Statement of agreement
on the
Future Extent of Depositional Intertidal Habitats

On March 5, 2009 the Geomorphology Working Group finalized the statement below, which addresses the question:

Are Elkhorn Slough intertidal habitats sustainable in the long run without any corrective action?
What will happen to marshes and mudflats if the tidal inlet and sediment supply issues are not addressed?

Participants
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Bob Curry, California State University at Monterey Bay (emeritus)
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“Intertidal landscapes consist of marshes and mudflats that are naturally sustained by a dynamic equilibrium between sea level rise and an ongoing supply of fine sediment, as mediated by vegetation. The rising sea tends to drown marshes and mudflats, while the supply of fine sediment enables them to accrete upward, apace with sea level rise. Marsh vegetation contributes to accretion by filtering sediment from the tides, adding biomass, and resisting erosion by tidal currents and wind-generated waves.

“Changes in watershed management upstream of Elkhorn Slough and the unnatural enlargement of its tidal inlet have decreased its sediment supply while increasing its tide heights and currents, causing its intertidal landscape to drown and erode. The sediment supply is now inadequate to sustain the existing marshes and mudflats.

“Sea level will rise relative to depositional landforms. Mudflats will increase while marshes drown, but will thereafter decrease until they reach equilibrium with the small supply of fine sediment. Managing the estuary to conserve tidal mudflats instead of tidal marshes would lessen the urgency but not the importance of increasing the supply of fine sediment and decreasing the size of the tidal inlet."

Note: A previous posting of this document included an incorrect list of participants.