

SALINITY AND IMPACTS OF THE BDCP AND CALFED actions:

Before 1850 the Delta was entirely freshwater. When diversions north of the Delta, and dams on the rivers were built, less fresh water flowed into the Delta, which began to affect drinking water and irrigation water quality

Table 10-1 Measurements of salinity

Salinity metric	Common Units	Comment
Electrical conductivity (EC)	µS/cm	EC is a measure of the concentration of dissolved ions in water, and is reported in µmhos/cm (micromhos per centimeter) or µS/cm (microsiemens per centimeter). A µmho is equivalent to a µS. EC may also be called specific conductance or specific conductivity of a solution.
Total dissolved solids (TDS)	mg/l or ppm	TDS is a measure of all the dissolved substances in water and its units are milligrams per liter (mg/l) of solution.
Practical salinity units (PSU)	Unit-less	PSU is approximately equivalent to salinity expressed as parts per thousand (e.g. salt per 1,000 g of solution). Seawater is about 35 PSU. Its actual measurement is a complex procedure. Oceanographers are likely to use PSUs so it is mentioned here.

Degrees of salinity (L3)

There is no fixed delineation between "fresh" and "brackish" water; as such and for this chapter, a TDS concentration value of 1000 mg/l or 0.1 percent salinity is used for the dividing line, which is consistent with many references.

The term "brackish", in general, refers to water that has more salinity than fresh water but less than sea water. There also is no rigid delineation between brackish water and seawater; however, 30,000 mg/l or 3 percent salinity will be used for the purposes of this chapter to make a general delineation between brackish and sea water.

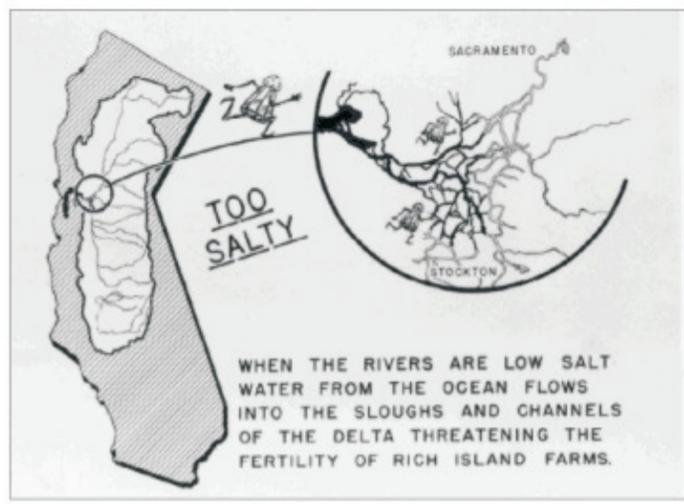
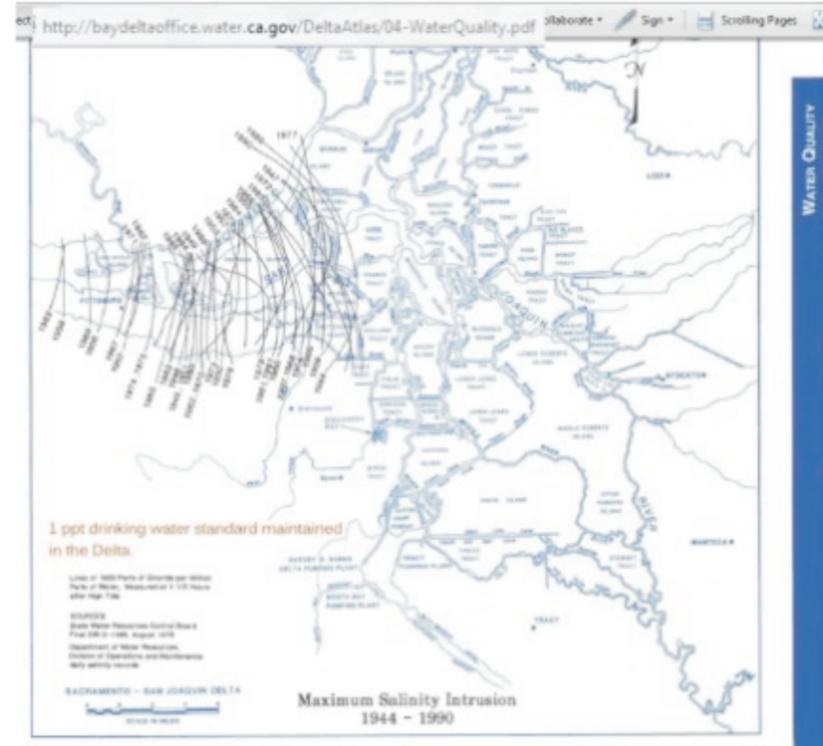
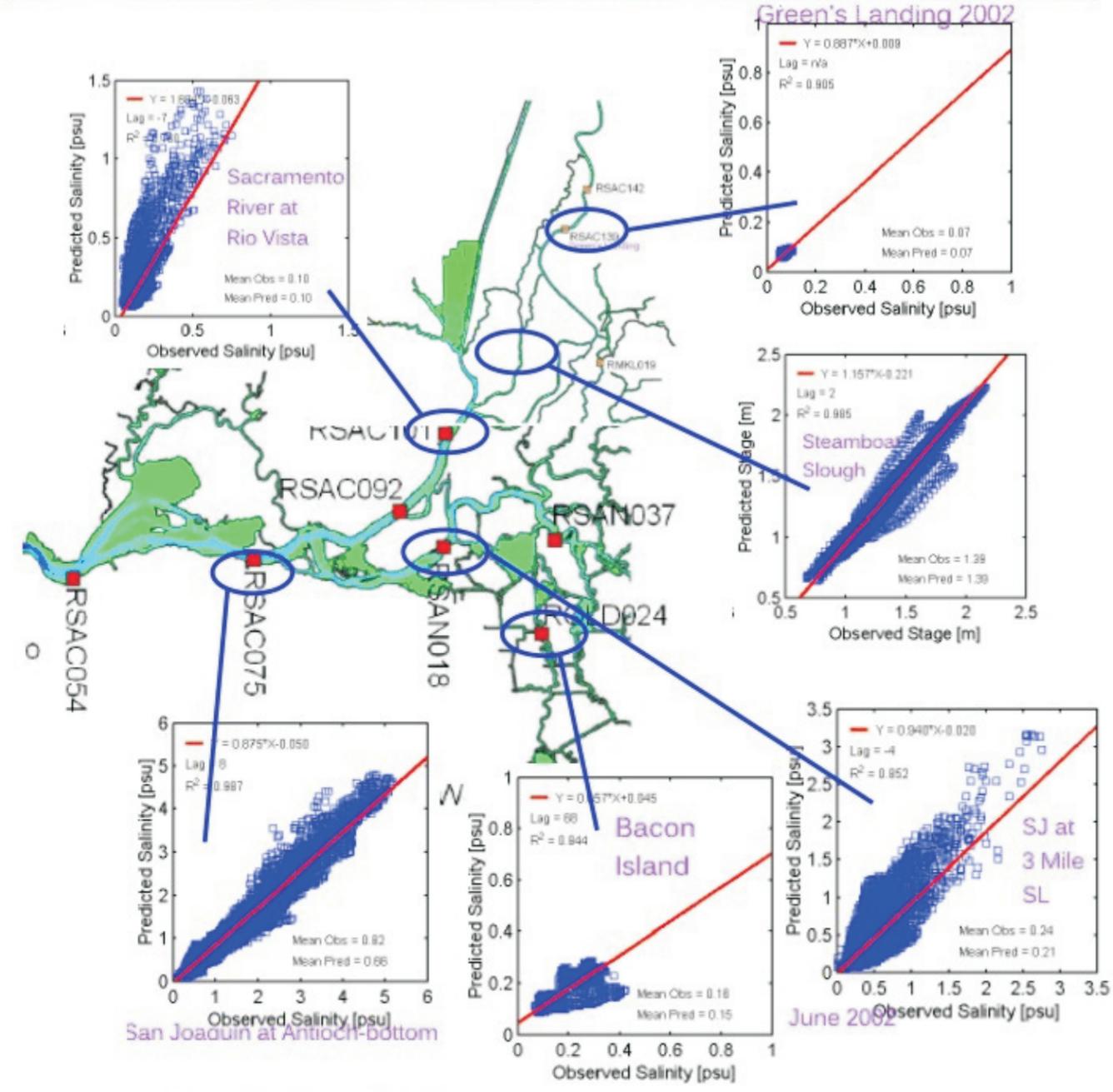
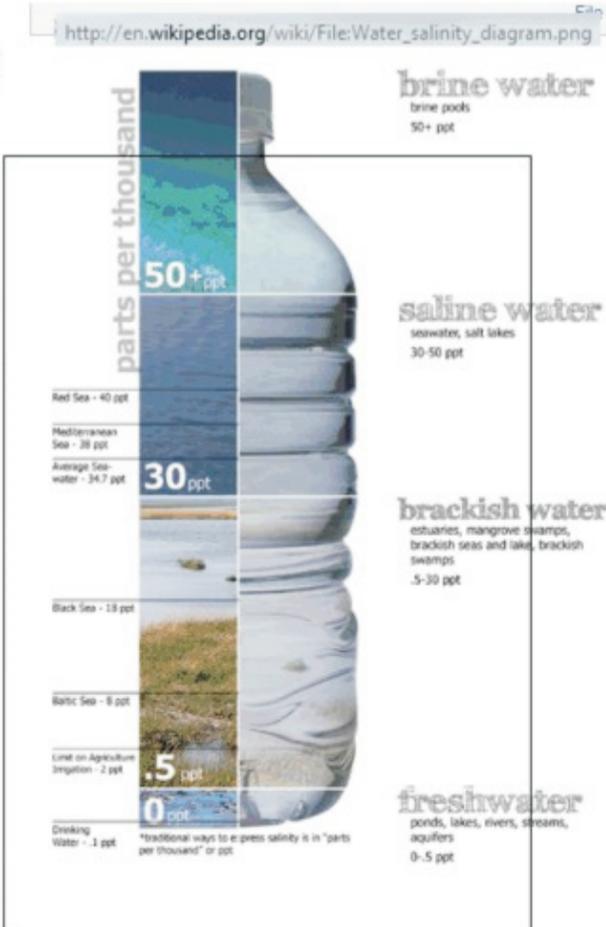


Figure 21: 1945 USBR depiction of Delta salinity intrusion.

By definition X2 is the distance, in kilometers, from the Golden Gate to the tidally averaged near-bed 2 psu isohaline. The 1995 Bay-Delta agreement established standards for salinity in the estuary. Specifically, the standards determine the degree to which salinity is allowed to penetrate up-estuary, with salinity to be controlled through Delta outflow (IEP, 2009). This regulation is based on observations that the abundance or survival of several estuarine biological populations in the San Francisco Estuary is positively related to freshwater flow (Jassby et al. 1995), although recent studies suggest that some of these relationships have changed (Sommer et al. 2007).

X2 means double the salinity is allowed to encroach into the Delta than what was promised in the previous water plans.