



US Army Corps
of Engineers®

Regional Sediment Management Program

Collect Information to Support the Development of the Regional Sediment Management Plan for the San Francisco Bay

Description

The Management Plan for the Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS) program called for periodic review and /or modification to ensure that the program remains achievable and current in light of changing conditions over time. Specifically, the LTMS agencies were directed to complete basic reviews of the program every 3 years with input from interested parties. More comprehensive reviews occur every 6 years. Because the beginning of 2013 will mark the end of the twelfth year and the LTMS transition period, the LTMS agencies began the review process by collecting and reviewing existing data, organizing meetings with stakeholders, and discussing potential changes to program implementation. The following LTMS goals were developed through a series of meetings and discussions.

1. Maintain, in an economically and environmentally sound manner, those channels necessary for navigation in San Francisco Bay and Estuary and eliminate unnecessary dredging activities in the Bay and Estuary.
2. Conduct dredged material management in the most environmentally sound manner.
3. Maximize the use of dredged material as a resource.
4. Establish a cooperative permitting framework for dredging and dredged material disposal applications.

This study will focus on the task of maximizing beneficial reuse of the dredged material inside the SF Bay. Information regarding sediment budget, dredging sites, placement sites, potential wetland development/restoration sites, and the related sediment management programs will be collected and analyzed to support the development of an optimized regional sediment management plan for SF Bay.

Issue/Challenges

The movement of sediment in the SF Bay and the Delta system is a very complicated process. The flow field of SF Bay is dominated by tidal motion, fluvial inflow, wind induced drift current, salinity gradient induced circulation, and wave breaking induced current. These flow fields vary daily and seasonally, which can be simulated by a set of appropriate numerical models. Model calibration and validation would require a lot of well designed field data measurement plans. SPN has already set-up computer models to capture majority of physics associated with hydrodynamics, salinity, wind wave, and sediment transport for the simulation of sediment movement. More data will be needed to validate sediment transport model. Sea level rise and the continuing trend of reduced sediment supply from the upstream Sierras are considered for the development of a long term RSM management plan.

The sediment sources for SF Bay include Delta supply, fluvial input, bay and ocean exchange, and bottom re-suspension. USGS has collected and analyzed sediment flux data at various locations inside the Bay-Delta system, which allows us to develop and update the preliminary sediment budget for different regions of SF Bay and Delta system. More sediment flux data will be needed to estimate fluvial influx, which becomes more important as the Delta supply is reducing. The dredged material to be

beneficially used for wetland development/restoration will become an additional sediment source to the Bay-Delta system. In other words, dredged material managed within the Bay is another potential resource for Regional Sediment Management considerations.

The challenge of this study is to develop a “cost effective” and “environmentally sound” approach to deliver sediment (dredged material) to the desired shallow water wetland fringe area. Once the potential sediment placement sites are identified, systematic computer simulations will have to be performed to develop and evaluate the feasibility of the placement sites. In addition, relevant resources agencies have to be included in the interdisciplinary project team to jointly develop placement sites. Therefore, it’s a multi-tasks and multi-agencies activity, which requires intensive communication and coordination with project delivery team members. It’s anticipated that the products of this study will assist in the development of a SF Bay RSM plan that optimizes beneficial use of the dredged material.

Expected Products

- Conceptual sediment budget analysis system file
- Technical notes of lessons learned for improvement of SF Bay regional sediment management practices and opportunities
- Quarterly project progress report
- Final presentation at annual RSM workshop and IPR

Potential Users

San Francisco District members involved in Dredged Material Management Plan (DMMP), Long Term Management Strategy (LTMS), O&M dredging, navigation, wetland development, and shoreline protection and other local resources agencies.

Projected Benefits

The final products can be used to help develop future DMMP and LTMS plans to improve regional sediment management for San Francisco Bay.

Leveraging Opportunities

Opportunities with the ecosystem/wetland restoration communities, regional park service district, and other federal and state resources agencies for beneficially reuse of dredged material.

Points of Contact

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