Sterna forsteri*). Tern eggs are typically collected from multiple sites in the Don Edwards National Wildlife Refuge and the Hayward Shoreline Regional Park.
- h. Sediment samples are collected in alternate seasons: a dry season (summer) collection event in 2014, wet season (winter) collection event in 2018, etc. **This alternating approach is under review for 2018.**
- i. Sediment toxicity is measured using the following methods: EPA 600/R-94-025 (*Eohaustorius estuaries*), EPA 821/R-02-012M (*Ceriodaphnia dubia*), EPA 600/R-99-064 (*Hyalella azteca*), and EPA 600/R-95-136M (*Mytilus galloprovincialis*)
- j. Benthic macroinvertebrates are measured during dry-season sediment sampling events (2014, 2022). Sediment samples are sieved through nested 1.0 and 0.5 mm sieves. Organisms are sorted into major taxonomic categories and taxonomy and abundance are determined to the lowest practical taxonomic level.

**Acronyms:**

SSC: Suspended Sediment Concentration  
 Chl-a: Chlorophyll-a  
 CTD: Conductivity, Temperature, and Depth  
 CTR: California Toxics Rule, see <http://water.epa.gov/lawsregs/rulesregs/ctr/>  
 DO: Dissolved Oxygen  
 DOC: Dissolved Organic Carbon  
 MeHg: Methylmercury  
 NH<sub>4</sub>: Ammonia (dissolved)  
 NO<sub>2</sub>: Nitrite (dissolved)  
 NO<sub>3</sub>: Nitrate (dissolved)  
 PAHs: Polynuclear Aromatic Hydrocarbons  
 PCBs: Polychlorinated Biphenyls  
 PBDEs: Polybrominated Diphenyl Ethers

"Pesticides": The suite of legacy pesticides that has been routinely measured by the RMP: Chlordanes (Chlordane, cis-; Chlordane, trans-; Heptachlor; Heptachlor Epoxide; Nonachlor, cis-; Nonachlor, trans-; Oxychlordane); Cyclopentadienes (Aldrin; Dieldrin; Endrin); DDTs (DDD(o,p'); DDD(p,p'); DDE(o,p'); DDE(p,p'); DDT(o,p'); DDT(p,p')); HCHs (HCH, alpha-; HCH, beta-; HCH, delta-; HCH, gamma-); Organochlorines (Hexachlorobenzene; Mirex).  
 PFCs: Perfluorinated Compounds  
 PO<sub>4</sub>: Phosphate (dissolved)  
 POC: Particulate Organic Carbon  
 Si: Silica (dissolved)  
 TN: Total Nitrogen  
 TOC: Total Organic Carbon  
 TP: Total Phosphorus



**RMP 2017 ANNUAL MEETING AGENDA - DRAFT**

Theme: 25<sup>th</sup> Anniversary of the RMP

October 6, 2017, The David Brower Center, Berkeley, CA

Remote Access: Audio: +1.415.655.0381, Access Code 943-326-397#, Slides: <https://join.me/sfei-conf-cw1>

9:00	<b>Welcome and Introduction</b> Tom Mumley, San Francisco Bay Regional Water Quality Control Board
	<b>Session 1: 25<sup>th</sup> Anniversary</b>
9:10	Steve Weisberg: An external perspective - what's special about the RMP (CONFIRMED)
9:30	Jim Cloern: The Bay and the RMP: adaptation; looking back, looking forward (CONFIRMED)
10:00	Karin North: Linkage to management questions - long-term perspective (CONFIRMED)
10:20	Discussion - Moderated by Jay Davis
10:40	BREAK
	<b>Session 2: Movin' on Up - Bay Margins and Watersheds</b>
10:55	Phil Trowbridge: Why margin areas are becoming a focus of attention in the Bay and how the RMP can help
11:15	Alicia Gilbreath: From a trickle to a flood: Measuring pollutant loads to margin areas and the Bay
11:35	Don Yee: What we can learn about managing margins from changes in PCB concentrations in San Leandro Bay
11:55	Discussion – Moderated by Jan O’Hara
12:10	<b>LUNCH</b>
	<b>Session 3: Nutrients</b>
1:10	Nutrient and Phytoplankton Dynamics - Rusty Holleman
1:30	Dissolved oxygen - Data analyses and workshop outcomes - Lissa MacVean
1:50	HABs - Data analyses and workshop outcomes - Morgaine McKibben
2:10	Discussion – Moderated by Dave Senn
2:25	BREAK
	<b>Session 4: CECs</b>
2:45	Meg Sedlak - PFAS synthesis/strategy
3:15	Becky Sutton or Jennifer Sun - Preliminary non-targeted analysis of Bay water and effluent
3:35	Kelly Moran - How RMP findings inform pollution prevention
3:55	Discussion - Moderated by Eric Dunlavey
4:10	Adjourn to 25 <sup>th</sup> Anniversary Social

**Other key points:**

- EPA, USGS, and the Water Board should all have a strong presence
- Invite guests in phases due to limited capacity of the DBC
- Key alumni to invite: Karen Taberski, Steve Ritchie, Bruce Thompson, Dave Tucker, Dan Tafolla, Jim Kelly, Rob Lawrence, Dave Tucker, Mike Carlin, Steve Ritchie, Loretta Barsamian, and Russ Flegal
- Long-term contributors: Bridgette DeShields, Tom Hall, Chris Sommers, Luisa Valiela, Jim Cloern, Dave Schoellhamer

**Complementary Topics for the State of the Estuary Conference**

- Trash
- Pesticides
- Suisun Bay

**25<sup>th</sup> Anniversary Social**

- A step up from our normal social at Jupiter
- Held at the David Brower Center

## Bay RMP Deliverables Scorecard Report

### Key to Status Colors:

Green indicates greater than 90 days until the deliverable is due.

Yellow indicates a deliverable due within 90 days.

Red indicates a deliverable that is overdue.

Focus Area	Project	Primary	Deliverable	Assigned To	Due Date	Due Date Extended	Old Due Date	Status	Comments
Annual Reporting	Bay RMP (2017)	4. Annual Reporting	2017 Pulse Report	Jay Davis	09/30/17				Laid-out draft due 8/15/17. Final Due 9/30/17. Review by TRC/SC
Annual Reporting	Bay RMP (2017)	4. Annual Reporting	2017 Annual Meeting	Philip Trowbridge	10/06/17				
Communications	Bay RMP (2017)	5. Communications	Q2 RMP eUpdate	Jay Davis	06/30/17				Task skipped. No eUpdate in 2nd quarter.
Communications	Bay RMP (2017)	5. Communications	Q3 Estuary News Article	Jay Davis	09/30/17				
Communications	Bay RMP (2017)	5. Communications	Q3 RMP eUpdate	Jay Davis	09/30/17				
Communications	Bay RMP (2017)	5. Communications	RMP Update for BACWA Board	Philip Trowbridge	09/30/17				
Communications	Bay RMP (2017)	5. Communications	RMP Update for BASMAA Board	Philip Trowbridge	09/30/17				
Communications	Bay RMP (2017)	5. Communications	RMP Update for LTMS Program Managers	Philip Trowbridge	09/30/17				
Communications	Bay RMP (2017)	5. Communications	RMP Update for BPC	Philip Trowbridge	09/30/17				
Communications	Bay RMP (2017)	5. Communications	RMP Update for WSPA BATS Meeting	Philip Trowbridge	09/30/17				
Communications	Bay RMP (2017)	5. Communications	RMP Update for RB2 staff	Philip Trowbridge	09/30/17				
Communications	Bay RMP (2017)	5. Communications	Q4 Estuary News Article	Jay Davis	12/31/17				
Communications	Bay RMP (2017)	5. Communications	Q4 RMP eUpdate	Jay Davis	12/31/17				
Communications	Bay RMP (2017)	5. Communications	Fact Sheet (content TBD)	Philip Trowbridge	12/31/17				
Communications	Bay RMP (2017)	5. Communications	Presentation of RMP data at up to 6 conferences or local meetings (oral presentations and posters)	Philip Trowbridge	12/31/17				
Data Management	Bay RMP (2017)	3. QA and Data Services	Host QA Meeting with RMP labs	Don Yee	12/31/17				
Data Management	Bay RMP (2017)	3. QA and Data Services	Online Data Access CD3: Add enhancements and updates to web-based data access tool CD3.	Cristina Grosso	12/31/17				The next CD3 release is in progress and includes adding the ability to filter the map by a user-defined threshold and tool maintenance/performance upgrades. 2017 deliverables include: (1) Add ability to filter by user-defined threshold; (2) Add Station Names to pop-up boxes; (3) Migrate application to OpenLayers3 to provide better quality maps; (4) Tool maintenance and performance upgrades.  Completed to-date: adding station names to map; ability to generate a specific URL for a map query.
Data Management	Bay RMP (2017)	3. QA and Data Services	Database Maintenance: Data uploads and updates and corrections to datasets as needed	Amy Franz	12/31/17				(1) upload priority CEC datasets as requested by Dr Becky Sutton (2) Upload PFC datasets (3) Upload 1993-2014 CTD data (4) Update database to implement changes made by CEDEN for standard vocabulary codes, business rules and database structure (5) Update records and address issues as identified by internal staff (6) Perform scheduled database maintenance. Carry over from 2016: Historic Sum of TEQs (DTSRDC-219) In Progress; Update QA Code for PCB coelutions to be CEDEN comparable (DTSRDC-186) In Progress; Investigate records that have a rejected QA Code but do not have a Compliance Code that indicates rejection (DTSRDC-33) In Progress

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Focus Area	Project	Primary	Deliverable	Assigned To	Due Date	Due Date Extended	Old Due Date	Status	Comments
Data Management	Bay RMP (2017)	3. QA and Data Services	Updates to SOPs and Templates	Amy Franz	12/31/17				(1) Develop data submittal portal (2) Modify templates, queries and SOPs as needed (3) Begin discussion on how to manage sums (4) Discuss the roadmap for updating the CEDEN data checker with SWRCB staff
Data Management	Bay RMP (2017)	3. QA and Data Services	QA Officer Report for 2017 Water Data	Don Yee	03/31/18				
Data Management	Bay RMP (2017)	3. QA and Data Services	QA Officer Report for 2017 Margins Sediment Data	Don Yee	03/31/18				
Dioxin	Bay RMP (2017)	Dioxin Synthesis Report	Dioxin Synthesis Report	Don Yee	12/31/17				Draft due 12/31/2017; Final due 3/31/2018 -- Review by Dioxin WG
Emerging Contaminants	Bay RMP (2017)	PFAS in SFB: Synthesis/Strategy	Assessment of Individual PFASs into tiers where sufficient information exists	Meg Sedlak	08/31/17		03/31/17		Tier classifications will be part of the draft PFAS report now due 8/31/17. Report was delayed due to internal staffing issues.
Emerging Contaminants	Bay RMP (2017)	PFAS in SFB: Synthesis/Strategy	PFAS Synthesis Report	Meg Sedlak	08/31/17				Draft report due by 8/31/17; final due by 9/29/17 -- Review by ECWG.
Emerging Contaminants	Bay RMP (2016)	EC Non-targeted Analysis	Report on Non-Targeted Analysis of Water-Soluble CEC Compounds	Rebecca Sutton	09/30/17		06/30/17		Draft report presented to ECWG on 3/30/17. Dr. Ferguson requested a Final Report extension to 12/31/17 (9/30/17 for draft) to allow him to do additional analyses over the summer. Original deadline for Final report: 6/30/17. Provide final report to EB Parks.
Emerging Contaminants	Bay RMP (2016)	EC Non-targeted Analysis	Fact Sheet on Non-Targeted Analysis of Water-Soluble CEC Compounds	Rebecca Sutton	09/30/17		06/30/17		Fact sheet was to accompany the final report. Original deadline 6/31/17. Provide final fact sheet to EB Parks.
Emerging Contaminants	Bay RMP (2016)	EC Strategy Support	CEC Strategy Document Update	Rebecca Sutton	09/30/17		03/31/17		Draft report has been reviewed by ECWG and is undergoing initial revision before TRC and SC review. Final document by 9/29/17. (The original plan was to have a final report by 3/31/17.) Update will include the latest tiered placement of chemicals, information needs and proposed studies, and 5-year plan for research.
Emerging Contaminants	Bay RMP (2014)	Emerging Contaminants Special Studies /	Alternative Flame Retardants Study - Final Report	Rebecca Sutton	11/30/17		06/30/15		Delayed due to other priorities. This delay will not affect the MYP process, and the data has already been presented to the ECWG. Original due date: 6/30/15
Emerging Contaminants	Bay RMP (2017)	EC Strategy	Present update of EC strategy, pro bono studies, & new studies to Steering Committee	Rebecca Sutton	12/31/17				
Emerging Contaminants	Bay RMP (2017)	EC Strategy	Communicate findings from annual review of tiered monitoring & management framework to Water Board	Rebecca Sutton	12/31/17				
Emerging Contaminants	Bay RMP (2017)	Imidacloprid in Ambient Bay Water	Fact sheet on imidacloprid in ambient Bay water	Rebecca Sutton	03/31/18				Draft due on 3/31/18; final due on 6/30/18 - Review by ECWG
Emerging Contaminants	Bay RMP (2017)	Triclosan in Small Fish	Report on triclosan in small fish	Rebecca Sutton	04/30/18				Draft report by 4/30/18; final due 7/31/18 -- Review by ECWG
Emerging Contaminants	Bay RMP (2017)	Phosphate Flame Retardants in Bay Water	Report on phosphate flame retardants in ambient Bay water	Rebecca Sutton	05/31/18				Draft report by 5/31/18; final due 8/31/18 -- Review by ECWG
Emerging Contaminants	Bay RMP (2017)	Bisphenol in Bay Water	Report on bisphenol compounds in ambient Bay water	Jennifer Sun	05/31/18				Draft report by 9/30/18; final due 12/31/18 -- Review by ECWG
Exposure and Effects	Bay RMP (2017)	EE Estrogen Linkage Studies	Estrogen Receptor Assay Technical Report	Nancy Denslow (Univ. Florida)	09/30/17				Draft due by 9/30/17. Final due by 12/31/17. Review by EEWG.
Governance	Bay RMP (2017)	2. Governance	September TRC Meeting	Philip Trowbridge	09/30/17				
Governance	Bay RMP (2017)	2. Governance	October SC Meeting	Philip Trowbridge	10/31/17				
Governance	Bay RMP (2017)	2. Governance	December TRC Meeting	Philip Trowbridge	12/31/17				
Governance	Bay RMP (2017)	2. Governance	Honoraria Payments for Science Advisors	Philip Trowbridge	12/31/17				
Microplastics	Bay RMP (2017)	Microplastic Characterization Study (Moore Foundation)	Baseline Report - Year 1	Meg Sedlak	05/31/18				
Microplastics	Bay RMP (2017)	Microplastic Characterization Study (Moore Foundation)	Baseline Report - Year 2	Meg Sedlak	12/31/18				
Nutrients	Bay RMP (2017)	Nutrient Ship-Based Monitoring	Results summarized in NMS FY17 Annual Report	Dave Senn	09/30/17				Draft August 2017; Final September 2017

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Focus Area	Project	Primary	Deliverable	Assigned To	Due Date	Due Date Extended	Old Due Date	Status	Comments
Nutrients	Bay RMP (2017)	Nutrients Moored Sensor Monitoring	Results summarized in NMS FY17 Annual Report	Dave Senn	09/30/17				Draft August 2017; Final September 2017
Nutrients	RMP SEP	3. Hydrodynamic and Water Quality Model in SFB and LSB	An interim report on hydrodynamic and nutrient model calibration and associated development	Dave Senn	12/31/17				
Nutrients	RMP SEP	3. Hydrodynamic and Water Quality Model in SFB and LSB	A final hydrodynamic and nutrient calibration and validation report	Dave Senn	12/31/18				The primary goals for this study are to calibrate and validate numerical models used for (1) predicting how anthropogenic nutrients (nitrogen and phosphorous) enter and react within the Bay; (2) predicting how the Bay responds to these inputs, including phytoplankton blooms and low dissolved oxygen; and (3) exploring how various nutrient load reduction management decisions will affect habitat condition.
PCB Strategy	Bay RMP (2017)	PCB Margins Conceptual Model	Steinberger Slough Priority Margin Unit Conceptual Model Report	Jay Davis	09/30/17		08/31/17		Draft by 9/30/17; Final due 12/31/17 -- Review by PCB WG. Date for final report delayed by 3 months due to concurrent deadline with SLB CM report for SEP study (hard deadline).
PCB Strategy	RMP SEP	1. San Leandro Bay PCB Study Phase 1	San Leandro Bay PCB Study Phase 1 Data Report	Jay Davis	12/31/17				
PCB Strategy	RMP SEP	2. San Leandro Bay PCB Study Phase 2	San Leandro Bay PCB Study Phase 2 Data Report	Jay Davis	12/31/17				
Program Management	Bay RMP (2017)	1. Program Management	Q4 RMP Financial Report	Philip Trowbridge	10/15/17				
Program Management	Bay RMP (2017)	1. Program Management	2018 Multi-Year Plan	Philip Trowbridge	10/31/17				
Program Management	Bay RMP (2017)	1. Program Management	2018 Detailed Workplan	Philip Trowbridge	10/31/17				Draft in October '17, final in January '18.
Sediment Strategy	Bay RMP (2017)	Sediment Supply Synthesis	Sediment Supply Synthesis Final Report	Lester McKee	09/30/17				Draft due before the stakeholder meeting. Final due by 12/31/17. Review by stakeholder group and TRC.
Sediment Strategy	Bay RMP (2017)	Sediment Supply Synthesis	Sediment Stakeholder Meeting	Lester McKee	10/31/17				
Sediment Strategy	Bay RMP (2017)	2. Governance	Participation in Sediment Strategy Advisory Committee	Philip Trowbridge	12/31/17				
Sediment Strategy	RMP SEP	4. Golden Gate Sediment Flux Study (2017)	Journal Manuscript or Technical Report	Maureen Downing-Kunz	12/31/17				Results will be reported in a journal manuscript or, if that effort is delayed, in an interpretive report to the RMP by December 31, 2017. Data will be quality reviewed and stored in a USGS database.
Sediment Strategy	Bay RMP (2017)	Sediment Monitoring Strategy	Sediment Monitoring Strategy	Philip Trowbridge	01/01/19				Draft due 1/1/19; Final due 6/30/19
Selenium Strategy	Bay RMP (2015)	Selenium Special Studies / Selenium Delta Fish Derby Monitoring	2015 Sturgeon Derby Final Report	Jennifer Sun	07/31/17		02/26/16		Report has gone through comment period with Se WG. Is awaiting sign off by Jay before being published.
Selenium Strategy	Bay RMP (2015)	Selenium Special Studies / Selenium Sturgeon Tissue Plug Monitoring	2015 Sturgeon Muscle Plug Final Report	Jennifer Sun	08/31/17		05/31/16		Preliminary results presented at the Selenium Workgroup meeting in May 2016 and at the RMP Annual Meeting in October. Results will be written up by 8/31/17.
Selenium Strategy	RMP SEP	6. Suisun Bay Selenium Monitoring Study	Monitoring Design Framework	Jay Davis	08/31/17				
Selenium Strategy	Bay RMP (2016)	Selenium 2016 Derby Monitoring	Technical Report on 2016 Derby Monitoring	Jennifer Sun	09/30/17		12/31/16		2016 Derby results will be combined with 2017 Derby results in one report. Combining data will make for a better analysis. Draft report for Selenium Strategy Team by 9/30/17. Final report by 12/31/17.
Selenium Strategy	Bay RMP (2017)	USGS Clam Monitoring	Continue USGS Clam Monitoring from December 2016 to May 2017	Jay Davis	10/31/17		06/30/17		USGS started using RMP funds for clam monitoring in April 2017. Monitoring will run through October 2017.
Selenium Strategy	Bay RMP (2017)	2017 Sturgeon Derby Monitoring	Technical Report on Selenium in White Sturgeon from the 2017 Sturgeon Derby	Jennifer Sun	12/31/17				Draft due 12/31/17; final due 2/28/2018
Selenium Strategy	RMP SEP	6. Suisun Bay Selenium Monitoring Study	Field Studies Report	Jay Davis	12/31/18				
Sources Pathways and Loadings	Bay RMP (2017)	STLS Regional Watershed Model	RWSM. Draft model software, model updates, results of the model calibration, and regional loads	Lester McKee	09/30/17		06/30/17		Draft provided to SPLWG in May 2017. Final September 2017.
Sources Pathways and Loadings	Bay RMP (2017)	Guadalupe River Flood Monitoring	Data management	Amy Franz	09/30/17				

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Focus Area	Project	Primary	Deliverable	Assigned To	Due Date	Due Date Extended	Old Due Date	Status	Comments
Sources Pathways and Loadings	Bay RMP (2016)	STLS Trends Strategy Support	POC trends. Guadalupe Trends Model Report	Lester McKee	10/31/17		12/31/16		2016 Trends Strategy funds were initially used to explore a power analysis using data from four well-sampled watersheds to determine a monitoring program that would be sufficient to track trends. Peer reviewers later recommended additional data exploration in one watershed (Guadalupe River) including: 1) Develop models for continuous PCB concentrations; 2) Identify gaps in existing storm styles sampled; 3) Compute storm EMCs and loads from continuous models; 4) Develop an "event loads" trends model. Progress on these additional analyses were made in 2017 and 2018 funds have been requested to complete this analysis, which will also include a recommended monitoring program design.
Sources Pathways and Loadings	Bay RMP (2017)	STLS POC Watershed Characterization	Report on Pollutants of Concern monitoring in WY 2017	Lester McKee	12/31/17				Draft December 2017; Final March 2018 -- Review by SPLWG and STLS
Sources Pathways and Loadings	Bay RMP (2017)	Guadalupe River Flood Monitoring	Technical report	Lester McKee	12/31/17				Draft report by 9/30/17; Final by 12/31/17
Status and Trends	Bay RMP (2016)	6. Status and Trends Monitoring >> Bay Margins Study	Central Bay Margins Sediment Sampling: Data Analysis and Reporting	Don Yee	07/31/17		12/31/16		Responding to comments from an external reviewer (Tony Olsen). Final by 7/31/17.
Status and Trends	Bay RMP (2017)	6. Status and Trends A. Field Work and Logistics	Cruise Plan for 2017 Water Sampling	Jennifer Sun	07/31/17		06/30/17		
Status and Trends	Bay RMP (2017)	6. Status and Trends A. Field Work and Logistics	Conduct 2017 Water Cruise	Philip Trowbridge	09/30/17				Cruise will be conducted in August 2017.
Status and Trends	Bay RMP (2017)	6. Status and Trends H. Passive Sampling	Participate in Global Passive Sampling Initiative	Don Yee	09/30/17				Sampler arrived. Will be deployed in late July for 3 months.
Status and Trends	Bay RMP (2017)	6. Status and Trends K. Annual Monitoring Report	2017 Annual Monitoring Report	Philip Trowbridge	10/31/17				Draft by 10/30/17; Final by 12/31/17.
Status and Trends	Bay RMP (2017)	6. Status and Trends I. Sample Archive	Update RMP Archives Database	Amy Franz	11/30/17				(1) Update documentation and template (2) General upkeep and maintenance for tools and data (3) Set up User Accounts and Help Desk (4) Manage internal and external data requests
Status and Trends	Bay RMP (2017)	6. Status and Trends E. Water Cruise Data Mgmt	Format, QA, and Upload 2017 Water Data	Amy Franz	03/31/18				
Status and Trends	Bay RMP (2017)	6. Status and Trends F. Margins Sediment Study	Format, QA, and Upload 2017 South Bay Margins Sediment Data	Amy Franz	03/31/18				

## Bay RMP Action Items

### Key to Status Colors:

Green indicates greater than 90 days until the deliverable is due.

Yellow indicates a deliverable is due within 90 days.

Red indicates a deliverable that is overdue.

Primary	Deliverable	Assigned To	Due Date	Status	Comments	Meeting Date
Technical Review Committee Action Items from 6/8/17	Update the S&T design with the consensus adjustments: discontinuing PBDE analysis in bivalves; curtailing nutrient monitoring during the Water Cruise; and skipping sediment toxicity and benthos for the 2018 sediment cruise.	Philip Trowbridge	06/30/17	Complete		06/08/17
Technical Review Committee Action Items from 6/8/17	Add an agenda item to a future TRC meeting about CTR parameters for RPA.	Philip Trowbridge	06/30/17	Complete	Added to parking lot for future agenda items.	06/08/17
Technical Review Committee Action Items from 6/8/17	Add particulate selenium to the target list for the 2017 Water Cruise.	Philip Trowbridge	06/30/17	Complete		06/08/17
Technical Review Committee Action Items from 6/8/17	Change S&T design table to note that bird eggs were tested in 2016, not 2015.	Philip Trowbridge	06/30/17	Complete		06/08/17
Technical Review Committee Action Items from 6/8/17	Present a proposal to the TRC for testing archived tern eggs from 2016 for PBDEs. Determine the cost for analysis and data management. Review trends graphs to determine the value of getting more data.	Philip Trowbridge	09/15/17		Added to parking lot for September TRC meeting.	06/08/17
Technical Review Committee Action Items from 6/8/17	Follow-up with TRC members to reach resolution on summer vs winter for the 2018 sediment cruise.	Philip Trowbridge	09/15/17		Added to parking lot for September TRC meeting.	06/08/17
Technical Review Committee Action Items from 6/8/17	Discuss focusing RMP efforts with SQOs to hotspots during the Multi-Year Planning meeting	Philip Trowbridge	11/01/17			06/08/17
Technical Review Committee Action Items from 6/8/17	Finalize the minutes from 3/9/17 TRC meeting.	Philip Trowbridge	06/30/17	Complete		06/08/17
Steering Committee Action Items from 4/26/17	Review the RMP charter and re-establish a protocol for alternates at RMP governance meetings.	Philip Trowbridge	05/08/17	Complete		04/26/17
Steering Committee Action Items from 4/26/17	Upload the approved January 17 SC meeting summary to the public meetings Google Drive folder and the calendar event on the SFEI website.	Philip Trowbridge	05/02/17	Complete		04/26/17
Steering Committee Action Items from 4/26/17	Create website and Google calendar events for the January 25, 2018, Steering Committee meeting.	Philip Trowbridge	05/08/17	Complete		04/26/17
Steering Committee Action Items from 4/26/17	Hold a phone call with Jim Mazza and Jessica Burton Evans to discuss Jim's attendance at the June, and future, TRC meetings.	Philip Trowbridge	06/02/17			04/26/17
Steering Committee Action Items from 4/26/17	Share July SC agenda items two weeks early (July 5th) with John Coleman and Betty Kwan. Hold a phone call with John and Betty to review the July SC agenda ahead of time.	Philip Trowbridge	07/03/17	Complete		04/26/17
Steering Committee Action Items from 4/26/17	Approve the 2016 write-off of a \$804 Caltrans invoice.	Lawrence Leung	06/01/17	Complete		04/26/17
Steering Committee Action Items from 4/26/17	Approve the unencumbering of \$134,585 of left-over 2016 RMP funds and adding them to the reserve.	Lawrence Leung	06/01/17	Complete		04/26/17
Steering Committee Action Items from 4/26/17	Share EEWG meeting materials with dredging representatives.	Philip Trowbridge	05/08/17	Complete		04/26/17
Steering Committee Action Items from 4/26/17	Add the issue of "contaminant transport" to the fourth of the proposed sediment research questions in the next Multi-Year Plan.	Philip Trowbridge	10/31/17	Complete	Sediment questions updated for MYP.	04/26/17

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Primary	Deliverable	Assigned To	Due Date	Status	Comments	Meeting Date
Steering Committee Action Items from 4/26/17	Arrange a phone call with Jessica Burton Evans, David Schoellhammer, and the navigation program manager to discuss the USACE's involvement in the USGS Sediment Supply Synthesis.	Philip Trowbridge	06/02/17			04/26/17
Steering Committee Action Items from 4/26/17	Reach out to Brenda Goeden at BCDC and Elizabeth Christian at the Water Board regarding the study design of the future sand-transport monitoring effort.	Philip Trowbridge	06/02/17	Complete		04/26/17
Steering Committee Action Items from 4/26/17	Reach out to key stakeholder groups and recruit more attendees for the EEWG meeting.	Philip Trowbridge	05/05/17	Complete		04/26/17
Steering Committee Action Items from 4/26/17	Add agenda item to May 9 EEWG meeting: provide a quick summary of the recent ECWG meeting.	Philip Trowbridge	05/01/17	Complete	There was insufficient time at the EEWG for this update but CEC staff were at the meeting to draw connections.	04/26/17
Steering Committee Action Items from 4/26/17	Modify language in the Proposed Questions for the Exposure and Effects Workgroup (for the next Multi-Year Plan) from "Are there any indications of ecological effects caused by exposure to mixtures of contaminants in the Bay?" to "Are there any indications of ecological effects caused by exposure to specific chemicals or mixtures of contaminants in the Bay?"	Jay Davis	10/31/17	Complete	Questions updated and stored in folder for 2018 MYP.	04/26/17
Steering Committee Action Items from 4/26/17	Research whether there's bike parking at the David Brower Center and email Jessica Burton Evans any findings.	Ila Shimabuku	06/01/17			04/26/17
Steering Committee Action Items from 4/26/17	Send the outline of the Pulse to Naomi Feger, Peter Carroll, and Jim Ervin for review	Jay Davis	05/15/17	Complete		04/26/17
Technical Review Committee Action Items from 3/9/17	Finalize the December 8, 2016 TRC meeting summary and post to the public meetings folder.	Ila Shimabuku	03/20/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Create a calendar event for the September 14, 2017 and December 14, 2017 TRC meetings.	Ila Shimabuku	03/20/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Send June 8 TRC meeting agenda items early (2 weeks early is on May 25th) to allow ample time for review by, and collaboration between, Richard Looker and Naomi Feger as Naomi will be filling in for Richard in June.	Philip Trowbridge	05/25/17	Complete	Agenda items will be sent on May 30.	03/09/17
Technical Review Committee Action Items from 3/9/17	Send out sportfish workgroup doodle poll to SC, TRC, & Janet O'Hara (Water Board).	Jay Davis	03/21/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Send out KMZ file of random site-location draws to TRC and ask for a two-week turnaround for comments and review.	Don Yee	03/13/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Change the terminology for "Southern Slough" sites to something more intuitive (e.g., Extreme Lower South Bay).	Don Yee	04/03/17	Complete	"Extreme LSB" will be used.	03/09/17
Technical Review Committee Action Items from 3/9/17	Organize a brown-bag presentation about the Central Bay Margins Study at the San Francisco Bay RWQCB.	Don Yee	09/30/17			03/09/17
Technical Review Committee Action Items from 3/9/17	Filter out non-significant results from the 2015 monitoring effort for further presentations.	Don Yee	04/03/17	Complete	Presentation altered for April 2017 ACS meeting presentation	03/09/17
Technical Review Committee Action Items from 3/9/17	Follow up with Steve Weisberg about external review of margins report.	Jay Davis	03/24/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Share South Bay Margins study information with the South Bay Salt Pond Restoration Project and Bruce Jaffe about site locations and potential add-ons.	Philip Trowbridge	05/31/17	Complete	Draft sampling plan shared with SBSRP.	03/09/17
Technical Review Committee Action Items from 3/9/17	Revisit list of ideas for monitoring contingency tasks and bring a selection forward to the Steering Committee if any are warranted.	Philip Trowbridge	05/18/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Look into what areas require a State Lands Commission's Permit and consider avoiding these areas.	Philip Trowbridge	04/03/17	Complete		03/09/17

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Primary	Deliverable	Assigned To	Due Date	Status	Comments	Meeting Date
Technical Review Committee Action Items from 3/9/17	Ask Ian Wren who Phil should contact at the Coast Guard in regards to NOAA vessel navigation.	Ila Shimabuku	03/20/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Ask EPA (Brian Ross and Allan Ota) and the Coast Guard for information on stations where a large research vessel can operate in the Bay.	Philip Trowbridge	04/03/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Generate a list of contextual reports on sediment toxicity that the RMP has and send to Chris Sommers.	Philip Trowbridge	03/13/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Prepare a plan for 2018 RMP sediment toxicity and benthos sampling and discuss it with the Exposure and Effects Workgroup	Philip Trowbridge	05/09/17	Complete	Task underway through the approved workplan.	03/09/17
Technical Review Committee Action Items from 3/9/17	Remove Harry Ohlendorf from the EEWG group to allow him to focus on the sediment workgroup.	Jay Davis	04/17/17	Complete		03/09/17
Technical Review Committee Action Items from 3/9/17	Synthesize committee thoughts from today and bring them to the Steering Committee for further discussion.	Jay Davis	04/17/17	Complete		03/09/17
Steering Committee Action Items from 1/17/17	Confirm November 1, 2017, with all absent Steering Committee members and create a calendar event.	Ila Shimabuku	02/01/17	Complete		01/17/17
Steering Committee Action Items from 1/17/17	Develop a better process for sharing meeting materials with the SC and TRC on the website.	Philip Trowbridge	04/26/17	Complete	The RMP calendar webpages have been reconfigured to make accessing the materials through the website easier.	01/17/17
Steering Committee Action Items from 1/17/17	Add discussion of whether further reductions in S&T monitoring design are warranted (specifically, the cost vs. benefit of continued copper and cyanide monitoring) to the September TRC agenda and the November Multi-Year Planning Workshop.	Philip Trowbridge	08/30/17	Complete	On agenda for June 2017 meeting.	01/17/17
Steering Committee Action Items from 1/17/17	Add a line to the "CURRENT AND ANTICIPATED MANAGEMENT DECISIONS, POLICIES, AND ACTIONS BY THE REGULATORY AGENCIES THAT MANAGE BAY WATER QUALITY" table under "New and Future" related to pending actions on new beneficial uses.	Philip Trowbridge	02/01/17	Complete		01/17/17
Steering Committee Action Items from 1/17/17	Add discussion item about the future of the EEWG to the March Technical Review Committee and April Steering Committee agendas.	Philip Trowbridge	02/01/17	Complete		01/17/17
Steering Committee Action Items from 1/17/17	Send mercury results from the Guadalupe River sampling effort to the Steering Committee and Technical Review Committee once the results are received from Moss Landing.	Lester McKee	09/30/17		Data are due back from the laboratory by 4/30/17. The data will then be QA'ed and analyzed. Results will be presented to the TRC in September 2017.	01/17/17
Steering Committee Action Items from 1/17/17	Discuss the effects of declining state funding for the RDCs on the RMP and the Institute with Tom Mumley.	Philip Trowbridge	03/31/17	Complete		01/17/17
Steering Committee Action Items from 1/17/17	Send the State of the Estuary Report video to the Steering Committee, along with statistics on the number of views.	Cristina Grosso	02/01/17	Complete		01/17/17
Steering Committee Action Items from 1/17/17	Develop and implement a plan to improve the RMP website.	Philip Trowbridge	12/31/17		Some changes were made to the website (new publications list, meeting materials on calendar pages). Additional improvements will be made during the rest of the year.	01/17/17
Steering Committee Action Items from 1/17/17	Revise the outlines for the 2017 Pulse, Annual Meeting, and 25th Anniversary.	Jay Davis	02/15/17	Complete	Updated outlines prepared for the 3/9/17 TRC meeting.	01/17/17
Steering Committee Action Items from 1/17/17	Update the EEWG narrative as part of the next draft of this document in the fall.	Philip Trowbridge	09/30/17	Complete	This action item will be completed during the next MYP update. New research questions have been drafted and will be discussed with the EEWG on 5/9/17.	01/17/17

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Primary	Deliverable	Assigned To	Due Date	Status	Comments	Meeting Date
Steering Committee Action Items from 1/17/17	Include explicit statement on data fate (e.g., will the data be uploaded to CEDEN) in future proposals and plans, and ensure that critical background information travels with datasets.	Philip Trowbridge	03/31/17	Complete	Staff have been informed. Data management plans will also be added to Sampling and Analysis Plans for individual studies to facilitate communication within the Institute. SFEI's RDC has the flexibility of storing data so it is consistent with State standards, but not sharing the data with CEDEN. This allows data to be standardized and easily aggregated for analysis purposes, but not publicly displayed if this is a concern for a project.	01/17/17
Steering Committee Action Items from 1/17/17	Continue the dialogue on potential Annual Meeting keynote speakers via email.	Jay Davis	02/03/17	Complete		01/17/17
Technical Review Committee Action Items from 12/08/16	Make edits to 9/21 TRC minutes and publish to public meetings folder.	Ila Shimabuku	12/13/16	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Confirm first quarter 2017 TRC meeting for March 9, 2017, with all absent TRC members.	Ila Shimabuku	12/22/16	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Confirm and schedule second quarter 2017 TRC meeting for June 8, 2017, with all absent TRC members.	Ila Shimabuku	12/22/16	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Present information about the global passive sampling initiative and its funders at a future TRC meeting.	Don Yee	03/01/17	Complete	Topic added to list of parking lot items.	12/08/16
Technical Review Committee Action Items from 12/08/16	Consider changing the way margins data are transformed and the margins fines data are censored and possibly consult a statistician to further explore this issue.	Don Yee	03/01/17	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Send Don the resources on parametric tests and different methods for data transformations.	Richard Looker	12/16/16	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Look into past studies that used isotopes to understand whether PCBs are entering food webs from the margins or open bay.	Jay Davis	03/01/17	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Prepare a detailed proposal with options for sampling designs for the South Bay Margins Study for the March TRC meeting.	Don Yee	03/01/17	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Contact the labs to find which fish, water, and sediment sites in SLB were actually sampled (and sampled from the boat) and include this information in the data report.	Jay Davis	12/31/16	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Brainstorm a list of potential studies that could be done with the RMP archives and then contact university researchers and others who might be interested in doing these archived samples.	Philip Trowbridge	09/15/17		Delayed due to other priorities. Archives may be needed for laboratory intercalibration studies due to the shut-down of the WPCL laboratory that was used for most PCB analyses of tissue.	12/08/16
Technical Review Committee Action Items from 12/08/16	Contact SCCWRP, NIST, and the California Academy of Sciences to get information on how they use archive samples for scientific research.	Philip Trowbridge	06/30/17	Complete	Feedback received from SCCWRP and NIST. Archives may be needed for laboratory intercalibration studies due to the shut-down of the WPCL laboratory that was used for most PCB analyses of tissue.	12/08/16
Technical Review Committee Action Items from 12/08/16	Collect data on monthly visitors of the CD3 tool and send out to the TRC.	Cristina Grosso	12/22/16	Complete	CD3 visit counts: 162 sessions per month for the period Jan 1, 2016 - Dec 31, 2016	12/08/16
Technical Review Committee Action Items from 12/08/16	Consider using Cristina's statistics on RMP's lifetime of data collection in the 2017 Pulse.	Jay Davis	01/17/17	Complete		12/08/16

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Primary	Deliverable	Assigned To	Due Date	Status	Comments	Meeting Date
Technical Review Committee Action Items from 12/08/16	Update the 2017 Pulse outline with the comments suggested by the TRC and then present it to the SC.	Jay Davis	01/17/17	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Experiment with kriging layer transparency and differing color maps on the Pulse PCB map.	Jay Davis	03/01/17	Complete	This advice will be considered for the next version of the Pulse.	12/08/16
Technical Review Committee Action Items from 12/08/16	Pick dates for the 2017 Annual Meeting at the SC meeting on 1/17/17.	Philip Trowbridge	01/17/17	Complete	On agenda for 1/17/17 SC meeting.	12/08/16
Technical Review Committee Action Items from 12/08/16	Post the 2015 Water Cruise copper and cyanide rolling average on the SFEI website and upload slides from TRC presentation. Add the actual SSOs to the tables.	Ila Shimabuku	12/19/16	Complete		12/08/16
Technical Review Committee Action Items from 12/08/16	Review 2015 water data for the sites with moderate toxicity.	Ila Shimabuku	05/05/17	Complete	The water toxicity results and associated chemistry data will be presented to the EEWG on 5/9/17. The water chemistry data did not explain the toxicity but a very limited number of water chemistry parameters were measured.	12/08/16
Technical Review Committee Action Items from 12/08/16	Add discussion of the timing of to the March TRC agenda. Identify why participants were unable to attend in order to reach a solution for future 4th quarter TRC meetings.	Philip Trowbridge	02/27/17	Complete	Item added to parking lot for TRC agendas.	12/08/16
Steering Committee Action Items from 11/1/16	Hold a meeting of a small group to discuss the issue of monitoring for beneficial use attainment. The group is to include Jim Ervin, Jay Davis, Mike Connor, and Richard Looker.	Jay Davis	03/31/17	Complete	This action item to report back on the feasibility of monitoring beneficial uses directly has been postponed. Initial conversations indicated limited interest in this topic. Due to this and workflow issues, this item was postponed. If the Steering Committee would like to continue to pursue this topic, RMP staff will re-engage. If not, this action item will be dropped.	11/01/16
Steering Committee Action Items from 11/1/16	Send out Multi-Year Plan to SC and TRC again and ask for comments by 12/1/16.	Ila Shimabuku	11/05/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Update the Multi-Year Plan with: Management Drivers: Add a short summary about potential future drivers for the RMP.	Philip Trowbridge	01/10/17	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Update the Multi-Year Plan with: Status and Trends: Update table with correct budgets for margins sediment monitoring and the objectives of the margins sampling (including a nexus with dredging questions).	Philip Trowbridge	01/10/17	Complete	Adjusted 2017 and 2018 budgets to reflect current allocations.	11/01/16
Steering Committee Action Items from 11/1/16	Update the Multi-Year Plan with: EC: Plans for nonylphenol in margins sediment need to be in either 2017 or 2019. There will not be margins sampling in 2018.	Philip Trowbridge	01/10/17	Complete	Samples will be collected and archived in 2017 and analyzed in 2018. The table has been updated to reflect that "archived margin sediment" will be analyzed in 2018.	11/01/16
Steering Committee Action Items from 11/1/16	Update the Multi-Year Plan with: Microplastic: Clarify whether the \$150k in 2018 for methods development is a critical need or a placeholder in case a need develops. Add a lower cost effort for 2018 sediment sampling that would just archive the samples for later analysis.	Philip Trowbridge	01/10/17	Complete	Budget table revised to reflect Moore grant funds. Archived surface sediments from 2014 will be analyzed using grant funds, so additional sediment monitoring in 2018 is no longer planned (\$150k reduction). The \$150k planned for method development in 2018 is a placeholder for follow-up work depending on the outcome of USEPA and NOAA efforts; need for this funding will be evaluated after October 2017	11/01/16
Steering Committee Action Items from 11/1/16	Update the Multi-Year Plan with: EE: Push-out GC bioassay work until 2019-2020. Cross reference the bioassay work on the EC multi-year plan.	Philip Trowbridge	01/10/17	Complete		11/01/16

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Primary	Deliverable	Assigned To	Due Date	Status	Comments	Meeting Date
Steering Committee Action Items from 11/1/16	Update the Multi-Year Plan with: Sediment Strategy: Reduce budget for contributing to LTMS studies to \$50k in 2019 and 2020. Combine initial discussions about hosting the DMMO database with the dioxin/PCB initial tasks. Edits priority question #3 to be "where, how, and how much..." Add the USGS suspended sediment monitoring to the bottom half of the table.	Philip Trowbridge	01/10/17	Complete	Edits were made. Initial discussions about hosting the DMMO database will be conducted in 2017 alongside the dioxin synthesis tasks using PM funds.	11/01/16
Steering Committee Action Items from 11/1/16	Update the Multi-Year Plan with: Selenium: Update table with estimates for long-term monitoring of sturgeon and clam? (or hold off on clam until the group finishes discussion regarding the current proposal)	Philip Trowbridge	01/10/17	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Scope out the cost to analyze the dioxin data in the DMMO database at the same time as the synthesis of RMP dioxin data scheduled for 2017, and evaluate whether there are cost savings from combining these projects and with looking at other parameters such as PCBs.	Philip Trowbridge	01/10/17	Complete	\$8k cost savings from combining the DMMO dioxin data synthesis with the existing Dioxin Synthesis task in 2017. Evaluation of other parameters in the database will be delayed until 2018 after more is known about the structure of the database.	11/01/16
Steering Committee Action Items from 11/1/16	Send invoices for 2017 RMP fees for POTWs as an email attachment	Lawrence Leung	11/09/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Provide USACE with information on the cost of individual monitoring for dredge projects.	Philip Trowbridge	11/05/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Update dredge fee formula memo and send to BPC and Water Board to distribute to dredgers in advance of the 2017 dredging season.	Philip Trowbridge	11/05/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Schedule a phone call to finish discussing the rest of the proposed budget for USGS clam work for selenium monitoring.	Jay Davis	11/09/16	Complete	Proposal for clam monitoring was approved by SC on email on 11/30/16.	11/01/16
Steering Committee Action Items from 11/1/16	Revise SEP funds memo and provide latest version to the Water Board	Philip Trowbridge	11/05/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Add discussion of a letter of support for USACE budget increases to the January 17 Steering Committee meeting agenda	Philip Trowbridge	11/14/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Add tabled discussion about the Pulse Report budget to January 17, 2017 Steering Committee meeting.	Philip Trowbridge	11/05/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Add tabled discussion about the RMP's 25th anniversary to the January 17, 2017 Steering Committee meeting.	Jay Davis	11/05/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Develop a detailed plan for the 2017 Pulse and 25th Anniversary to present at the January 17, 2017 Steering Committee meeting	Jay Davis	01/10/17	Complete	On agenda for 1/17/17 SC meeting.	11/01/16
Steering Committee Action Items from 11/1/16	Send Jessica Burton Evans meeting invites for all scheduled SC and TRC meetings.	Ila Shimabuku	11/05/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Send a meeting invite for 7/25/17 to the SC. Follow up with an email to seated members asking if they have any conflicts.	Ila Shimabuku	11/05/16	Complete		11/01/16
Steering Committee Action Items from 11/1/16	Schedule updates for the following: Informatics/Communications/25th Anniversary (January) and PCB/Margins (April)	Philip Trowbridge	11/05/16	Complete		11/01/16
Technical Review Committee Action Items from 9/21/16	Revise the June 9, 2016, meeting summary and post it on the Bay RMP website.	Ila Shimabuku	11/01/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Schedule the first quarter 2017 TRC meeting for March 9, 2016	Ila Shimabuku	11/01/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Track down CEP Near-Shore and EMAP data for comparison to RMP margins data and minimum sample size calculations in the final report	Don Yee	12/31/16	Complete	To be completed as part of the Central Bay Margins Report.	09/21/16
Technical Review Committee Action Items from 9/21/16	Add discussions of PCB interlab calibrations studies, updating the kriging maps for sediment in the Bay, and definitions of Bay segments to a future TRC agenda	Philip Trowbridge	03/31/17	Complete	Topic added to list of parking lot items for TRC.	09/21/16

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Primary	Deliverable	Assigned To	Due Date	Status	Comments	Meeting Date
Technical Review Committee Action Items from 9/21/16	Send out toxicity data from the 2015 Water Cruise to TRC members	Ila Shimabuku	11/04/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Edit invitation list for November 1, 2016 Multi-Year Planning meeting to include Naomi Feger and TRC members	Jennifer Sun	10/31/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Edit the SEP project list to only include phase 1 of the RWSM stream gauge project and add a project duration criteria of < 2 years	Philip Trowbridge	11/01/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Add tabled discussion point to Multi-Year Plan agenda: Figuring out the process by which ideas for SEP funded projects are brainstormed, scoped out for main ideas/budgets/timelines, and finalized/approved for presentation to the Water Board. Topics include whether outside proposals will be considered and how they would be vetted	Philip Trowbridge	10/24/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Provide an update on San Leandro Bay PCB Study at the December TRC meeting	Jay Davis	12/08/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Add discussion item of 2017 Pulse themes to Steering Committee agenda	Philip Trowbridge	10/24/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Change the due date for the stormwater fact sheet	Philip Trowbridge	11/01/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Check in with the University of Florida on receiving information necessary to finishing the bioanalytical tools report	Philip Trowbridge	11/01/16	Complete		09/21/16
Technical Review Committee Action Items from 9/21/16	Schedule a future discussion of bivalve monitoring efforts using acoustic-release systems with the TRC, including identifying appropriate permitting and purchasing systems with retrievable weights	Philip Trowbridge	12/01/16	Complete		09/21/16
Steering Committee Action Items from 7/19/16	Post April 19, 2016 Steering Committee meeting summary to the Bay RMP website	Jennifer Sun	07/31/16	Complete		07/19/16
Steering Committee Action Items from 7/19/16	Send an email to Steering Committee members to schedule the April 2017 Steering Committee meeting	Philip Trowbridge	07/31/16	Complete		07/19/16
Steering Committee Action Items from 7/19/16	Revise Microplastic Fact Sheet to include a disclaimer indicating that fibers smaller than 0.5 mm were not positively identified as microplastic using spectroscopy	Rebecca Sutton	09/30/16	Complete	Revised fact sheet is available on website.	07/19/16
Steering Committee Action Items from 7/19/16	Work with the Water Board and workgroups to develop a working list of potential SEP project proposals to be discussed at the November Steering Committee meeting.	Philip Trowbridge	10/15/16	Complete	On agenda	07/19/16
Steering Committee Action Items from 7/19/16	Add agenda items to the November Steering Committee meeting to discuss adding text describing the SEP and AMR funding processes to the RMP Charter.	Philip Trowbridge	01/31/17	Complete	On agenda for 1/7/17 SC meeting	07/19/16