Carbon Efforts in the Delta

SMUD Board of Directors

Campbell Ingram, Executive Officer

November 2025

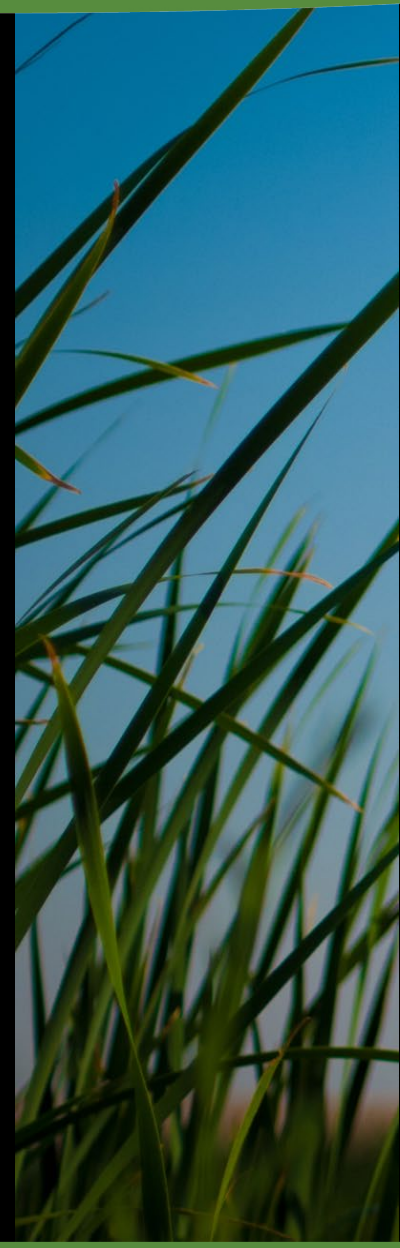
SACRAMENTO - SAN JOAQUIN

DELTA CONSERVANCY

A California State Agency

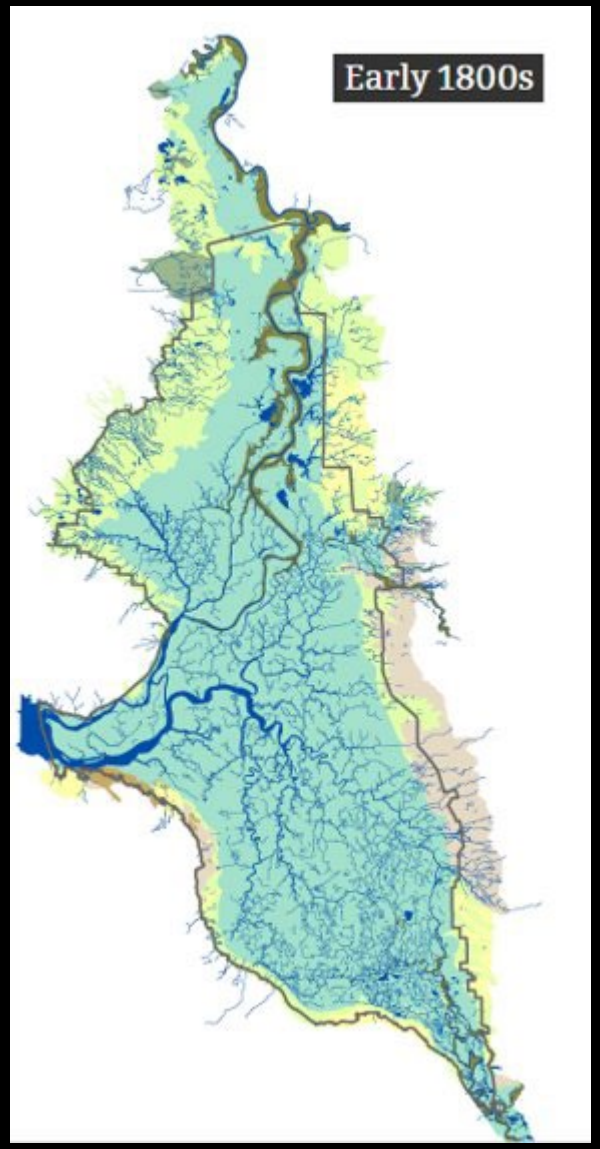
About the Delta Conservancy

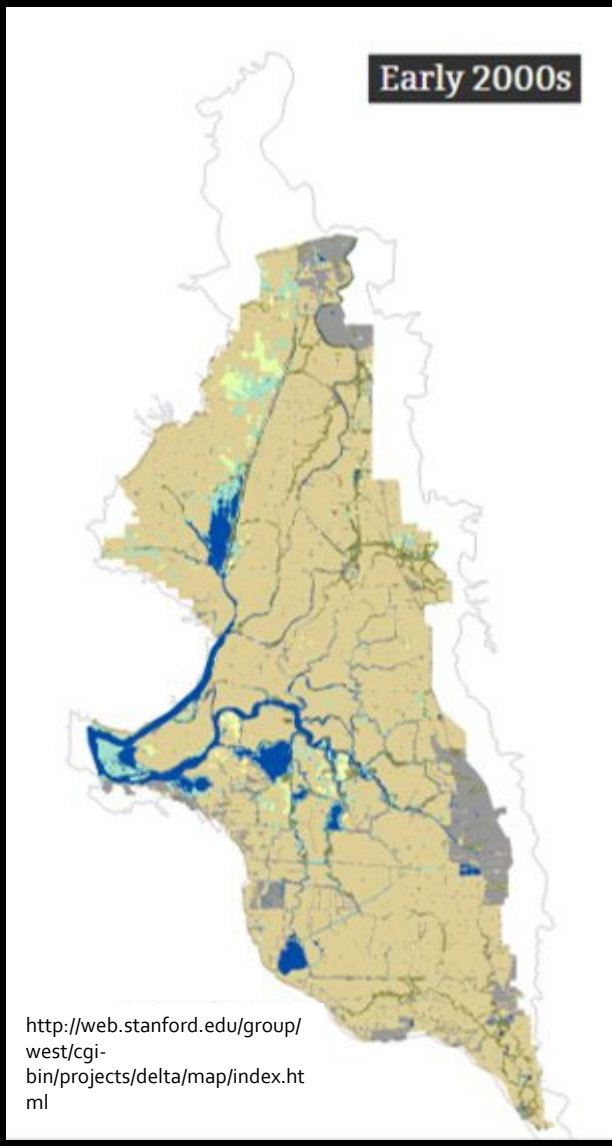
- The Sacramento-San Joaquin Delta Conservancy is a state agency created as part of the 2009 Delta Reform Act.
- **Purpose:** Be a lead agency for ecosystem restoration and efforts that promote environmental protection and economic wellbeing of Delta residents.



History of Carbon in the Delta

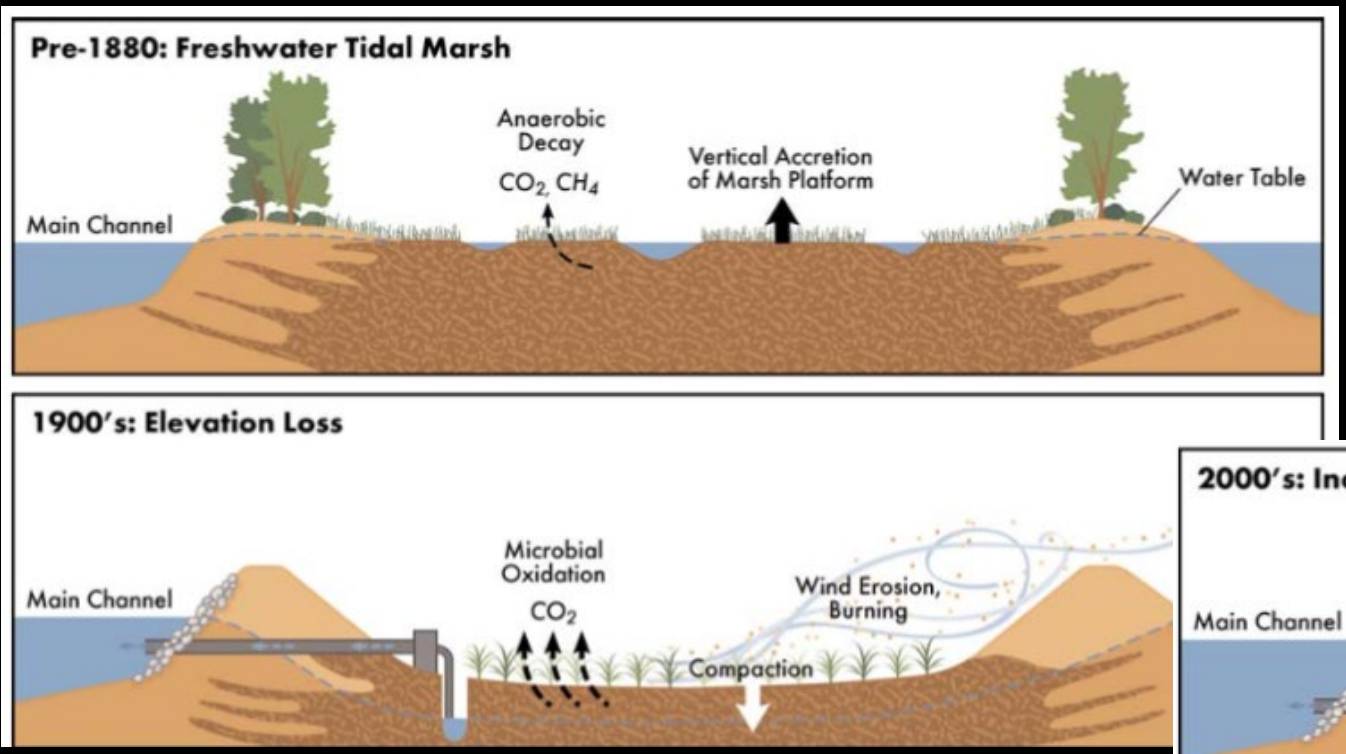
- Peat is highly organic soil
- Globally occupies 3% of land surface
- Contains 20% of terrestrial carbon
- Delta – wetlands created 5 billion metric tons of peat over the last 7,000 years and sequestered carbon



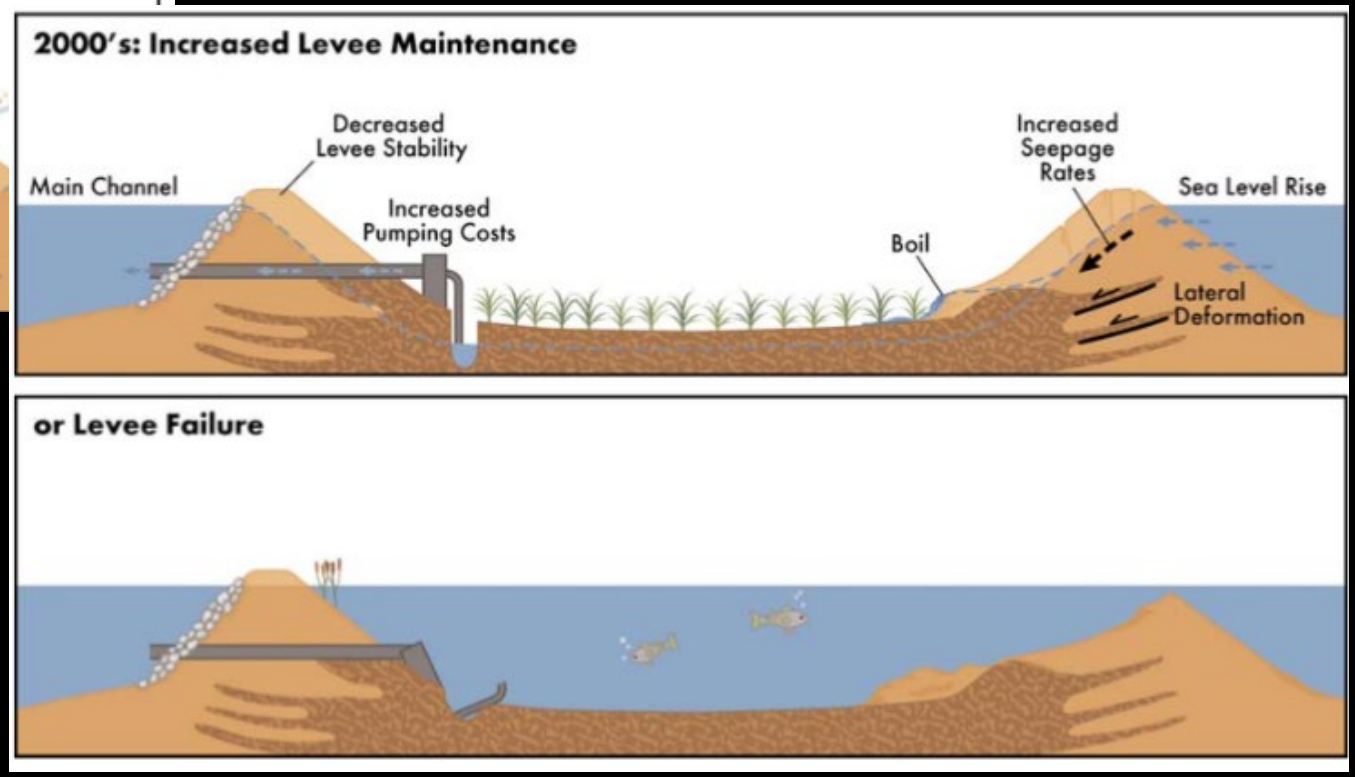


http://web.stanford.edu/group/west/cgi-bin/projects/delta/map/index.html

Deverel, Steven & Oikawa, Patty & Dore, Sabina & Mack, Sarah & Silva, Lucas. (2017). Restoration of California Deltaic and Coastal Wetlands for Climate Change Mitigation.



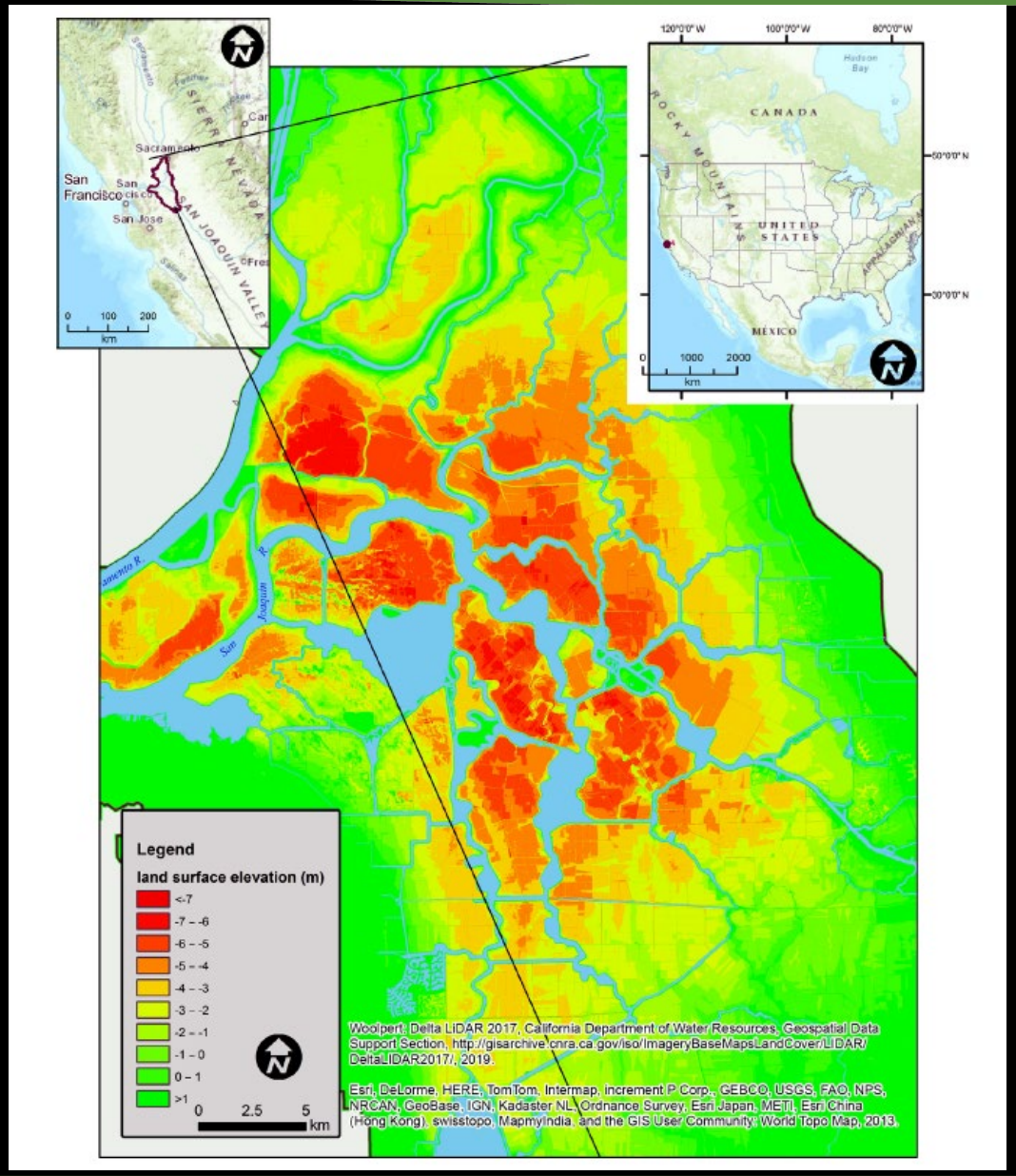
Since reclamation occurred (1850), half of the peat is gone and the Carbon is actively being released



Mount, J., & Twiss, R. (2005). Subsidence, Sea Level Rise, and Seismicity in the Sacramento–San Joaquin Delta. *San Francisco Estuary and Watershed Science*, 3(1). doi: https://10.15447/sfews.2005v3iss1art7 Retrieved from https://escholarship.org/uc/item/4k44725p

Subsidence and Emissions in the Delta

- Subsidence occurs about 0.5 – 2 cm per year
- Results from oxidation of peat soils
- 150,000 acres of land up to 25 ft. below sea level
- 1,2000,000 metric tons of CO_2 emitted per year - Equivalent to 325,000 vehicles
- 6% of the California's agriculture emissions
  Only 0.5% of the land area
- Risk of flooding due to pressure on levees



Deverel, S. J., Dore, S., and Schmutte, C. 2020. Solutions for subsidence in the California Delta, USA, an extreme example of organic-soil drainage gone awry. https://doi.org/10.5194/piahs-382-837-2020

Solutions

- Rewetting soil
- Agriculture:
  - Rice cultivation
  - Pro: Revenue
  - Con: no soil accretion
- Ecosystem:
  - Wetlands
  - Pro: Soil accretion
  - Cons: less revenue (for now)

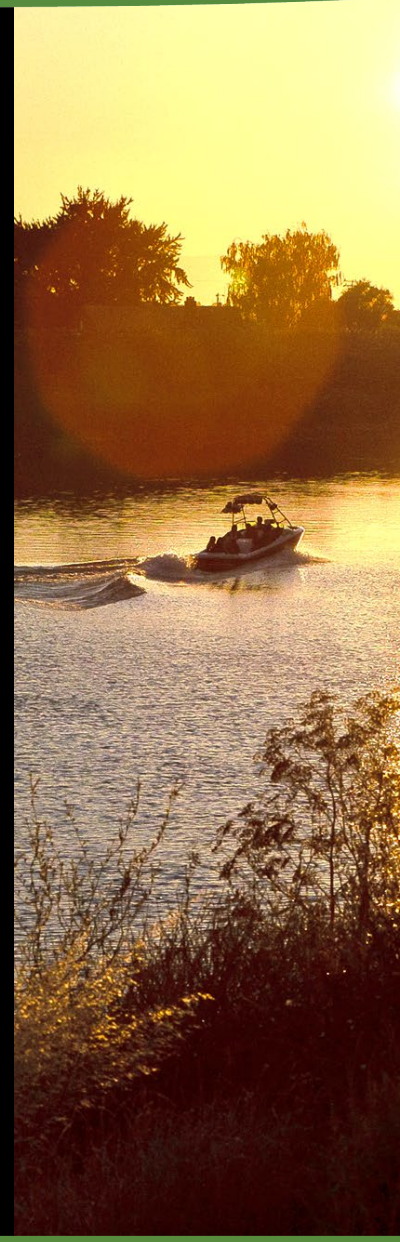
Carbon Market Protocol Development

- Conservancy championed Voluntary Market Protocol, approved in 2017
- Prices are nearing values high enough to incentivize ‘carbon farming’
- Adopting the existing voluntary market protocol under the Cap-and-Trade compliance market will likely increase revenue

Deverel, Steven & Oikawa, Patty & Dore, Sabina & Mack, Sarah & Silva, Lucas. (2017). Restoration of California Deltaic and Coastal Wetlands for Climate Change Mitigation.

Carbon Farming Projects

- Carbon farming: converting lands that are too wet to farm into managed wetlands
- First Delta Carbon Farming Projects:
  - Sherman and Twitchell Islands (2,000 acres) – credits registered on market
    - Delta Conservancy funded technical assistance
  - Staten Island (426 acres)– credits were recently validated
    - Delta Conservancy to fund construction
  - Webb Tract (~2,400 acres) – quantification on-going
    - Delta Conservancy to fund construction

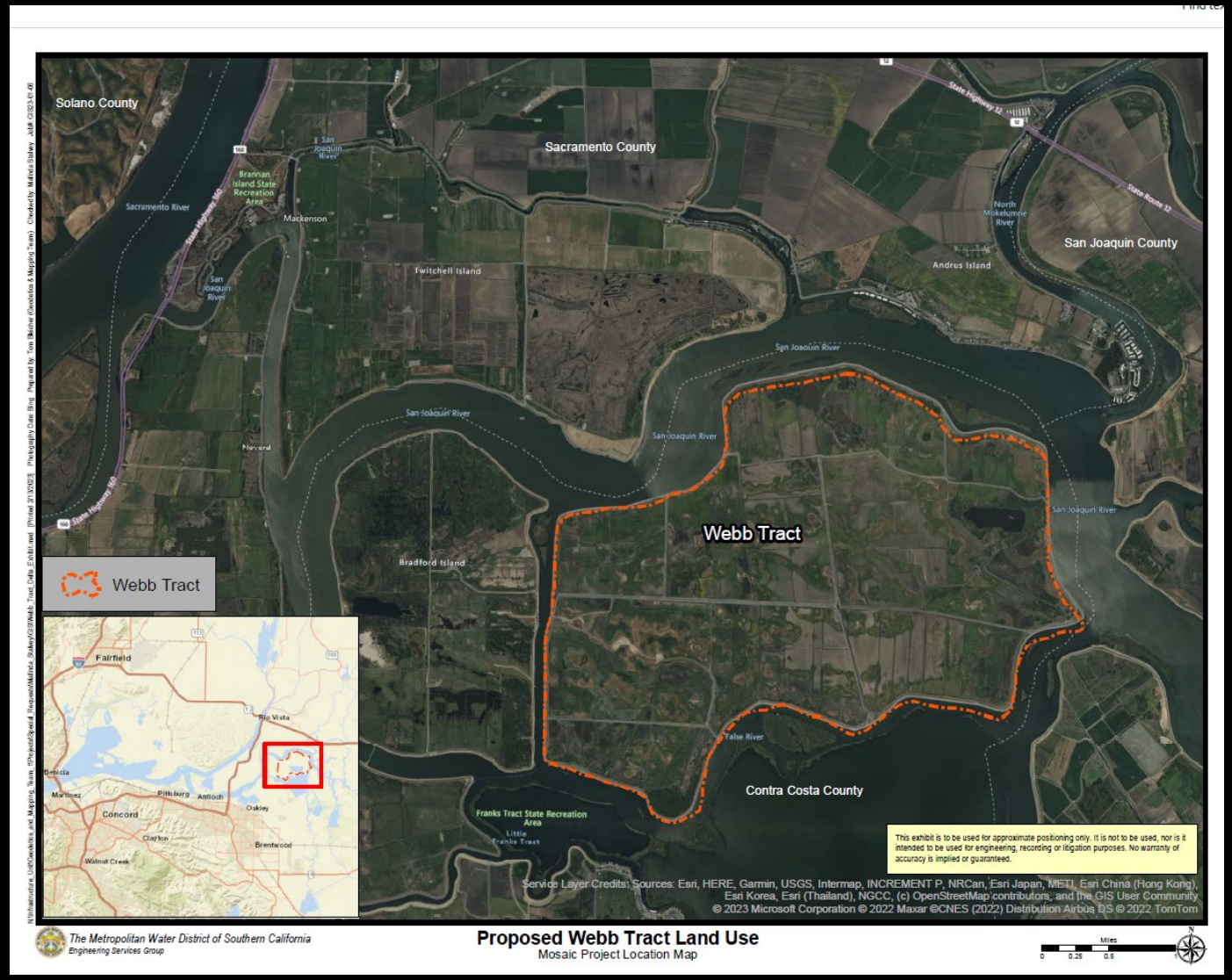


Nature-Based Solutions: Wetland Restoration Grant Funding

- Goals: to support restoration, conservation, and climate resilience for wetlands in the Sacramento-San Joaquin Delta
- $36 million obligated
- Awarded to four projects
- 11,000 acres of land throughout the Delta
  - Rice (6,500 acres) and wetlands (4,600 acres)
- Nature Based Target: treat 50,000 acres of deeply subsided lands by 2045. Cost: $250,000,000

Webb Tract Mosaic

- ~1,300 acres rice
- ~2,400 acres wetlands
- Upland and other habitats
- Metropolitan Water District of Southern CA



Delta Rice Incentive Program

- Pays cost of conversion to rice to private farmers
- 4,000 acres enrolled
- The Nature Conservancy and Conservation Farms and Ranches
- Bird benefits

Land Acquisition on Bethel Island

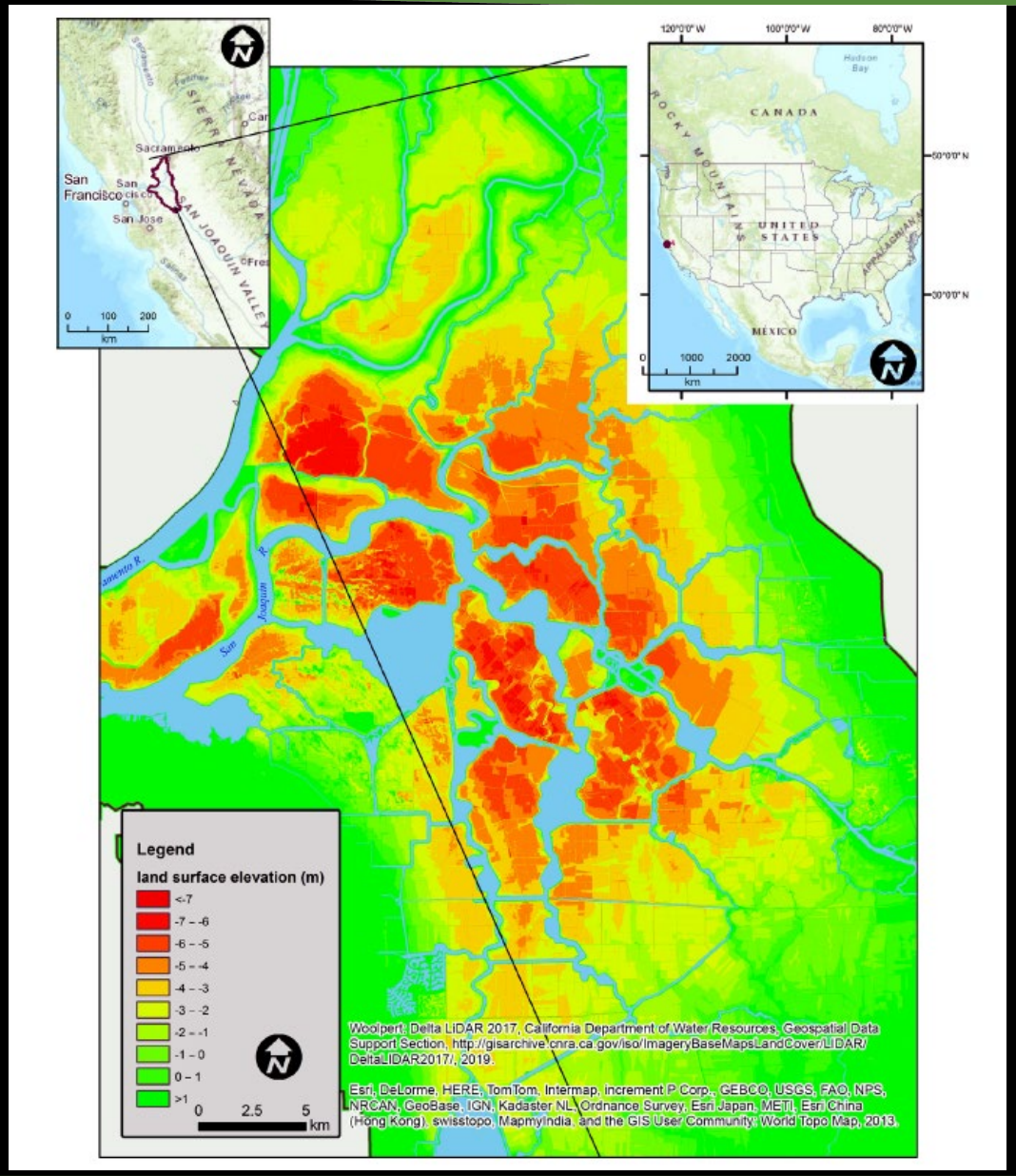
- 600-acre parcel
- Future: permanent wetlands
- John Muir Land Trust

Staten Island

- 500 acres of wetlands
- The Nature Conservancy
- Conservation Farms and Ranches
- 4,000 acres rice, 1,000 acres wetland

Emerging Opportunities

- Jersey and other islands
- DWR strategy for Sherman and Twitchell islands
- Prop 4 funding cost share for rice conversion program
- CDFA, SWEEP and HSP
- Carbon market Contribution Approach



Contact

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