South Bay Salt Pond Restoration Project

Sediment Work Group
December, 2004 Meeting #1

I. Background: The purpose of the Workshop was to have a full discussion with local experts and interested stakeholders on the topic of sediment management and dynamics for the South Bay Salt Pond Restoration Project. Specific outcomes for the Workshop were to:

1. Improve Landscape Scale model
2. Improve Sediment Synthesis
3. Develop lists of data needs and key questions
4. Propose a sediment modeling strategy
5. Illuminate the role of sediment issues and modeling in meeting Project Objectives

II. Working Group Organization: The Project Management Team convened the meeting and the following individuals participated:

Steve Ritchie, SBSP Restoration Project	Steven Osborn, City of San Jose
David Schoellhamer, USGS	Dilip Trivedi, Moffatt and Nichol
Lester McKee, SFEI	Steve Moore, Regional Water Quality Control Board
Steve Goldbeck, BCDC	Fred Hetzel, Regional Water Quality Control Board
Sean Michael, Alviso Task Force	Liang Xu, Santa Clara Valley Water District
Charles Taylor, Alviso Task Force	Jen-Men Lo, Santa Clara Valley Water District
Jim McGrath, Port of Oakland	Phil Mineart, URS
Kris May, PWA	Thomas Bawden, USACE
Phil Williams, PWA	Ed Gross, Consultant
Josh Collins, SFEI	Fred Nichol, USGS (retired)
Laurel Collins, Watershed Sciences	Bruce Jaffe, USGS
Mark Stacey, UC Berkeley	Sandy Olliges, NASA Ames Research Center
Jessie Lacy, USGS	Neal Van Keuren, City of San Jose
Lynne Trulio, San Jose State University	

III. Key Outcomes: Bruce Jaffe's morning presentation provided historical information on sediment accretion and erosion patterns in the South Bay (Foxgrover et al., 2004). Then, Dave Schoellhamer presented a sediment budget model for the South Bay, south of the San Mateo Bridge, and a summary of the Sediment Science Synthesis.

In the afternoon, Phil Williams and Kris May presented the proposed landscape-scale analysis approach for evaluating alternatives. This approach was summarized in the Landscape Scale Geomorphic Assessment Summary – DRAFT of December 2004 (LSGA). Comments on the PWA modeling approach (Outcome 1) mostly dealt with these topics:

- The UP model (Uncles and Peterson, 1995) was originally developed for salinity transport in San Francisco Bay and may not be well-suited for estimating sediment transport. Dave Schoellhamer modified the UP Model to include sediment dynamics (SUP Model), but this model has not yet undergone substantial peer review. A more scientifically-defensible model could be used; however, no approach was suggested that could be utilized within the immediate planning timeframe.
- MARSH98 results are sensitive to SSC, wind-waves and bulk density. These model inputs need to be better quantified for more accurate model predictions.

- Data could be collected along tidal flat profiles (e.g., tidal range, SSC, wave height) and used to improve model results; however, this data is not currently available.
- SSC and sedimentation rate estimates could be collected from restored sites within the South Bay and used to refine the LSGA predictions and capture some of the lateral variability in SSCs. Much of this data is currently available, and additional data could be collected within the planning timeframe.
- More sophisticated 2-D and 3-D models could be used to predict changes at a smaller spatial scale than the currently proposed landscape-scale approach. However, data needed for model calibration and validation is not currently available.
- The bathymetric change results presented in Foxgrover et al. (2004) could be refined on a smaller special scale (e.g., 12 regions) than the current 4 South Bay regions, providing a more detailed data set for SUP Model calibration.
- Results from the SUP Model could be used based only on the 4 large regions of the South Bay, rather than individual SUP Model boxes. Therefore, the SUP model results will be used at the same spatial scale at which the model is calibrated.

The participants discussed these data needs and studies that could be begun now (in the short-term) and could help inform adaptive management decisions (Outcome 3):

- Collect data from tidal flat profiles on different parameters (tidal range, SSC, wave height).
- Collect core data in the sloughs and other critical locations to assess size and periodicity of big events, to determine how far into the bay watershed material goes, and provide other data on events such as mercury deposition.
- Use historical information in land use, Bay changes and climate change and try to correlate these factors with bathymetry changes in different regions of the South Bay.
- Measure sediment fluxes at points of importance, such as where tributary water meets Bay water.
- Measure lateral variability in sediment flux.
- Measure sediment properties of sediment moving into newly opened ponds and the effects of restoration actions on local mudflats and sloughs.
- We need to know how geomorphic change has occurred over time to help determine the "forcing functions" that maintain or change mudflats and tidal marsh.

On the topic of Phase 1 data and modeling (Outcome 4) the participants had these thoughts:

- Phase 1 design could maximize the potential for mining sediment stored in local sloughs and capturing sediment during extreme flood events.
- Data that should be collected or generated include:
- Measure sediment fluxes at points of importance for the Project area, such as where tributary water meets Bay water.
- Measure lateral variability in sediment flux.
- Use historical information in land use, Bay changes and climate change and try to correlate these factors with bathymetry changes in different regions of the South Bay.
- Take cores to track the Hg signal and analyze mineralogy.
- Measure sediment properties of sediment moving into newly opened ponds.

There were no comments on Outcome 2 (improving the Sediment Synthesis) and, in fact, the entire Workshop addressed Outcome 5 (informing the Project Objectives)

IV. Next Steps: We agreed that we should hold a second Sediment Workshop.