RMP Sediment WG Meeting

May 7, 2019
San Francisco Estuary Institute
4911 Central Avenue, Richmond, CA

Meeting Summary

Attendees:

PRESENT			
Name	**Affiliation**	**Name**	**Affiliation**
Dave Halsing	South Bay Salt Pond Restoration Project (SCC)	Jay Davis	SFEI
Brenda Goeden	BCDC	Jing Wu	SFEI
Brian Ross	EPA	Steve Hagerty	SFEI
Luisa Valiela	EPA	Lester McKee	SFEI
Jennifer Siu	EPA	Allie King	SFEI
Aaron Bever	Anchor QEA	Don Yee	SFEI
Michael MacWilliams	Anchor QEA	Ila Shimabuku	SFEI
Tom Mumley	SFBRWQCB	Zhenlin Zhang	SFEI
Christina Toms	SFBRWQCB	Diana Lin	SFEI
Xavier Fernandez	SFBRWQCB	Melissa Foley	SFEI
Daniel Livsey	USGS	Scott Dusterhoff	SFEI
Bruce Jaffe	USGS		
Dave Schoellhamer	USGS-emeritus (Science advisor)	**PHONE**	
Scott Wright	USGS	Mary Lou Esparza	Central Contra Costa Sanitary District
Jessie Lacy	USGS	Scott Bodensteiner	Haley Aldrich
Teresa Fregoso	USGS	Roxeanne Grillo	SCVWD
Maureen Downing-Kunz	USGS		
Bridgette DeShields	Integral/TRC/WSPA		
Siema White	Stanford		
Jeremy Lowe	SFEI		
Letitia Grenier	SFEI		
Cristina Grosso	SFEI		

1. Introductions and Goals for Today's Meeting

Scott Dusterhoff (SFEI) gave an overview of the meeting agenda and goals, which included to review results of workgroup (WG) studies, rank special studies for 2020 funding, determine which SEP studies should be prioritized for funding, and discuss future funding priorities.

Scott Dusterhoff gave a presentation covering overall RMP structure, origin of the Sediment WG, WG Mission and Guiding Management Questions, recently completed studies and currently funded studies. Tom Mumley emphasized capacity and need for other organizations to support projects not funded or only partially funded by the RMP and the potential to identify modules to be funded in the future or eligible for SEP projects.

2. Information: Review of March 2019 Meeting

Scott provided an overview of the March 2019 meeting, which included the following items: (a) reviewed multi-year plan and funding priorities for 2020 (and beyond), (b) discussed proposals for 2020 funding, (c) discussed high priority studies, with the acknowledgement that there is insufficient funding to support all proposals, and (d) discussed additional study ideas for SEP consideration include DMMO data analysis, strategic placement and bathymetric data gaps. Brenda Goeden commented that significant funds for strategic placement are potentially available from the U.S. Army Corps of Engineers (USACE) in the coming years.

3. Information: Presentations on 2018 and 2019 Sediment Workgroup Studies

Presentation summary	Workgroup comment summary
SSC monitoring at Mallard Island - Maureen Downing-Kunz (USGS). Maureen presented on measuring and modeling suspended sediment concentration (SSC) to understand Bay-Delta flux. A monitoring station at Mallard Island measures downstream concentrations from the Delta using upper and lower water column sensors (measuring turbidity every 15 minutes) and collected point water samples. Linear regression was used to model SSC and turbidity, calculating final load as a function of discharge and concentration. The results showed that SSC varied in median concentration over time, there was more variability at the lower sensor, and most variability in sediment loading was explained by discharge. Maureen noted the step decrease in the slope of the relationship in 1999, which was first documented by Dave Schoellhamer.	WG focused on clarifying interpretation of the step change. A suggestion was made to improve the design of the chart to make it more intuitive. The upper sensor was used for data collection given its better data. While some thought a higher sensor in the water column might underestimate the load, others thought SSC would be well mixed at this site.
Improving sediment flux measurements in SF Bay - Daniel Livsey (USGS). Daniel gave a presentation focused on methods development for measuring flux and estimating flocculation in the Estuary, with a focus on the Lower South Bay at Dumbarton Bridge. It was funded in 2018 by special studies funds, and in 2019 funded by SEP funds. USGS deployed multiple sensors, using a mid-depth sensor for turbidity	The WG was interested in the impact of environmental control on flocculation in time and space. Daniel responded: (a) there is some evidence that water on flood tide has more flocculation than that on ebb

calculations, and used a floc cam to observe flocculation and settling velocity. USGS calculated flux using the average cross-section for SSC. Ultimately, USGS found that accounting for flocculation (particle clumping) leads to a sign change in flux, suggesting sediment is coming into Lower South Bay instead of leaving it. There is some uncertainty as to the best sensors to use for estimating SSC.USGS indicates SSC estimates follow expected SSC profiles; however, above mid-depth SSC estimates do not follow the expected SSC profile. This may be driven by changes in the relationship between turbidity and SSC at sensors above mid-depth or may be driven by surface processes that influence surface SSC. Data is being collected in CY 2019 to determine the relationship between turbidity and SSC at sensors above mid-depth.This work will be published online on public USGS databases and via a peer-reviewed publication.	tide. Ivy Huang found that freshwater is more tightly flocculated, while the South Bay is less so; (b) marine derived sediment may be more "sticky" and flocculate more readily. SSC derived in time associated with a phytoplankton bloom may also be more flocculated.This is the subject of another proposal for 2020.
Napa River and Sonoma Creek Sediment Monitoring - Scott Wright/Matt Marineau (USGS). Scott gave a presentation on sediment monitoring at Napa and Sonoma. Napa River and Sonoma Creek are major sources of sediment into the Bay, but recent data is lacking. The recent fires presented an opportunity to determine if there was an increase in SSC associated with the fires. USGS maintained gages at Napa and Sonoma to measure stage and discharge at 15 minutes intervals, turbidity (continuously with sensors and pump samples) and SSC/bedload samples for WY 2018 (with cross-section integrated SSC and bedload samples with bank-operated cableways). Though 2018 was a dry year with only one major event, and Sonoma and Napa had very low peaks compared to historical record, SSC was comparable to historical measurements; large shifts in sediment transport has not occurred recently. They also found clockwise hysteresis in SSC vs. discharge for both Napa and Sonoma, suggesting more sediment is moved on the rising hydrograph than on the falling limb. SSC was correlated with turbidity. USGS is evaluating particle and bedload size; more data would be helpful. Data on discharge and turbidity available online.	The WG recalled that this study was not funded last year, and was interested in maintaining this monitoring in the future, particularly as more tidal and floodplain restoration projects begin. The value of upstream gages was discussed, given the uncertainty of sediment transport between head of tide and the Bay (Scott Dusterhoff points out this varies highly by stream and whether a creek was dredged, among other factors). Whether the historical record is relevant (given that it was post-modification) was also brought up. Scott Wright emphasized a turbidity sensor only could be funded cheaply (e.g., $18k/year).
PCB Synthesis Study of Measurement in Dredged Sediments Compiled in the Dredged Material Management Office (DMMO) Database - Don Yee (SFEI). Don gave a presentation on the results of the DMMO data for PCB measurement in dredged sediment study. The DMMO has data valuable in understanding distribution of contaminants such as PCBs, with many gaps and inconsistencies. The goal of this project was to assess PCB measurements in the movement of dredged materials, and to evaluate options for addressing these data gaps and improving future data management. SFEI used DMMO PCB data to quantify estimates of net movement of PCBs, compile a PCB distribution map, compare DMMO data to RMP data, and synthesize PCB budget/movement calculations (testing different substitutions for	Brian Ross affirmed that this study was important in that it confirms a big assumption in the TMDL that PCBs are being removed with dredging, and its utility in that having a robust database can allow other future investigations, including informing tweaks to TMDL limits. WG participants discussed that dredger funds for monitoring is high, and could perhaps be better integrated into or better collaborate with SFEI's

non-detects). SFEI found that DMMO and RMP data was similar (within the range of non-detect uncertainty). Importantly, they also found that dredging is a net export pathway for PCBs, regardless of ND handling (though mass estimates vary). Future work aims to fill additional gaps in the DMMO database and have SFEI take over management, and develop tools to quantify whether operations above/below targets.	RMP program to improve cost effectiveness. However, dredging sampling may not fit well with ambient RMP monitoring given that it is often very site- and time-specific.
Update on DMMO database management - Cristina Grosso (SFEI). Cristina gave a high level presentation on SFEI's collaboration and ownership of data management of the DMMO database. This work included uploaded DMMO database to server; updating the website, uploading PDFs and excel files; providing outreach, training and technical support to labs and contractors for uploading data; querying and mapping of DMMO data on RMP's CD3 Contaminant data display and download; and improving data quality and the interface of data and the dredging community.	
Workshop on Sediment Screening and Testing Guidelines for Beneficial Reuse of Dredging Sediments - Melissa Foley (SFEI). Melissa gave a high-level overview on setting up a workshop for evaluating beneficial reuse of dredged sediments. Melissa is working with Beth, Brian and Brenda to identify experts for this workshop, and a workshop date is tentatively planned for September.	
Sediment Bulk Density Study - Jeremy Lowe (SFEI). Jeremy gave a high level overview of the bulk density study. Jeremy discussed the motivation for the study and the study tasks, which include compiling a database of existing sediment bulk density values around the Bay and recommendations for protocols for future bulk density data collection. Over the next few months, Jeremy will organize two calls/meetings with selected experts and develop a guidance document with WG input by August 2019.	

4. Information: Update on BCDC Sediment Management Efforts - Brenda Goeden (BCDC)
Brenda gave an overview of two key workshops BCDC held and the output from those workshops: (1) the 2010 State of Sediment workshop focused on ascertaining baseline of existing sediment management questions; and (2) the 2015 Sediment workshop focused on bringing managers, scientists and policymakers together on understanding linkages between sediment questions and studying them. For the 2015 workshop, a survey was used to compile management questions. A vast array of topics were brought up, organized by aquatic habitat type an associated management topics. These questions were synthesized in the Bay Science Strategy, which focused on three key key themes: sediment budget; status, risk and resilience; and fate and transport of sediment. The actions linking these questions were monitoring, research, and modeling. All of these have feedback loops and are characterized on a triangle-shaped diagram Brenda presented. Data and knowledge gaps identified in the strategy can and will be addressed by evaluating existing literature, continuing existing data collection and monitoring, and tracking new efforts. Nested monitoring scales of interest were identified

(Delta-Bay-Ocean, embayments, watersheds), particularly at the local scale to understand drivers of success or failure, and adopt adaptive management needs. Next steps include holding a modelers forum; improving data sharing and standardizing data collection, storage and distribution; identifying efficient methods to communicate science findings to managers for informed decision making, and identifying funding mechanisms.

In the WG discussion, Brenda notes that she is going to put out a report to summarize all of this work, and is going to continue working with the Bay Area Flood Protection Association and other stakeholders to link science and management questions. WG members were interested in better understanding and integrating the efforts of the WRMP, the sediment WG and its monitoring strategy. Future crosswalk of questions and links to WG prioritized studies is desired.

5. Information: Update on the Conceptual Understanding of Sediment Dynamics & Sediment Monitoring Strategy Development - Jeremy Lowe (SFEI)

Jeremy gave an overview of an effort to develop a sediment management strategy to enhance beneficial use and sediment dynamic understanding, comprising two parts: 1) developing conceptual understanding of Bay sediment dynamics; and (2) developing a monitoring strategy to address key data gaps completed/presented in August 2019. A workshop was convened in October 2018 to synthesize knowledge from regional experts to address Part 1. This conceptual understanding will be used as guidance for finalizing key data gaps to identify in the monitoring strategy. General conceptual understandings of interest were sediment transport pathways: sources, sinks and reservoirs of sediment; understanding sediment dynamics across different temporal scales, across wet and dry periods; and magnitude, uncertainty and variability, looking across multiples scales. There was interest in identifying specific monitoring data to help inform baseline data and long-term trends, measuring changes in key processes and landscape change, calculating sediment flux and planning for strategic placement. Recommendations include using monitoring data for some of the purposes described above applied to specific scales and site, and adding specific monitoring stations/gages for measuring turbidity/SSC, particularly long-term stations in shallows and above head of tide, in both wet and dry periods, and bringing in remote sensing as a monitoring tool.

The WG and Jeremy discussed how this effort is very much a wishlist, and more work is needed to assist prioritization. There is strong interest in particular in understanding the shallows better (and the interface with WRMP and BCDC efforts; Jeremy has crosswalked to WRMP but not yet BCDC's efforts) and understanding future sediment projections with climate change. There was a desire to understand objectives first, then establish ways to accomplish objectives. Discussion also emphasized the need to integrate modeling and monitoring strategies.

Jeremy and Scott proposed holding a half-day workshop in late summer/early fall to further discuss these ideas and progress the strategy.

7. Information: Presentations of 2020 Proposed Special Studies

Presentation summary	Workgroup comment summary
Workgroup support ($10k) - Scott Dusterhoff (SFEI). Scott presented briefly on the need to fund administrative WG support, which involves: coordinating WG activities (WG meetings, review WG study deliverables),	WG noted that other WGs receive about this much to operate, sometimes with fewer meetings.

managing subcontracts, and coordinating with external partners (WRMP, BCDC, others).	Discussion to potentially increase this funding given that it is a more involved WG, though there is some concern about the planning need to schedule meetings in advance.
Bay Sediment modeling strategy ($63.9k) - Scott Dusterhoff (SFEI). Scott presented on the need for a modeling strategy to compliment the monitoring strategy, to identify types of modeling outputs to address key knowledge gaps, as well as identify appropriate modeling tools to understand key data gaps, update existing tools or develop new ones. The monitoring strategy will guide this work. The modeling strategy will provide guidance on coordinating other modeling efforts, including the Delta (USGS- CASCaDE), Tributary (RMP - SPL WG), and Bay (RMP - sediment WG) sediment dynamics. This strategy can be applied to prioritize investment in sediment modeling development, analysis and visualization and to prioritize model scenarios that answer management questions. This strategy includes compiling information on existing numerical models ($9k), holding a workshop to discuss sediment modeling and strategy elements ($15.2k), and developing the sediment modeling strategy ($39.7k).This strategy could be used in the 2020 WG meeting to help guide 2021 WG priorities.	WG had multiple concerns. The WG was concerned that $9k is not sufficient to inventory models. Scott responded that much work has been done and convenient collaboration is available to save costs. WG also concerned that some aspects, such as model capabilities, are too technical to be addressed in a brief workshop, and that this strategy will need to be routinely updated as models evolve. Further, WG discussed the need to integrate modeling and monitoring strategies as a unified model, and the value of this strategy given the framework of project-driven models. A need to crosswalk further with WRMP efforts was identified as well.
Support for sediment bioaccumulation evaluations Part 2 ($48k) - Diana Lin and Ila Shimabuku (SFEI). *This proposal was prioritized by EEWG but not granted funding in 2018; the workgroup is now dormant.* *Task 1: PCBs bioaccumulation evaluations - Ila Shimabuku* DMMO evaluations compare concentrations against a bioaccumulation trigger [BT] and a TMDL for PCBs. If dredged sediment is < BT, then bay disposal is considered. If it is above TMDL, then bay disposal is not allowed (bioaccumulation is still required for ocean disposal). However, if BT < dredged sediment < TMDL, expensive bioaccumulation evaluations are required. Results may often be on either end of these triggers, suggesting efficiency or streamlining is possible. This was the case for mercury. This task aims to add missing bioaccumulation testing reports to the DMMO database, extract & analyze test results and compare to relevant values and thresholds (benthic organism TRVS), and potentially use bioaccumulation test results to calculate a new testing trigger. At least 30 PCB bioaccumulation studies could be analyzed. *Task 2: Review and Recommend Standard Model Inputs for Bioaccumulation Modeling - Diana Lin.* Diana presented on the desire to understand and recommend standardized model inputs for bioaccumulation	For Task 1, WG comments that other PCB testing could be added as well, beyond DMMO data. WG discussed how TMDL upper maximum limit is related to Essential Fish Habitat/NOAA negotiation. For Task 2, WG discussed potential to combine with task 1, as well as the potential for the two tasks to be split. There was concern that the WG was not the correct place for this project, though some pointed out that this directly addresses some of the WG's management questions and is very pertinent to the dredging community.

models, so dredgers and regulators can use a single reference for bioaccumulation modeling (currently there is no standard). BRAMS is of key interest - Bioaccumulation Risk Assessment Modeling Systems. These models predict concentrations in fish from sediment food web exposure, comparing against ambient fish concentrations as measured by RMP, PCB TMDL fish tissue target levels, and fish advisory levels for consumption. This task will develop key model inputs (such as fish diet, sediment, overlying water, and contaminants) for a set of six key contaminant trigger values that exist for DMMO. To accomplish this, SFEI will review literature and perform a sensitivity analysis for model and DMMO inputs.	
Update of erosion and sediment deposition in SF Bay Year 2 ($77k) - Bruce Jaffee, Teresa Fregoso, Amy Foxgrover (USGS). Bruce presented on the need for new baywide erosion and deposition information, given that erosion and deposition have changed recently in response to decrease in sediment supply from Delta. There is no recent Bay-wide assessment; 30-years since last major data point, and some areas were surveyed more recently (Ocean Protection Council: 2014-15, NOAA: 1980s, USGS: 2005-2010). Regardless, gaps remain in the shallows in San Pablo Bay and Suisun Bay. Tasks of this project involve: using GIS surface modeling to create DEMs based on recent surveys (high resolution [1-2 m] where supported by data, medium resolution [25 m] for entire bay, with the possible exception of areas without recent data), error checking and refining the DEM, converting vertical datum to the one used for 1980s surveys, creating DEM of bathymetric change during the past 25-35 years and analyzing this change. Potential challenges include varying densities of data, overlapping data at survey boundaries, challenges of finessing artifacts and backscatter, datum conversions. This will result in progress reports to RMP, conferences presentations, and USGS publications.	Dave Schoellhamer discussed interpreting step change of 1980s to present, issues of interpreting data across an inconsistent time frame. Response is that data will be shown in a grid from its respective source, and another grid where rates are incorporated and smoothed. Lester McKee points out the value of incorporating recommendations to avoid this patchwork in the future, as this may be an ongoing issue.
Golden Gate Sediment Flux Monitoring $45k - Michael MacWilliams (Anchor QEA). USGS measured sediment at the Golden Gate [GG] in 2016 and 2017. Calculation from Feb 2017 data showed an unexpected net flux into the Bay. This may be because of methodology (measurement made on falling limb of hydrograph), or bias in measurements of flux calculations. Goal of project to understand this point. Project tasks include simulating hydrodynamics, waves, salinity and sediment for 1/1/17 - 3/31/17; validating model of SSC and predicted flux on 2/27/17, investigating hypothesis described above; and predicting sediment flux compared to other observed parameters. Final deliverable will be a technical report.	WG discussed that this does not simulate flocculation, but may get towards a realistic estimation given its examination of multiple sediment classes. WG also discussed that coastal models are not well calibrated in the ocean, though calibration is strong at GG. Lester McKee points out need for more collaboration between empirical observers and modelers.

7. Closed Session. Decision: Ranking of 2020 Special Studies Proposals
Bridgette DeShields (with Tom Mumley and Melissa Foley) led the WG in a closed session to rank 2020 special studies. The WG members that left the room were Scott Dusterhoff, Bruce

Jaffe, Teresa Fregoso, and Michael MacWilliams. Proposals were discussed in terms of their relevance to the WG guiding management questions and priorities for setting up future studies and filling data gaps.

The WG acknowledged the <u>Sediment workgroup strategy</u> (support) money as universally necessary, and agreed to rank it as the top priority. Additional future meetings may be planned as a result of this support. The WG also discussed the <u>modeling strategy</u> at length. The group agreed that the modeling strategy and monitoring strategy should be more integrated (as they inform each other). However, there was some concern that the strategy overall was not well defined, potentially somewhat redundant to existing efforts, and likely not to be complete in its prioritization of reported needs. The WG discussed the option of reducing technical aspects of the modeling strategy. Ultimately, the WG decide to lower the rank of this proposal (5), rename it "Integrated Monitoring & Modeling Strategy," apportion it ~$20k, and use remaining funds from the monitoring special study to fund a modeling workshop in 2019, finishing the strategies together in 2020. The WG acknowledged the need to link this work more with the nutrients group and BCDC's work. Scott will write up a modified proposal and send it to WG for approval prior to its submission to the TRC. The WG discussed the <u>bioaccumulation study</u> as well, recognizing that although it was disparate in content from other sediment-focused proposals, it did help answer guiding management questions. In the interest of maximizing studies to pursue, Part 1 was prioritized for 2020 ($22.5 k) and ranked 4th, while Part 2 was ranked 6th ($25.5 k). The WG further recognized the <u>erosion and deposition study</u> as of high value. Given that year 1 has already been funded, there was strong interest in continuing the effort for data that would be valuable for a host of projects. As a result, this proposal was ranked 2nd. Finally, the <u>GG flux proposal</u> was ranked 3. The WG concluded that though this proposal was focused on a confined geography and timestamp, it offered potential for understanding better accuracy of fluxes and relation to SSC in general, as well as insight into a key flux for developing sediment budgets.

8. Report out of proposal ranking and recommendations to principal investigators

Study Name	Budget	Modified Budget	Priority	Summary Comments
Sediment workgroup strategy/support	$10k	$10k	1	Coordinating WG activities and coordination with external partners; would like to have more than one meeting per year, especially in relation to developing the monitoring strategy
Integrated Monitoring & Modeling Strategy	$63.9k	~$20k	5	Complement the monitoring strategy and help guide future work and coordination with other groups (RMP WGs, WRMP, BCDC, USGS). Hold modeling workshop in 2019 with remaining money in monitoring special study; and finish modeling and monitoring strategies together in 2020. Needs to link to the Nutrient Model effort, BCDC effort.
Sediment bioaccumulation - Task 1	$48k	$22.5k	4	Assess if trigger for PCB bioaccumulation studies be removed similar to mercury and update trigger for in-Bay disposal; split from original combined budget/tasks.

Erosion & deposition in SF Bay	$77k	$77k	2	Year 2 of study
Golden Gate sediment flux model	$45k	$45k	3	Three month model to put one day of USGS data into context; sediment budget needs Golden Gate sediment flux estimate. Add dry season (not currently included)?
Sediment bioaccumulation - Task 2	$48k	$25.5k	6	Bioaccumulation modeling using consistent, updated science; split from original combined budget/tasks.
MODIFIED BUDGET TOTAL	**~$200k**			

9. Discussion & Decision: SEP Study Ideas

The SEP study ideas were discussed by the WG, with an aim of selecting ~3 proposals for submission to the TRC. Tom Mumley points out that 3 is not a hard number and that the projects need to have clear impact with discrete results, as these are more easily justifiable when using SEP funds.

Due to the ranking in the previous section, the de-prioritized Bioaccumulation part B is now part of SEP study ideas list automatically (if not funded by the TRC). The WG removed the updated beneficial reuse thresholds due to its unclear scope and because the water board can not be a beneficiary. The WG expressed strong interest in Anchor QEA's remote sensing turbidity model, though had some hesitation given the the pace of change of remote sensing technology and, absent a broader strategy, uncertainty as to whether it should be done now or later. USGS' proposal regarding tracking sediments sources and sinks was of high interest, though its cost seemed prohibitively high for potential SEP funding. Daniel Livsey offered to make this proposal more scalable. The WG expressed interest in maintaining the toxicity reference value refinement study. The targeted bathymetric study was decided also to be of high importance, and will be updated to be more of a flexible/modular estimate.

Ultimately, the WG decided to list three proposals: (1) Filling Bathymetry Data Gaps (Bruce Jaffe USGS will update and provide modular estimate), (2) Toxicity Reference Value Refinement (Diana Lin SFEI) and (3) Developing tools to track sediment sources, sinks, and pathways the San Francisco Estuary (Daniel Livsey USGS will update proposal to be scalable).

10. Discussion: Strategic Planning for next 5 years [*Tabled in the interest of time.*]

11. Wrap Up: Review Action Items and Decisions

Modeling strategy proposal will be updated, prioritized special study and SEP lists will go the TRC, while strategic planning deliberations will be forwarded to the WG in the fall, and another WG will be scheduled for next year.

About the RMP

<u>RMP ORIGIN AND PURPOSE</u>

In 1992 the San Francisco Bay Regional Water Board passed Resolution No. 92-043 directing the Executive Officer to send a letter to regulated dischargers requiring them to implement a regional multi-media pollutant monitoring program for water quality (RMP) in San Francisco Bay. The Water Board's regulatory authority to require such a program comes from California Water Code Sections 13267, 13383, 13268 and 13385. The Water Board offered to suspend some effluent and local receiving water monitoring requirements for individual discharges to provide cost savings to implement baseline portions of the RMP, although they recognized that additional resources would be necessary. The Resolution also included a provision that the requirement for a RMP be included in discharger permits. The RMP began in 1993, and over ensuing years has been a successful and effective partnership of regulatory agencies and the regulated community.

The goal of the RMP is to collect data and communicate information about water quality in San Francisco Bay in support of management decisions.

This goal is achieved through a cooperative effort of a wide range of regulators, dischargers, scientists, and environmental advocates. This collaboration has fostered the development of a multifaceted, sophisticated, and efficient program that has demonstrated the capacity for considerable adaptation in response to changing management priorities and advances in scientific understanding.

<u>RMP PLANNING</u>

This collaboration and adaptation is achieved through the participation of stakeholders and scientists in frequent committee and workgroup meetings (see Organizational Chart, next page).

The annual planning cycle begins with a workshop in October in which the Steering Committee articulates general priorities among the information needs on water quality topics of concern. In the second quarter of the following year the workgroups and strategy teams forward recommendations for study plans to the Technical Review Committee (TRC). At their June meeting, the TRC combines all of this input into a study plan for the following year that is submitted to the Steering Committee. The Steering Committee then considers this recommendation and makes the final decision on the annual workplan.

In order to fulfill the overarching goal of the RMP, the Program has to be forward-thinking and anticipate what decisions are on the horizon, so that when their time comes, the scientific knowledge needed to inform the decisions is at hand. Consequently, each of the workgroups and teams develops five-year plans for studies to address the highest priority management questions for their subject area. Collectively, the efforts of all these groups represent a substantial body of deliberation and planning.

<u>PURPOSE OF THIS DOCUMENT</u>

The purpose of this document is to summarize the key discussion points and outcomes of a workgroup meeting.