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Landscape Changes and California's Water Supply Future

Water resource and flood control infrastructure planning in California is usually based on an analysis of historic conditions as a predictor of the future. Yet, climatologic and geologic processes are conspiring to form a future for California water that is very different than the past. One of the best examples of this comes from the Sacramento-San Joaquin Delta where land subsidence, sea level rise, and changing inflows and tides are creating a dynamic landscape held "fixed" by an 1100 mile network of fragile levees. Large floods and/or earthquakes will eventually re-establish equilibrium in this landscape, to the detriment of water supply and the economy of the Delta. Several large planning efforts are evaluating an array of alternative futures for the Delta. Some of these exacerbate the current disequilibrium condition, while others adapt, allowing the formation of a new equilibrium Delta landform. All scenarios involve significant economic, social and environmental costs with important trade-offs that we have yet to fully evaluate.

Biography: Dr. Jeffrey Mount is a Professor of Geology at the University of California, Davis where he is the Director of the Center for Watershed Sciences. Dr. Mount holds the Roy Shlemon Chair in Applied Geosciences and is the author of *California Rivers and Streams: The Conflict Between Fluvial Process and Land Use.* According to the UC Davis website, his research interests involve fluvial geomorphology, sedimentology, stratigraphy and basin analysis, with emphasis on the geomorphic response of lowland river systems to changes in land use/land cover and the links between hydrogeomorphology and riverine ecology. Projects include analysis of geomorphology of floodplains, floodplain response to non-structural flood management measures, development of new floodplain restoration methods, role of hydrologic and sedimentologic residence time in riverine ecosystem health, and development of coupled hydrogeomorphic and ecosystem models for environmental monitoring.