



RMP Sediment Workgroup Meeting

May 7, 2020
9:30 am to 3:00 pm

San Francisco Estuary Institute
4911 Central Avenue, Richmond, CA

Meeting Summary

Attendees

Name	Affiliation/Roles	Present
Aaron Bever	Anchor QEA	Remote (Zoom)
Brenda Goeden	BCDC	Remote (Zoom)
Brett Milligan	UC Davis	Remote (Zoom)
Brian Ross	EPA	Remote (Zoom)
Bridgette DeShields	Integral Consulting (Technical Review Committee Chair)	Remote (Zoom)
Bruce Jaffe	USGS	Remote (Zoom)
Bryan Frueh	City of San Jose	Remote (Zoom)
Cristina Grosso	SFEI	Remote (Zoom)
Dave Halsing	SBSPRP	Remote (Zoom)
Dave Schoellhamer	USGS ret., Technical Advisor	Remote (Zoom)
Derek Roberts	SFEI	Remote (Zoom)
Don Yee	SFEI	Remote (Zoom)
Donna Ball	SFEI, SBSPRP	Remote (Zoom)
Jay Davis	SFEI	Remote (Zoom)
Jeremy Lowe	SFEI	Remote (Zoom)
Jessica Lovering	SCVWD	Remote (Zoom)
Jessie Lacy	USGS	Remote (Zoom)
John Coleman	BPC (Steering Committee)	Remote (Zoom)
Josh Gravenmier	Arcadis	Remote (Zoom)
Judy Nam	SCVWD	Remote (Zoom)
Karen Thorne	USGS	Remote (Zoom)

Katie McKnight	SFEI	Remote (Zoom)
Lester McKee	SFEI	Remote (Zoom)
Letitia Grenier	SFEI	Remote (Zoom)
Luisa Valiela	EPA (Technical Review Committee)	Remote (Zoom)
Melissa Foley	SFEI	Remote (Zoom)
Michael MacWilliams	Anchor QEA	Remote (Zoom)
Miguel Mendez	SFEI	Remote (Zoom)
Oliver Fringer	Stanford University	Remote (Zoom)
Patricia Wiberg	University of Virginia, Technical Advisor	Remote (Zoom)
Sam Shaw	SFEI	Remote (Zoom)
Sarabeth George	SFBRWQCB	Remote (Zoom)
Scott Bodensteiner	Haley & Aldrich	Remote (Zoom)
Scott Dusterhoff	SFEI	Remote (Zoom)
Setenay Bozkurt Frucht	SFBRWQCB	Remote (Zoom)
Tan Zi	SFEI	Remote (Zoom)
Tessa Beach	USACE (Steering Committee)	Remote (Zoom)
Theresa Fregoso	USGS	Remote (Zoom)
Thomas Mumley	SFBRWQCB (Steering Committee Chair)	Remote (Zoom)
Xavier Fernandez	SFBRWQCB	Remote (Zoom)

The last page of this document has information about the RMP and the purpose of this document.

1. Introduction and Goals for the Meeting

Melissa Foley started the meeting with a brief overview of the agenda for the day, which consisted of a review of the results from the previous workgroup meeting on March 3, 2020, presentations on results from ongoing RMP sediment studies, proposal presentations for potential RMP-funded projects for 2021, and ranking and recommendations of said proposals.

Melissa then introduced the workgroup's two technical advisors, Patricia Wiberg (University of Virginia) and Dave Schoellhamer (USGS Emeritus). She then had all participants identify themselves as Steering and Technical Review Committee members, stakeholders, SFEI staff, federal and state government partners, academics, and consultants.

Melissa then gave a brief background on the Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) by outlining the program's goals, history, management questions, and monitoring structure. She then noted that though spring workgroup meetings normally include decisions on the Multi-Year Plan (MYP), this portion would be delayed until Fall 2020. She then presented ongoing special studies funded for 2019 and 2020, which consist of the following:

2019 Funded Special Studies:

- Sediment Monitoring/Modeling Strategy
- Bathymetric Change Analysis Study - Year 1
- Develop Recommendations for Updated Beneficial Reuse Thresholds
- Sediment Bulk Density Study
- Dumbarton Bridge (Lower South Bay) Sediment Flux Study – Year 2 (SEP funded)

2020 Funded Special Studies

- Sediment Monitoring/Modeling Strategy
- Bathymetric Change Analysis Study - Year 2
- Sediment Bioaccumulation Threshold Study
- Golden Gate Sediment Flux Modeling Study
- Quantifying stormwater flow and sediment flux to the Bay from selected tributaries (SEP funded)

She then reminded the group that the cost of high priority special studies identified in the MYP exceeds that which is likely to be funded by the RMP. Actual available funding (~\$1.3M) is less than the total requested by all workgroups (~\$2M). Funding decisions on how to split the available funding between the seven workgroups will be decided by the Technical Review Committee and Steering Committee.

Finally, Melissa outlined the goals for the day's meeting, which were to: 1) review findings from completed and ongoing workgroup studies (selected from lists above); 2) discuss special study proposals and ideas for 2021 funding; 3) rank special study proposals; and 4) decide which

Special Study Ideas should be developed into full proposals.

2. Information: Review of March 3 Meeting

Scott Dusterhoff gave an overview of the workgroup meeting that took place on March 3, 2020. The meeting had three primary goals: 1) re-engage members of the sediment workgroup; 2) discuss sediment monitoring/modeling priorities, focused on the new draft Sediment Monitoring and Modeling Strategy (SMMS), and; 3) decide on proposals to develop for 2021 funding.

For context, Scott reviewed the MYP, with funding priorities for 2021, which included high priority studies equaling ~\$380K, with \$300K for monitoring and modeling studies. This was the beginning for conversations on March 3. Using the SMMS as reference for data gaps and priorities, several monitoring and modeling actions were prioritized, which broadly consisted of the following areas:

- Monitor and model flux of sediment to marshes (especially focused on how placed sediment gets delivered to marshes)
- Monitor/model sediment supply from tributaries and deposition onto marshes
- Coordinate with the Nutrient Monitoring Strategy (NMS) moored sensor network to collect suspended sediment data in South Bay
- Fill key bathymetric data gaps beyond recent work by Bruce Jaffe and the USGS
- Develop a conceptual model of sediment dynamics and conduct a sensitivity analysis

This discussion yielded a few decisions in the March meeting. There was a push to defer proposal writing and request a block of funds in May for projects that would be determined later in 2020. This approach was cautioned against by the TRC. The ensuing decision was to develop study proposals *and* study ideas based on the MYP and the March 3 discussion. The proposals include the DMMO Database Enhancement and DMMO San Francisco Bay Floating Percentile Method Update. Study ideas include: 1) monitoring suspended sediment concentrations (SSC), 2) sediment flux from shallows to marshes, and 3) marsh sediment deposition.

Dave Schoellhamer asked if proposals presented in this meeting are to be sent straight to the Technical Review Committee (TRC) or if they could be refined. Scott confirmed that there is discussion to be had about the form, scope, and actions of proposals, which would each be presented in multiple levels of effort and funding levels. Changes to the proposals are allowed prior to the TRC meeting based on workgroup feedback.

In relation to the management and monitoring action priorities, Brenda Goeden informed the group that at the Bay Planning Coalition Beneficial Reuse Committee workshop the day before there was a discussion regarding suspended sediment loading to the Bay. There is a general assumption that the reduction in suspended sediment loading to the Bay from the Delta has resulted in a reduction of suspended sediment overall in the Bay. She was unsure there is confirmation of this assumption based on empirical data from the Bay, and if there is some way to confirm or refute this assumption through work from this workgroup that would be very helpful, as the dredging community is asserting that they should dispose of more dredged

sediment in the Bay to increase suspended sediment. It would be very helpful from the management perspective to understand how the two correlate. Dave Shoellhamer responded in the meeting chat that there are 5-10 years of new RMP continuous SSC data that include drought and flood conditions that could be added to his 2010 work to confirm it.

3. Information: Presentations on 2019 Sediment Workgroup Studies

SF Bay Bathymetric Change Analysis - Year 1

Presentation

Theresa Fregoso began the presentations on the 2019 Sediment workgroup studies with results on the Bathymetric Change Analysis. Previous synthesis work began in the 1990s, consisting of a bathymetric change analysis from surveys conducted in the 1850s to the 1980s. Interpolation of historical results compared to more modern surveys yielded an estimate of ~250 million cubic meters net gain of sediment in the Bay from the 1850s to the 1980, with net gains in San Pablo Bay and Central Bay, and net losses in Suisun Bay and South Bay. Bathymetric changes were a result of changing sediment supply from Gold Rush excavations and subsequent dam impoundments, Bay infilling (most notably Treasure Island), dredging of new channels, and borrow pits for sediment reallocation.

In 2014/2015, the Ocean Protection Council contracted for a survey of large swaths of the Bay, while more contiguous surveys were undertaken by NOAA, USACE, Cal State Monterey Bay, and USGS. These data were compiled, and different data types (continuous vs. linear swath) were resolved in ArcGIS. This yielded a comprehensive bathymetric raster and accompanying GIS shapefiles, which are available for download at [doi:10.5066/P9TJTS8M](https://doi.org/10.5066/P9TJTS8M).

Current and future work in this effort consists of compilation of Central Bay survey data, compilation of South Bay surfaces (with release in December 2020), QA/QC on all surfaces, bathymetric change grid analysis, and an analysis of change patterns along with a report.

Discussion

Following questions from workgroup members on large takeaways and surprises, Bruce Jaffe said that the biggest surprise was that the system is very dynamic. In San Pablo Bay, there were very few places that were consistently erosional or depositional. It is difficult to correlate changes in bathymetry with sediment and differences related to land use changes because there are so many driving factors that take place over different timescales than the decadal survey data. An exception to this is hydraulic mining activity. After all current analysis is

completed and released, the next step should be to create a subcommittee to identify the most important remaining data gaps to forward on to the RMP Steering Committee for consideration in SEP projects. The cost for a sizable survey would be more than \$250,000 and up to \$1M. Brenda Goeden pointed out that with current and continuing restoration projects (e.g., breaching of restored wetland sites) underway after the survey dates, resulting Bay margin bathymetry change will be important to resolve.

Recommendations for Updated Beneficial Reuse Thresholds

Presentation

Melissa Foley presented the recommendations from the Beneficial Reuse Workshop. The workshop was funded in order to explore the need to update Water Board guidelines for beneficial sediment reuse, which were made 20 years ago. With increasing demand for reused sediment for marsh restoration, updates on criteria for reusable sediment are needed, based on more recent science. The workshop, held in September 2019 with ~60 people in attendance, had three main guiding questions:

- Are current screening guidelines appropriate?
- Is the screening process appropriate and adequate? If not what are recommendations for improving it?
- How should bioaccumulation potential be addressed in sediment being used for beneficial reuse?

Resulting discussion led to seven recommendations:

- Update ambient values and include margins data in the update
- Use the hazard quotient methodology to assess ecological risks
- Use multivariate analyses to determine sediment chemistry screening thresholds
- Assess current bioassays to determine if they are appropriate for assessing risk to wetland species
- Use a tiered framework to assess toxicity, chemistry, and bioaccumulation
- Use the San Francisco Bay bioaccumulation model to determine levels of concern
- Develop a monitoring strategy to assess the effects of dredged sediment on wetland habitats

A workshop report can be found at

https://www.sfei.org/sites/default/files/biblio_files/Workshop%20Report_final.pdf.

Discussion

For ambient data from margin areas, Dave Schoellhamer wondered if it would be useful to use data from the marshes themselves since that's where the sediment is going. Melissa Foley said

that would be useful, keeping in mind that there is limited data from the marshes, and that there are often regional differences in ambient contaminant values from sediment sources to placement sites. Next, Dave Schoellhamer asked if the last recommendation of developing a wetlands monitoring strategy for placed sediment would fall under the purview of the Wetlands Regional Monitoring Program (WRMP). It was noted by Xavier Fernandez that the WRMP is still in its conceptual phase and currently has no funding source, and that ambient sediment quality is not a priority for the WRMP Technical Advisory Committee (TAC). The WRMP is likely still several years away from addressing this question.

Sediment Bulk Density Study

Presentation

Katie McKnight presented results on the Bay-wide Sediment Bulk Density Study and database. She explained that the motivation for the study came directly from Schoellhamer et al. (2018), which called for improved mass density data to compare sediment supplies from tributaries to accommodation spaces in the Bay. Prior to this study there was no established reference bulk density data for SF Bay. She clarified that bulk density refers to the total mineral and organic sediment within a defined volume. Bulk density can be difficult to capture as it varies in space and time, compaction, pore size, organic matter content, moisture content. A literature review was conducted of primary and secondary sources, and other estimates were gathered from interviews with restoration managers, dredgers, engineers, and agency staff. Findings were compiled in a database, a publicly available downloadable Excel sheet, found here:

https://docs.google.com/spreadsheets/d/1sVcgwsH16rvEzbVyxkBhB-qXMSH5Vu1gis_RELXh2NE/edit#gid=1886552169

Key findings were that there is limited primary data for intertidal and subtidal habitats; variations by salinity, bathymetry, sampling method, and decade are relatively unknown; dry bulk mineral densities vary significantly between tidal marshes and deep bay sources compared to brackish tidal marshes in Suisun Bay (30lbs/ft³ and 10lbs/ft³ respectively); and practitioners often overestimate density values of dredged sediments for restoration reuse compared to in-situ empirical measurements.

Discussion

Brenda Goeden offered that sediment core and dredging footprint data collected by BCDC in nearshore subtidal areas could be available to supplement the database. Karen Thorne offered upcoming bulk density data for Suisun Bay. Bruce Jaffe said that he has data available to supplement the database, and the existence of the database will be a catalyst for sharing bulk density data.

4. Information: Presentation of Conceptual Model SEP Proposal

Presentation

Tom Mumley introduced this segment by reminding the group that a detailed conceptual model was prioritized by the workgroup at the previous March workgroup meeting. He explained that in his role at the Water Board he is responsible for environmental enforcement actions, and he has prioritized an enforcement action to fund the development of a Bay-wide, multi-scale conceptual model on estuarine sediment transport.

Scott Dusterhoff presented the proposal for work on developing the conceptual model. The model would be integrated in the SMMS, looking at several different scales of sediment transport:

- 1) A bay-wide scale, with estimates of fluxes as well as estimates of uncertainty;
- 2) Sediment movement on the mudflat and marsh scale;
- 3) Bed and water column interactions, including resuspension, flocculation, and settling velocity.

These scales and processes are already touched on in the SMMS, but only in a cursory manner to provide context for data gaps and priorities. The conceptual model proposal would be funded over a one-year timeframe to investigate the processes on spatial scales listed above over multiple timescales, with the addition of a future change analysis. The output would be a technical report consisting of linked and nested conceptual models, and an uncertainty analysis. This will also require workgroup support, including creating a subgroup and holding a full workgroup meeting.

Discussion

After questioning from Pat Wiberg, Scott Dusterhoff confirmed that the effort will aim to incorporate population and land-use change, as well as climate change into the future predictions portion of the conceptual model. Following questions from Dave Schoellhamer and Brenda Goeden, he clarified that the model will attempt to cover all sediment grain sizes, possibly collaborating with BCDC's effort on sand transport, and that the main effort will be aimed at adding on to the more limited conceptual model with the uncertainty analysis and future predictions, in light of continuing significant data gaps.

5a. Information: Overview of Special Study Proposals and Ideas

Scott Dusterhoff initiated the next segment of the meeting by introducing the Special Study Proposals and Ideas. He reiterated that all project proposals will add to about \$2M, with only

\$1.3M available from the RMP. Sediment Workgroup High Priority projects total ~\$380K, while the actual budget will most likely be around \$250K, so the need is to prioritize proposals for review by the TRC. The workgroup should identify options for these proposals, as possible:

- Scaling: can elements be removed from proposals to lower costs?
- Phasing: can elements of proposals be funded over multiple years?
- Leveraging: can other datasets and efforts be utilized or forwarded?

5b. Information: Presentations of 2021 Special Study Proposals

These special study proposals being considered for 2021 funding were presented to the Workgroup:

DMMO Database Enhancement

Presentation

Cristina Grosso presented a proposed project to update and enhance the Dredged Material Management Office (DMMO) database, which is used for making suitability determinations for proposed disposal and beneficial reuse of dredged sediment. Current use of the database is limited, as it was developed over 10 years ago, and currently suffers from outdated technology, limited automation of procedures, data access, and integration with other datasets.

The proposed task would involve coordination within the DMMO project team, implementation of database enhancements, and implementation of improved data access. Database enhancements would consist of migration from the outdated Microsoft Access 2007 platform to a more robust data platform, automation of procedures to make testing results available online, and management in coordination with RMP data. Data access enhancements would include integration of DMMO data with existing visualization tools and improvements in querying, mapping, and downloading data to support data mining and synthesis efforts. For a budget of \$40,000, the effort would include the above enhancements as well as DMMO project team meeting summaries. The project will be completed by December 2021.

DMMO San Francisco Bay Floating Percentile Method Update

Don Yee presented a proposal to update sediment quality guidelines for beneficial reuse using the floating percentile method (FPM) to find new thresholds for dredged sediment reuse and disposal. The development of a new method for determining chemical thresholds for reuse was a recommendation from the Beneficial Reuse Workshop held in September 2019. There may be a significant portion of sediment that is being kept from restoration reuse due to overly restrictive guidelines, and determination of local thresholds for actual toxicity is needed.

The method consists of a comparison of paired sediment chemical and toxicity data in the SF Bay to assess risk. Some of the current guidelines are not based on local conditions, and the use of local data will set more realistic and accurate thresholds. The FPM uses the paired data to reduce the number of false positives and false negatives for each concontaminant, providing a more robust estimation of toxic conditions. This new method allows for the allocation of previously disqualified sediment for placement, and another pool for further chemical testing to determine its destination.

The task will consist of RMP/DMMO data compilation, data cleanup, and FPM runs, with a draft report to the Workgroup, presentation to stakeholders, and a final report and website published by June 2021, for a total cost of \$34,000.

Discussion

There was some concern from workgroup members about combining DMMO and RMP data because they are different data types and capture time-integrated contaminant concentrations versus current surface concentrations, respectively. Don Yee pointed out that these disparate data can be used to assess conceptual models on contaminant change. Lester McKee referred back to Katie McKnight's bulk density presentation, recalling that sediment may undergo many changes during dredging, such as redox, organic matter, and other alterations. He wondered if it was possible to assess sediment toxicity at the time of placement on marshes, rather than its collection. Don said that data isn't available for that assessment, and this is a first cut at determining toxicity for local organisms for various contaminants. Brian Ross noted that the DMMO data will be the most useful for assessing toxicity and contamination, since dredged and mixed sediment is what ends up on marshes.

Lunch Break

5c. Information: Presentations of 2021 Special Study Ideas

Melissa Foley reconvened the meeting, and introduced the next segment: presentations of Special Study Ideas, which consist of multiple potential levels of funding and effort.

Sediment Flux in the South Bay Shallows

Presentation

Jessie Lacy proposed a 7-8 month field study of SSC in the area around and within a tidal marsh in the South Bay. The study would examine drivers that influence SSC and delivery of sediment to marshes, such as tidal and wave conditions and vegetation. A site would be selected that had, a) large wind fetch; b) a location near existing restoration sites; and c) interest from the WRMP. It would most likely be located on the eastern shoals of the South Bay,

between the San Mateo and Dumbarton Bridges. The study would deploy three monitoring stations: two collecting current, tidal, wave, and SSC data in the subtidal shallows and adjacent to the marsh edge, and another within the marsh tidal creek, minus wave data. Grain size distribution and bulk density of sediment would be recorded at all stations. Field deployment would begin in August 2021, with a report on results and influencing factors in December 2022, for a budget of \$142K.

Discussion

Pat Wiberg questioned why actual measurements of marsh sediment deposition are not included in the study, noting that a direct measurement might be needed to resolve what sediment is making it to the marsh, and that the Surface Elevation Table (SET) method takes at least a year to settle in, making that method difficult to pair with the proposed study. Dave Schoellhamer noted that there has been ongoing interest in a dredged material placement study, and wondered if this project could be used as a basis to understand local dynamics for such a study.

Marsh Elevation Dynamics Across San Francisco Bay

Presentation

Karen Thorne presented her Special Study Idea on continuing and expanding monitoring of marsh elevation change throughout the San Francisco Bay using Rod Surface Elevation Table/Marker Horizon (rSET/MH) method. Her proposal consisted of continued monitoring of accretion data for sixteen rSET/MH stations across four North Bay marshes, as well as the expansion of 20 new stations across five representative marshes in Central and South Bays (with input from the workgroup), along with analysis of biogeomorphic drivers influencing marsh accretion. Synthesis and summary of all data would be completed by January 2022 and presented to the workgroup in May 2022.

Discussion

Dave Schoellhamer was concerned that a single year of funding for this effort would not be sufficient and wondered if the WRMP could possibly continue funding for this project starting in 2022. Xavier Fernandez pointed out that the funding structure of the WRMP is unclear and cannot be relied upon.

Continuous Suspended Sediment Monitoring in the Eastern Shoal of the Southern San Francisco Bay

Presentation

Derek Roberts presented his special study idea on coupling SSC monitoring at four Nutrient Management Strategy (NMS) moored sensor sites. He noted that modeling of sediment fluxes in the Bay requires continuous SSC data, and there are only two or three continuous SSC stations currently in operation in the Bay. His study idea would add SSC sampling to four South Bay NMS sites (three in the shoals, one at San Mateo Bridge) over the course of a year to calibrate continuous turbidity data to SSC. This could be coupled with added wave sensor deployments at shallow sites, as well as particle size distribution analysis for collected samples. Monthly sampling and wave sensor deployment would begin in January 2021, with datasets finalized by Spring 2022; funding levels range between \$37K and \$60k.

Discussion

With questioning from Pat Wiberg, Derek clarified that the proposed locations for the moored stations are derived from an algal bloom modeling study, and generally placed to maximize the probability of detecting an algal bloom, which differs from the ideal placement criteria for the workgroup. Lester McKee questioned if 12 samples (one each month) are enough to calibrate a time series relationship between SSC and turbidity data, along with potential bias inherent to only visiting sites during high tide during relatively calm conditions. Dave Schoellhamer confirmed that the USGS guidelines call for 30 samples to calibrate these data, which is difficult to attain, and that the high tide bias is unavoidable.

Melissa Foley thanked the study leads and moved them into the remote waiting room while RMP stakeholders and collaborators prioritized studies in a closed session.

6. Closed Session - Decision: Ranking of 2021 Special Studies Proposals

This session was led by TRC Chair Bridgette DeShields. Workgroup members weighed the relative importance of each study. Ultimately it was decided to combine the sediment flux and marsh accretion studies by Jessie Lacy and Karen Thorne, and studies were then ranked and discussed according to the following table:

Study Name	Budget (low)	Budget (middle)	Budget (high)	Modified Budget	Priority	Comments
DMMO San Francisco Bay Floating Percentile Method Update	\$34,050				1	Important to move beyond conservative thresholds; useful for SBSP restoration projects (and many others); knowing more about margins is important
Sediment flux and marsh deposition hybrid	\$200,000			\$200,000	2	Hybrid proposal that combines Jessie and Karen's work to be co-located in South Bay and applicable at the same time scale.
DMMO database enhancements	\$40,000				3	Good idea, but limited value to the RMP; important from dredging community perspective
Continuous suspended sediment monitoring on the eastern shoal of South San Francisco Bay	\$42,150		\$60,170		4	Depends on the ability to get in the field in 2020. No interpretation of data - who is going to use the data and interpret them? NMS would use the data and would be used by modelers for model calibration. Little data on the shoals (most in-channel; Grizzly Bay), so data in the South Bay would be useful. Wave data would also be useful, if it is co-located with SSC and turbidity.
Total	\$316,200		\$0			
<i>Planning Budget</i>	<i>\$380,000</i>					

7. Report Out of Proposal Idea Ranking and Recommendations to Principal Investigators

The PIs were allowed back into the meeting, and the ranked proposal decisions were shared with the whole workgroup present. It was clarified that Jessie Lacy and Karen Thorne would

work together to craft a new collaborative study with elements of each of their proposals and coordinate with Melissa Foley and Scott Dusterhoff as liaisons with the TRC.

8. Wrap Up: Review Action Items and Decisions

Scott Dusterhoff reminded the group and proposal leads that final proposals need to be prepared by early June to be presented to the TRC. In August 2020, after the SC meets and approves studies , 2021 funding results will be reported to the workgroup. In Fall 2020, the finalized SMMS will be sent to the workgroup, and the MYP discussion will also take place.

ADJOURN

About the RMP

RMP ORIGIN AND PURPOSE

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 discharge 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.

RMP PLANNING

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

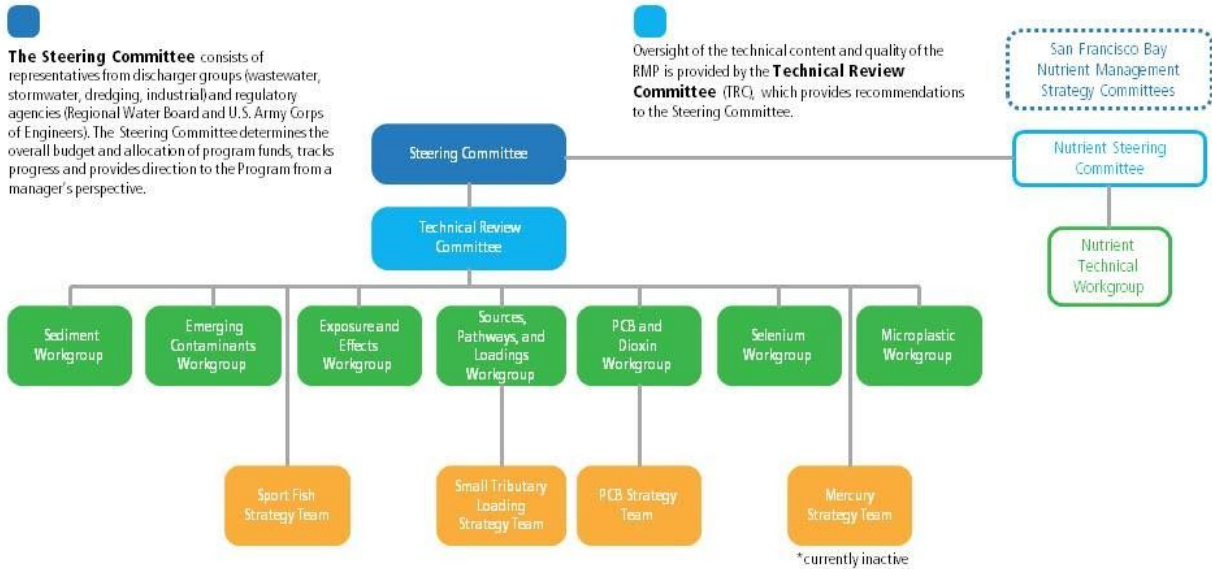
The annual planning cycle begins with a workshop in October in which the Steering Committee articulates general priorities among the information needs on water quality topics of concern. In the second quarter of the following year the workgroups and strategy teams forward recommendations for study plans 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 work plan.

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.

PURPOSE OF THIS DOCUMENT

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

Governance Structure for the Regional Monitoring Program for Water Quality in San Francisco Bay



The Steering Committee consists of representatives from discharger groups (wastewater, stormwater, dredging, industrial) and regulatory agencies (Regional Water Board and U.S. Army Corps of Engineers). The Steering Committee determines the overall budget and allocation of program funds, tracks progress and provides direction to the Program from a manager's perspective.

Oversight of the technical content and quality of the RMP is provided by the **Technical Review Committee (TRC)**, which provides recommendations to the Steering Committee.

Workgroups report to the TRC and address the main technical subject areas covered by the RMP. The Nutrient Technical Workgroup was established as part of the committee structure of a separate effort – the Nutrient Management Strategy – but makes recommendations to the RMP committees on the use of the RMP funds that support nutrient studies. The workgroups consist of regional scientists and regulators and invited scientists recognized as authorities in the field. The workgroups directly guide planning and implementation of special studies.

RMP strategy teams constitute one more layer of planning activity. These stakeholder groups meet as needed to develop long-term RMP study plans for addressing high priority topics.