

**Geo-elevation Sub-areas of the Delta/Suisun system:  
Some common features and differences of interest to planning and policy**

Presentation to the Delta Vision Blue Ribbon Task Force  
April 27, 2007  
R. Twiss  
Draft Work Product

It is important to see the Delta/Suisun system as more than just one homogeneous entity. This is a first-order attempt to parse the region into sub areas that may be useful for planning and policy development. Boundaries and issues will be developed pending the DRMS Risk Assessment, the advice of Stakeholder Coordination Group, and input from the science community and others.

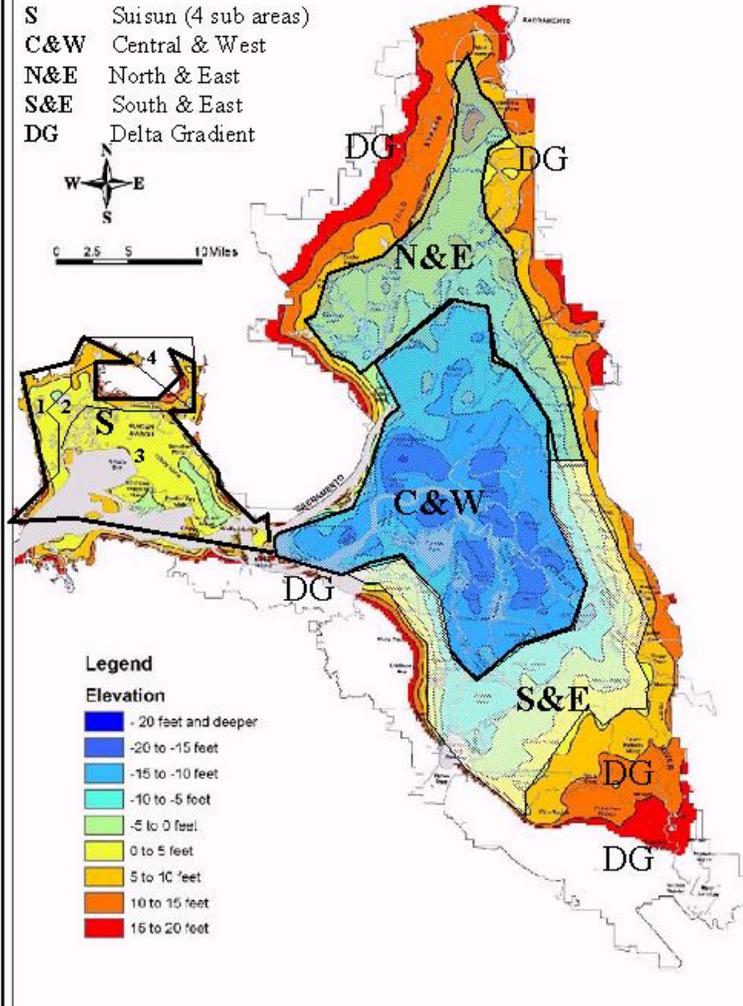
Classification is based upon just two basic features:

**Elevation:** which drives numerous Delta issues including levee stress and failure, costs of repair and construction, island subsidence, flood risk, and ecosystem values and restoration potential.

**Geographic position:** because it relates to the relative importance of sea-level rise vs. river flooding, fresh water inflow, proximity to urban water intakes, and exposure to urban growth.

### Geo-elevation Sub-areas (DRAFT)

- S Suisun (4 sub areas)
- C&W Central & West
- N&E North & East
- S&E South & East
- DG Delta Gradient



#### Legend

- Elevation**
- 20 feet and deeper
  - 20 to -15 feet
  - 15 to -10 feet
  - 10 to -5 feet
  - 5 to 0 feet
  - 0 to 5 feet
  - 5 to 10 feet
  - 10 to 15 feet
  - 15 to 20 feet

## **CW Central & West Delta**

- Greater than 10' depth upon inundation
- Levee stress at all times under normal conditions
- High seismic risk location and likelihood of widespread multi-island levee foundation failures
- Multiple breaks can lead to changes in tidal action and salinity intrusion
- High sea-level rise/tidal amplification impacts
- Deep water = poor native habitat, good for invasive species, high cost pump out
- Critical location for Delta Smelt in winter
- High through-delta infrastructure implications
- Costs of levee construction, replacement and repair very high
- Legacy town impacts, emergency preparedness needs
- Subsidence continues
- Low potential for variable inundation, wetland habitat creation

## **NE North & East Delta**

- Long-term inundation yields shallow-water habitat
- Low damage from levee failure, low pump-out costs
- Water quality, salinity intrusion problems not critical (except for Mercury in some areas)
- Seismic risk, low
- Flood risk from tributaries high, inundation deep but short-term
- High urban growth pressure in some quarters
- High impact from upstream flood works
- Failure of some levees could impact dense urban areas
- Strong links to the Sacramento R., Cache Cr., Mokelumne R., Yolo Bypass
- High ecosystem value in links to the periphery

## **S Suisun Marsh**

- Inundation shallow, less damage, less pump cost
- Levees low but fragile
- Moderate seismic risk
- Low-mod asset loss from levee failures
- High ecosystem value restoration potential

## **DG Delta Gradient**

This area covers from the current sea-level elevation to a variable upper boundary that will be driven and defined by elevation changes in sea-level and flood stage.

- The extent and location of the Delta Gradient is a function of elevation and slope; so it can be expected to move outward and upward as a result of sea-level rise and increased flooding
- Small vertical increases in sea level and flood stage can have widespread effects in areas of gentle slope, such as the South Delta
- This area has important values in its own right, not just as a buffer or edge
- Levees are true levees (not dikes), dry except for periods of high flow
- Seismic risk is moderate or low, except on the west side
- Important natural flood ways and flood plains
- Major engineering works and plans for flood protection underway in some sectors
- Habitat values variable, high to low
- Urban encroachment pressure is very high in some sectors.