Suisun Marsh Today:
A Reflection of Drivers of Change

Stuart W. Siegel, PhD, PWS
Wetlands and Water Resources, Inc.
www.swampthing.org

Suisun Marsh in the 21st Century:
A Landscape of Change & Opportunity
23 May 2011, UC Davis

WETLANDS AND WATER RESOURCES

Questions

In the context of future management and restoration in Suisun…

1) What are the major features of Suisun Marsh today?
2) What are the major historical and current drivers of today's Suisun Marsh?
3) What are the major drivers of future conditions?

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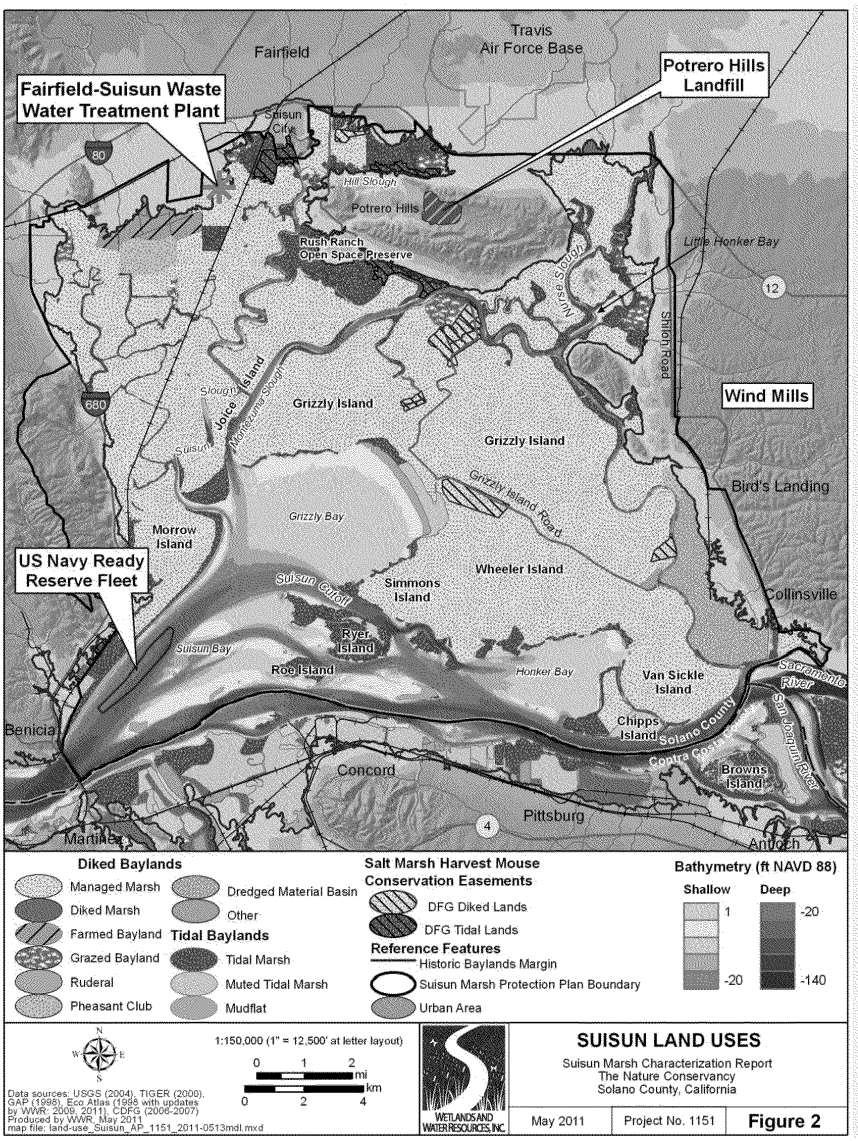


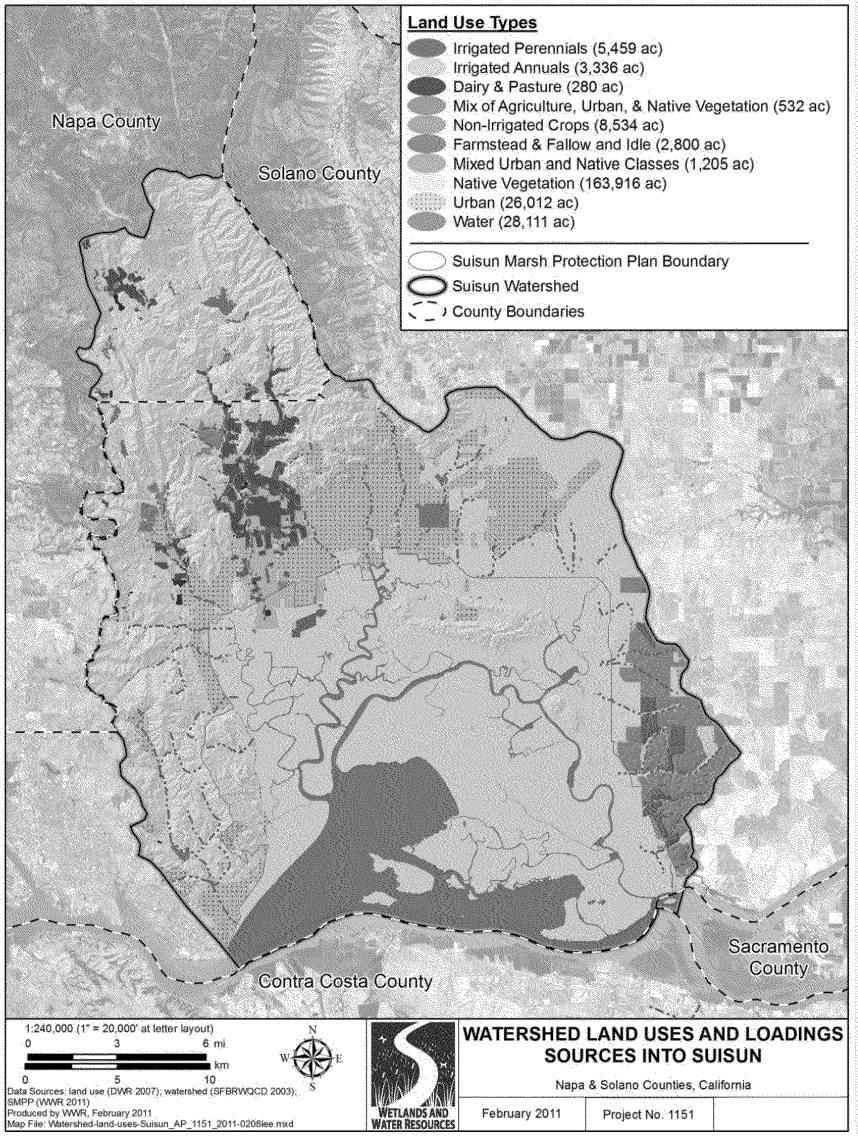
Suisun Land Use

Within the Marsh

- Diked managed wetlands (mostly private, large DFG public)
- SMHM conservation areas
- Dredged material reuse
- Grazing
- Potrero Hills landfill
- Fairfield-Suisun Wastewater Treatment Plant
- Mothball Fleet

Immediately surrounding Suisun

- Fairfield, Suisun City, Travis AFB
- Wind Farms
- Dry farming (oat, hay, sheep)

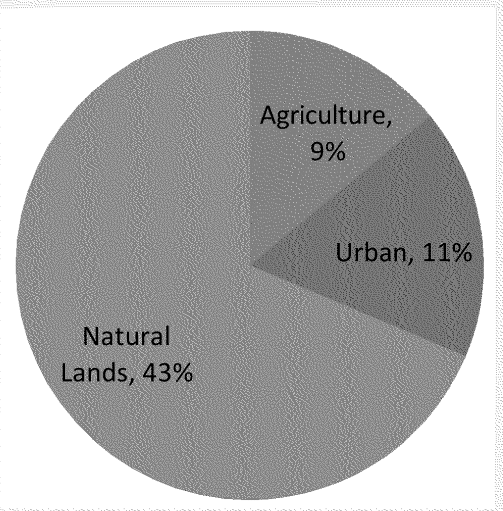


Watershed Land Use

Total watershed ~150,000 ac

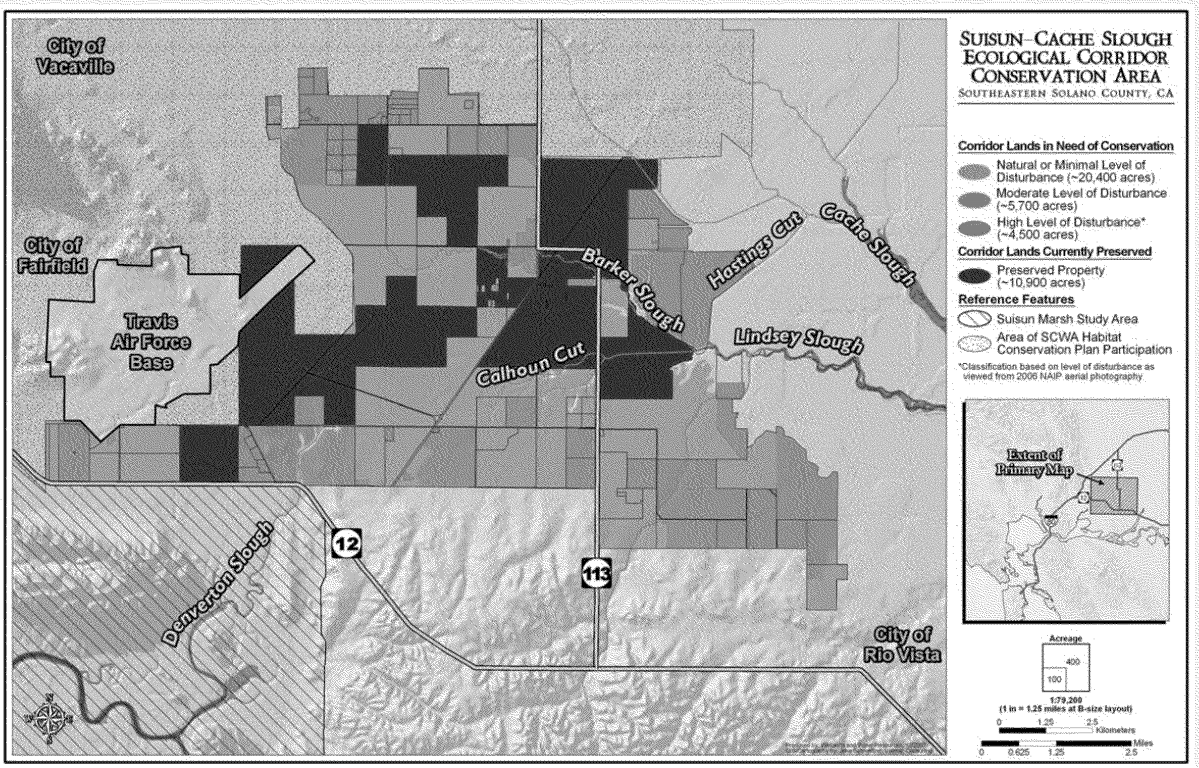
- Urban (~26,000 ac)
- Agricultural (~21,000 ac)
- Woodlands and grasslands (~103,000 ac)

* *All stormwater enters untreated*

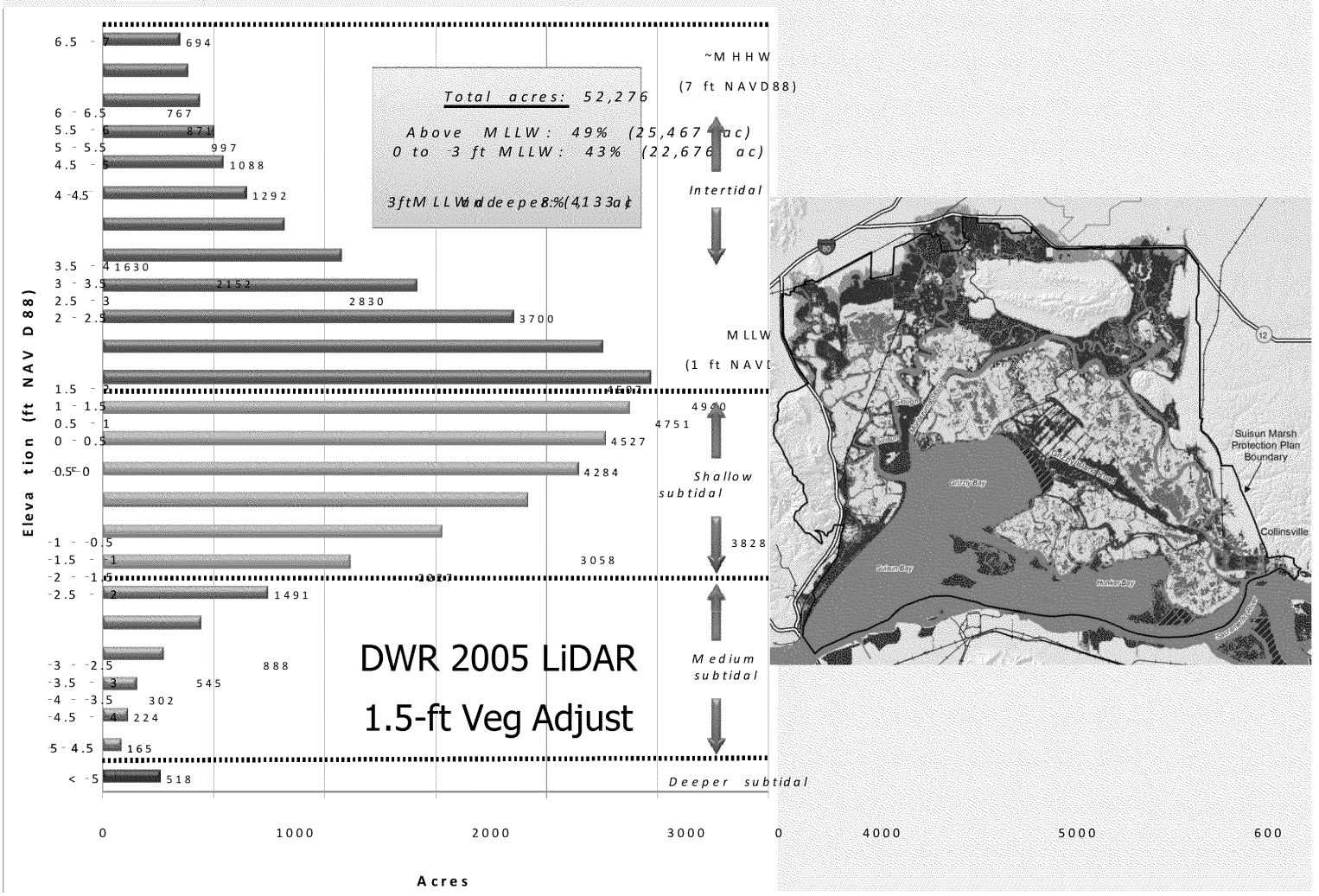


Linkage to Delta/Cache Slough

- Grasslands / seasonal wetlands / vernal pool complexes including Jepson Prairie
- Variable degrees of existing conservation protection and condition
- Wildlife corridor, sea level rise accommodation



Diked Lands Elevation – Centered at MLLW!



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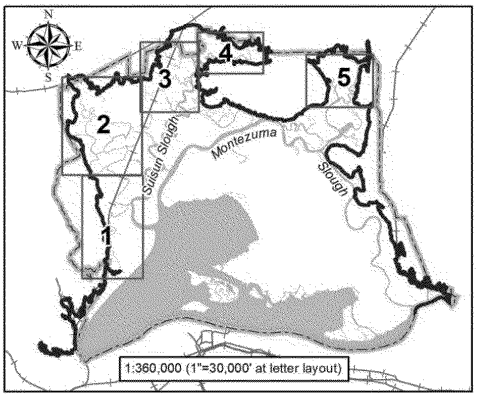
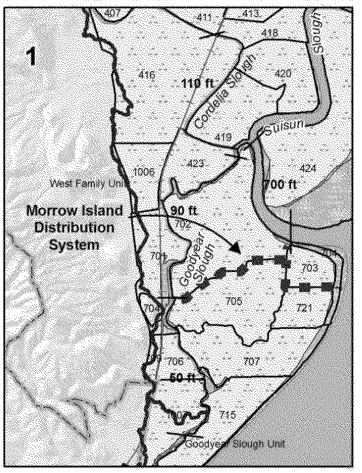
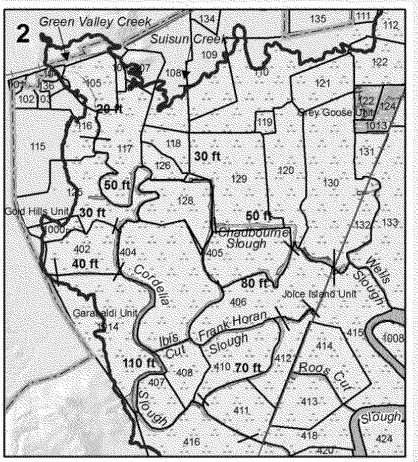
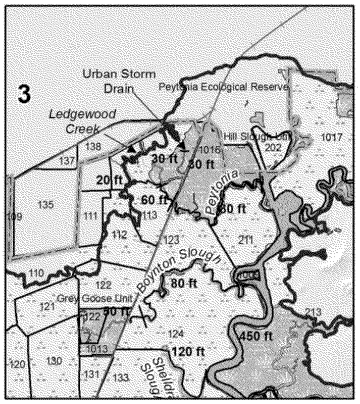
Water Quality – L o w DO, MeHg

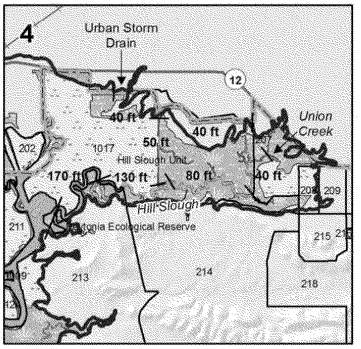
- Some documented history of low dissolved oxygen in certain perimeter sloughs
- Conditions that support low DO also lead to methylmercury production

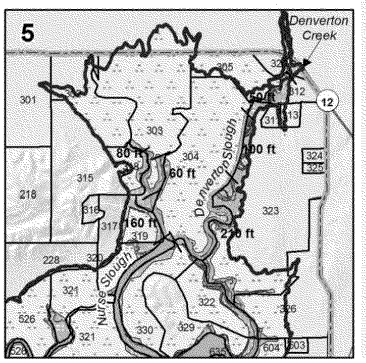












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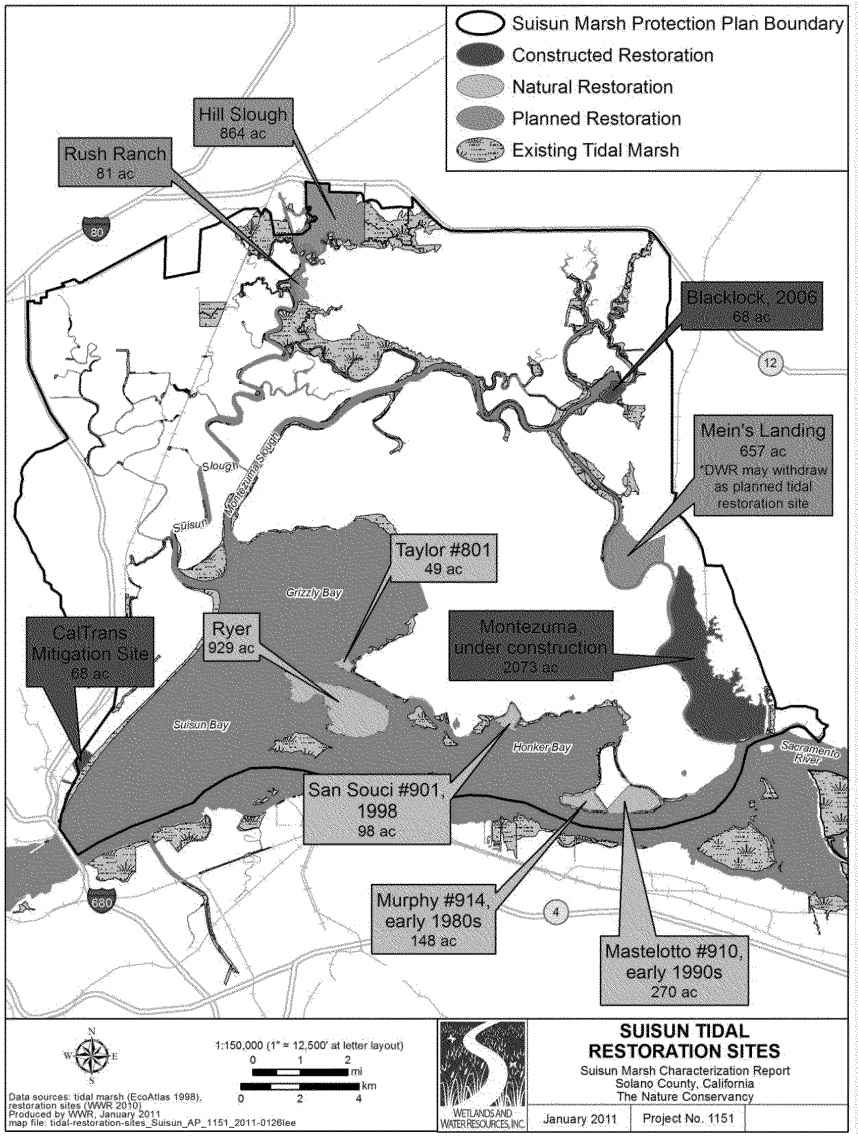

Restoration Efforts

Actively Restored

- Blacklock
- Montezuma
- Caltrans mitigation site
- DFG Goodyear Slough (not shown)

Naturally restored

- Chipps Island (910, 914)
- San Souci
- Ryer Island
- 801

Planned restoration projects

- Hill Slough
- Mein's Landing
- Rush Ranch

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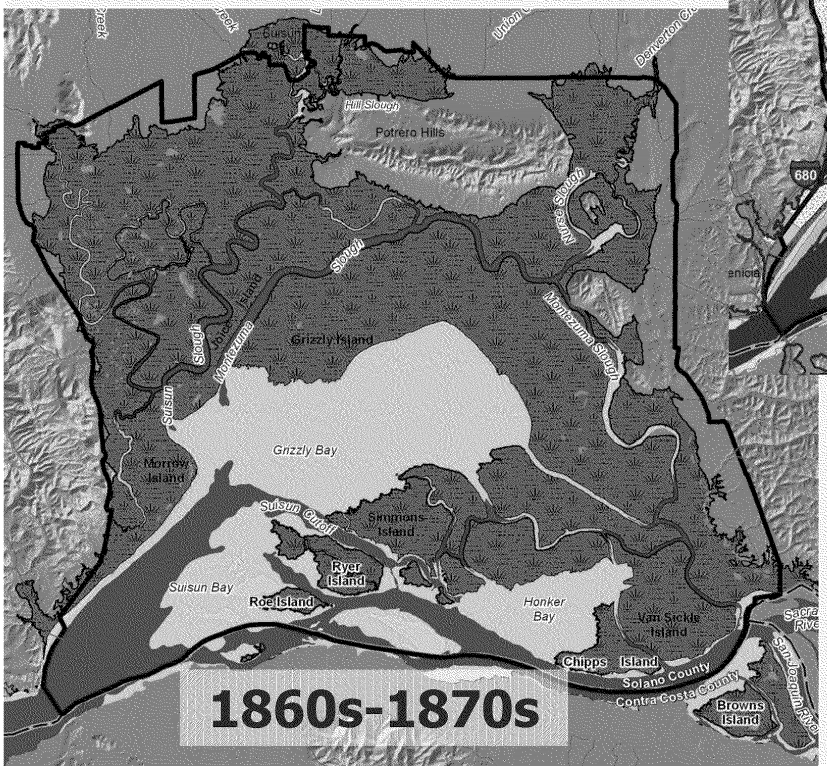
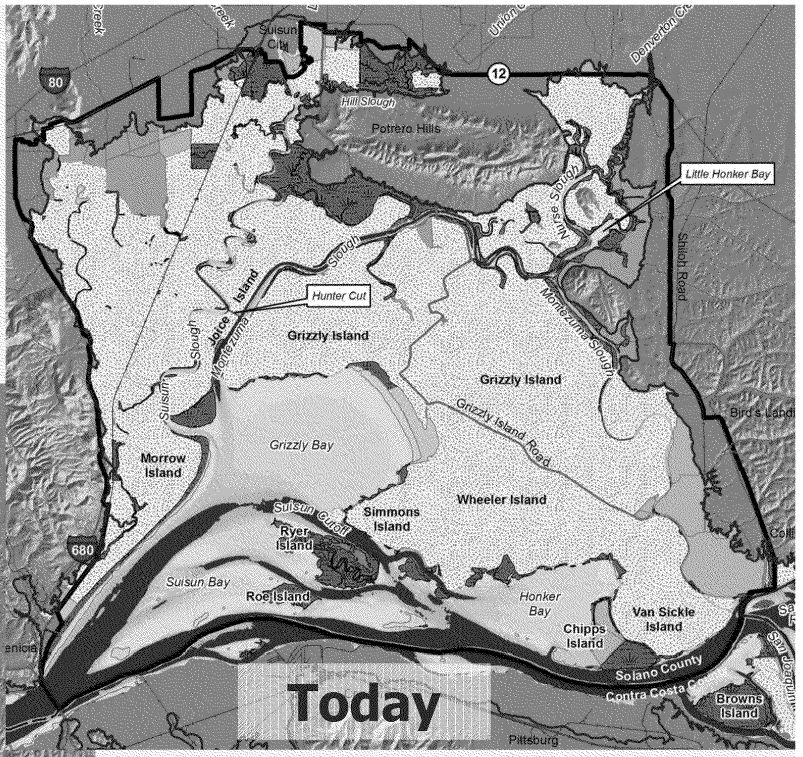
Diking, Hydraulic Mining Debris, Railroad



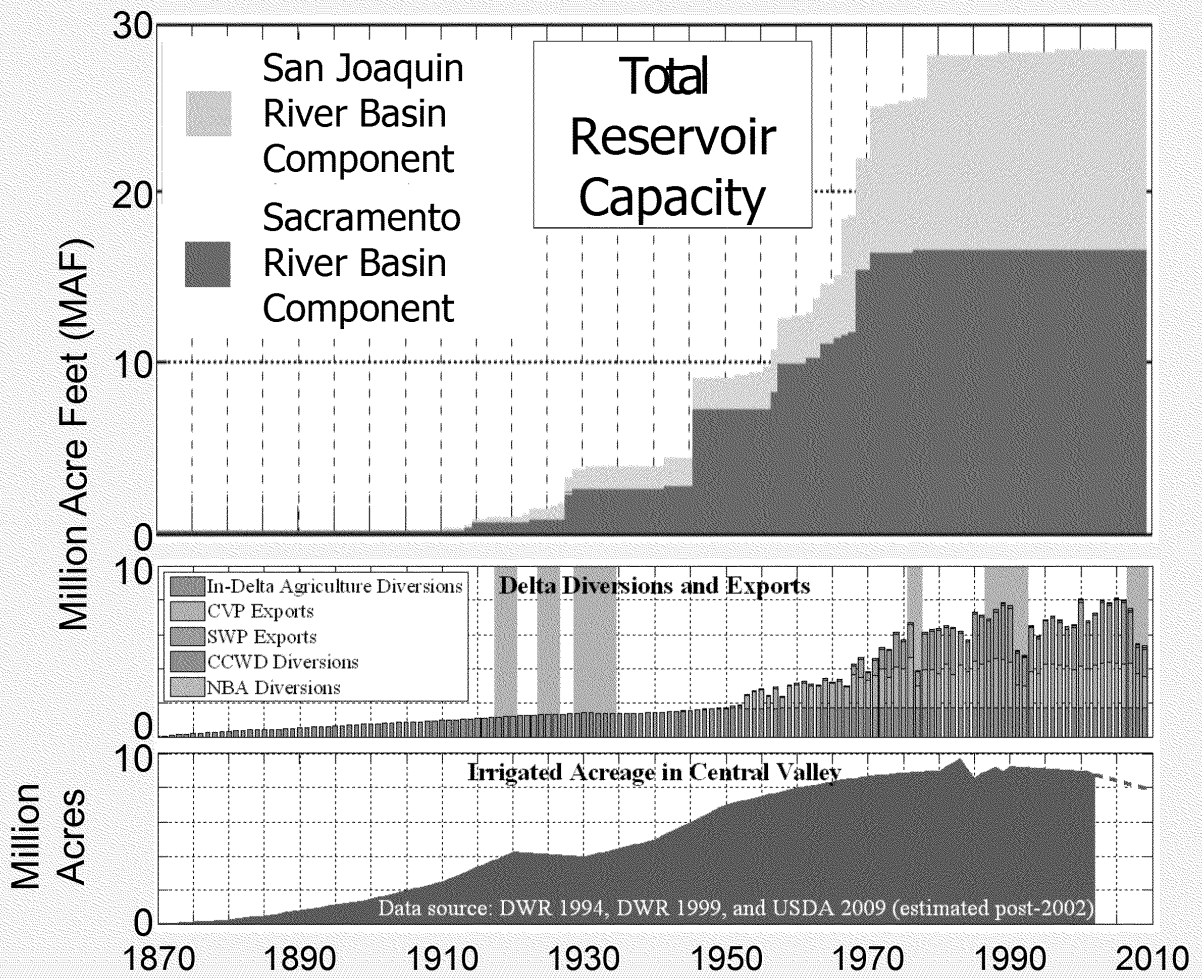


Data: SFEI EcoAtlas, WWR

2 Billion Cubic Yards of Sediment Washed Downstream 1853 – 1874

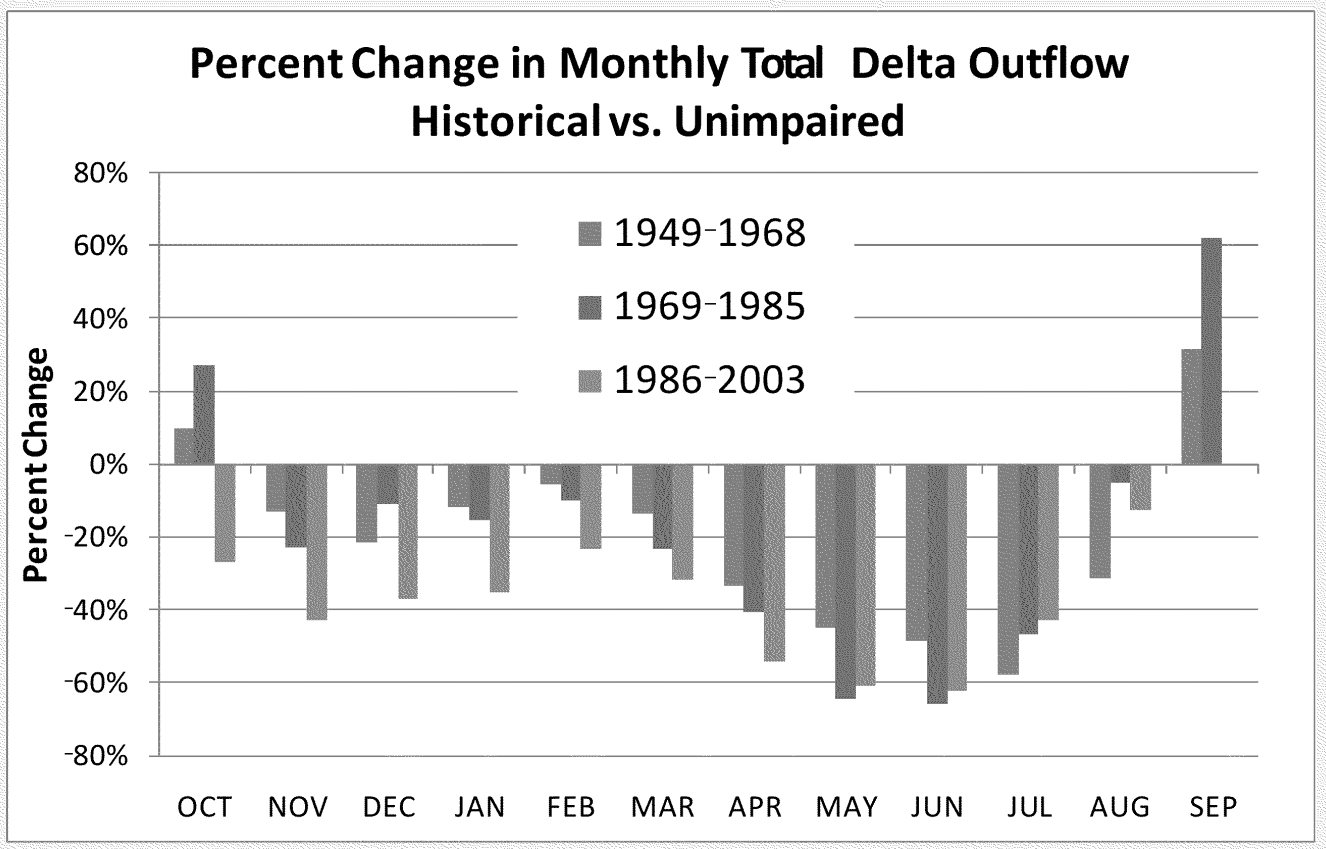
Data: Gilbert 1917; Photo: www.museamca.org

Storage, Diversions, Exports, Agriculture



Data: Contra Costa Water District

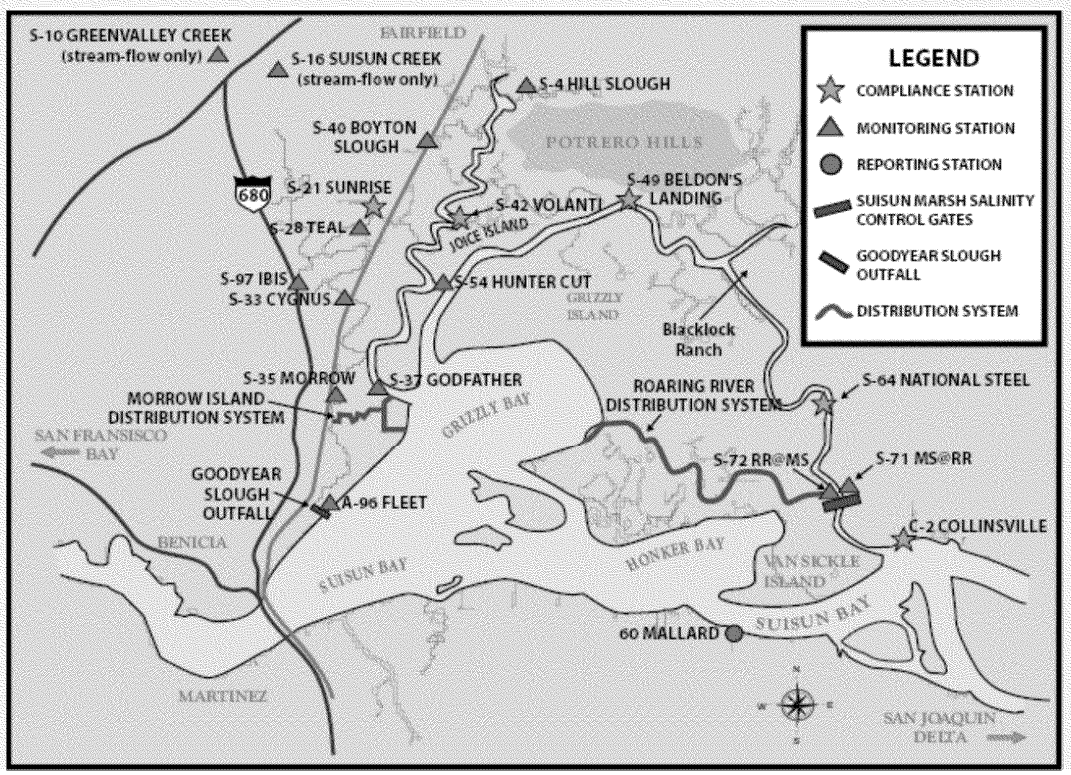
Reducing Estuarine Variability: Decreasing Winter, Spring and Summer Flows, Increasing Fall Flows



Data: UCD Watershed Science Center, from DWR DAYFLOW data (courtesy Bill Fleenor)

DWR Suisun Facilities

- Suisun Marsh Salinity Control Gates
- Roaring River Distribution Facility
- Morrow Island Distribution Facility
- Goodyear Slough Outfall



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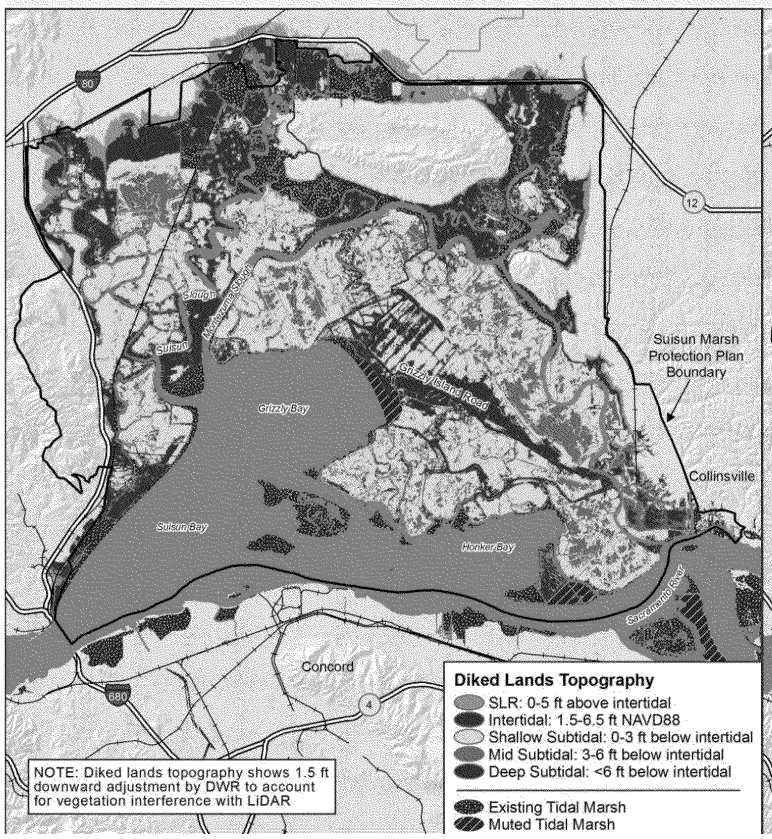
Future Drivers of Change

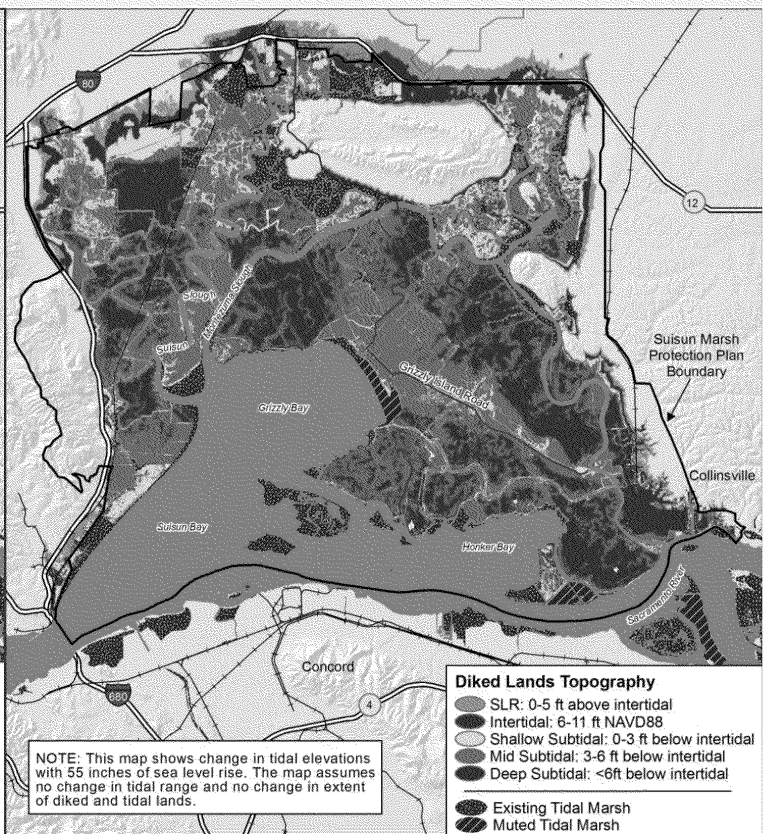
1) **Sea level rise**
2) **Large-scale tidal restoration**
3) Reductions in regional sediment supply
4) Delta water operations
5) Salinity management of Suisun Marsh
6) Land use change
7) Invasive species
8) Changes in storm frequency and intensity

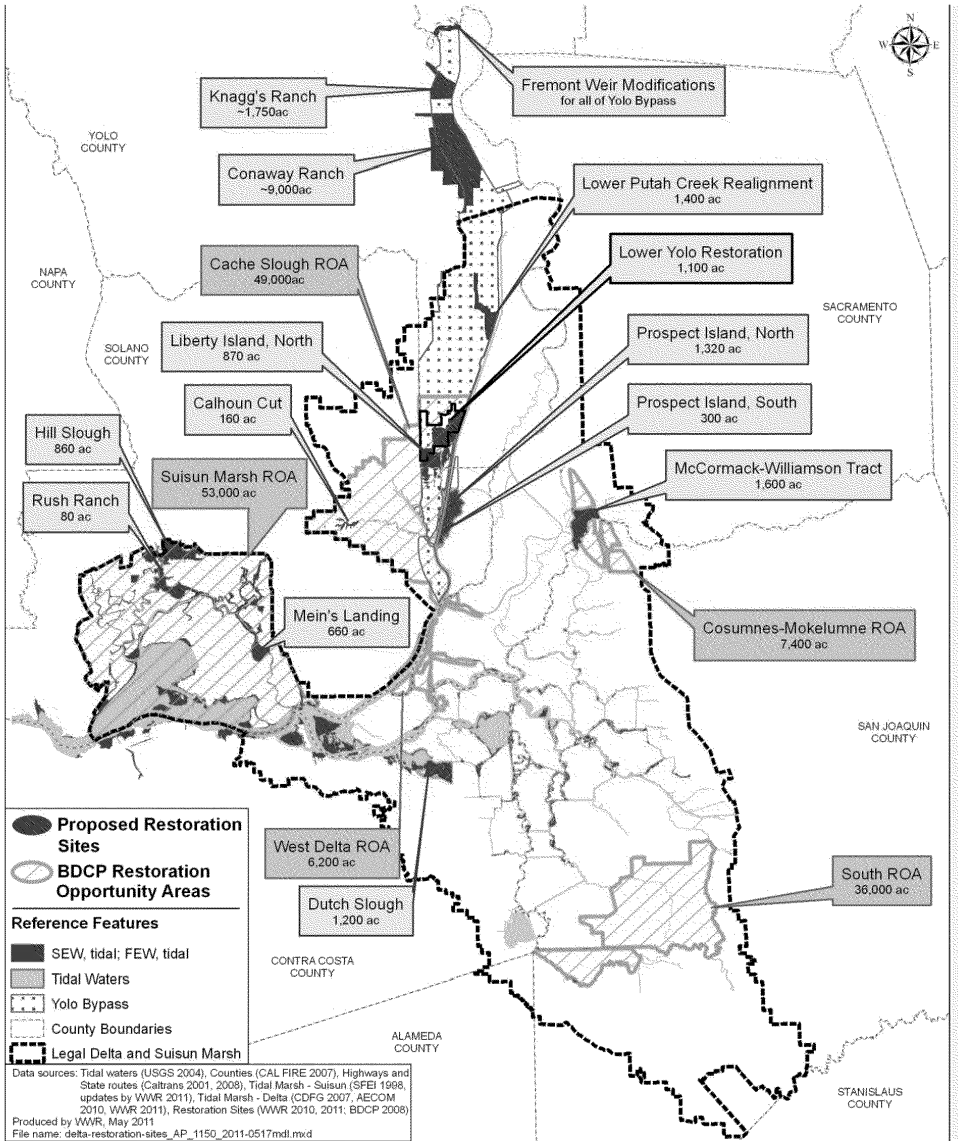
Sea Level Rise: A View of 2100 Without Intervention

A) Present tidal elevations



B) With 55” of SLR at 2100





Large-Scale Tidal Restoration: Marsh and Shallow Open Water

Regional Plans Calling for <u>Suisun and Delta Restoration:</u>

- Suisun Marsh Plan
- Delta Plan
- ERP Stage 2 Conservation Strategy
- Tidal Marsh Recovery Plan
- Bay Delta Conservation Plan
- Biological Opinions (Delta smelt, salmonids)

THANK YOU !
Browns Island Oct 2003
Photo: S. Siegel