REGIONAL MONITORING PROGRAM FOR WATER QUALITY IN SAN FRANCISCO BAY
sfei.org/rmp

RMP Sediment WG Meeting

May 1, 2018

San Francisco Estuary Institute
4911 Central Avenue, Richmond, CA

Meeting Summary

Attendees

PRESENT:		PHONE:	
Name	**Affiliation/Roles**	**Name**	**Affiliation/Roles**
Phil Trowbridge	SFEI	Jessica Lacey	USGS Santa Cruz
Tom Mumley	Water Board	Teresa Fregoso	USGS Santa Cruz
Steve Hagerty	SFEI	Judy Nam	SCVWD
Scott Dusterhoff	SFEI	Dave Schollhammer	USGS
Maureen Downing-Kunz	USGS	Lester McKee	SFEI
Daniel Livsey	USGS		
Bridgette DeShields	Integral Corp		
Paul Work	USGS		
Craig Conner	USACE		
Luisa Valiela	EPA		
John Bourgeois	State Coastal Conservancy		
Anniken Lydon	BCDC		
Carol Foster	SCVWD		
Naomi Feger	Water Board		
Josh Gravenmier	Arcadis		
Michael MacWilliams	Anchor QEA		
Letitia Grenier	SFEI		
Cristina Toms	Water Board		
Beth Christian	Water Board		
Scott Wright	USGS		
Betty Kwan	Bay Planning Coalition		
Scott Bodensteiner	Haley & Aldrich		

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

1. Introductions and Review of the Agenda

Phil Trowbridge (SFEI) welcomed the workgroup and led a round of introductions.

2. Information: Management Questions and Processes to Develop Proposals for 2019 Special Studies

Phil Trowbridge gave a presentation that reviewed outcomes from and since the first WG meeting, as well as the process for narrowing down the list of projects for which proposals were developed. Key points were:

- Projects for proposals were generally prioritized based on survey results, the need for funding, and maintaining monitoring that is already underway.
- One project, the Bulk Density Study, was a "staff pick" because staff felt strongly that this work was important even though it did not rank highly in the survey.

The group briefly discussed the nexus between the Wetlands RMP and Sediment Workgroup. Key points were:

- There is a geographic nexus between the groups but not a specific connection at this point.
- The Wetland RMP is just getting started.
- There is potential for management questions and studies to benefit both workgroups.
- For now, Naomi and Luisa can serve as liaisons between two WGs.

3. Information: Presentation of Proposed Studies related to Strategy Development

Scott Dusterhoff (SFEI) presented proposals related to strategy development. One proposal is for a Conceptual Model and Sensitivity Analysis Study. The other proposal is for additional funding to develop the Sediment Monitoring Strategy.

Some workgroup members raised the following questions and comments after the presentation:

- Why is a conceptual model needed? We are past that point because there are already numeric models that simulate sediment processes in the Bay.
- What additional services will provided with the additional funding for the Sediment Monitoring Strategy?
- Other groups besides SFEI should be involved in the Conceptual Model project.
- Should the two projects occur at the same time? Should they be delayed while more data are collected?

These questions and other topics were discussed by the Workgroup. The main points from the discussion were:

- Need to clarify the purpose of a revised conceptual model. Will it be qualitative and conceptual or will it establish mass balances for sub-embayments? The second option is much harder than the first and will have many large data gaps that will have to be assumed.
- Three of the other proposals (Golden Gate Sediment Flux Modeling, Bulk Density Study, and Bathymetric Change Study) would provide useful information for a quantitative conceptual model.

- The conceptual model should be developed in a collaborative manner with all interested parties so that it has broad support and represents a common understanding of how the system works. Funding may need to be allocated to other organizations so that they can participate.
- There are pros and cons for doing the conceptual model work before collecting more data. The conceptual model work could proceed first to provide a recommendation for critical data needs and a framework into which newer data is assimilated. Alternately, more data collection could go first so that the new conceptual models are based on more complete data.
- The goal is to develop a strategy in the next 12-18 months. The strategy would then guide funding decisions for the next 5 years.

4. Information: Presentation of Proposed Studies related to Sediment Fluxes

Michael MacWilliams (Anchor QEA) presented the proposal for a special study on developing/expanding a model to simulate sediment flux at the Golden Gate and compare it to the measurements that USGS made in WY2017. This comparison would allow the measurements made on 1-2 days to be put into context over a longer period (3 months). Also, the flux measurements could be used to validate the model results for Golden Gate fluxes, which would give us more confidence in the results. The main points from the Workgroup discussion about this proposal were:

- The cost of the proposal is low because it leverages modeling work that Michael is already doing for DWR. It is a small investment compared to the cost for data collection.
- The model results could later be used to quantify fluxes between sub-embayments which would be useful for the conceptual model and mass balances.
- There was some discussion on selecting appropriate boundary conditions in the absence of suspended sediment data in the coastal ocean (ex. turbidity sensors on NOAA buoys).
- Michael clarified that the model does not include incorporating flocculation processes.

Teresa Fregoso (USGS, in place of Bruce Jaffee) presented a proposal on developing an updated digital elevation model (DEM) for the Bay and doing a bathymetric change analysis showing areas of erosion and accretion between the 1980s and 2014-2015. The main points from the Workgroup discussion about this proposal were:

- Someone should confirm with OPC that they are not going to make their own DEM from the 2014-2015 bathymetric data. It was confusing to the Workgroup that the Ocean Protection Council would spend so much to collect the bathymetric data but not fund development of a DEM.
- The DEM would extend to MLLW and better LiDAR would allow it to go further in the margins.
- Joint Venture has done some mudflat mapping in South Bay. USGS will check this resource.
- The new DEM would be helpful for Bay models.
- The accuracy of the methods and how to deal with less than measurable change should be documented in a methodology report.
- The DEM should be developed with a high spatial resolution so that it can be compared

to future mapping that will inevitably have higher resolution. To make comparisons to the older bathymetric data, the DEM will need to be aggregated to match the spatial scale of the old data.

Scott Wright (USGS) presented a proposal on funding fluvial sediment transport monitoring in the Napa River and Sonoma Creek. The RMP funded this monitoring in WY2018 with penalty funds. The proposal is to repeat the same methods in WY2019. The main points from the Workgroup discussion about this proposal were:

- This project fulfills a data gap regarding sediment supply into the North Bay, which is a substantial component of total tributary supply to the Bay.
- To establish an average sediment load from these rivers, at least three years of good data needed, likely more.
- If the project needed to be scaled back to just monitor one site, it is difficult to choose between the two. Napa has the larger watershed and load and good historical data, while Sonoma has a larger yield.
- Suspended sediment sampling could be scaled back over time once there is a good relationship between sediment load and turbidity, but likely at least three initial years are needed to get confidence in calibration.
- The monitoring would occur above the head of tide. It would miss sediment deposition in the tidal portion of the river. To understand actual loading from the river to the Bay, there would need to be either monitoring at the mouth of the river or modeling to predict deposition and net flux.

5. Information: Update on measuring Sediment Fluxes at the Dumbarton Bridge

Daniel Livsey (USGS) gave an update (not a proposal) of measuring sediment fluxes at Dumbarton Bridge. USGS is now accounting for flocculation and asymmetric fluxes of flood and ebb tides. Particles tend to flocculate more on flood tides which cause higher SSC concentrations in the deep channels than during ebb tides. These corrections change our understanding of net sediment fluxes into Lower South Bay (almost always net positive into LSB). USGS has installed additional instrumentation at the Dumbarton Bridge to refine this hypothesis. Next steps include analyzing “floc cam” video, deploying the acoustic sensor, conducting measurement during dry and wet seasons and neap tides

6. Information: Presentation of Proposed Studies related to Beneficial Reuse

Beth Christian (Water Board) gave a presentation on the need for a re-evaluation of screening and testing guidelines for beneficial reuse of dredged materials. The goal is to not be unnecessarily restrictive in re-use of sediment because this resource is needed for wetland restoration. The re-evaluation would occur through at workshop and background research. The main points from the Workgroup discussion about this proposal were:

- Agencies involved with restoration (e.g., South Bay Salt Pond Restoration Project) should be added to the list of invitees.
- Guidelines do not currently apply to material dredged from flood control channels but they are often cited and pulled into permits. Consider expanding the study to cover the needs of flood control agencies.

- It is hard to say how much more sediment a revised guidance might “free up”. Some locations have been dredged because of contamination in the sediments.
- Project should be done on an earlier timeline. Change schedule to spring 2019 for the workshop.
- The guidelines are not formal regulations. The Water Board is not proposing to make the guidelines into adopted regulations, just to update the draft guidance.

Jeremy Lowe of SFEI gave a presentation on strategic placement of dredged sediment to explore feasibility of increasing accretion rates and its potential effects on biota. The proposal is to hold working group meetings to establish a decision-making process and criteria for acceptability for a strategic placement study. USACE does not yet have funding for the pilot study but there is a need to be ready in case funding is found. The main points from the Workgroup discussion about this proposal were:

- Likelihood of funding from USACE in FY19 is low. The project is not in the USACE budget. However, funding may be possible from other sources.
- USACE funding request would perform similar planning effort as part of funded work.

Jeremy gave another presentation on the need for improving estimates of bulk density of sediment broadly applicable to all aspects of sediment monitoring and modeling. The main points from the Workgroup discussion about this proposal were:

- USGS reported that there is some information already available in an Open File report for South Bay.
- The bulk density of dredged material in a scow should be one of the questions answered by this study.
- The RMP should ensure that its Status and Trends monitoring program should be collecting data to characterize sediment properties such as bulk density whenever possible.

7. Discussion of Proposals

All of the proposals were then discussed as a group. General comments were:

- Monitoring strategy seems a good start. The strategy would help to define the scales at which monitoring should be performed.
- The proposals for a conceptual model and the monitoring strategy could be combined.
- The conceptual model project could be phased. For example, the qualitative aspects of the conceptual model proposal could be done first, and the quantitative mass balances could be delayed until more data are collected.
- The conceptual model project should consider the following:
    - Existing conceptual models are already documented in the *Marine Geology* 2013 special issue.
    - Need to have clear management questions for conceptual models. The proposal seems to be motivated by the desire to understand mass balances for sub-embayments, which is only one of the management questions for the Workgroup.
    - There was agreement that, whether or not new conceptual models are developed, there is a need for concisely capturing all that we already know about

sediment processes in the Bay. This summary should include existing numeric models for the Bay and the assumptions being made by these models.

- Money for coordination with the Wetlands RMP is needed immediately. RMP programmatic funds for external coordination should be considered for this purpose.
- There is the potential for partnering with the South Bay Salt Pond Restoration Project. The Project is planning for regional monitoring in the South Bay with Measure AA funding.

8. Closed Session. Decision: Recommendations for 2019 Special Studies Funding.

Principal investigators of proposals were asked to leave the meeting to avoid a conflict of interest. Remaining participants were tasked to prioritize the proposals and to put forward a suite of studies that fit within the budget of $245k. The outcomes of the discussion are shown in the table under Item 9.

9. Report Out of Recommendations to Principal Investigators

Final recommendations for proposals as well as commentary listed below:

	Proposed Budget	**Recommended Budget**	**Priority**	**Comments**
Overall Conceptual Model Development and Sensitivity Analysis	$78,000	$66,500	1	* Combine first two proposals * Establish consensus on known sediment dynamics and compilation of hypotheses behind existing models *Need to revise proposal; some flexibility in final budgeting *Considered high-level priority, to be done by May 2019 * Consult w/ Dave Schoellhamer for revision
Healthy Watersheds Resilient Baylands Monitoring Strategy	$50,000			
Golden Gate Sediment Flux Modeling	$45,000	$45,000	5	* Consider adding other GG flux measurements (WY2016, WY2008?)
Bathymetric Change Analysis Study	$154,000	$77,000	2	* Some flexibility in final budgeting (between years) * Talk to OPC for matching funds
Napa and Sonoma Suspended Load Monitoring	$102,700	0		* Agreement on quality of study, funding not prioritized at this time. Look to leverage with other funds. Need multiple years of funding (3+).
Develop Recommendations for Updated Beneficial Reuse Thresholds	$26,500	$26,500	3	* Move up timeline to be done by first half 2019 * Consider applicability to flood control * Some flexibility in final budgeting
Phase II of Strategic Placement Study	$40,000	0		* Agreement on quality of study, decision to delay. Necessary next step for project.
Sediment Bulk Density Study	$30,000	$30,000	4	
TOTAL	**$526,200**	**$245,000**		
Planning Budget	**$245,000**			

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 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.

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 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.

PURPOSE OF THIS DOCUMENT

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