Caltrans Water Quality Standards In... | California Rivers Assessment (CA...

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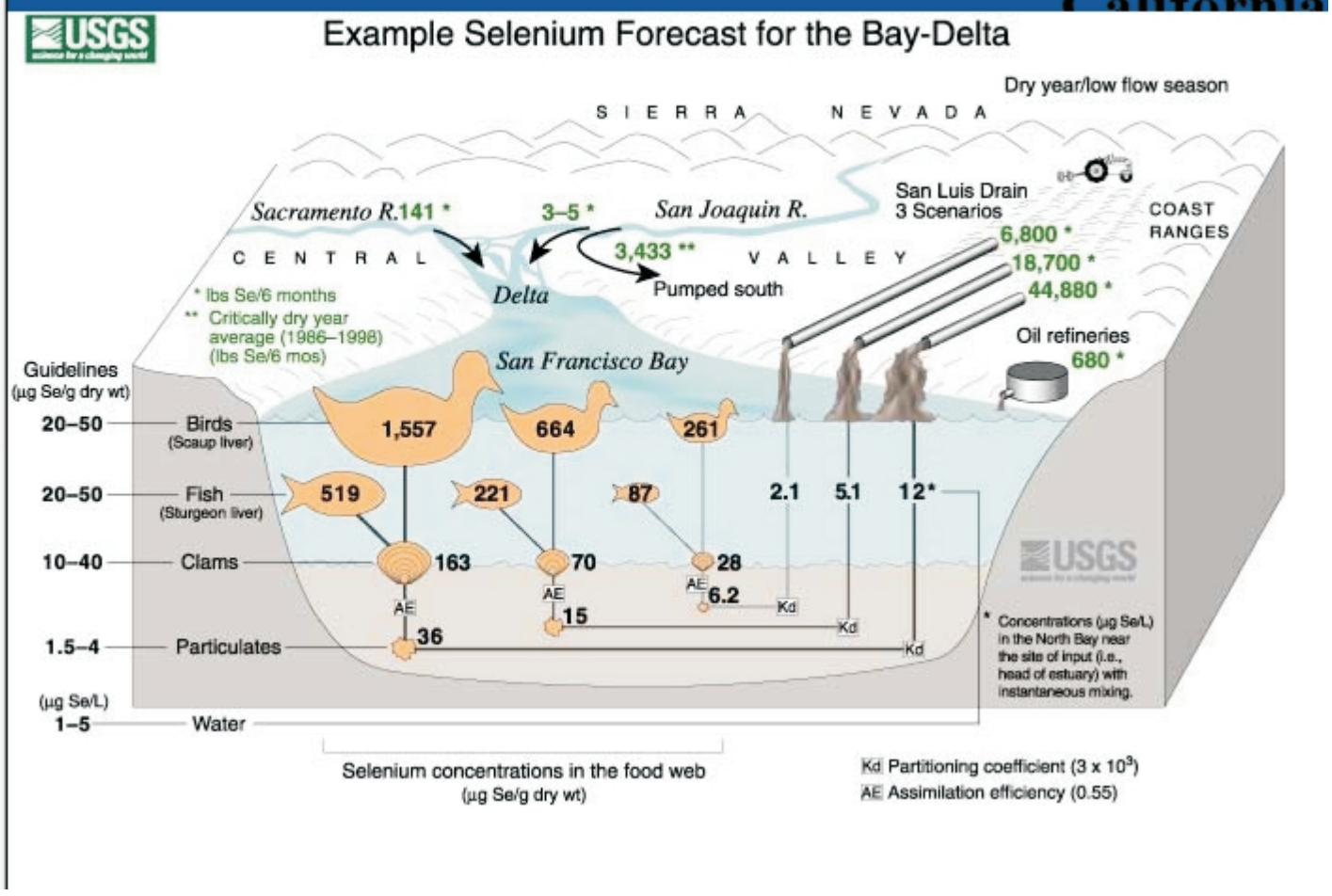
General Information
- About CARA
- Background
- Aggregated Information Model
- Future Directions
- Related Efforts
- Access CARA

Watershed Info
- Search by Basin
- Search by County
- Search by Assembly District
- Search by Congressional District



Under the Delta Plan/BDCP the Delta would end up with perhaps 1/3 of its natural water flow, coupled with a substantial increase in “recirculated” selenium runoff from Westlands properties, and an increase in discharges from sewage processing plans. This is “restoration” of the Delta???!!!

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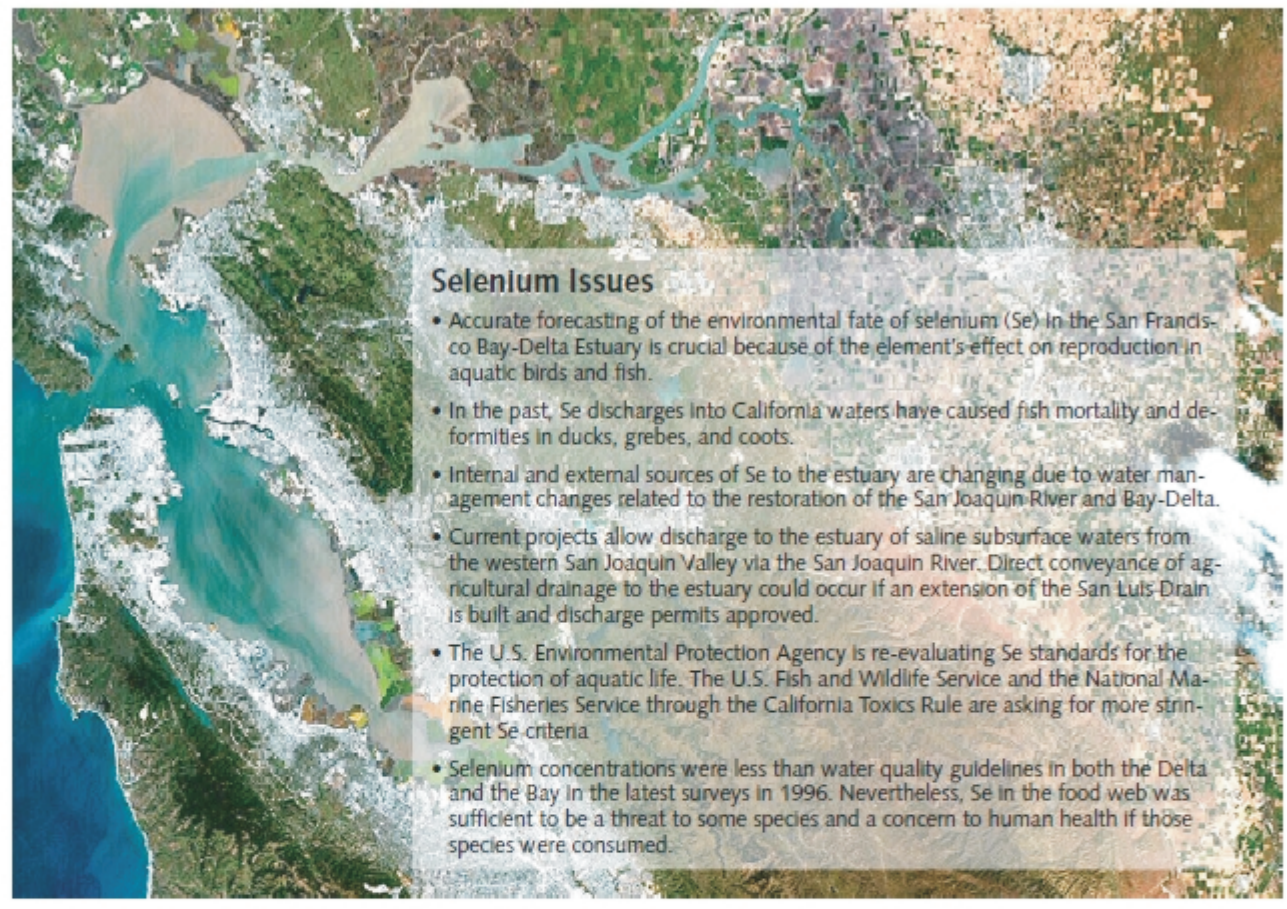
A new tool to predict ecological effects based on the major processes leading from loading through consumer organisms to predators



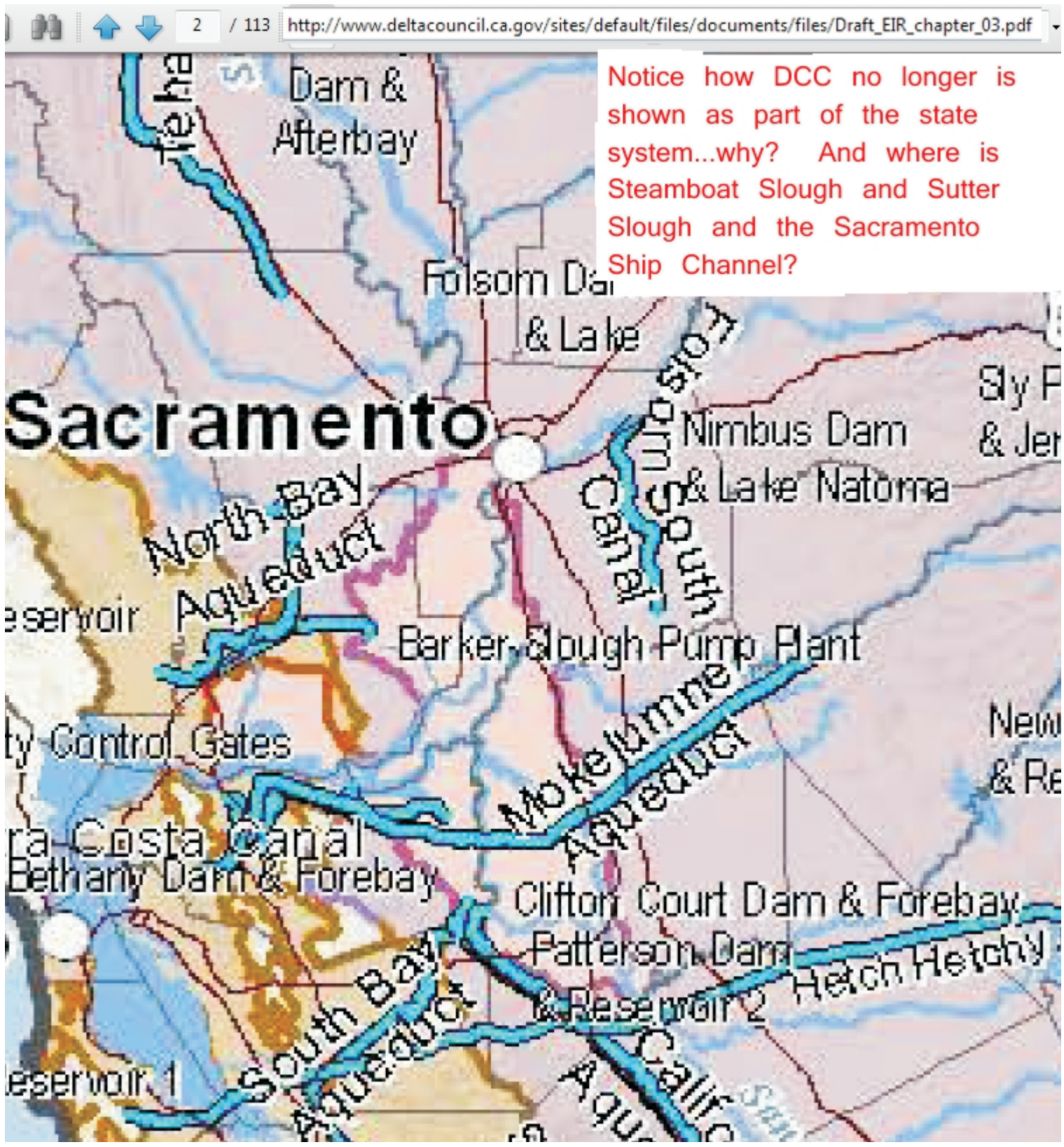
Forecasts obtained from the Bay-Delta Selenium Model consider (1) loads, (2) water column concentrations, (3) speciation, (4) transformation to particulate forms, (5) particulate concentrations, (6) bioaccumulation, and (7) trophic transfer to predators in addition to traditional considerations of water supply and drainage demand. Data gathered during the years prior to refinery cleanup helped check the model and provide a baseline for determining site-specific effects.

Historical analyses of drainage needs were used to identify the most likely Se loads that would be carried outside the San Joaquin Valley via a conveyance discharging a constant load and conveyance via the San Joaquin River. Selenium concentrations and forms in the Bay-Delta were forecast, then those concentrations were used to model bioaccumulation in invertebrates, like clams. Transfer from clams to predators was estimated from field data, and Se effects on the predators were then forecast from data in the existing literature.

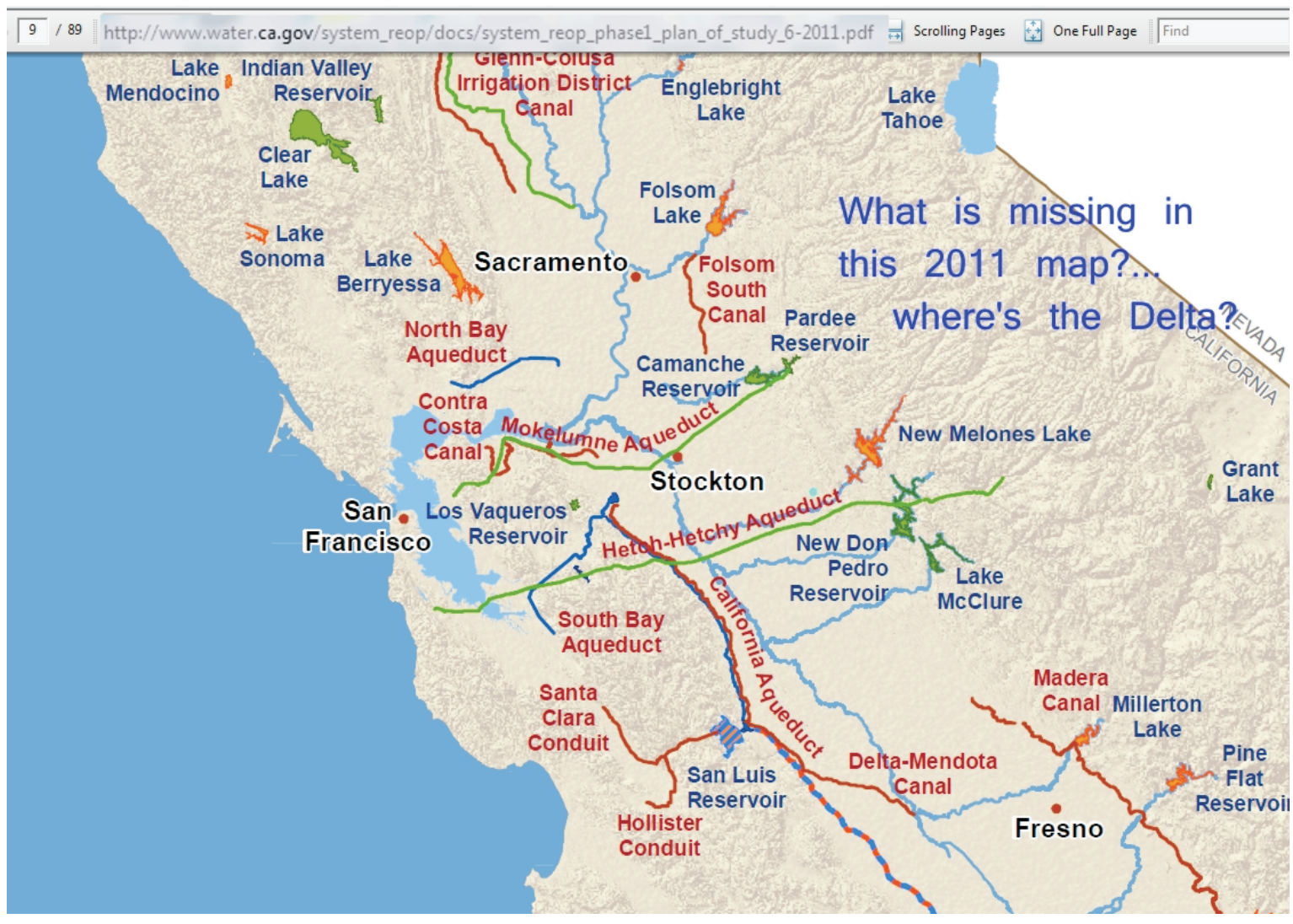
The model allows consideration of many different drainage options. Most options that meet existing demand for drainage appear to pose strong risks to the reproduction and survival of sensitive birds and fish. Threats to reproduction and survival of birds and fish are particularly severe during periods of low river flow. Vulnerable species include diving ducks, white sturgeon and Sacramento splittail.

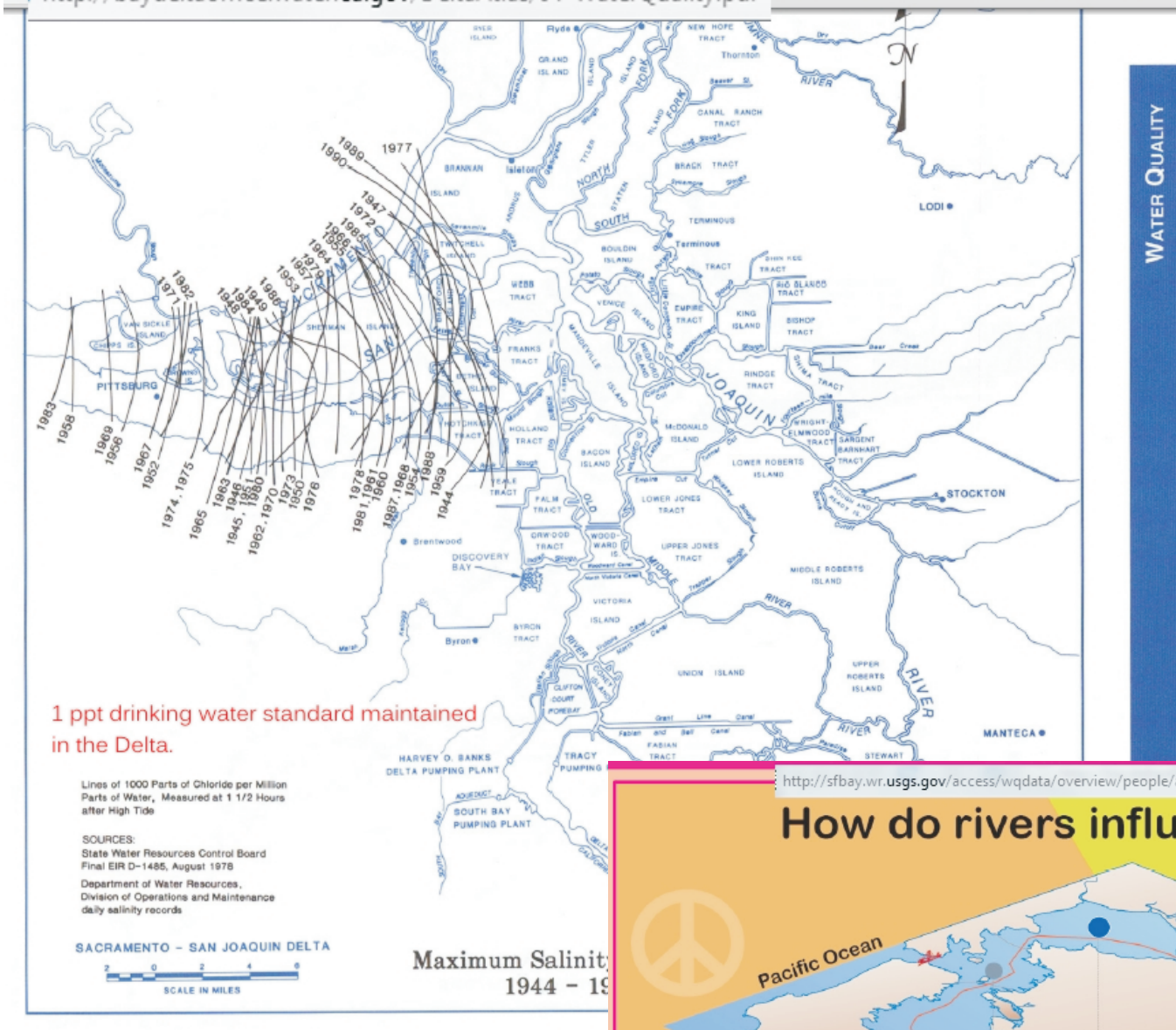
The Bay-Delta is probably best suited for site-specific Se guidelines and the aforesaid model could provide a framework for developing new protective criteria. If water quality criteria are to be employed in managing Se inputs, then consideration should be given to the elevated Se concentrations currently occurring in clams and fish of the Bay-Delta even though waterborne Se concentrations in the Bay-Delta are less than recommended criteria.

Forecasting Selenium Discharges to the San Francisco Bay-Delta Estuary: Ecological Effects of A Proposed San Luis Drain Extension, by Samuel N. Luoma and Theresa S. Presser, U.S. Geological Survey Open-File Report 00-416, is available at USGS libraries and from USGS Branch of Information Services, Box 25286, Federal Center, Denver, CO 80225 (phone 303-202-4200). Federal and local agencies funding the USGS study include the U.S. Environmental Protection Agency, the Contra Costa Water District, and the Contra Costa County.



Look at past California conveyance canals and what we see in the Delta Plan. Many of the changes as shown on the maps and d"proposed" are under construction now





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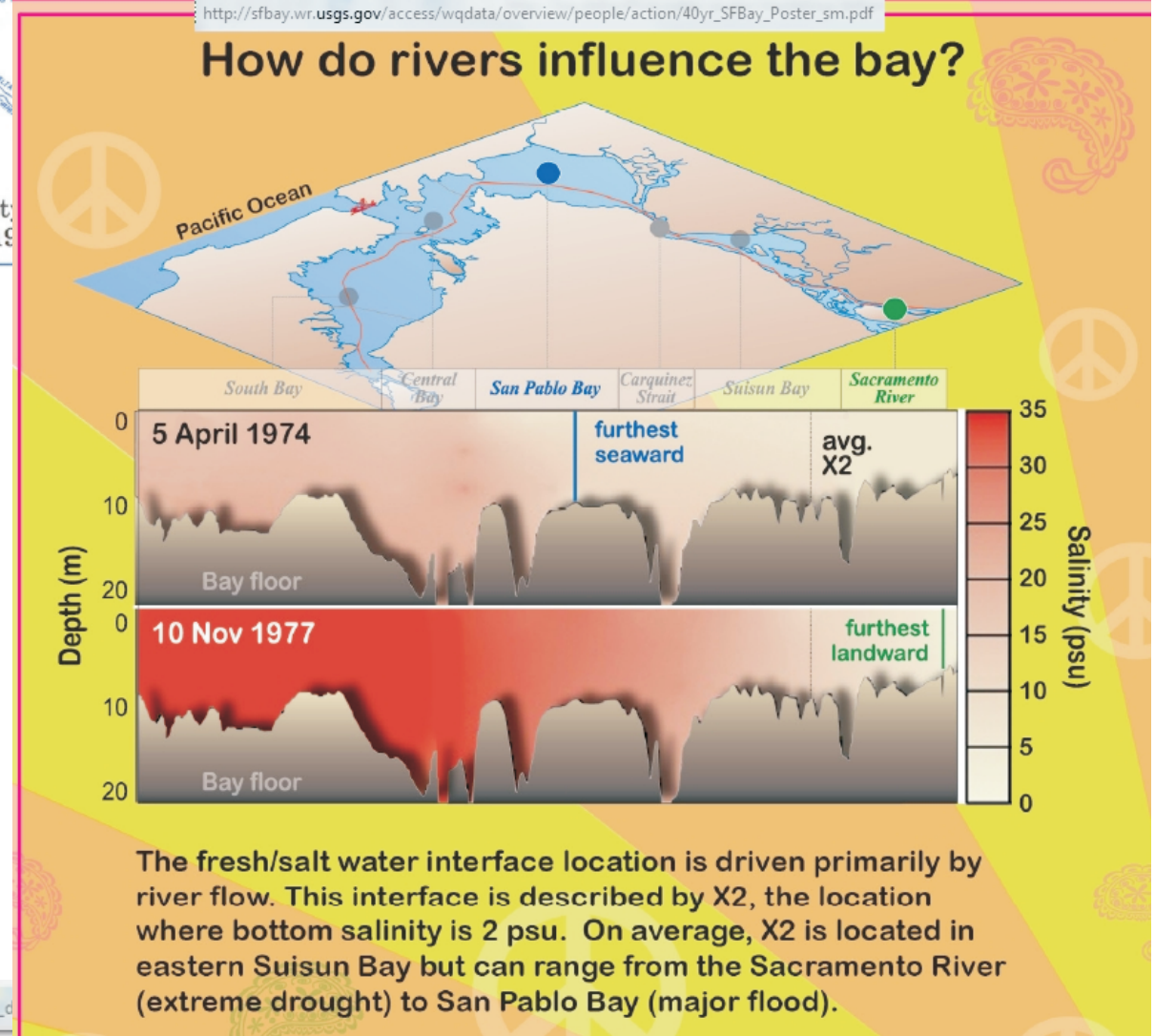


2.2. Sources & Quality of Irrigation Water in the South Delta

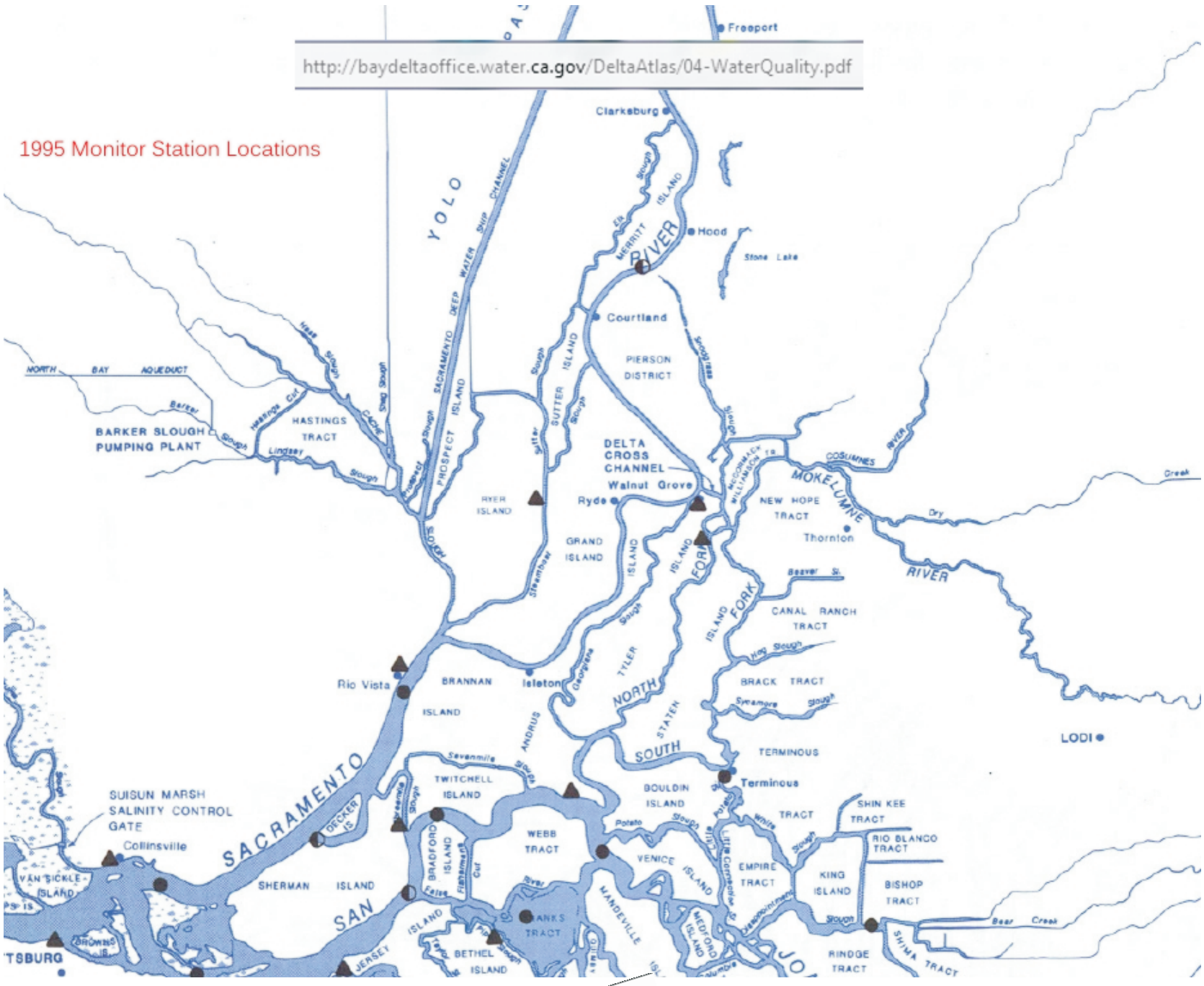
Water conditions in the South Delta are influenced by San Joaquin River inflow; tidal action; water export facilities (primarily water levels and circulation); local pump diversions; agricultural and municipal return flows; channel capacity; and upstream development. The area is irrigated primarily with surface water through numerous local agricultural diversions. A small percentage of the land is irrigated with groundwater.

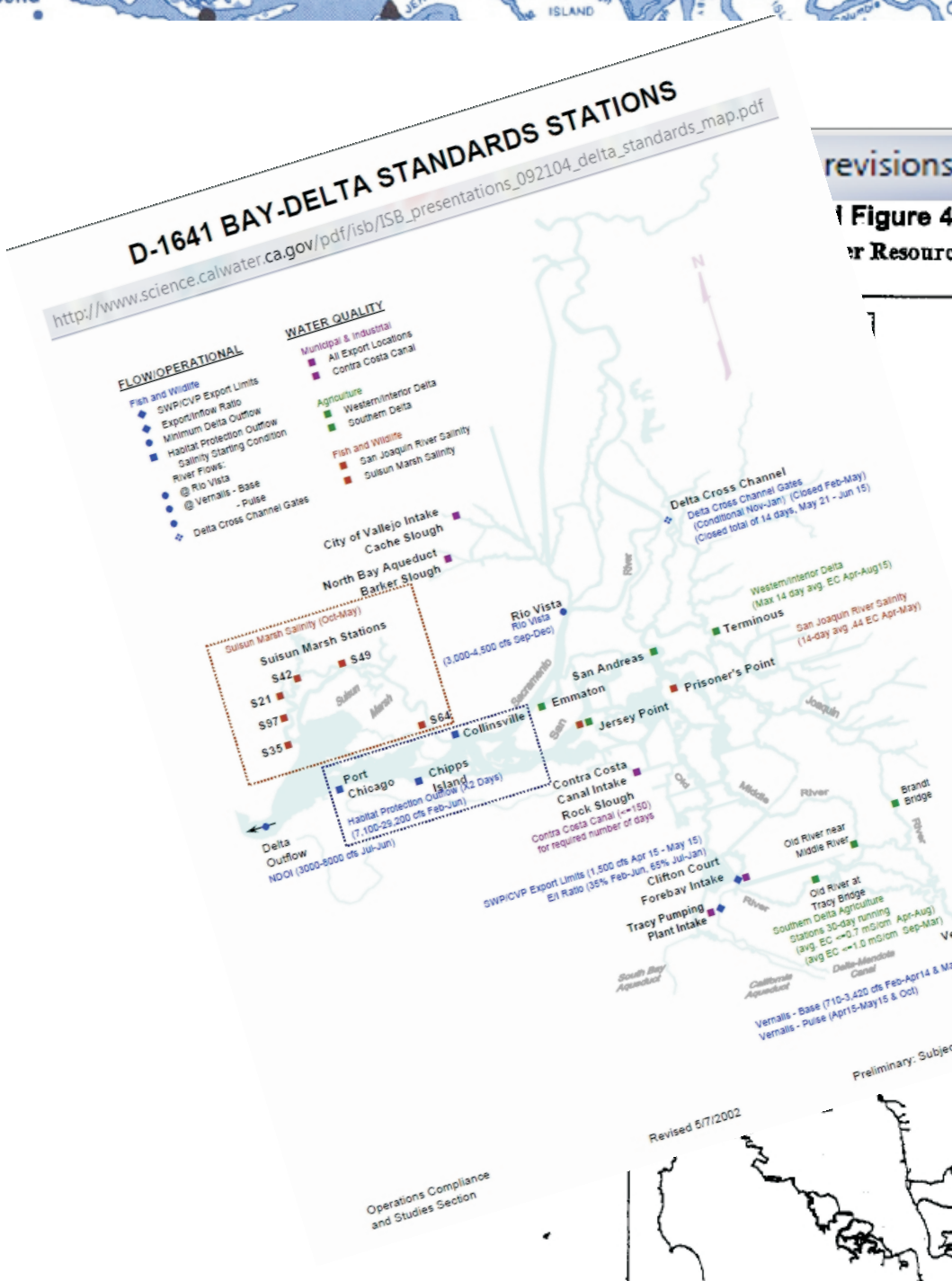
2.2.1. Salinity

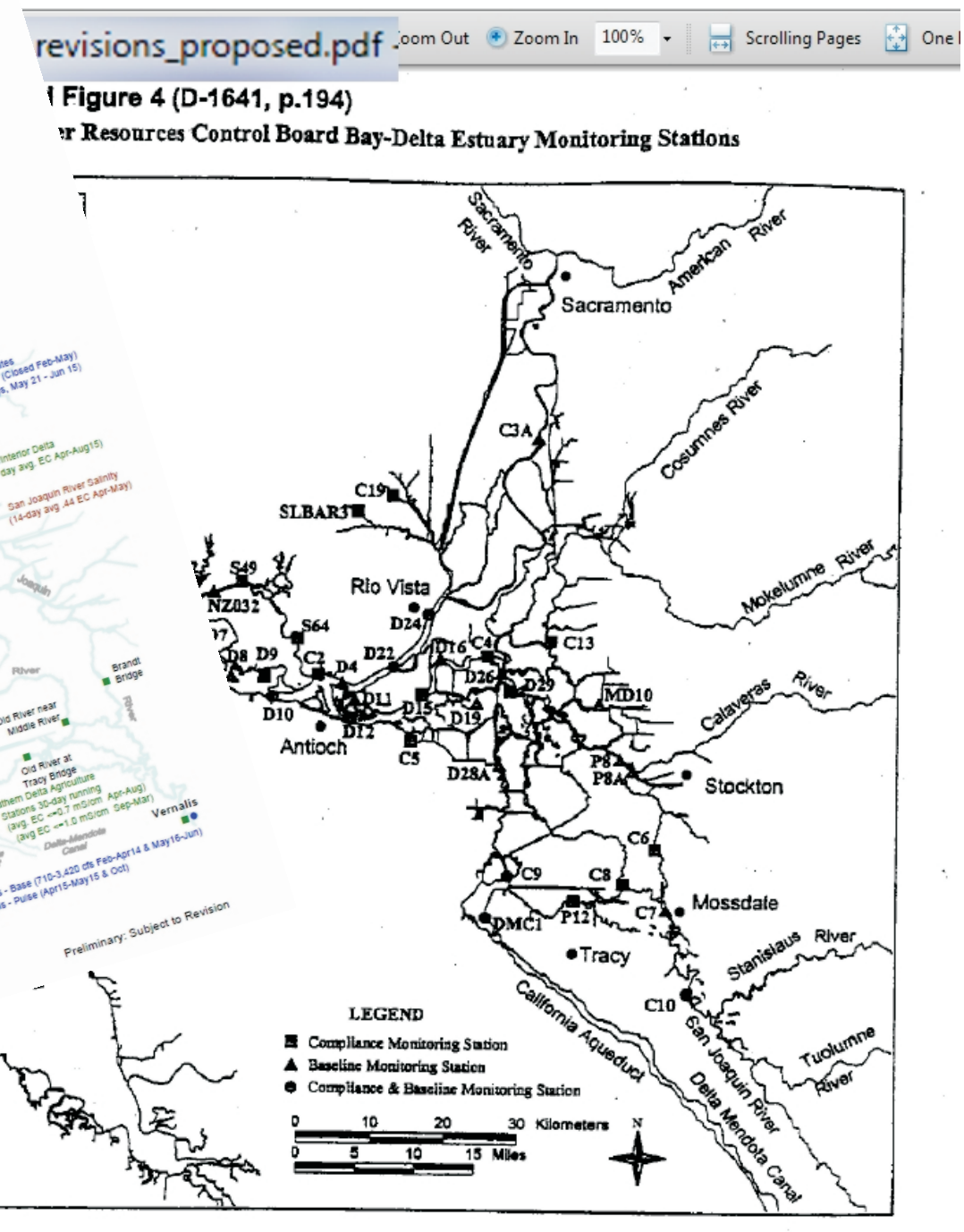
The salinity of the water used for irrigation, reported as electrical conductivity in units of microSiemens per centimeter (µS/cm), is monitored at several locations in the South Delta. The numerical values in units of µS/cm are 1000 times larger than the numerical values in units of deciSiemens per meter (dS/m). In keeping with the literature on crop response to salinity the units of dS/m will be used in this report. Another important reason for using dS/m is that it is numerically equal to millimho per centimeter (mmho/cm), an outmoded unit of measure for electrical conductivity that was used for decades in agriculture to quantify salinity.

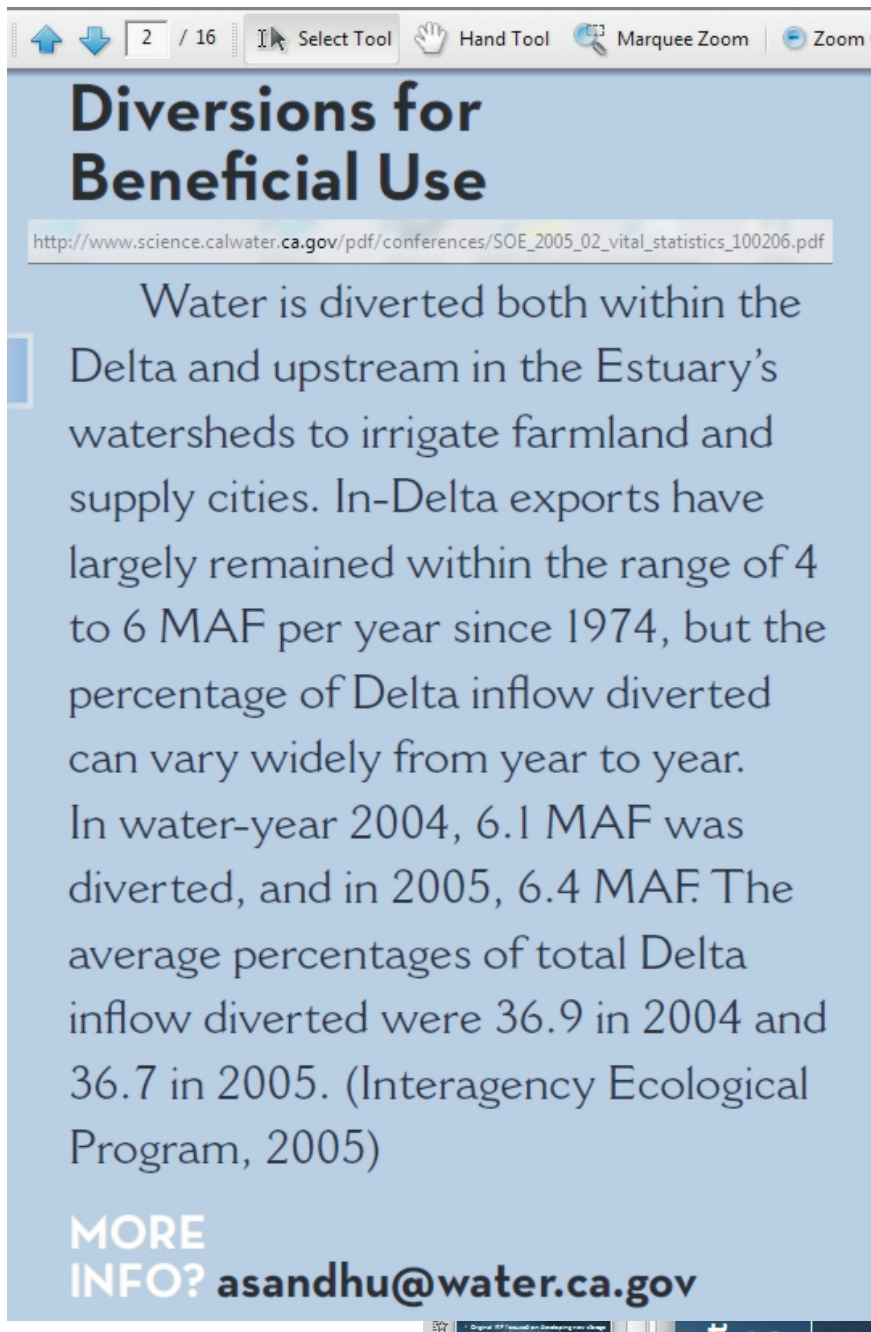
For information only, the monthly average electrical conductivity (EC) values from the California Data Exchange Center (CDEC) for the water in the San Joaquin River at Vernalis and for Old River at the Tracy Bridge from January, 2000 until January, 2009 are given in Figure 2.1 (DWR 2009a). Only data from these two southern Delta compliance stations are shown as they tend (but not always) to represent the lowest and highest EC concentrations respectively of the four compliance stations (locations as shown in Figure 1.1). As one would expect there are continuous variations in the measured values. With very few exceptions, the EC remains below 1.0 dS/m (1000 µS/cm) at both sampling locations. Figure 2.2 shows the median and the high and low values of the electrical conductivity by month for Old River at Tracy Bridge from the data in Figure 2.1. Note that during the months of April through August, the growing season for bean, the median EC is below 0.7 dS/m.

Changes to the locations and function of the monitoring stations result in changes in flow and water quality protections









These screen prints show how for years there was a consistency i the amount of water that was diverted from the Delta, but in the last 10 years more water has been diverted around the Delta and into storage, at the same time as the fish species decline and the increase of invasive aquatic plants in the Delta...seems related, based on common sense, doesn't it?

What happens to the Delta if a 15,000 cfs Sacramento River diverson is allowed, and a total of as much as almost 12 MAF is diverted from the Delta?