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RMP Steering Committee Meeting

April 18, 2005
San Francisco Estuary Institute
Second Floor Conference Room
7770 Pardee Lane, Oakland
12:30 PM - 3:00 PM

AGENDA

1.	**Approval of Agenda and Minutes** (Attachment)	12:30 Chair
2.	**Information: Committee Member Updates**	12:35 Group
3.	**Information: Technical Review Committee Meeting Summary** (Attachment) A summary of the March 15, 2005 TRC meeting will be given.	12:40 Meg Sedlak
4.	**Information: Budget Status** (Attachments) A budget status sheet will be distributed.	12:50 Meg Sedlak
5.	**Action: Approve Revised Management Questions** (Attachment) Minor modifications have been made to the management questions. **Desired Outcome:** Approval of Revised Management Questions	1:00 Meg Sedlak
6.	**Action: Management Review of Pulse and Summary Sheet** (Attachments) The Pulse and the one-page fact sheet on the Pulse will be sent to the printer on April 20. Committee feedback on the fact sheet is desired, and last minute suggestions for the Pulse will be considered. **Desired Outcome:** Approval of the Pulse and the fact sheet.	1:10 Meg Sedlak
7.	**Discussion: Process for Determining the Budget and Program for 2007 and beyond** (Attachment) **Desired Outcome:** Agree on a process or how to establish a process.	1:30 Mike Connor
8.	**Action: Review Memorandum on RMP Planning and Decision Making Process** (Attachment) **Desired Outcome:** Agree on a process for resolving conflicts and achieving consensus.	2:00 Meg Sedlak

9.	**Discussion: Joint Meeting of the RMP SC and the CEP EMB** The Program Review Panel and the TRC have recommended that the SC consider a joint meeting with the EMB. The TRC and CEP Technical Committee are holding a joint meeting on May 30 to prioritize information needs of the two programs. **Desired Outcome:** Decide whether this should occur and, if so, select a date.	2:20 Mike Connor
10.	**Information: Annual Meeting** (Attachment) The agenda for the Annual Meeting has been set.	2:40 Meg Sedlak
11.	**Information: Program Update** (Handout)	2:50 Meg Sedlak
12.	**Adjourn**	3:00

REGIONAL MONITORING PROGRAM FOR TRACE SUBSTANCES
STEERING COMMITTEE MEETING MINUTES
January 24, 2005

Members Present:

Dave Allan, USSPOSCO Industries
Kevin Buchan, Western States Petroleum Association
David Dwinell, US Army Corps of Engineers
G. Robert Hale, Alameda County Clean Water Program
Ellen Johnck, Bay Planning Coalition
Jim McGrath, Port of Oakland
Adam Olivieri, BASMAA
Dan Tafolla, Vallejo Sanitation and Flood Control
Chuck Weir, East Bay Dischargers Authority
Dyan Whyte, SFB RWQCB

Others Present:

Jay Davis, SFEI
Mike Connor, SFEI
Sarah Lowe, SFEI
Meg Sedlak, SFEI

1. Introductions and Approval of Agenda and Minutes

After introductions, Kevin Buchan opened the meeting and asked for comments on the October 18, 2004 minutes (Item 1 Attachment 1). Jay Davis stated that all action items had been addressed. No other comments were made and the minutes were approved.

2. Information: Committee Member Updates

Jay Davis informed the group about the upcoming RMP San Francisco Wetland Mercury Research Coordination that will be held from 10:00 am to approximately 3:00 pm on February 23rd at the San Leandro Marina Inn. Additional information regarding this meeting will be distributed via the forthcoming February San Francisco Bay Mercury News electronic newsletter. Meg Sedlak requested that individuals interested in this meeting or newsletter contact her.

3. Information: Technical Review Committee (TRC) Meeting Summary

Jay Davis summarized the minutes from the most recent TRC meeting on December 21, 2004 (Item 1 Attachment 3) in which the elements of the detailed workplan were discussed and approved. Part of the discussion focused on laboratory performance and receipt of data in a timely manner. A suggestion was made to move the Annual Meeting from the Spring to the Fall to facilitate the reporting of data within a one-year time frame.

The current timing of the meeting results in data being reported 18 months or two years from the time of sample collection. The chair of the TRC, Dave Tucker, concurred that moving the Annual Meeting to facilitate the receipt of data within a one-year time frame would be laudable.

Action items:

- **Confirm that the TRC/SC approve moving the Annual Meeting for 2006 from the Spring to the Fall**

4. Information: Budget Status

Meg Sedlak presented an updated summary for the RMP Budget (Years 2003 – 2004) (Item 4 Attachment 1). In general, the 2004 budget came in on budget. The labor budget was slightly under the budgeted amount. The subcontract budget was also on target due to cancellation of contracts (e.g. diving duck samples were compromised as a result of a refrigerator malfunction) and reduction of analytes (e.g., all of the "new analytes" with the exception of PBDEs were dropped). Ms. Sedlak handout a budget status summary sheet.

5. Action: 2005 Program Plan and Budget for 2005

Ms. Sedlak presented the 2005 Budget and Program Plan. Meg Sedlak noted that there was a 1.5 percent increase over last year's budget. Additional revenue streams for 2005 included bad debt from Caltrans (approximately $60,541) that was written off in December of 2003 and paid in December of 2004. The budget for 2005 was generally balanced with a slight surplus.

Ms. Sedlak described several of the individual program elements including the pilot and special studies that were planned for the year. Ms. Sedlak commented that many of the studies were collaborative efforts with the CEP or jointly-funded by other organizations. Jim McGrath encouraged close collaboration between the RMP and CEP.

Dr. Connor announced that additional funding for the data integration task (i.e., the multi-box model) had been obtained from the CEP. The CEP has allocated approximately $400,000 for sediment sampling and PCB, mercury and legacy pesticide analyses. Dr. Connor noted that several RMP projects this year are jointly-funded. He commented that the RMP funds are frequently used to leverage additional money from other sources to enhance the scope of work.

The Committee indicated that it would like to see the 2005 budget and the Five-Year Plan annotated with which program elements had received additional funding. Mr. Weir requested that the numbering for the program plan correspond to the 2005 Budget handout.

Chuck Weir and Adam Olivieri made a motion to approve the 2005 Program Plan and the 2005 Budget. These items were approved by the Committee.

Action item:

- **Annotate the 2005 Budget and Five-Year Plan with a comment about which projects have received additional funding sources. Revise the program plan to reflect the same numbering scheme as the 2005 Budget handout.**

6. Discussion: Process for Determining the Budget and Program for 2007 and Beyond

Dr. Connor briefly summarized a memorandum that he had prepared on the process for approving the annual budget. Dr. Connor stated that the program budget could be divided into four parts: Status & Trends (S&T); USGS studies on sediment dynamics and hydrography and phytoplankton; Special and Pilot Studies; and Program Management. Each part of the program could be evaluated independently with the idea being that not all parts of the program would need to be evaluated annually. Dr. Connor proposed waiting one more year to evaluate S&T as a major redesign occurred in 2002 and insufficient data is present to effectively assess the success of this redesign. Dr. Connor suggested that if the Committee was satisfied with this part of the program that the budget for it should grow at the rate of the Consumer Price Index (CPI). Dr. Connor stated that the second program element, the USGS work, is funded by the US Army Corps of Engineers. This funding source has remained stable and fixed for the last several years. No increase was suggested for this work. The third program element, Special and Pilot Studies, is closely tied to issues that directly affect the Committee. For the next several years, a large portion of this budget will be associated with the multi-box model that is jointly-funded by the CEP. Dr. Connor commented on how in general the Pilot and Special Studies are subject to an extensive review process as part of the selection process. Program management, the fourth program element, includes data management, program management, reporting, and information dissemination. Assuming that the Committee is satisfied with this part of the program, Dr. Connor suggested that this program part also increase annually by the CPI.

The Committee discussed briefly the overlap between the CEP and RMP and how to achieve good communication and coordination between the two groups. Dr. Connor noted that both Jay Davis and he attended CEP meetings and that several Committee members serve on both programs (e.g., Dave Tucker serves as chair of the TRC for the RMP and chair of the TC for CEP). A suggestion was made for more formal joint meetings to be made between the CEP and RMP.

A discussion ensued about the South Bay Salt Pond project. Jim McGrath stated that the Salt Pond project presented a good opportunity for the RMP to increase its biological monitoring (e.g., effects of restoration on fauna) and to increase its understanding of sediment dynamics. Dyan Whyte commented that the permit for Salt Pond project had been approved and no regional monitoring had been required. Mr. McGrath pointed out that additional monitoring requirements could be proposed by the Board if it deemed it necessary. Jim McGrath stated that SFEI is well poised to conduct this type of monitoring work.

Chuck Weir stated that he feels the POTWs have a responsibility to see that surface water and sediment quality improve. He indicated that his group is interested in participating in the CEP and RMP to see that the appropriate questions are answered. Adam Olivieri indicated that the BASMAA managers also agree with this philosophy.

Adam Olivieri stated that the SWAMP, CEP and RMP sometimes had disparate goals and suggested that the Board come up with a Bay Area plan for regional monitoring. He also noted that the BASMAA budgets are fixed year to year and that the group is facing increasing financial pressure as individual program elements (e.g., fees) increase without a corresponding increase in revenue.

Jim McGrath commented that the RMP had done a good job of adapting to fiscal constraints and that the Board needed to think about ways to increase the number of participants in the RMP. Adam Olivieri asked whether the Budget Review Memorandum needed to be approved today and Kevin Buchan indicated that it did not. Jay Davis reminded the Committee that due to the budget planning process timeline, the Committee needed to come to some consensus on the budget process soon.

Action item: Mike Connor will to discuss the budget process at the next SC meeting and to prioritize individual elements for discussion at the next SC meeting.

7. Action: Responding to Review Panel Recommendations

Jay Davis distributed four handouts on the Review Panel Recommendations and the actions that the Committees would like to implement. To address the first two items on the handout, it was decided that the RMP staff would write a memorandum describing the RMP planning and decision-making process. The memorandum would include a procedure to resolve conflict when consensus-based decisions cannot be reached. Recommendation number 5, Increase Public Outreach, will be addressed by Chuck Weir who leads the CEP's public outreach. The committee decided that recommendation number 9, include a representative of the environmental community on the Steering Committee, should be addressed by notifying Dan Cloak of Dan Cloak Environmental Consulting and Leo O'Brien of Waterkeepers of the Steering Committee meetings.

Action item: SFEI to prepare a memorandum address Review Panel Recommendations 1 and 2. Linda Russo to notify Dan Cloak and Leo O'Brien of future Steering Committee meetings.

8. Discussion: Joint Meeting of the RMP SC and the CEP EMB

The Program Review Panel and the TRC have recommended that the SC consider a joint meeting with the EMB. A discussion ensued regarding the form of these meetings and who would participate. Dr. Connor offered to hold a meeting with Andy Gunther of the CEP to write a memorandum on how the RMP and CEP work together to address issues

and to discuss the priorities for each program. Ellen Johanck requested that the DMMO be included as well.

Action item: Dr. Connor and Dr. Gunther to write a memorandum on program elements, collaborative efforts, and priorities for each program. Dr. Connor and Dr. Gunther to include the DMMO in their discussions.

9. Action: Annual Meeting Agenda

Dr. Davis presented the agenda for the Annual Meeting, which is scheduled for May 10th, and asked for feedback on the proposed topics. Dr. Davis indicated that the theme for this year would be "Answering the Important Questions." He stated that many of the presentations tied into articles that would appear in this year's Pulse.

Dyan Whyte suggested that a brief presentation be given at the Annual Meeting regarding the RMP, CEP and the LTMS and how they overlap. Several members recommended removing the copper/nickel talk as it did not seem relevant to current issues in the Bay. Adam Olivieri indicated that he would speak with BASMAA members to see if a presentation could be made on reducing stormwater loads.

Action item: Adam Olivieri to determine if a presentation can be made on reducing stormwater loads. SFEI, CEP, and LTMS to prepare a brief outline of their respective program elements for the Annual Meeting.

10. Information: Pulse Update

Dr. Davis presented the Pulse schedule and indicated that he had contacted all authors and the Pulse appeared to be on schedule. He also stated that Ariel Rubisson-Okamoto had been contacted to prepare a one-page summary of the Pulse and asked whether committee members had other suggestions. Jim McGrath indicated that he thought she did good work and that we should go with her. Jay Davis stated that the Pulse would contain trends data. Adam Olivieri suggested contacting City of Palo Alto as they have conducted some interesting work on trends.

Action item: Meg Sedlak to contact Ariel Rubison-Okamoto to confirm her availability to write one-page summary. Meg Sedlak to look at City of Palo Alto's work on trends.

11. Information: Updating the RMP Objectives and Management Questions

Jay Davis indicated that Rainer Hoenicke would provide a timeline for comments.

Action item: Rainer Hoenicke will provide a timeline for comments to Steering Committee members.

12. Information: Report on Winter Pilot Study

Dr. Davis indicated that due to a full agenda only the Winter Pilot Study would be discussed at the meeting. The EEPS program will be discussed at the next Steering Committee meeting. Sarah Lowe provided a handout on the Winter Pilot Study and briefly summarized this work. Ms. Lowe indicated that 2001 was the last time samples were collected in the winter season. The wet weather sampling is important for determining 303 (d) listings and preparing NPDES permits.

Ms. Lowe reminded the Committee that several issues with regard to sampling need to be addressed: seasonality of the data (e.g., impacts of wet weather on the data), aquatic toxicity (e.g., determination of sediment toxicity), and redesign of the sampling plan (i.e., the current plan is based on copper which is no longer an issue). It is anticipated that these issues will be addressed through work groups in 2005.

Action item: Jay Davis to provide a summary of EEPS work at next Steering Committee meeting.

13. Information: Program Update

Meg Sedlak provided copies of the Scorecard to members. Adam Olivieri asked that the handouts be sent to him electronically.

Action item: Meg Sedlak to send Adam Olivieri a copy of all handouts electronically and to post handouts, agendas, and meeting schedules on SFEI web site.

14. Schedule for Next Meeting and Adjourn

The meeting adjourned at 3:40 pm. The next meeting is scheduled for April 18th at 12:30 pm.

RMP Technical Review Committee Meeting
March 15, 2005
San Francisco Estuary Institute
Meeting Minutes

In attendance: Larry Bahr Fairfield-Suisun Sewer District, Frank Black (UCSC), Kit Conaway (UCSC), Bridgette Deshields (BBL/WSPA), David Dwinell (USACE), Diane Griffin (EBMUD), Andy Gunther (AMS), Andy Jahn (Port of Oakland), Mike Kellog (City and County of San Francisco), Allison Luengen (UCSC), Jim McGrath (Port of Oakland), Steve Osbourne (City of San Jose), Chris Sommers (EOA-BASMAA), Karen Taberski (Regional Board), Dave Tucker (City of San Jose), Mick Connor (SFEI), Jay Davis (SFEI), Sarah Lowe (SFEI), Lester McKee (SFEI), Jon Oram (SFEI), Meg Sedlak (SFEI) and Don Yee (SFEI)

1. Introductions and Approval of Agenda and Minutes

Dave Tucker opened the meeting by asking for comments on the December 2004 minutes. Meg Sedlak indicated that most of the action items had been addressed; those that were not addressed would be included with today's action items. A table of action items follows these meeting minutes.

An update on three of the December action items was presented by Meg Sedlak. Bruce Thompson's estuary contamination index project is funded by the RMP, SCCWRP, and SFEP. Dr. Thompson anticipates that a multi-media annual contamination index will be developed and that the results of the study will be summarized in the 2006 Pulse. Second, mercury data from seal fur study are not available yet from Moss Landing Marine Laboratory. Lastly, the alkylated PAH data has been posted on the SFEI web site and can potential be used to characterize sediments in the event of an oil spill into the Estuary.

In absence of any comments, the minutes were approved by the Committee.

Action item: Include action items from the December 2004 meeting into the action items developed from the March 2005 meeting.

2. Information: January Steering Committee Report

Meg Sedlak provided a summary of the Steering Committee meeting on January 24, 2005. The Committee approved the 2005 Program Plan and budget. Dr. Connor summarized the key points from a memorandum he developed regarding the process for approving the budget that was presented at the January meeting. Dr. Connor stated that the memorandum has been significantly revised since the meeting in January and that he would provide an update to the TRC once the revisions were finalized.

Action item: Dr. Connor will provide an update to the TRC on the budget process approval memorandum.

3. Information: Setting Priorities for the 2006 Program Plan

Jay Davis presented Pilot and Special Study (PS/SS) ideas for possible inclusion in the 2006 Program Plan. Meg Sedlak distributed the Five-Year Plan to the group and indicated that based on a review of the Plan handed out, approximately $80,000 was available for 2006 for PS/SS. Dr. Connor noted that the Five-Year Plan did not reflect $100,000 for sediment sampling for PCBs as part of the development and optimization of the multi-box model. Jay Davis stated that inclusion of this item in the Five-year plan meant that no funds would be available for PS/SS. Although no funds are available for 2006, a decision was made to review and prioritize the eight PS/SS ideas that were submitted in the event that additional funds became available during the year. A brief summary of several of the projects was given by several of the researchers. The PS/SS ideas were provided as handouts to the TRC.

Karen Taberski stated that Carol Horten had included the RMP on the Supplemental Environmental Projects (SEP) list. Mr. McGrath indicated that it would be unlikely that permit-holders would fund any projects from this list as they are liable for the total cost of the project, regardless of whether the project meets it's estimated budget or not. He indicated that the Port of Oakland had sponsored one project for $60,000 and had been liable for approximately $300,000 as the project had had significant budget overruns.

Ms. Taberski requested that a work group be convened to address the Winter Sampling PS, the CTR Study, and the Epsodic Toxicity Study to synthesize the lessons learned from these projects and how the RMP should be modified to incorporate these findings.

A question was raised as to how the PS/SS ideas were developed. Meg Sedlak stated that several of the ideas came from the TRC and others were developed by the researchers themselves. Several members suggested that the CEP, the RMP, and the RWQCB should meet to develop and prioritize a list of studies that would assist in the development and implementation of TMDLs. It was noted that a list of studies needed for the TMDL had been developed but not prioritized. It was proposed that Mike Connor, Andy Gunther, and a staff member from the RWQCB review this list to prioritize the studies and potentially identify any data gaps. Dr. Connor also suggested that this issue be included as item to be addressed at the next CEP meeting.

Jim McGrath noted that several of SS proposed today investigated the uptake of mercury in the food web; however, no comprehensive study was proposed. He stated that the South Bay Salt Pond restoration project presented a good

opportunity for the RMP to address some of the more regional issues, rather than having each individual restoration project conduct studies that were more limited in scope. Mr. McGrath stated that there is a real sense of urgency associated with this issue and gave the example of the Napa River Salt Pond restoration project. The mercury TMDL was adopted after the permit went through and as a result, mercury issues are not addressed as part of the restoration project.

Mr. Bahr questioned why wetland restoration would present an issue for mercury. Mr. McGrath stated that the deeper sediments contained elevated concentrations of mercury. Jay Davis indicated that the mercury present in wetland sediments is amenable to biological processes that convert mercury to its more toxic form methylmercury. It was also noted that there are presently approximately 50,000 acres of existing wetlands and that approximately 30,000 acres of new wetlands will be restored.

Action items: TRC to rank PS/SSs. Sarah Lowe to convene a work group in the next several months to discuss Winter Sampling PS, the CTR Study and the Epsodic Toxicity Study and how findings from these studies may result in the modification of the RMP. Mike Connor, Andy Gunther, and RWQCB to meet to prioritize studies for the development and implementation of TMDLs.

4. Information: Update on 2005 Pulse

Dr. Davis informed the group that a draft of the 2005 Pulse had been sent to a limited set of reviewers including the TRC. Jay Davis requested that the Committee's comments be sent to him as soon as possible.

5. Discussion: 2005 RMP Annual Meeting Agenda

Jay Davis presented the revised agenda for comments. Dr. Davis indicated that he would like to have John Conomos as the key note speaker, if possible. TRC members thought that he would be a great speaker. Jay indicated that Dr. Conomos talk would be approximately 50 minutes and the remainder of speakers would have approximately 30 minutes. Other unconfirmed speakers included: Herb Frederickson of the US Army Corps of Engineers and Professor Frank Gobas.

Dr. Davis indicated that he added an overview of the RMP Workplan and Program. Mr. McGrath suggested that Dr. McKee's talk on tributary loads should be focused on the Guadalupe River. Dr. Davis indicated that this was designed to be a general talk.

Dr. Davis also indicated that in an effort to report the RMP data in a timelier manner, a request was made to move the Annual Meeting to the Fall of 2006. Mr. Bahr stated that if the laboratories were delayed in submitting their data to the RMP that the RMP should focus on the laboratories and not on moving the

Annual Meeting. Dr. Davis acknowledge that this was true; however, the current schedule did not allow sufficient time for reporting the data within one year as the Annual Meeting is approximately nine months after sample collection.

A motion was made by Mr. Tucker to move the Annual Meeting to the Fall 2006 and was seconded by Andy Jahn and Karen Taberski. The motion was approved by the Committee.

6. Information/Action: Update on Multi-box Model

Dr. Jon Oram presented an update on the status of the multi-box model. He indicated that he was working with Dr. Schoellhammer and Megan Lionberger to incorporate the USGS sediment model into the multi-box model. With the inclusion of the sediment model into the multi-box model, the model will be able to calculate a change in the sediment volume present in each box. Jon Oram indicated that the model would be sent to Tetra Tech for uncertainty analyses. This information will be used to guide the development of a sediment sampling plan.

Dr. Davis elaborated on the scope of work for the multi-box model that was presented in the 2005 Detailed Workplan. He indicated that it would be a four-year effort to develop a model that would provide the long-term foundation for predicting impacts on water quality. Jay Davis stated that field work would be used to guide the model and that there would be multiple points for input from the Committee. Dr. Davis stated that a detailed scope of work was available from Dr. Gunther.

Specific tasks included:

- Incorporate USGS sediment model
- Create enhanced graphics
- Prepare draft report (Version 1)
- Conduct uncertainty analyses (Tetra Tech)
- Prepare sediment sampling plan
    - Obtain input from the Contaminant Fate Work Group which will meet on April 15th
    - Incorporate results of uncertainty analyses into sediment plan
- Collect sediment cores in the Bay (AMS)
    - At present, only two historical cores are available to characterize the Bay
- Conduct additional sediment sampling the following year
- Apply model to other pollutants

Several TRC members including Chris Sommers, David Dwinell, and Andy Jahn indicated that sediment cores might be available from the Bay Bridge Expansion work, although the group was not certain how the sediments were collected and why they were collected (e.g., for grain-size characterization rather than

environmental contamination characterization). Bridgette Deschields suggested that sediment cores be archived to be available for future analyses. Jay Davis indicated that all sediment samples were archived.

Dr. Davis proposed that mercury be the second pollutant to be modeled given the concerns over methylmercury in the Bay. Dave Tucker questioned why mercury was proposed if methyl mercury was the contaminant of interest. Jay Davis indicated that methyl mercury is not conservative (i.e., it is easily created and lost) and therefore, it would be difficult to model it using the current version of the model. Chris Sommers noted that the TMDL and the waste load allocations are both written for total mercury. Jim McGrath indicated that the development of a biological model that could model methylmercury was several years away and therefore, in the interim, it made sense to model total mercury. Jay Davis explained that part of the rational for choosing mercury was that it was the first TMDL developed for the Bay Area.

Action item: Determine whether Caltrans or the Army Corps of Engineers has sediment core data for environmental pollutants of concern. Develop a method for the selection of the second pollutant to be modeled.

7. Lunchtime Presentation: Update on Research Activities in Russ Flegal's Laboratory at UC-Santa Cruz

Three presentations were given by Dr. Flegal's research group:

1) Metal/phytoplankton interactions during algal blooms in South San Francisco Bay (Allison Luengen)
2) Concentrations, speciation, and biogeochemical cycles of mercury in San Francisco Bay (Kit Conaway)
3) Mercury speciation and complexation in freshwater inputs to South San Francisco Bay (Frank Black)

Dr. Flegal's research group at University of California- Santa Cruz (UCSC) provided an update on the status of research activities. UCSC performs trace elemental analyses for the RMP.

At the end of the talks, Meg Sedlak thanked the speakers for their hard work on providing data to the RMP.

8 Information: Dissolved vs. Total Selenium Concentrations in Water

Following up on a comment made at the December TRC, Meg Sedlak provided a handout indicating that the dissolved selenium concentrations frequently exceed the total selenium concentrations. Ms. Sedlak provided several reasons as to why this might be occurring:

- The filtration process causes an increase in dissolved concentrations.

    - Filter blanks were analyzed and concentrations were below the detection limit
- Samples are near the method detection limit (MDL) and, therefore, discrepancy is an artifact
    - The samples are generally above the reported detection limit; however, the detection limit is for deionized water not sea water and there may be interferences with sea water. It is possible the MDL is much higher for seawater.
- Incomplete recovery of total concentrations is causing the discrepancy
    - MSD/MS are good; however, for some samples they are several orders of magnitude above the environmental concentration.
    - Partial digestion of the sample. Laboratory notes that a film may form if samples are not agitated.

Ms. Sedlak indicated that SFEI did not currently understand the reasons for the exceedances; however, she had identified the following corrective measures: spiking the MS/MSD samples within the environmental range, working with the laboratory to avoid incomplete digestions, using new methods for analyses such as ICP-MS, soliciting advice from other laboratories, and splitting samples for the 2005 S&T.

Larry Bahr noted that his group had seen similar exceedances when they analyzed for dissolved and total selenium. Dave Tucker emphasized the importance of resolving this issue and suggested that the current data be flagged. Mr. Tucker suggested having three laboratories look at this issue (e.g., Frontier, Nick Bloom, and Brooks Rand). Mr. Tucker also questioned as to why the RMP was going to wait until summer and asked whether samples could be collected sooner to investigate this issue.

Action item: Follow up on corrective measures identified. Flag existing total data that are exceeded by dissolved concentrations

9. Information: Update on Mallard Island and Guadalupe Studies

Lester McKee presented an update on the Mallard Island and Guadalupe Studies. Ten samples were collected from Mallard Island in late December/early January as part of the analyses of the first flush. At the Guadalupe site, approximately 40 samples have been collected; six of which have been analyzed for the bed load. Dr. McKee reminded the group that for the Mallard Island and Guadalupe studies, OC pesticides have been dropped in favor of analyzing samples for PBDEs.

Dr. McKee stated that he was currently working on the Five-Year Plan for the Sources Pathways and Loading Work Group and that he anticipated a work group meeting the second week of April.

10. Information: Dredged Material Data Evaluation Special Study

Don Yee summarized the preliminary findings from the dredged data evaluation. The purpose of the investigation was to examine the differences between monitoring and dredge data sets. Monitoring data sets included RMP data, the California State Sediment Quality Objectives data set, EMAP, and USEPA data from Superfund sites. Data were reviewed to determine their utility. Dr. Yee found that the much of the PCB dredged sediment concentrations were below detection and therefore, of limited use. Don Yee investigated the impacts of seasonality, interannual variations, and depth. Don Yee concluded that the dredge data set can be used for comparative studies for most trace metals and PAHs (all other data sets were of limited use due to high detection limits or other artifacts). Dr Yee observed that the dredge data show seasonality effects or interannual trends.

Jim McGrath commented that shallow sediments (referred to as "fluff") in the Ports tend to be higher than deeper sediments. Andy Jaffe commented that the interannual comparison would be affected by the fact that the US Army Corps is only allowed to dredge certain times of the year. In addition, smaller marinas might only dredge once every three to four years. Karen Taberski commented that she has not seen analyses of interannual variation for the RMP data and that this would be a good exercise for the ten-year synthesis articles.

11. Information: Update on Toxicity Studies

This item was dropped from the agenda as there were no activities conducted on these projects this quarter.

12 Action: Responding to Review Panel Recommendations

This item was dropped from the agenda as the memorandums were not ready for distribution.

13. Action: RMP Management Question Revision

Dr. Davis presented the revised RMP Management Questions and asked whether the TRC had any comments on the latest version. No additional comments were forthcoming and a motion was made by Karen Taberski and Chris Sommers to approve the revised questions. The motion was passed.

14. New Analytes

The new analytes that were incorporated into the RMP in 2002 were discussed in the December 2004 TRC meeting. The consensus in the December meeting was that all "new analytes" should be dropped except for PBDEs. At that time, the Committee felt that there was two years of data that could be evaluated and if it was decided that additional analyses were necessary they could be approved for future S&T sampling events.

Meg Sedlak provided a handout of the "new analytes" and asked that the TRC confirm that all "new analytes" with the exception of PBDEs were being dropped. Karen Taberski and Chris Sommers made motions for approval and the motion passed.

As Dr. Davis was unavailable for several minutes to address the next agenda item, Dr. Connor queried the group about the utility of the lunch time presentation. Specifically, Dr. Connor asked the TRC whether having UCSC participating in the RMP was beneficial in both in terms of publications and being associated with a research university. Dr. Connor pointed out that it costs the RMP more to use UCSC and that UCSC has a longer turn around time than a commercial laboratory. One member asked how much more it cost the RMP for methyl mercury analyses. Meg Sedlak stated that she believed UCSC charged the RMP approximately $220 per sample and that Brooks Rand laboratory charges approximately $135 per sample. Chris Sommers asked what the detection limits were for water and Don Yee indicated that Brooks Rand's detection limit was 0.02 ng/L and that they were looking to lower the detection limits to 0.01 ng/L. Concentrations in the Bay are in the range of 0.01 ng/L. UCSC's methylmercury detection limits in water are not known as UCSC is in the process of implementing its methyl mercury analyses. UCSC is hoping to have a detection limit of 0.008 ng/L.

The Committee indicated that it enjoyed having UCSC participate in the RMP; however, if their participation resulted in an increase cost and/or delay in the reporting of sample results then it was probably not a worthwhile collaboration. Dr. Connor suggested that the RMP could stay the course, use Brooks Rand laboratory and fund UCSC research through a PS/SS, or stop using UCSC all together. Chris Sommers requested that this be an agenda item for the next TRC meeting.

Action item: Place a discussion of UCSC's participation in the RMP on the June TRC agenda.

15. Information: Workgroup Updates

Dr. Davis stated that the EEPS Work Group would be meeting April 4th to develop a five-year plan. He indicated that the work group solicited proposal for fish effects and received a very good proposal from Bob Spies of AMS who will collaborate with UC-Davis Bodega Bay. Lester McKee stated that the Sources, Pathways, and Loading Work Group will meet in the second or third week of April. The Contaminant Fate Work Group is scheduled to meet April 15th.

16. Information: Program Update and Laboratory Data Status

Meg Sedlak presented the revised Scorecard and commented that Don Yee was close to completing his 2001 dredge study. In addition, Ms. Sedlak had finished revising the Contaminant Literature Review so that most of the 2001 reports were now complete.

Ms. Sedlak stated that the Mercury Coordination Meeting was held on February 24th and approximately 45 people attended. These presentations are posted on the SFEI website. Ms. Sedlak also stated that Daniel Oros has initiated a multi-laboratory group to facilitate the transfer of information among Bay Area laboratories on new methods, QA/QC issues, and general information of interest to research scientists. Four groups will participate: CDFG, CalEPA, SFEI, and EBMUD. Each member in the group will host an open house. The first open house will be at Dave Crane's CDFG laboratory on March 29.

Ms. Sedlak also presented the laboratory status sheet and commented that UCSC had made a great effort to analyze the 2002, 2003, and 2004 sediment samples for methyl mercury. She also noted that AXYS had had some issues with blank contamination for PCBs and PAHs and loss of QA/QC samples for PCBs that had resulted in a delay of reporting times.

Ms. Sedlak indicated that the preliminary validation package submitted by EBMUD for the new high resolution mass spectrometer (HRMS) had several significant QA/QC issues that had impacted the results. EBMUD recently submitted a new package with split samples that were analyzed by AXYS; however, several QA/QC issues had been identified with this package as well. Ms. Sedlak indicated that she would speak with EBMUD in the next few days to trying to identify corrective action measures that could be initiated.

It was noted that Daniel Oros may go over to EBMUD to assist EBMUD in getting a HRMS on-line. TRC members noted that CalEPA has the ability to analyze PBDEs if the EBMUD laboratory is unable to get the instrumentation running in time for the 2005 S&T. AXYS is currently experiencing a nine-month delay in analyzing samples for PBDEs.

Action item: Meg Sedlak to work with EBMUD to identify potential corrective action measures to be implemented.

17. Action: Set Agenda and Date for Next Meeting

Jay Davis suggested that the TRC meet on June 21 at 10 am. Meeting was adjourned at approximately 3:00 pm.

ACTION ITEMS

ACTION	WHO	STATUS
Look into whether recent data on PCB congeners can be provided electronically	David Dwinell	
Talk with Dave Tucker about a joint TRC/TC meeting	Jay Davis	
Provide an update to the TRC on the budget process approval memorandum.	Mike Connor	
Convene a work group to discuss Winter Sampling PS, the CTR Study and the Epsodic Toxicity Study and how findings from these studies may result in the modification of the RMP	Sarah Lowe	
Prioritize studies for the development and implementation of TMDLs	Mike Connor, Andy Gunther, and RWQCB	
Follow up on corrective measures identified for Selenium analyses.	Meg Sedlak	
Determine whether Caltrans or the Army Corps of Engineers have sediment core data for environmental pollutants	John Oram	
Develop a method for the selection of the second pollutant to be modeled.	Jay Davis	
Place a discussion of UCSC's participation in the RMP on the June TRC agenda	Meg Sedlak	
Help EBMUD to identify appropriate corrective actions to be implemented for HRMS analyses	Meg Sedlak	

Item 4 Attachment 1

April 11th, 2005

MEMORANDUM

To: RMP Steering Committee
From: Meg Sedlak
Re: Updated Summary of RMP Budget (Years 2003 – 2005)

Note: This information represents budget status to the best of my knowledge at this time and has been reviewed and approved by the Program Manager (Jay Davis) and the Executive Director (Mike Connor).

RMP PROGRAM - 2003

- **Revenue:**

Revenue Estimate (SC approved)	**Actual Revenue** (to date)	**Difference**
$3,439,111	$3,268,569	-$170,542

Less than original SC approved budgeted for the following reasons:
  - Reduced Participant Fee contributions (~131K-dredgers)
  - Less than budgeted interest income (~11K)
  - Uncollected Participant Fees to date (~30K) - Mirant California Cooling ($29,374) and Marina Vista Improvement ($836). Caltrans dredging and stormwater fees written off in December 2003 (~60K), paid in 2004 and credited to 2003.

- **Expenses:** Budget was adjusted in the spring (by eliminating or deferring some projects) and additional savings were found by asking the sub-contractors to come in at equal costs to the previous year (to help offset the reduced revenue). These changes resulted in a surplus of approximately $110K.

- **Budget Summary**: Significant savings due to the early budget adjustments, and less than budgeted expenditures in labor (~$70K). Unfinished labor tasks and corresponding labor effort (~$70K) were carried into 2004. Remaining funds to be determined at time of 2005 audit of years 2004 and prior.

RMP PROGRAM - 2004

- **Revenue/Participant Fees:**

Revenue Estimate (SC approved)	**Actual Revenue** (to date)	**Difference**
$3,103,183	$3,079,041	-$24,142

Less than the original SC approved budgeted because of:

- Outstanding Participant Fees (~24K, Loch Lomond Marina $19,622 and Mirant $4,519)

- **Budget Summary:**

  - **Labor –** Labor surplus of approximately 32K from 2004.
  - **Subcontracts –** Due to cancellation of contracts (e.g., diving duck samples that were compromised due to a malfunctioning freezer (~20K)) and reduction of analyses (dropping the "new analytes" for 2004 (~20K)), approximately $30K remains in the subcontract budget (see TRC 12/21/04 minutes for discussion of elimination of new analytes). Remaining funds to be determined at time of 2004 year audit (conducted April 2005).

RMP PROGRAM -2005

Revenue Estimate (SC approved)	**Actual Revenue** (to date)	**Difference**
$3,128,595	$2,522,778	-$605,817

- **Revenue:** Participant fee increase of 1.5%. Have invoiced all dredgers. Fees are over target by approximately $108,000 (Target for dredgers $523,292; invoiced dredgers for $631, 409). The dredger fees have varied over the last several years (e.g., shortfall for FY2002 was approximately $108,500, shortfall for FY2003 was approximately $131,200, and shortfall for FY2004 was approximately $22,700).

- **Expenses:** See attached budget
  - Approximately 1.5% increase in labor and subcontracts over 2004 budget.
- **Budget Summary**: See attached budget

Management Questions Guiding the Regional Monitoring Program for Trace Substances – Second Edition, 2004

Introduction

One of the key steps in any adaptive management program is to periodically and critically evaluate the extent to which monitoring and special study results, carefully interpreted, were able to answer management questions. A second step is to use the accumulated scientific information to refine current questions and develop new ones that are relevant to the goal of beneficial use protection and restoration. Following the process recommended by the National Research Council and implemented in the first RMP Review in 1997, this report begins by addressing the basic assumptions underlying the Water Board's needs to successfully manage their regulatory and incentive-based beneficial use protection and restoration programs. Second, a summary of key monitoring and special study findings linked to the management questions developed in 1998 provides the background for refining and articulating new information needs. Lastly, these new information needs then determine whether the current objectives of the RMP should be adjusted and how a refined and new set of management questions is developed together with the Program Participants.

The Current State of Knowledge and Working Assumptions

Underlying all regulatory activities and incentive programs by the Water Board is the goal in the Clean Water Act to protect and restore water-dependent designated uses. For management and regulatory actions to be effective and responsive to new challenges, information about the condition of water bodies, stressors impacting them, and anticipated risks to those water bodies, has to be available.

The Clean Water Act was set up to deal with a multitude of stressors through its definition of "pollution" in Section 502(19) - "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water." For the first 25 years, much regulatory emphasis was placed on protecting the "chemical integrity" of water, resulting in considerable improvements in the condition of the Estuary. More recently, in recognition of the growing relative importance of stressors in the "nonpoint source" pollution category, both the U.S. EPA and the Water Board have broadened the focus beyond "chemical integrity", as evidenced by inclusion of exotic species in the 303(d) list for the Estuary, and sediment, trash, and temperature for its tributaries. Other beneficial use impairment is caused by water diversions and hydromodification. It is now recognized that quite often limiting factors to beneficial use attainment appear to fall into non-chemical stressor categories. For adaptive management to work, evaluation of non-chemical stressors needs to be incorporated into monitoring and assessment approaches. Lastly, the regulatory framework, as it exists today in the U.S. and California, is not well suited to preventing new persistent and bioaccumulative substances from becoming the "legacy pollutants" of the future. The following updated working assumptions reflect the above perspectives:

1) We have an increasing understanding of the relative loadings of pollutants of concern from various sources and transport pathways and where to direct priority actions but ongoing work is still needed to extrapolate existing data and determine trends through time.

2) Many of the pollutants of concern found in the Estuary system are from historic inputs.
3) Persistent, bioaccumulative substances not yet regulated require increased attention both in terms of biological effects and loadings.
4) Watershed approaches to controlling ongoing inputs of pollutants of concern promise to be more effective than "program-driven" approaches (e.g., NPDES, Water Quality Certification, Nonpoint Source Program, TMDL, etc.).
5) Protection and restoration of beneficial uses require a different and larger set of tools than those used to deal with specific pollutants of concern.

Summary of Findings Corresponding to 1998 Management Questions
Since 1998, when the first edition of management questions was developed, much progress has been made in filling information gaps (see Table 1). At that time, the Program Participants began a thorough overhaul of the RMP, beginning with a revision to the original Monitoring Program Objectives of 1993. The objectives that have been guiding the RMP since 1998 are:

1. Describe patterns and trends in contaminant concentration and distribution
2. Describe general sources and loadings of contamination to the Estuary
3. Measure contaminant effects on selected parts of the Estuary ecosystem
4. Compare monitoring information to relevant water quality objectives and other guidelines
5. Synthesize and distribute information from a range of sources to present a more complete picture of the sources, distribution, fate, and effects of contaminants in the Estuary ecosystem.

The 2003 RMP Review indicated that the program has responded well to the suggestions outlined in the 1997 program review. Although the 2003 Review Panel did not explicitly suggest that program objectives be modified, the panel stated "…that the program must continue to evolve to ensure its long-term relevance."

Table 1 summarizes how the specific management questions derived from Objectives 1-4 were addressed, and what we have learned since then. Please note that the "lessons learned" represent very simplified highlights that are not based on RMP data alone but also on numerous complementary study efforts. They represent the starting point for subsequent management question refinement.

Table 1.

Management Question	Monitoring and Study Approaches	Lessons Learned
Objective 1: Describe Patterns and Trends		
How do contaminant levels change over the long term?	New sampling design implemented. Ten-year synthesis.	Particle-associated pollutant patterns are primarily driven by sediment resuspension and to a lesser extent by loadings from the surrounding watersheds. Few trends discernible; recovery from most legacy pollutant inputs expected to be very slow. . PCB declines of about 50% in the past 25 years. Legacy pesticide declines have been more rapid than PCBs. Little change in mercury in fish tissue over the past 30 years. PBDEs in human tissue are among the highest in the US. Little change in PAH concentrations. Too few data on dioxin. Diazinon concentrations have declined.
Can those changes be linked to changes in inputs?	RMP data complemented by large USGS database and other data sources. Ten-year sysnthesis	For some pollutants, yes. For others, diffuse distribution in surrounding watersheds and existing sediment reservoir will delay discernible recovery signal. Major reductions in use and discharge of some pollutants coincide with decreases in surface concentrations in cores from depositional areas of the estuary. Conclusions are limited by lack of actual data on trends in inputs. Changes in PCBs and legacy pesticides can be qualitatively linked to bans. PBDE increases qualitatively linked to increasing use. Diazinon changes qualitatively linked to declining use.
What is the relationship between pollutant trends and patterns seen in the “spine” and those in the shallower margins of the Estuary?	New sampling design implemented that includes sampling of shallows, augmented by site-specific clean-up studies.	Too early to tell by how much, but margins contain numerous spots with elevated concentrations. A few data points from the early BPTCP indicate that margins may have higher concentrations than deeper parts. Recent data, however, do not support this conclusion.
How are spatial patterns and long-term trends affected by estuarine processes?	Mass budget modeling work on PCBs, PAHs, legacy pesticides. RMP data placed in context of USGS, IEP, CBDA, and other data.	Seasonal and inter-annual variability in flow has discernible influence over contaminant distribution, concentrations, and uptake by, and effects on, biota. Dominant processes identified through modeling include sediment dynamics (mixing and erosion/deposition), outflow, degradation, and volatilization.

Objective 2: Describe General Sources and Loadings		
What proportion of the contaminants in each Estuary segment are contributed by point source outfalls, storm drains, large and small tributaries, etc.?	Literature reviews on loadings in general and urban runoff in particular. Initiation of RMP field studies on loads from the Central Valley, small tributaries, atmospheric deposition, formation of CEP; development of conceptual and simple predictive mass budget models for most pollutants of concern. Non-RMP studies on loads from point sources, small tributaries, stormwater (AB 1429). TMDL reports have compiled data on major pathways.	Loads of mercury and PCBs conpiled in TMDL reports. Large natural contributions of certain metals (e.g., Ni, Cr); large reservoirs of legacy pollutants in sediments and watersheds; much better understanding of relative loadings of 303(d) pollutants; insufficient knowledge about emerging 303(d) pollutants.
How do contaminants move and transform after they enter the Estuary?	Focus on Cu and Ni via impairment assessment studies; literature synthesis as part of conceptual and numeric model development for 303(d) pollutants. Movement well described for PCBs and other organics by mass budget and food web models.	Large data gaps remain for Hg, PAHs, and emerging pollutants; increased understanding about remobilization potential via erosional processes. PCBs don't transform much. Legacy pesticides and PAHs are degraded more rapidly. Mercury transformation to methylmercury is a key process driving impairment. PBDE degradation processes are a major data gap.
At what spatial and temporal resolution should loadings and changes in upstream contaminant inputs due to pollution prevention efforts be monitored?	New sampling design and special studies implemented. Further refinements necessary, especially monitoring integration with CVRWQCB. Mallard Island Study and Guadalupe River Study have established a foundation regarding temporal resolution.	Answers are pollutant-specific. For primarily water-soluble, short-lived pesticides, temporal and spatial resolution should be higher than for more persistent, particle-associated pollutants. Much transport of particle-associated pollutants occurs during a few large storms, requiring highly targeted sampling in a temporal sense. Sampling high flow years will be critically important. Spatial resolution not yet determined.
What are the background concentrations of contaminants in the Estuary from natural sources?	Data synthesis from coring data and literature; special studies in Santa Clara Basin and South Bay.	Most metals are enriched above background in Estuary sediments, with the exception of Ni and Cr.
Objective 3: Compare Data to Guidelines		
Which contaminants should be monitored?	Review of database, special study on previously unknown synthetic organics; CTR study	Certain metals in tissue scaled back. Screening of chromatograms and effects data expanded list of trace organics
How do RMP data compare with relevant water, sediment, and tissue quality guidelines?	Status and Trends Program modified but still suited to compare results to guidelines and recovery targets. Data reviewed annually in Annual Monitoring Results, the Pulse, reports on fish sampling	National criteria may not be appropriate for some contaminants; site specific studies have resulted in revised water column objectives for Cu and Ni. 303(d) listing is not always based on water quality measurements. 303(d) list pollutants frequently exceed their guidelines.

How do the various Estuary reaches compare to each other, in time and space, relative to guidelines?	New sampling design implemented.	Northern and southern segments show exceedances more frequently than Central Bay. South Bay exceeds guidelines most frequently.

Objective 4: Measure Contaminant Effects		
Which contaminants bioaccumulate in estuarine organisms to levels of concern?	Review of SMW and RMP bivalve tissue data, incorporation of fish tissue analysis into status and trends monitoring; use of bird eggs to measure bioaccumulation and exposure. Analysis of duck tissue, analysis of seal blood and fur. Non-RMP work on bird eggs by USFWS, UC Davis on seals, CISNET on birds and fish, Potamocorbula by USGS, HML on humans. In 2002, the RMP began monitoring for PBDEs in water, sediments, and transplanted bivalves. PBDEs were found in all three media. Initiation of Exposure and Effects Pilot Study to develop indicators.	Of all the trace elements investigated, only Hg and Se bioaccumulate appreciably. Several groups of synthetic organics (both legacy pollutants and certain trace organics still in use) bioaccumulate (PBDEs, chlorpyrifos, musk ketones, nonylphenols). Mercury , PCBs, legacy pesticides, dioxins and selenium exceed screening values in sport fish. Increasing PBDEs also a concern in sport fish. Mercury a clear continuing concern in clapper rails and terns. PCBs a diminishing concern in bird eggs. Selenium, mercury, and PCBs a human health concern in duck muscle. PCBs a concern in seals. Rising PBDEs a concern in birds, seals, and humans. Selenium accumulation in *Potamocorbula* is a concern for predators. Silver appears to have affected clam reproduction in the early 1990s.
What is the spatial and temporal extent of toxicity in the Estuary?	Initiation of episodic toxicity study design for better identification of toxic events and possible causes; shift in focus to sediment toxicity as a result of changes in pesticide use to more particle-affiliated pyrethroids.	Estuary waters do not tend to be toxic to aquatic test organisms in the laboratory, and the RMP as seen a decrease in the incidences of aquatic toxicity observed in the tributaries during storm events between 1997 and 2001, which coincided with a shift in pesticide usage away from water soluble OP pesticides (diazinon and chlorpyrifos) towards hydrophobic pyrethroids. However, Estuary sediments continue to be toxic with no evidence of decreasing. 63% of the samples tested were toxic to at least one test organism between 1997 and 2001.
Which contaminants cause effects in the Estuary?	Initiation of expanded effects monitoring efforts. Re-design of toxicity monitoring; comparisons of new exposure data with laboratory effects threshold levels. Fish biomarker study. Non-RMP studies by USFWS on mercury in birds, UC Davis on organics in harbor seals. Development of new bioassays for estrogenic substances may benefit RMP exposure/effects monitoring. Initiation of exposure and effects indicator selection.	The RMP Benthic Pilot Study (and subsequent benthic studies) have begun to develop a benthic assessment tool that can identify impacted benthic community characteristics using a triad approach. Strong possibility of population-level mercury impacts on clapper rails. Indications of effects of PCBs on seals and birds. Indications of benthic community impacts of legacy pesticides. Possible PBDE effects in seals.

Since the development and application of conceptual models and simple predictive models for most of the 303(d) pollutants, general knowledge about loadings, transport processes, pathways, source categories, and pollutant fate has increased considerably in the last five years. Water quality managers now generally recognize that:

- The capacity of the Estuary to assimilate, degrade, bury, or dilute has been exceeded for a number of pollutants (e.g., Hg, PCBs).
- New inputs need to be reduced below the Estuary's assimilative capacity
- Past mistakes may take decades to rectify even after further loading reductions of controllable sources are implemented.
- The large reservoir of pollutants in sediment poses significant constraints on recovery options for some contaminants, and relatively small amounts of continuing external inputs affect recovery rates.
- Management actions throughout the watershed have effectively reduced inputs and exposure to organisms for certain pollutants, such as organophosphate pesticides.
- It appears that certain emerging pollutants may be entering the system faster than they can be degraded or removed, similar to what happened with persistent synthetic organics in the past. We don't know at this point when we will reach assimilative capacity for those pollutants, or if we have already exceeded it.

These kinds of lessons are re-shaping the questions the Water Board is asking. The information needs have also become more complex as a result of several fundamental shifts in how water quality and associated beneficial uses are managed. These include:

1. Legal requirements to systematically deal with pollutants on the 303(d) list.
2. Demand for more quantitative cost-benefit analyses in times of shrinking budgets.
3. Requirements to link expenditure of bond funds by grant recipients in the Bay Area with performance evaluations.
4. Broad information needs at landscape and river basin scales to evaluate water quality management program performance statewide.
5. The emergence of additional complementary monitoring efforts with similar assessment questions and objectives (e.g. CBDA Ecosystem Restoration and Watershed Programs, DFG Resource Assessment Program).

The parties involved in the RMP evaluated the 1998 program objectives and determined that new and emerging information needs require adjustments. Most of the RMP Objectives, revised in 1998, have been maintained with minor modifications (indicated in *italics*). An additional Objective was developed based on the advances in our understanding over that past ten years. This new Objective explicitly addresses the need to use our knowledge about ecosystem processes and human activities to forecast ecosystem recovery and pollution trends. As revised through a joint Technical Advisory and Steering Committee process, the new RMP Objectives are as follows:

1. Describe the distribution and trends of *pollutant* concentrations in the Estuary
2. *Project future pollutant status and trends using our current understanding of ecosystem processes and human activities*
3. Describe sources, *pathways*, and loading of *pollutants entering* the Estuary
4. Measure *pollution* exposure and effects in the Estuary ecosystem (including humans)
5. Compare monitoring information to relevant standards and other guidelines

6. *Effectively communicate* information from a range of sources to present a more complete picture of the sources, distribution, fate, and effects of pollutants in the Estuary ecosystem

Specific management questions
Current issues of concern are grouped below in relation to each of the new 2005 RMP Objectives. In addition, program participants, stakeholders, and regulators have raised issues that are not technical or scientific in nature but related to policy. These questions will need to be informed by the types of data capable of answering the scientific questions, but they may be outside the direct scope of the RMP. Examples of these types of policy questions are listed in Appendix A.

1. Describe *the distribution* and trends of *pollutant* concentrations *in the Estuary*

1.1 Which pollutants should be monitored in the Estuary, in what media, and at what frequency?
1.2 Are pollutants of concern increasing, decreasing, or remaining the same in different media?
1.3 How are pollutant patterns and trends in the Estuary over time affected by remediation and source control or pollution prevention in the watersheds?
1.4 Do pollutant concentration distributions indicate particular areas of origin or regions of potential ecological concern?
1.5 What effects on beneficial uses or attainment of Water Quality Standards will occur due to large-scale habitat restoration in the Estuary in decades to come?

2. Project future contaminant status and trends using our current understanding of ecosystem processes and human activities

2.1 Can reasonably accurate recovery forecasts be developed for major segments and the Estuary as a whole under various management scenarios?
2.2 Given projected changes in land and water use and management, as well as product use and disposal, can potential impairment and degradation be better anticipated?
2.3 Which pollutant categories are predicted to accumulate in the Estuary faster then they can be assimilated?
2.4 Do pollutant trends reflect historical changes in use patterns, transport and transformation processes, or control actions?
2.5 Given various management and development scenarios, how will the importance of each pathway change through time?
2.6 Given various management and development scenarios, what is the projected future loading of pollutants of concern?
2.7 What are the likely consequences of various management actions or risk reduction measures?
2.8 Do pollutants show existing distributions that fit our current understanding or models of their origin, loads, and transport?
2.9 What changes in loadings or ecosystem characteristics (e.g., extent of restored tidal marsh, Estuary circulation and flushing, food web shifts) would reduce or increase pollutant exposures and effects?
2.10 How are distributions and long-term trends in pollutants affected by current and predicted estuarine processes (e.g., sediment erosion, deposition, river inflows)?

3. Describe sources, *pathways,* and loading of *pollutants entering* the Estuary

3.1 Where are/were the largest pollutant sources, in what context are/were these pollutants applied or used, and what are/were their ultimate points of release into the aquatic environment?
3.2 What are the circumstances and processes that cause the release of pollutants from both internal and external source areas?
3.3 Once released, how do pollutants travel from source areas to the Estuary, what are the temporal and spatial patterns of storage, and are they transformed along the way or after deposition?
3.4 What is the annual mass of each pollutant of concern entering the Bay from each pathway?
3.5 Can data with high temporal resolution from a few watersheds be projected to other watersheds and the Basin as a whole?
3.6 For each pollutant of concern, what forms are released from each pathway and what are the magnitude and temporal variation of concentrations and loadings?
3.7 How do loads change over time in relation to management activities?
3.8 What is the relative importance of pollutant loadings from different sources and pathways, including internal inputs, in terms of beneficial use impairment?

4. Measure *pollution exposure and* effects on selected parts of the Estuary ecosystem *(including humans)*

4.1 How are emerging problems reflected in exposure and effects measurements?
4.2 Which (co-)factors (e.g., food web structure) influence exposure and effects of specific pollutants on biota?
4.3 What ecological risks are caused by pollutants of concern?
4.4 What human exposure to pollutants of concern results from consumption of fish and game?
4.5 To what extent does exposure to multiple pollutants lead to effects?
4.6 Which forms of pollutants cause impairment?
4.7 To what extent do factors other than specific pollutants (invasive species, flow diversions, land use changes, toxic algal blooms) contribute to beneficial use raft impairment?

5. Compare monitoring information to relevant benchmarks, such as TMDL targets, tissue screening levels, water quality objectives, and sediment quality objectives

Deleted: standards

5.1 What percentage of the Estuary is supporting beneficial uses?
5.2 Which segments should be considered impaired and why, and how do segments compare in terms of recovery targets?
5.3 How can specific source limitations, controls, and mitigation be best linked to appropriate beneficial use endpoints and recovery targets?

6. *Effectively communicate* information from a range of sources to present a more complete picture of the sources, distribution, fate, and effects of pollutants *and beneficial use attainment or impairment* in the Estuary ecosystem.

This objective applies to all of the questions listed under objectives 1 – 5.

Appendix A:

1. Once pollution 'hot-spots' are discovered, should they be cleaned up to mitigate local effects on biota and human health, to obtain a better estuary-wide understanding of hot-spot contributions to whole ecosystem recovery, or both?
2. What implementation schedules are appropriate for various pollution reduction targets?
3. What level of certainty is required in load reduction models for various pollutants to assess whether or not sources are controllable?
4. At what point do "diminishing remediation returns" require adjustments in clean-up targets?
5. Which source categories are effectively controllable?
6. What pollution prevention policies and management practices are most effective in reducing pollutant loads?
7. What additional data need to be collected to develop Sediment Quality Objectives for the Estuary?
8. What risk reduction measures are most effective?

Item 7 Attachment

To: RMP Steering Committee
From: Mike Connor, SFEI
Subject: Budget Review Process for 2007 and Beyond
Date: April 4, 2005

Recommendation:
That the Steering Committee:

1. Determine which, if any, parts of the budget they would like to subject to a detailed review.
2. Respond to a BASMAA proposal for future budget increases.

Discussion:
Introduction
At the last Steering Committee meeting, SFEI staff developed a budget review process that would address the ability of RMP participants to ensure that the program budget was appropriately matched to the available funding and expectations of the adaptive implementation process for the implementation of water quality attainment strategies. At the same time, the 2006 budget was set for a 0% increase. In further discussions with BASMAA, it became clear that the issue was not the specific value of any particular budget item, but the overall impact of any budget increases on public agencies with limited coffers.

BASMAA Budget Proposals
BASMAA's Executive Committee suggested two possible approaches to address their concerns about the total budgetary impact of RMP fee increases:

- Instead of increasing the RMP budget at the level of the Consumer Price Index (CPI), the procedure in the last two years, set the RMP budget increase at half the CPI.
- Alternatively, increase the RMP budget at the level of the CPI, capped at some maximum between 2-3%.

BASMAA Budget Proposals Impact
At current levels of inflation, the impact of both ideas would be about $25-50,000 each year with compounding. These reductions would result in some programmatic adjustments in the RMP. Staff have given some examples in previous summaries to the Steering Committee. Staff have been wringing out efficiencies in the monitoring program for the last three years. At some point further cuts will be most effectively made only by re-considering the RMP design.

Policy for Resolving Conflicts within the RMP Planning and Decision-Making Process

Introduction

One of the recommendations from the 2003 Program Review Panel was for the Regional Monitoring Program for Trace Substances in the Estuary (RMP) to develop a procedure for resolving conflict when consensus-based decisions cannot be reached during the decision-making process. The Review Panel observed that as the Program expands, the potential for conflict will increase as a result of the implementation new methodologies, a change in Program participants, and expansion of the application of RMP data to new policy questions. To date, the RMP has largely quantified the pollutant levels in the Estuary using widely accepted methodologies for the collection and analyses of samples (e.g., standard methods or US Environmental Protection Agency-accepted protocols). As the RMP expands its program, particularly in the area of biological exposure and effects, it is likely that new methodologies will be employed that may not be as universally accepted or that provide results that may be more subjective in nature. The Review Panel also stated that consensus-based decisions require stakeholders that share and trust the Program's objectives and goals. The RMP has been fortunate in that there has been a low turnover in the stakeholders that actively participate in the RMP. As a result, many of the participants in the Program have developed successful long-term working relationships. The Review Panel noted that as there are changes in stakeholders either due to attrition or inclusion of new groups into the RMP (e.g., environmental groups), the potential for disagreement increases. Lastly, the Review Panel noted that as application of the RMP data to new policy arenas such as the TMDL process and wetland restorations, the potential for conflict is likely to increase.

The purpose of this document is to present a description of the consensus-based process that is currently used in RMP planning and decision-making process and to codify a procedure to resolve conflicts when consensus-based decisions cannot be achieved.

Current Consensus-based Process

Consensus is defined as all participants are in general agreement with the decision proposed. The participants may not agree with every detail of the consensus-based decision; however, the participants are in general agreement with the decision and feel that it has considered all of the interests of the parties involved. The RMP currently employs consensus-based processes to address issues that arise in the Workgroups, the Steering Committee, and the Technical Review Committee. The consensus-based process is described for the three RMP groups below.

Workgroups

The main technical subject areas covered by the RMP are addressed by the following three workgroups: Sources, Pathways, and Loading Workgroup; Exposure and Effects Workgroup; and Contaminant Fate Workgroup. Workgroups consist of scientists who are currently studying the Bay, invited scientist who are nationally known experts in their field, and federal and state regulators. Each workgroup meets two to three times a year to address issues concerning the planning and implementation of RMP studies. Activities of the workgroups are overseen by the RMP Technical Review Committee. The workgroups also address technical issues of interest to the Clean Estuary Partnership.

The workgroups make recommendations for new study ideas or new program directions. To date, the workgroups have been very successful achieving consensus-based decisions regarding studies selected, new areas of research, and funding for projects under the purview of the workgroup.

Steering Committee

The Steering Committee determines the overall budget, allocation of program funds, tracks progress, and provides direction to the Program from a manager's perspective. The Steering Committee meets quarterly.

The Steering Committee makes decisions regarding the budget for the Program and publications. The RMP has developed a policy regarding the budget process and how to achieve consensus and has developed a policy regarding the review and release of publications. Both of these documents are provided as appendices to this document.

Technical Review Committee

Oversight of the technical content and quality of the RMP is provided by the Technical Review Committee (TRC), which consists of technical representatives from the Regional Board and discharger groups. The Technical Review Committee meets quarterly.

The Technical Review Committee makes decisions regarding the direction of the Program and publications. The RMP has developed a procedure for the evaluation of Pilot and Special Studies for inclusion in the Program. This information is posted on the RMP web-site (http://www.sfei.org/rmp/documentation/study_selection/welcome_pilotspecial.html). Decisions regarding the core program are achieved through a consensus process. As described above, a procedure for the publication of RMP documents has been developed.

Processes to be Undertaken when Consensus Cannot be Reached

For all three groups (i.e., the Workgroups, Steering Committee, and Technical Review Committee), if consensus within the group cannot be achieved, the following procedure will be implemented.

The Chair of each group will work with the parties to understand the issues, to address the concerns of the parties involved, and to propose alternative solutions. If the Chair and the associated group are still unable to achieve consensus, the issue will be tabled for discussion at the next scheduled workgroup or committee meeting, barring circumstances in which there is an urgent matter. In the intervening period, the Executive Director of SFEI will meet with the Chair to strategize means for achieving consensus. The Executive Director and the Chair will prepare a memorandum proposing strategies for achieving consensus. This memorandum will be distributed to all workgroup members. At the next scheduled workgroup meeting, the issue will then be addressed and a second attempt at achieving consensus will be made. Both the Chair and the Executive Director of SFEI will be present and actively striving for consensus among the group.

If consensus cannot be reached, then a process of unanimity will be initiated. It is similar to a consensus process; however, each member votes on a scale of five ranging from: endorse; agree w/reservations; stand aside; disagree but will to go with the majority; or veto/block.

If the matter which arises in the group meeting is urgent, the issue will not be tabled and no memorandum will be prepared. The Executive Director will be asked to participate in the workgroup meeting to assist the Chair in resolving the conflict. If a consensus-based decision cannot be reached, again a unanimity process will be initiated.

APPENDIX
Draft Budget Review Process for 2007 and Beyond
SFEI's Peer-Review Process

To: **RMP Steering Committee**
From: **Mike Connor, SFEI**
Subject: **DRAFT Budget Review Process for 2007 and Beyond**
Date: **April 4, 2005**

Recommendation:

That the Steering Committee:

1. Determine which, if any, parts of the budget they would like to subject to a detailed review.
2. Respond to a BASMAA proposal for future budget increases.

Discussion:

Introduction

At the last Steering Committee meeting, SFEI staff developed a budget review process that would address the ability of RMP participants to ensure that the program budget was appropriately matched to the available funding and expectations of the adaptive implementation process for the implementation of water quality attainment strategies. At the same time, the 2006 budget was set for a 0% increase. In further discussions with BASMAA, it became clear that the issue was not the specific value of any particular budget item, but the overall impact of any budget increases on public agencies with limited coffers.

BASMAA Budget Proposals

BASMAA's Executive Committee suggested two possible approaches to address their concerns about the total budgetary impact of RMP fee increases:

- Instead of increasing the RMP budget at the level of the Consumer Price Index (CPI), the procedure in the last two years, set the RMP budget increase at half the CPI.
- Alternatively, increase the RMP budget at the level of the CPI, capped at some maximum between 2-3%.

BASMAA Budget Proposals Impact

At current levels of inflation, the impact of both ideas would be about $25-50,000 each year with compounding. These reductions would result in some programmatic adjustments in the RMP. Staff have given some examples in previous summaries to the Steering Committee. Staff have been wringing out efficiencies in the monitoring program for the last three years. At some point further cuts will be most effectively made only by re-considering the RMP design.

SFEI'S PEER-REVIEW PROCESS

SFEI's primary work products are written documents (e.g., reports and journal articles) that are disseminated to a wide audience (e.g., academic researchers, regulators, and the public at large). As such, it is important that they be well-written and scientifically accurate. To assure that all of SFEI documents are of high quality, the following peer-review process has been implemented for all SFEI documents.

1. SFEI Documents Authored by SFEI Staff

Documents authored by SFEI staff will be reviewed by three reviewers. Where possible, two of these reviewers will be the invited experts who are currently serving on SFEI work groups committees (e.g., Drs. Baker and McKone who serve on the Contaminant Fate Work Group). The third reviewer will be an anonymous reviewer that Applied Marine Science (AMS), specifically Dr. Robert Spies, will identify. AMS will identify a reviewer, send the document to be reviewed to the anonymous reviewer, and pass the anonymous review of the document to SFEI in a timely manner. It will not be necessary for AMS to compile the reviewer's comments in the case of one external reviewer. The primary point of contact at SFEI for the peer-review of documents is Dr. Daniel Oros.

In the event that it is not possible, or not appropriate, for invited work group experts to review SFEI documents, SFEI will notify AMS of the need for additional reviewers. In the case where AMS is obtaining more than one anonymous review, Dr. Spies will summarize the reviewers' comments and provided SFEI with one comprehensive document that compiles all of the comments on the SFEI document. Dr. Oros will again be the primary point of contact at SFEI. He will provide appropriate numbers of copies to Dr. Spies and Dr. Spies, in turn, will provide his summary to Dr. Oros.

2. SFEI Documents Authored by External Staff

Documents authored by external staff (e.g., consultants, researchers, subcontractors, etc.) will be reviewed by SFEI staff. Dr. Oros will determine the most appropriate staff members to review the documents and will compile reviewer comments into a single document that will be forwarded to the non-SFEI author. Dr. Oros will coordinate among the workgroup leaders to determine the number of SFEI reviewers available and the need for multiple reviewers.

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2005 ANNUAL MEETING AGENDA

MAY 10, 2005

OAKLAND MUSEUM

THEME: *Answering the Important Questions*

WELCOME

9:00	Mike Connor, SFEI	

KEYNOTE ADDRESS

9:10	John Conomos, USGS	USGS Studies on the Bay Since the 1960s

WATER QUALITY ATTAINMENT STRATEGY IMPLEMENTATION

10:00	Rainer Hoenicke, SFEI	Adapting the RMP to Answer the Important Questions

10:20	*BREAK*

10:40	Tom Mumley, San Francisco Bay Regional Water Board	Mercury and PCB TMDL Implementation
11:00	Dyan Whyte, San Francisco Bay Regional Water Board	TMDLs for Bay Tributaries

RMP HIGHLIGHTS

11:20	Jay Davis, SFEI	RMP Highlights in 2005
11:40	John Oram, SFEI	A Multibox Model of the Long-term Fate of PCBs in the Bay

12:00	*LUNCH*

RMP HIGHLIGHTS (CONTINUED)

1:00	Lester McKee, SFEI	Pollutant Loads to the Bay
1:20	Daniel Oros, SFEI	Polybrominated Diphenyl Ether (PBDE) Flame Retardants in San Francisco Bay

HIGHLIGHTS FROM OTHER PROGRAMS

1:40	Dave Schoellhamer	Sediment Budget for San Francisco Bay
2:00	Karen Taberski, San Francisco Bay Regional Water Board	What We Have Found in the Bay Area SWAMP
2:20	Letitia Grenier, SFEI	The South Bay Salt Pond Restoration Project and Bay Water Quality

2:40	*BREAK*

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3:00	Herb Fredrickson, US Army Corp of Engineers	Hamilton Army Airfield Mercury Studies
3:20	Frank Gobas, Simon Fraser University	An Improved Model of PCB Movement Through the Bay Food Web
3:40		
4:00		
4:20		