

RMP Special Study Proposal: Supplemental Funding to Develop an Integrated Bay Sediment Monitoring/Modeling Strategy

Summary: In 2016, RMP Sediment Workgroup was created to oversee RMP-funded studies addressing sediment dynamics in San Francisco Bay. In 2017 and 2018, the Workgroup received funds to develop a sediment monitoring strategy to guide efforts for collecting data to fill key sediment knowledge gaps. During the May 2019 Workgroup Meeting, the members discussed the importance of having a strategy that included sediment modeling as well as monitoring. Developing an integrated sediment monitoring/modeling strategy will require additional workshops with regional sediment scientists beyond what has already been funded for strategy development, and inclusion of modeling elements in the strategy document. This request is for supplemental funds to cover additional workshops and inclusion of sediment modeling into the strategy.

Estimated Cost: \$26,000

Oversight Group: RMP Sediment Workgroup

Proposed by: Jeremy Lowe and Scott Dusteroff (SFEI)

Proposed Deliverables and Timeline

Deliverable	Due Date
Workshop(s) with experts to discuss elements of a sediment monitoring/modeling strategy for San Francisco Bay	October 2019
Draft Sediment Monitoring/Modeling Strategy	December 2019
Expert review of Draft Sediment Monitoring/Modeling Strategy	March 2020
Final Sediment Monitoring/Modeling Strategy	May 2020

Background

In 2016, the RMP Sediment Workgroup was created to provide technical oversight and stakeholder guidance on RMP studies addressing questions about sediment delivery,

sediment transport, dredging, and beneficial reuse of sediment within San Francisco Bay. The Workgroup includes representatives from federal and state agencies focused on understanding Bay sediment dynamics, including USEPA, USACE, USGS, San Francisco Bay RWQCB, and BCDC, as well as representatives from ports, the in-Bay dredging community, and private consulting firms. Since 2017, the Workgroup has funded several monitoring, modeling, and data compilation studies aimed at understanding sediment dynamics within the Bay, totaling approximately \$520,000.

The Workgroup is currently developing a regional sediment monitoring strategy to guide future sediment data collection efforts that address key knowledge gaps. During the May 7, 2019 meeting, the Workgroup discussed the importance of expanding the strategy to include modeling and additional coordination with modeling and monitoring experts that will help build the strategy. This integrated sediment modeling/monitoring strategy can then be the primary tool the Workgroup uses in 2020 to update the Workgroup’s Multi-Year Plan and make decisions about special study proposals to prepare for 2021 funding.

This request is for funds to support the development of an integrated sediment modeling/monitoring strategy for the Sediment Workgroup. The requested funds will support:

- workshop(s) with regional sediment monitoring and modeling experts to discuss key data gaps and the integration of sediment modeling and monitoring efforts
- expanded strategy report to include sediment modeling efforts

Study Objectives and Applicable RMP Management Questions

The study will provide essential information for setting long-term priorities for modeling sediment delivery to and transport, deposition, and resuspension within San Francisco Bay. Table 1 shows the objectives of the project and how the information will be used relative to the management questions of the RMP Sediment Workgroup.

Table 1. Study objectives and questions relevant to Sediment Workgroup management questions.

Management Question	Study Objective	Example Information Application
1) What are acceptable levels of chemicals in sediment for placement in the Bay, baylands, or restoration projects?		
2) Are there effects on fish, benthic species, and submerged habitats from dredging or placement of sediment?		
3) What are the sources,		

sinks, pathways, and loadings of sediment and sediment-bound contaminants to and within the Bay and subembayments?	Develop an integrated sediment modeling/monitoring strategy that: 1) fills data gaps related to the spatial and temporal variability of the current sources, concentration, and flux of sediment delivered to and transported within the Bay; and 2) enhances our understanding of climate change impacts on sediment dynamics within the Bay	The Sediment Workgroup can use the integrated sediment monitoring/modeling strategy to prioritize investments in sediment modeling development, analysis and visualization, and to prioritize model scenarios to answer management questions
4) How much sediment is passively reaching tidal marshes and restoration projects and how could the amounts be increased by management actions?		
5) What are the concentrations of suspended sediment in the Estuary and its segments?		

Approach

The RMP needs an integrated regional sediment monitoring/modeling strategy to identify key knowledge gaps regarding sediment dynamics within the Bay that can be filled using monitoring and modeling techniques. This integrated strategy needs to be coordinated with a number of in-progress RMP efforts, including the regional sediment monitoring strategy, San Francisco Bay nutrient modeling, Small Tributaries Loading Strategy modeling strategy, and other regional efforts addressing sediment dynamics in the Bay (e.g., Wetlands Regional Monitoring Program). The current strategy development effort is focused on sediment monitoring and needs to be expanded to include the following tasks:

- Workshop(s) to discuss known knowledge gaps that can be addressed by monitoring and modeling, guiding questions that should guide sediment monitoring and modeling efforts, and other key strategy elements
- Developing an integrated sediment monitoring/modeling strategy in coordination with other regional sediment monitoring and modeling efforts that the RMP Sediment Workgroup can use to guide future efforts

The tasks are described in more detail below.

A. Workshop to discuss sediment monitoring/modeling strategy elements

The current strategy development budget includes funds for one full-day workshop focused on compiling regional experts' understanding of Bay sediment dynamics that was held in October 2018. More time with regional sediment experts is needed to develop a useful and robust strategy that addresses both sediment monitoring and modeling elements. The funds requested will be used to convene one full-day workshop or two half-day workshops with key RMP Sediment Workgroup members and regional sediment monitoring and modeling experts to discuss key elements of an integrated sediment monitoring/modeling strategy. The workshop will focus on: 1) identifying key knowledge gaps with

respect to sediment movement within the Bay (which will be informed by the conceptual understanding of Bay sediment dynamics that is currently in development); 2) developing focused monitoring and modeling questions to address key knowledge gaps; and 3) identifying and prioritization of monitoring and modeling activities that will help address the key knowledge gaps. The workshop(s) will take place between August and October 2019. The workshop(s) will be an important opportunity to receive input from regional sediment experts and coordinate this sediment monitoring/modeling strategy development effort with similar efforts being led by the WRMP and BCDC.

B. Expanded sediment monitoring/modeling strategy

The current strategy development budget includes funds synthesizing the outcomes from the October 2018 workshop and developing a strategy focused solely on sediment monitoring. The funds requested will be used to synthesize the outcomes from the workshop(s) described in Task A and combine them with the work already done under the current effort to develop an expanded integrated sediment monitoring/modeling strategy. SFEI will lead the development of the integrated strategy and will call upon selected Sediment Workgroup members to help develop content. SFEI will also coordinate the development of the strategy with the modeling strategies of other RMP Workgroups (e.g., SPL) and the Nutrient Technical Workgroup. A working draft version of the strategy will be completed by the end of 2019. The final report will be completed and available for use by the RMP to prioritize funding requests at the May 2020 Workgroup Meeting.

Budget

The following budget represents estimated costs for this proposed special study (Table 2).

Table 2. Proposed Budget.

Expense	Estimated SFEI Hours	Estimated Cost
Task A: Workshop(s)	66	\$12,000
Task B: Integrated Strategy Development	62	\$11,000
Subcontracts		\$2,500
Direct Costs		\$500
Grand Total	128	\$26,000

These tasks need to occur in large part before the requested funds will be available in January 2020. The costs for this effort in 2019 will therefore be covered by the existing strategy development budget and the funds from this request will be used to replenish the strategy development budget at the start of 2020.

Budget Justification

The majority of the time will be for Jeremy Lowe (strategy development lead) to

coordinate the workshop(s) and incorporate the outcomes of the workshop(s) into the expanded strategy document. There are also funds for other SFEI sediment scientists to work with Jeremy to prepare for and attend the workshop(s) and develop the expanded strategy document. There is also subcontract budget for workgroup members to help develop the strategy through internal meetings, workshop participation, and report development.

Reporting

The final integrated sediment monitoring/modeling strategy document will be reviewed by the RMP Sediment Workgroup and Technical Review Committee. It will be published by SFEI as an RMP technical report.