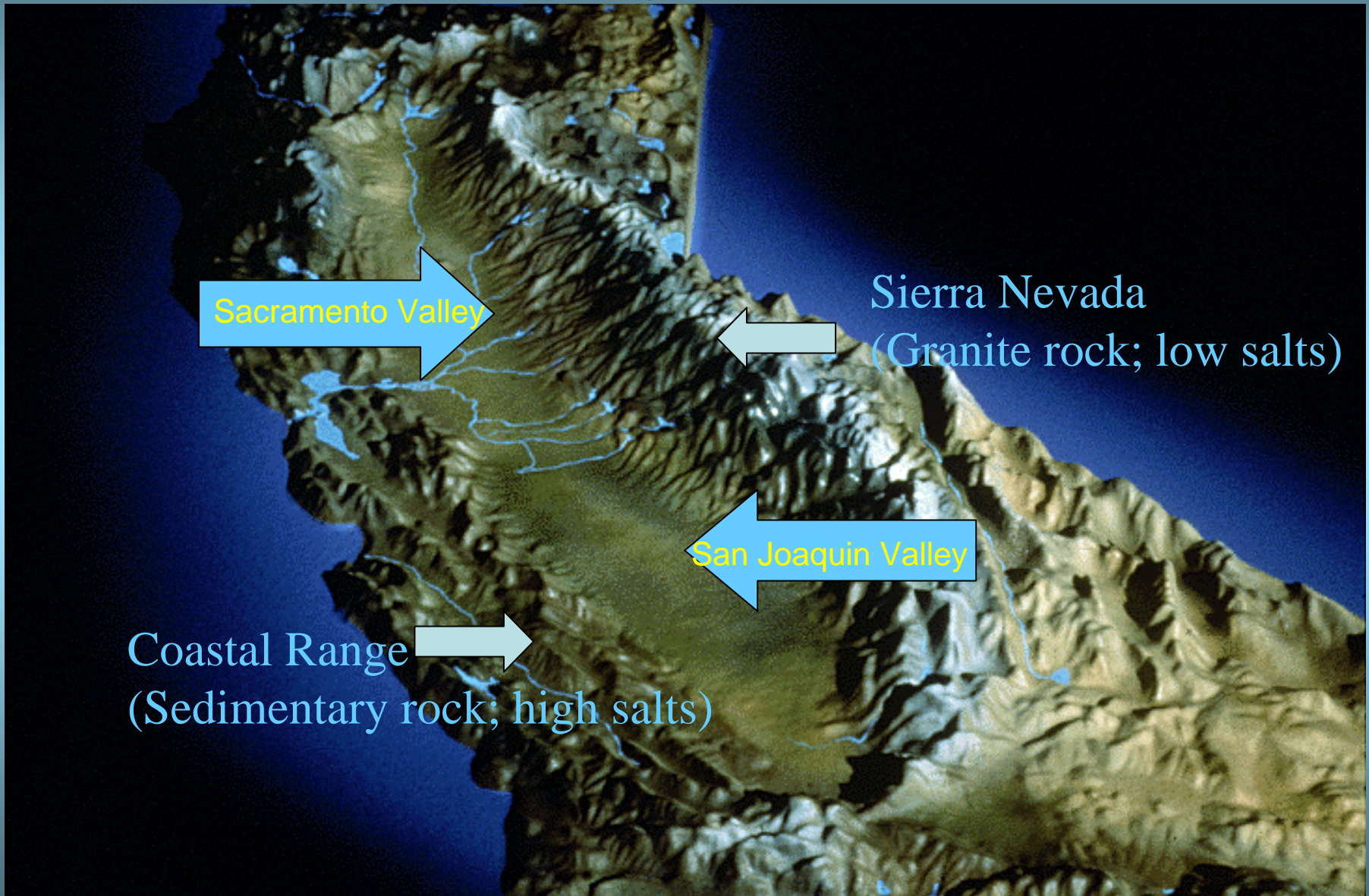


Agricultural salinity problems facing California

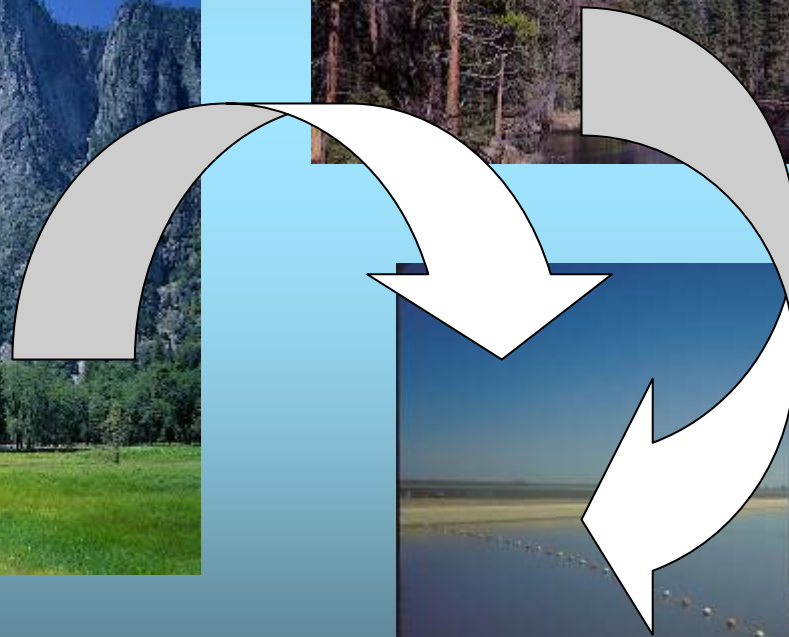


Steve Grattan, Ph.D.
Department of LAWR
University of California, Davis

Central Valley of California

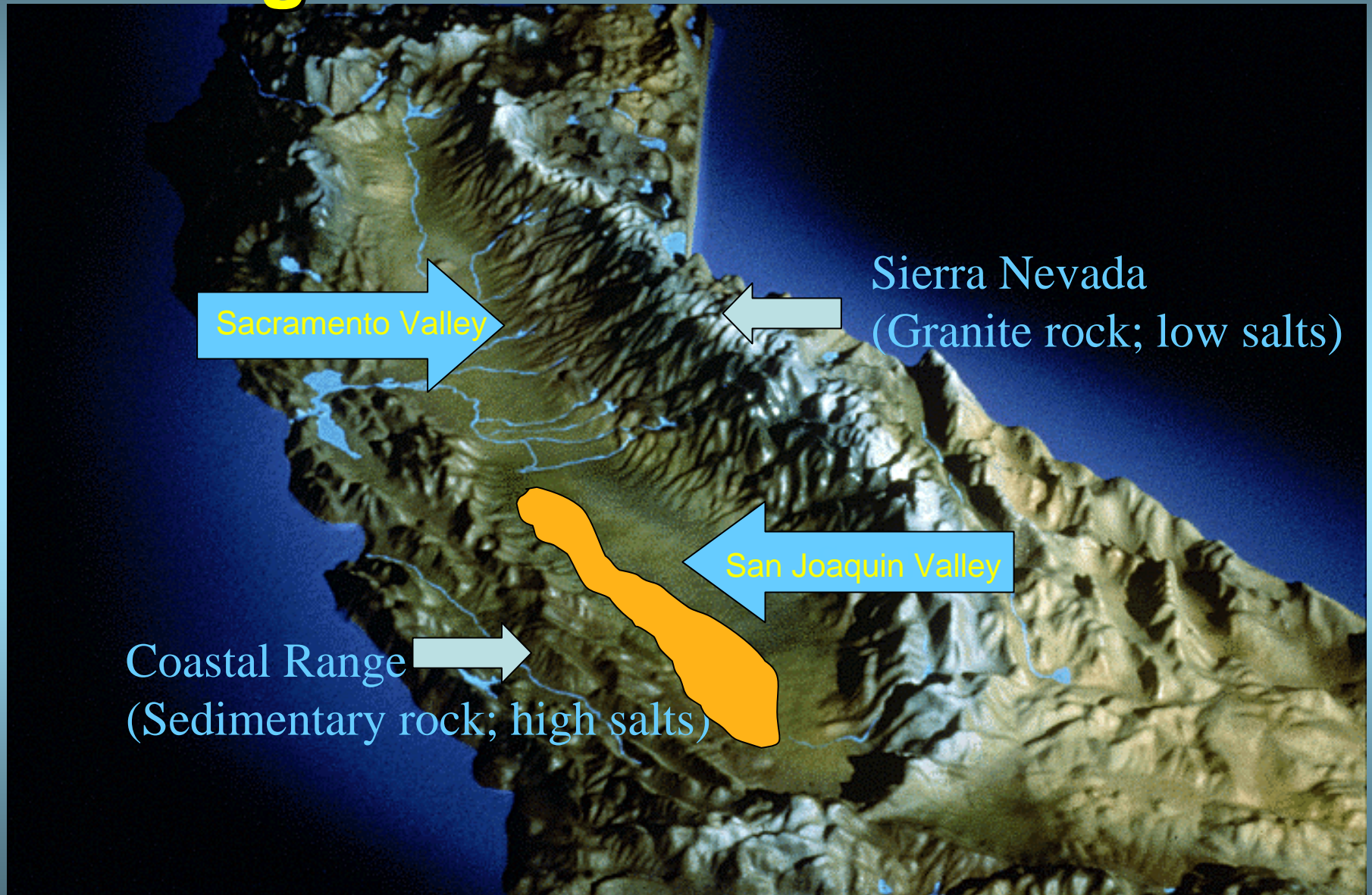


Sierra Nevada Mountains



Low EC irrigation water

High Saline Water Tables



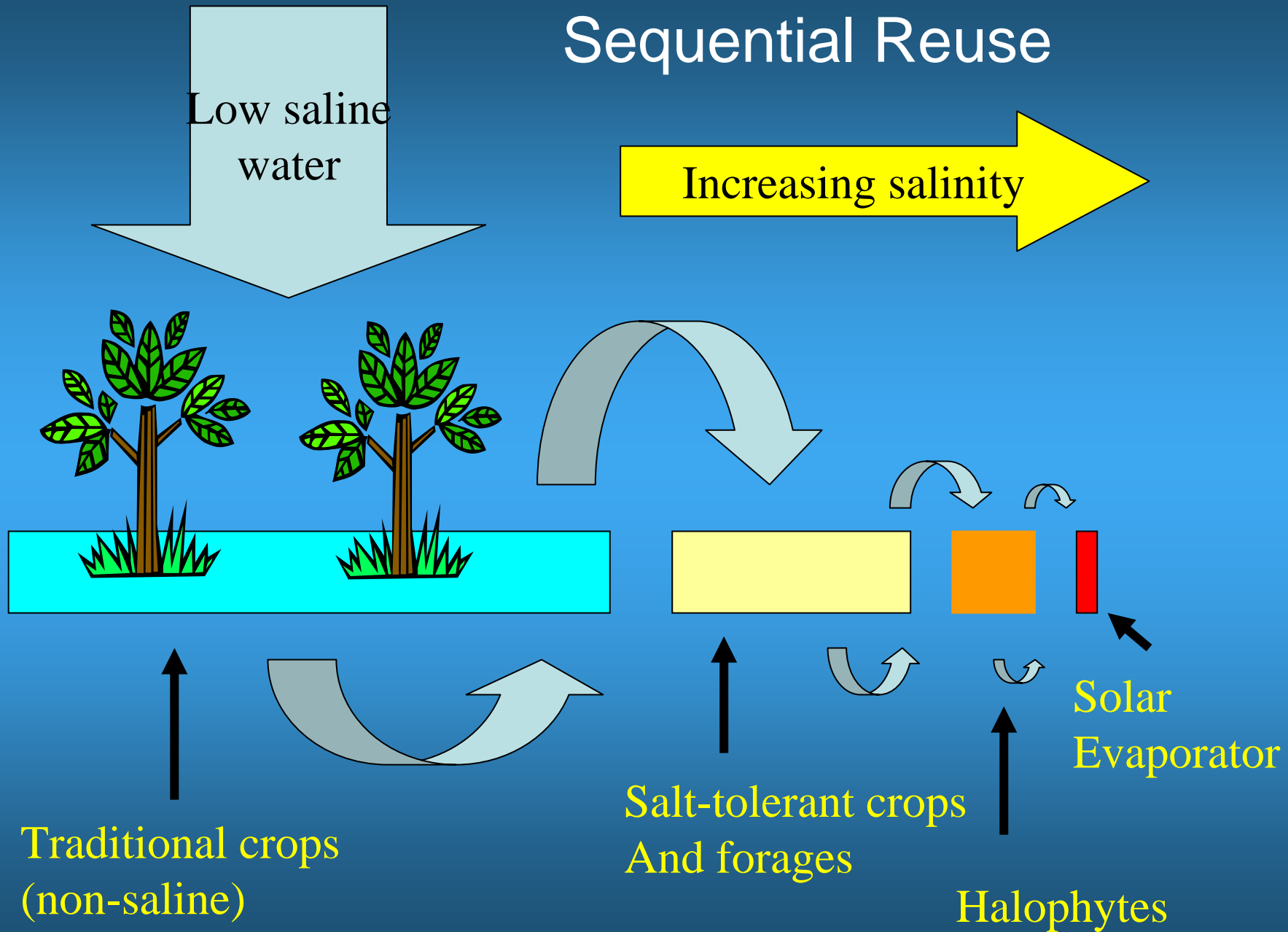
Master Drain

— Completed

- - Not completed



Sequential Reuse



Search for salt tolerant forages



Desirable characteristics:

High salt tolerance

High biomass production

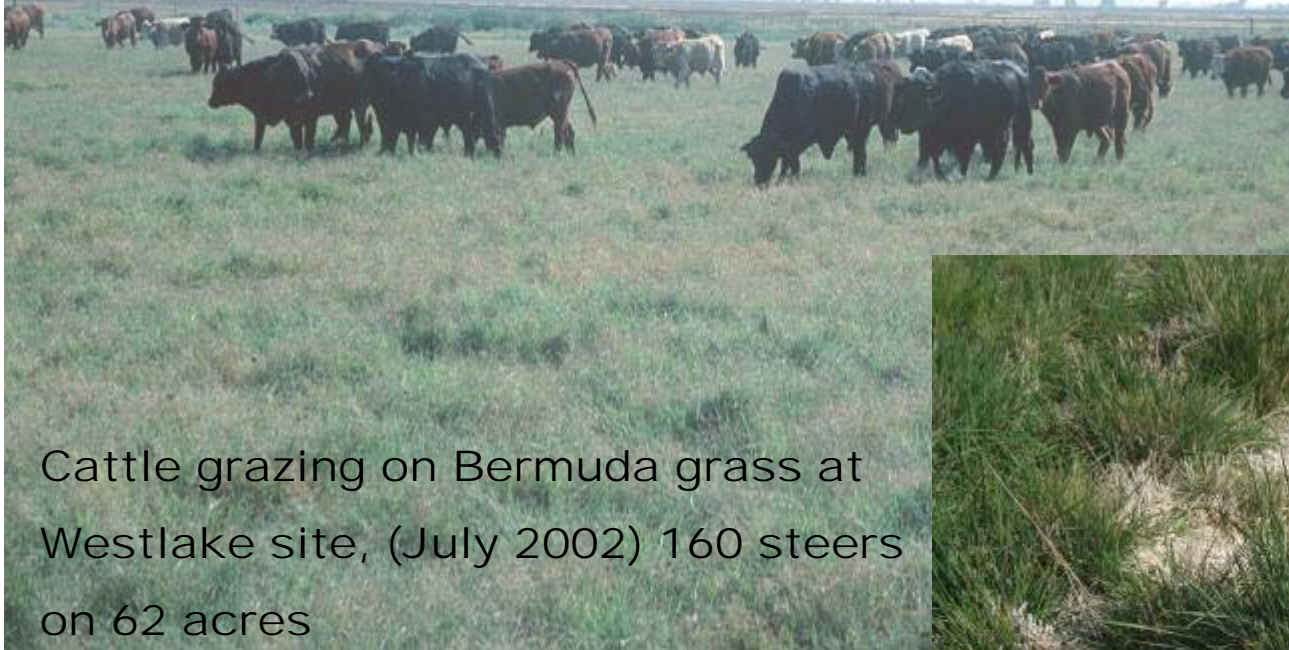
High forage quality

'Jose' tall
wheatgrass

Bermuda grass



Livestock performance on sites irrigated with saline drainage water (high Se/Mo)



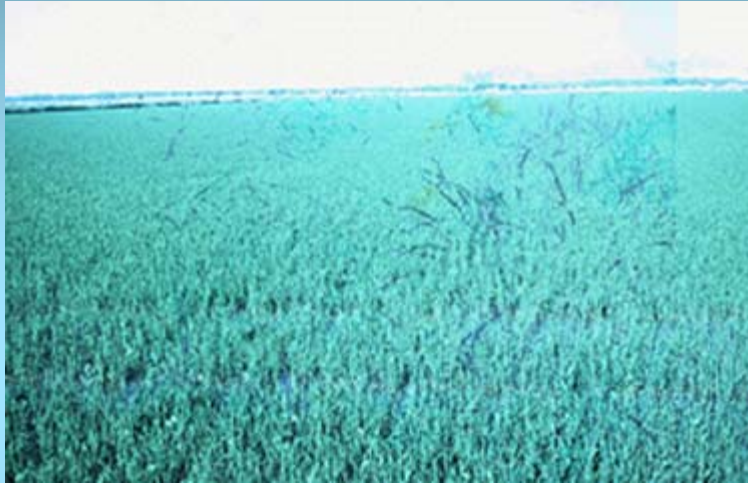
Cattle grazing on Bermuda grass at Westlake site, (July 2002) 160 steers on 62 acres

UC Davis, USDA-ARS, Fresno State



'Jose' Tall wheatgrass
Red Rock Ranch (2008)

Rice damage from salinity in Sacramento Valley



Upper
Basin



Evapo-
concentration



Lower
Basin



Scardaci et
al., 2002

Drained farm land Imperial and Coachella Valleys



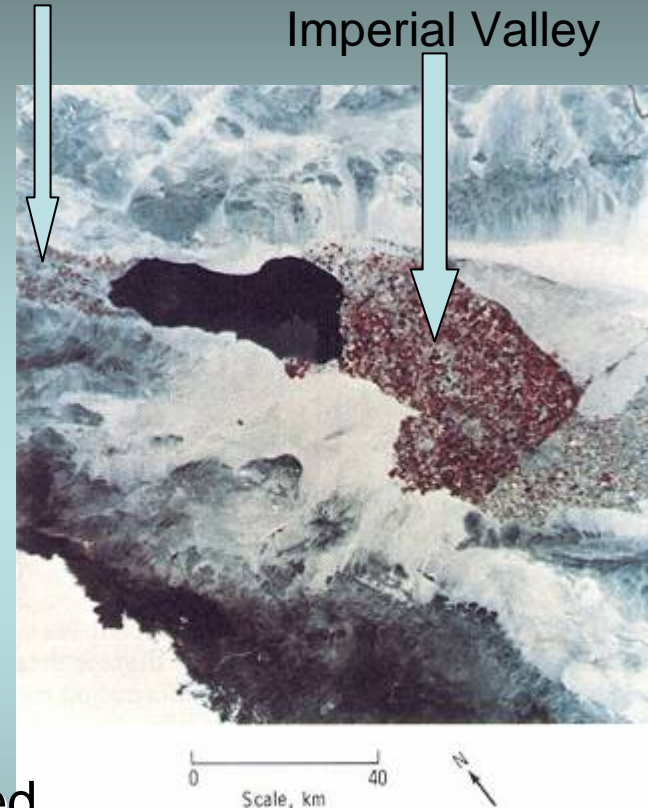
November-March
Temperature: 20-25 C





Coachella Valley

Imperial Valley

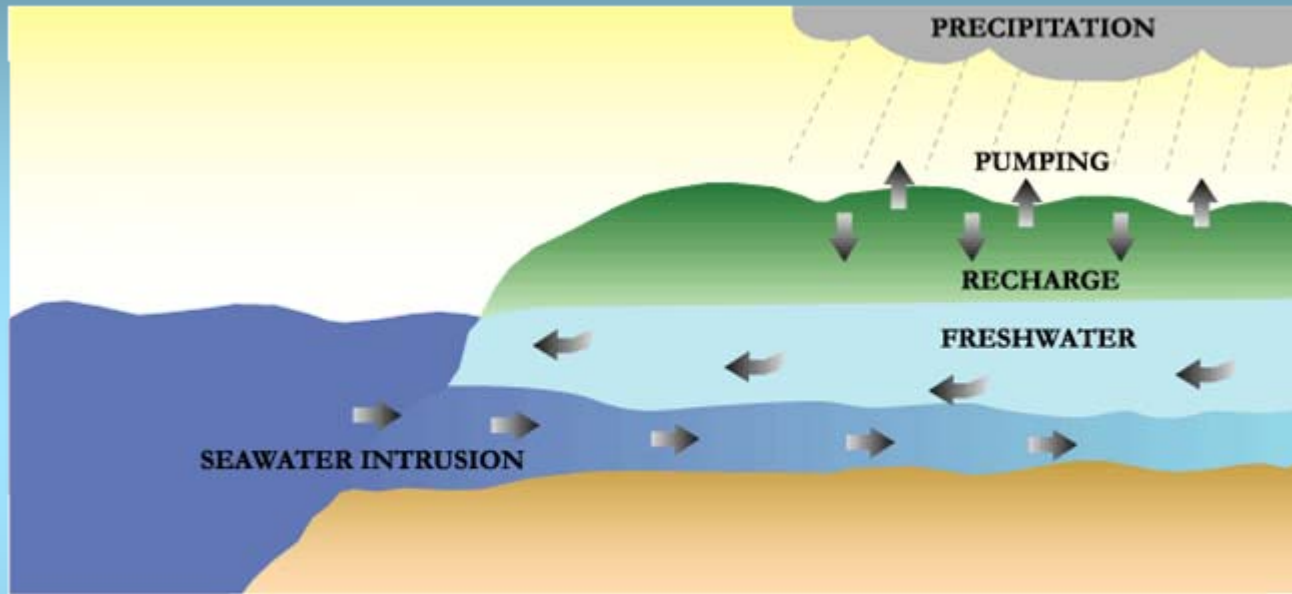


SECOND NATURE: Imperial Valley fields hug the Salton Sea in Southern California (Bureau of Reclamation photo)

5 million tons of salt added each year...plus Se

Recreational uses include fishing, boating, swimming, camping

Sea water intrusion



Source: UAWA Inc., 2001.

Salinas Valley Water Project EIR/EIS

Figure 1-1
Overdraft and Seawater Intrusion Schematic
1/2001


Threatens coastal agriculture such as Monterrey, Santa Maria, Lompoc, Oxnard, Los Angeles (vegetable crops, commercial nurseries, and tree crops)

2001 Pressure 180-Foot Aquifer Chloride Contour and Historic 500 mg/L Chloride Areas




Legend:

500 mg/L Chloride Contour
2001 Chloride Data Contour
No Change, Same As 1999 Year
Inferred 500 mg/L Chloride Contour

1944
1965
1975
1985
1993
1997
1999
2001



Major Roads
Minor Roads

 Incorporated Areas
 Monterey County
 Water Bodies



5000 0 5000 10000

Feet

Salt sensitive
crops grown in
California's
coastal valleys



Salinity in California's Sacramento-San Joaquin Delta



Tides and river flows
Influence salinity
in Delta



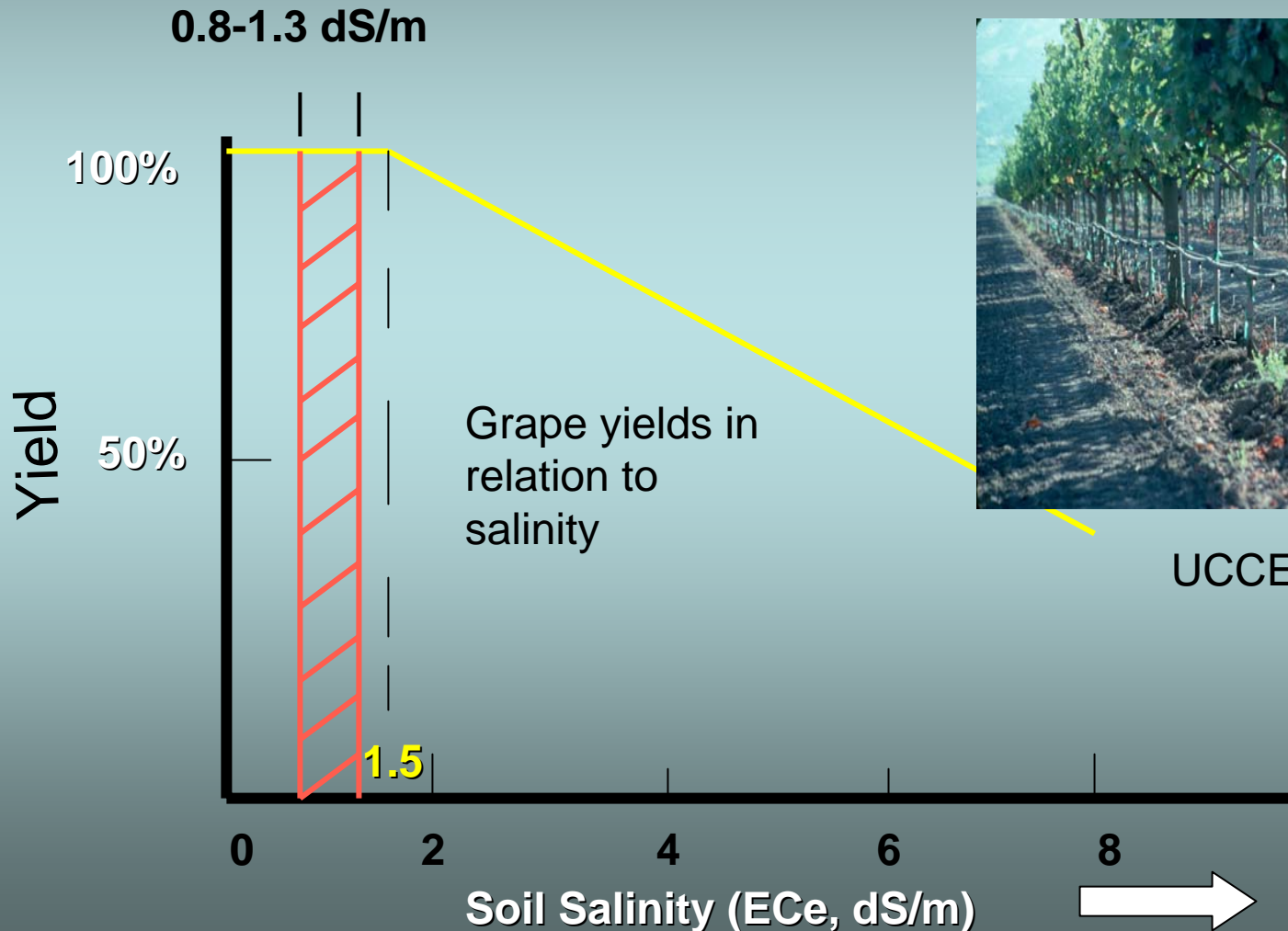
Recycled municipal waste water



CSIP (Castroville Sea Water Intrusion Project) Service Area

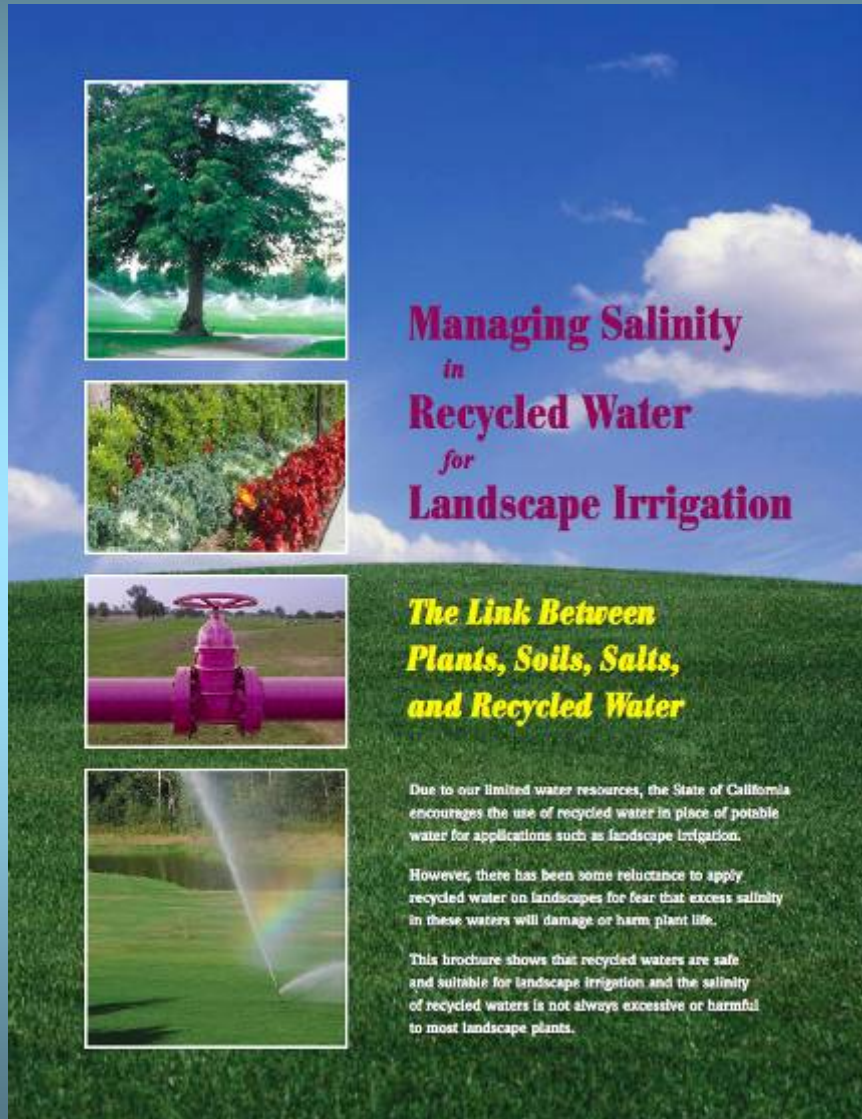


Suitability Study of Napa Sanitation District (NSD) Recycled Water for Vineyard Irrigation



Salt management guide

(Ken Tanji, editor; UCCE and USDA)



Interactive CD that provides Basic information on salinity management, landscape plant salt-tolerance, design and re-design of landscape systems based on different soil types, plant-water demand, plants with different tolerances

Available: DWR, WateReuse, LADWP, City of Cerritos, So Cal Salinity Coalition, West basin MWD, Central basin MWD, National water Research Inst



California's future

Reduction in good quality irrigation water

Increased use of municipal wastewater

Increased degradation of coastal ground
waters

Increased threat to salinization of delta

Salinity impacting high value, salt
sensitive crops

Expansion of desalinization