

## Evolution and Natural Maintenance of Tidal Marshes in San Pablo Bay

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Introduction: SFEI is working closely with EPA Region 9 and the Comprehensive Monitoring Assessment Research Program of CALFED to coordinate an effort within the regional community of wetlands scientists and managers to develop a Bay Area Regional Wetlands Monitoring Program. A draft plan of science is available. The current task is to assemble a team of workers from the Focus Teams of the Wetlands Ecosystem Goals Project and the CMARP. The core of a multi-agency steering group is also beginning to meet. During 1999, the RWMP will focus on the North Bay. Hamilton Wetlands Restoration should be a part of this effort.

What I will present now is derived from the conceptual models of tidal marsh form and function developed by SFEI through the CMARP. These are not new ideas, but they are being elaborated by the growing body of scientific study in the Bay Area.

1. Tidal marshes are transitions from the open bay to the uplands.  
Slide 1: aerial view of marshlands/uplands transition
2. Marsh evolution depends upon vertical accretion of suspended sediments.  
Slide 2: aerial view of sediment pulse in San Pablo Bay  
Slide 3: view of plant colonization on mudflats
3. Mature marshes consist of channels large and small, the marsh plain, and shallow ponds.  
Slide 4: aerial IR view of marsh physiography
4. Marshes are well-organized.  
Slide 5: vertical distribution of main features
5. The formative processes vary from mostly abiotic to mostly biotic with tidal elevation and distance from tidal source.  
Slide 6: sediment core transects
6. Mature marshes tend to change gradually over centuries.  
Slide 7: past/present large channel and pond patterns  
Slide 8: in-channel view of slump blocks in 4<sup>th</sup>-order channel  
Slide 9: aerial view of mosquito control ditches.
7. Tidal marshes are dynamic ecosystems in quasi-equilibrium between abiotic and biotic processes of erosion and accretion.  
Slide 10: tidal datum slopes

Slide 11: aerial view of marsh complexity.