

## **OTHER COMMENTS SHEET - FOR JUNE 7, 2012**

### *Craig Comment - Text Box*

**Suspended load** is the portion of the sediment that is carried by a fluid flow. It is maintained. The suspension is maintained by the turbulence in the flowing water and consists of particles generally of the fine sand, silt and clay size.

**Bed load** describes particles in a flowing fluid (usually water) that are transported along the bed of a waterway.

**Wash load** is the portion of sediment that is carried by a fluid flow, usually in a river, such that it always remains close the free surface (near the top of the flow in a river). It is in near-permanent suspension and is transported without deposition, essentially passing straight through the stream. Wash load grains tend to be very small (mostly clays & silts but some fine sands) and therefore have a small settling velocity, being kept in suspension by the flow turbulence.

### *Comments - Bob Siegfried*

The erosion and sedimentation section could be more holistic on page 4. "Sediment management in California is critical for the entire watershed, beginning with the headwaters and continuing into the coastal shores." might be phrased as 'Entire riverine ecological networks evolved in specific sedimentation environments. The living constituents of these environments have adapted as the sedimentation environments have gradually changed as a result of large scale geological and climatological changes.' (The impacts of the absence of periodic flooding on the Colorado riverine ecology provide a good example.) If you really want to push it, this connection is mentioned in some Christian hymns (Down by the Riverside as the area of peace and transcendence), and in Indo-European languages ("abode" derives from word for the confluence of two rivers). The human connection with rivers, and thus sediment, goes back a very long ways.

" Forming floodplains are marked by meandering streams, ox-bow lakes and point bars, marshes or stagnant pools. " Not my area, but I would think meandering streams and especially ox-bow lakes indicate mature floodplains.

Urban runoff section (p. 6): I would like to see the legislature informed of the consequences of using unamended tertiary treated wastewater for landscape irrigation. Water's salt concentration is usually enriched by about 300 ppm when it is run through a community. Most of the additional salts are sodium and chloride. Use of this water for irrigation produces soils in which the exchangeable sodium percentage (ESP) is elevated. Elevated ESPs cause soil clays to swell and to slake (a form of disaggregation). Slaking is irreversible. These effects are also caused by waters of very low salt content, e.g. rain, but when rain leaches salts of out soils characterized by appreciable ESPs the ESPs increase further. The resulting soil structural

*degradation reduces infiltration rates and increases overland transport of rain water. The combination of increased overland transport of water over soils with impaired soil structure increases sediment transport.*

*Legislature should be encouraged to promote wastewater treatment to potable standards for indirect and direct potable reuse as the preferable alternative to landscape irrigation with tertiary treated wastewater. An less useful alternative approach is to amend the tertiary water with calcium salts, but this increases salt loading to aquifers.*

*p. 14: The proposed model city ordinance should include regulations governing setback from watercourses for areas receiving tertiary treated irrigation water. Setback regulations should take into account water chemical compositions, slope and soil properties, principally clay proportions and types and organic matter content, and should be significantly more conservative than current sodicity limits (Ayers and Westcott, Food and Agriculture Organization [FAO]) to allow for organic matter decreases due to climate change.*