

Growth, Water Supply, and the Sacramento- San Joaquin Delta

Ellen Hanak



Overview

- California's top water concerns
- Challenges in the Delta
- Recommendations



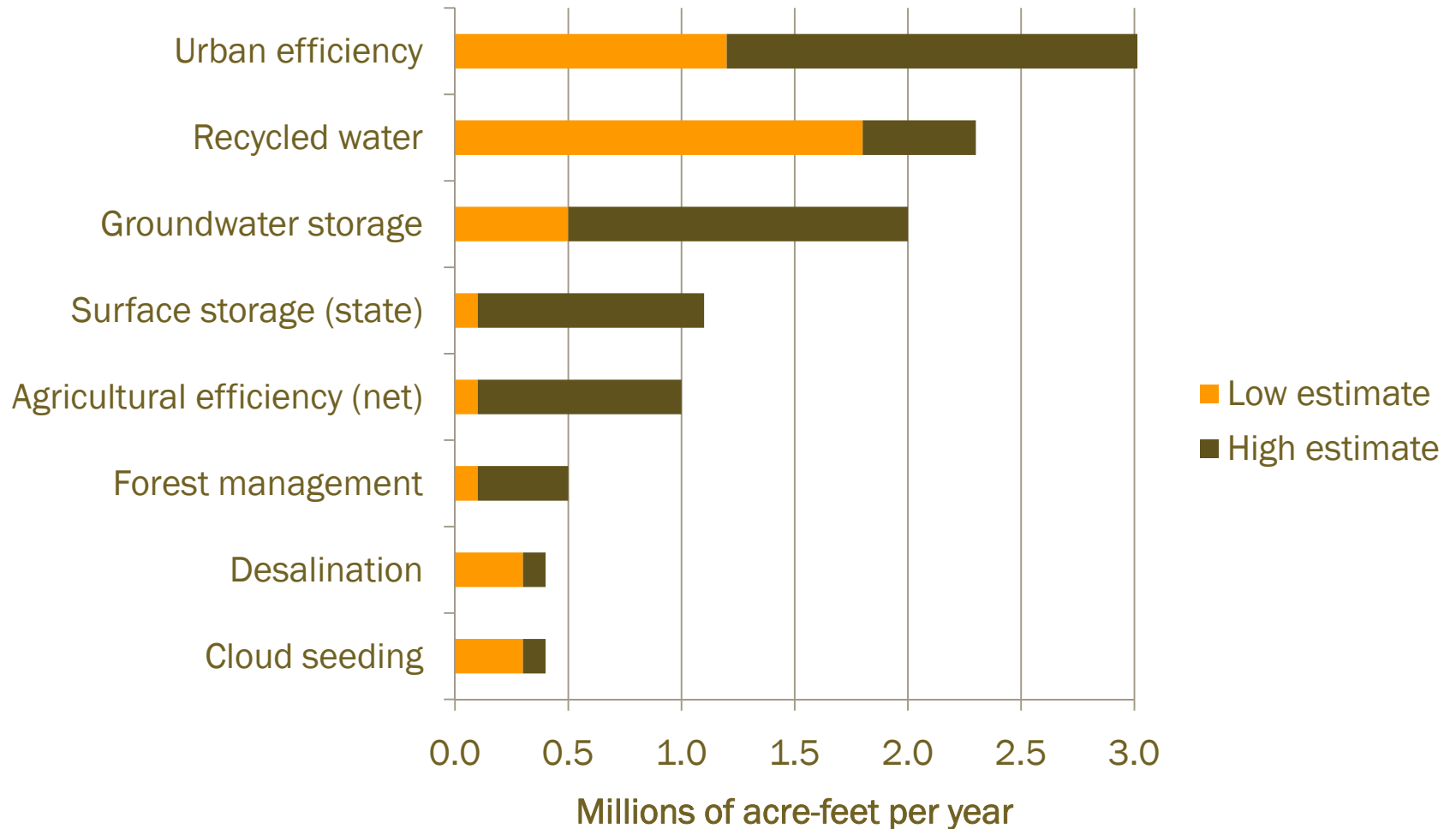
California Faces Long-term Water Supply Challenges

- Population growth = new demands
- Unmet environmental needs
- Planned reductions in Colorado River
- Hard to expand traditional sources (surface reservoirs, native groundwater)
- Climate change = less snowpack, less rainfall?



Good News: Many Options for Generating New Supplies

Additional annual water available by 2030 for California



And Lots of Innovation Underway, Especially Since Early 1990s

- Groundwater banking
- Rise of water markets
- Technology and pricing for efficiency
- Improved regional cooperation

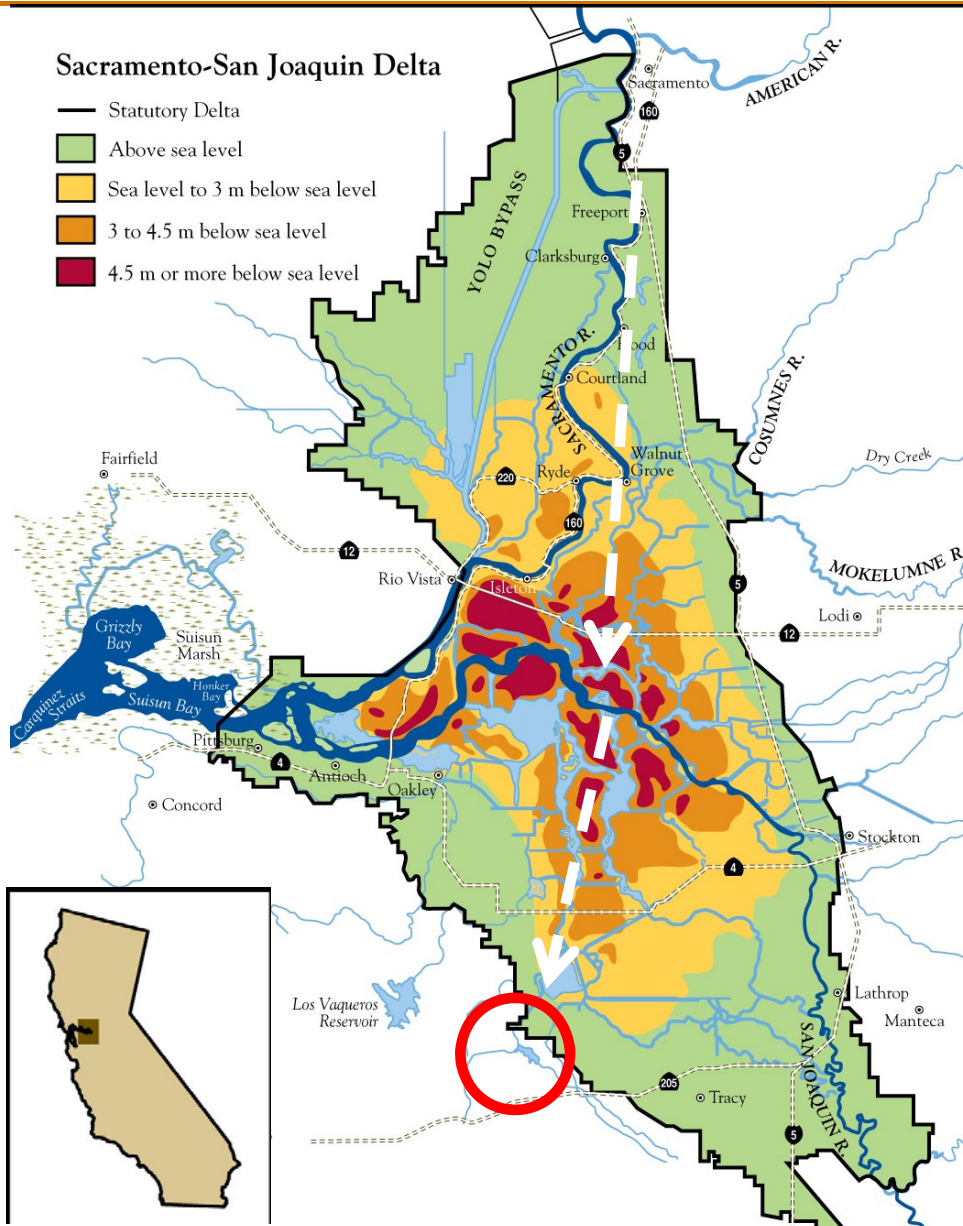


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The Delta Poses Major Risks to State's Water Supplies



- Supply hub for:
 - Bay Area cities: 30% direct, 40% indirect
 - So. Cal. cities: 30%
 - So. Central Valley farming: 30%
- High risk of shutdown:
 - Levee failures
 - Species collapse

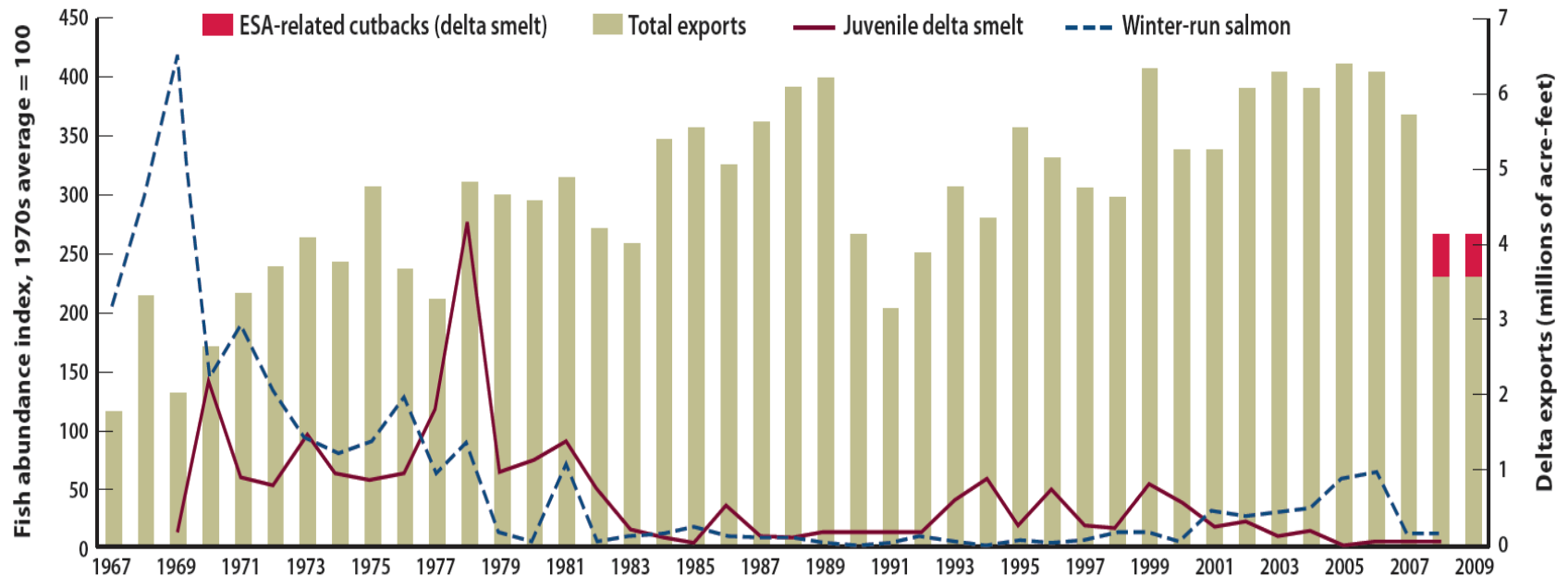


Delta smelt



Drought a Much Larger Factor Than ESA in Recent Pumping Cutbacks

But cutbacks will have a larger impact in wet years, preventing replenishment of aquifers and reservoirs



SOURCES: Authors' calculations using Department of Water Resources data on exports (DAYFLOW and CDEC) and Department of Fish and Game fish survey data.



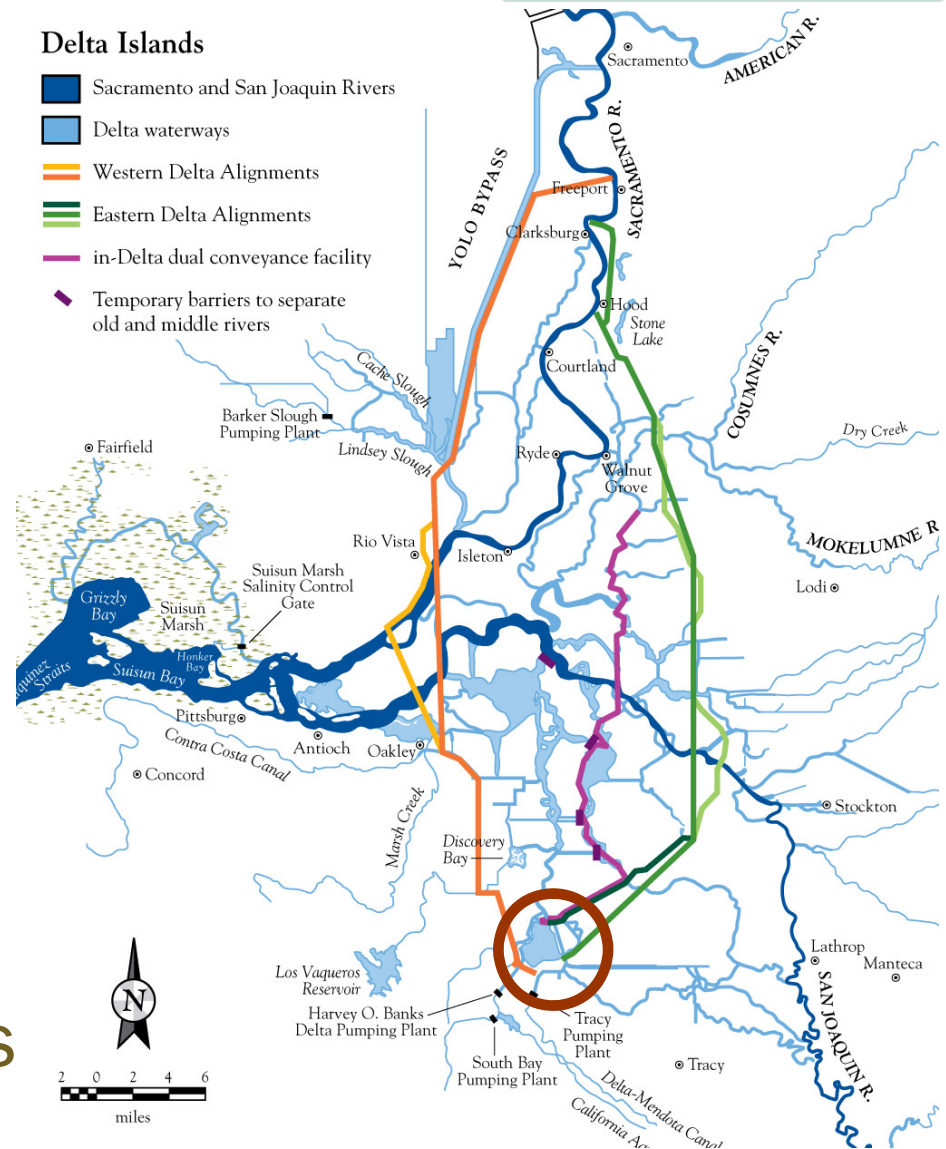
Other Consequences of a Broken Delta

- Harder to cope with droughts
 - Transfers from Northern California farmers can't always get through
- Harder to manage effects of climate change
 - Transfers a key tool



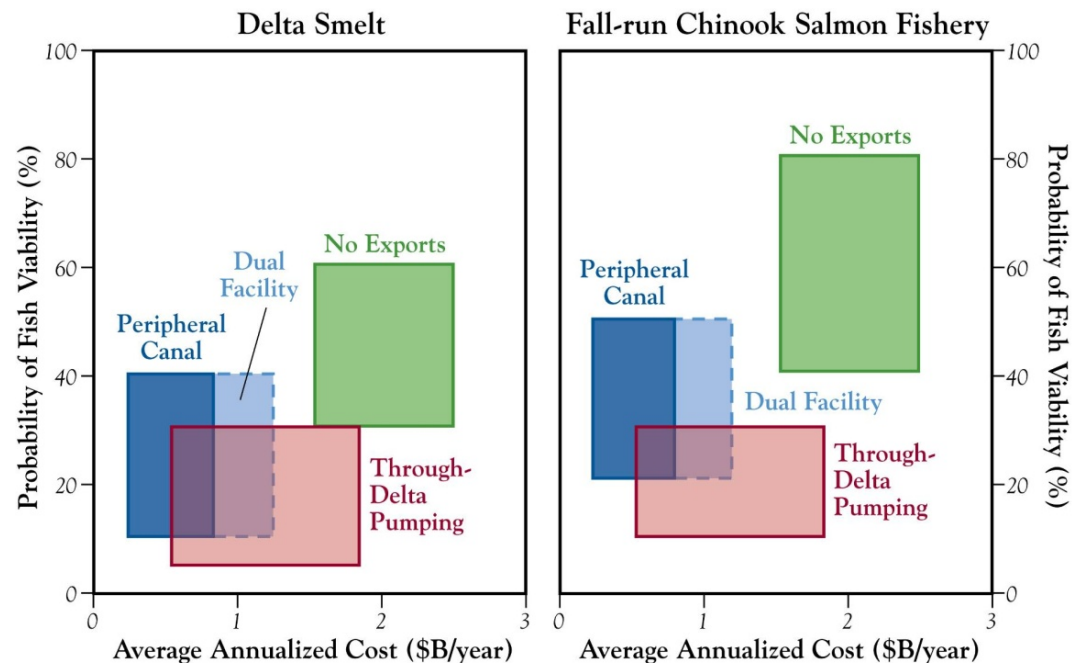
What Are the Water Supply Options?

- **Current Strategy:** through the Delta
- **Peripheral Canal or Tunnel:** around or under the Delta
- **Dual Conveyance:** both through and around the Delta
- **No Exports:** use other water sources and use less



A Peripheral Canal Is Best Option to Meet Co-Equal Goals

- Cheapest for water supply reliability
- Better for ecosystem health than current through-Delta pumping



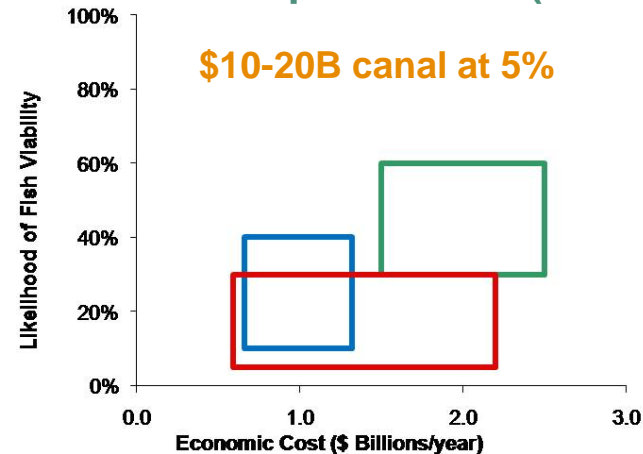
Assumes canal costs \$5-10B and exports reduced to 3.6-4.5 maf/year from historic highs of 6 maf/year



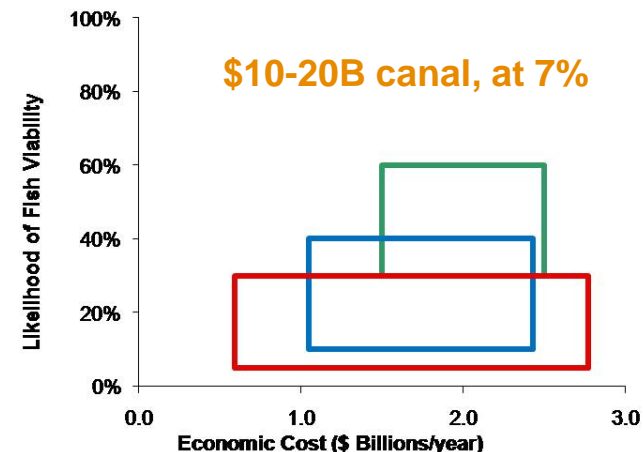
But, There is a Walk-Away Price for New Conveyance

- Three important cost factors:
 - Canal/tunnel costs
 - Export volumes
 - Interest rates
- In a high cost/low export volume scenario, adapting to no exports becomes competitive with building new conveyance

Historic Export Levels (6 maf/yr)



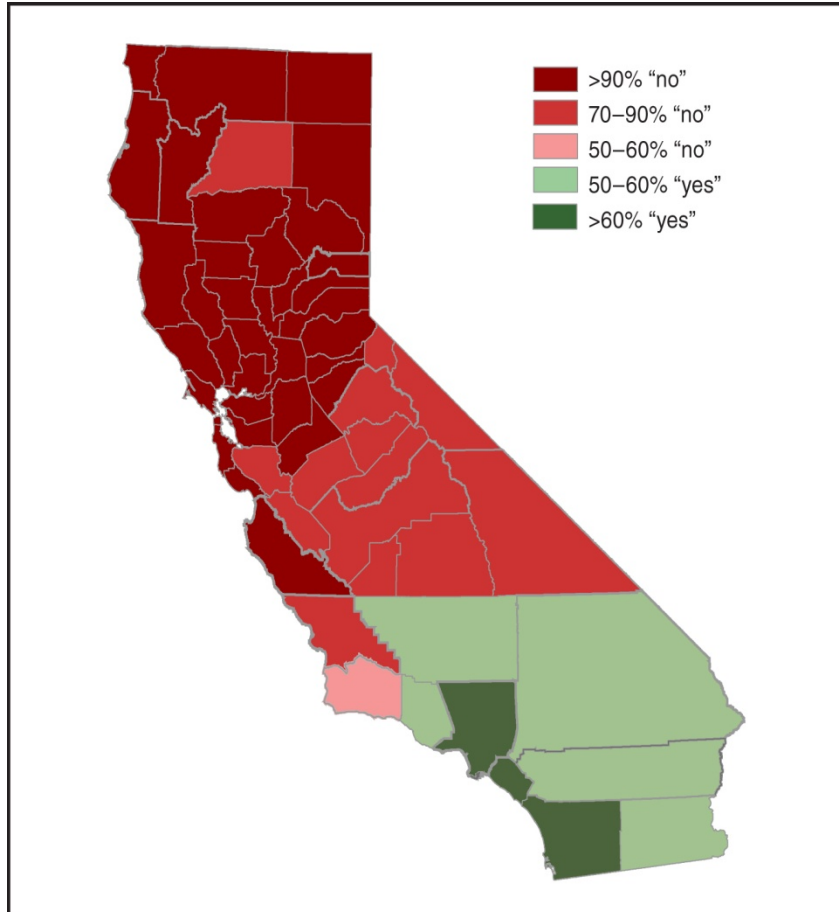
Reduced Export Levels (3.6-4.5 maf/yr)



Scenarios assume interest costs for 10 years of conveyance investment pre operations



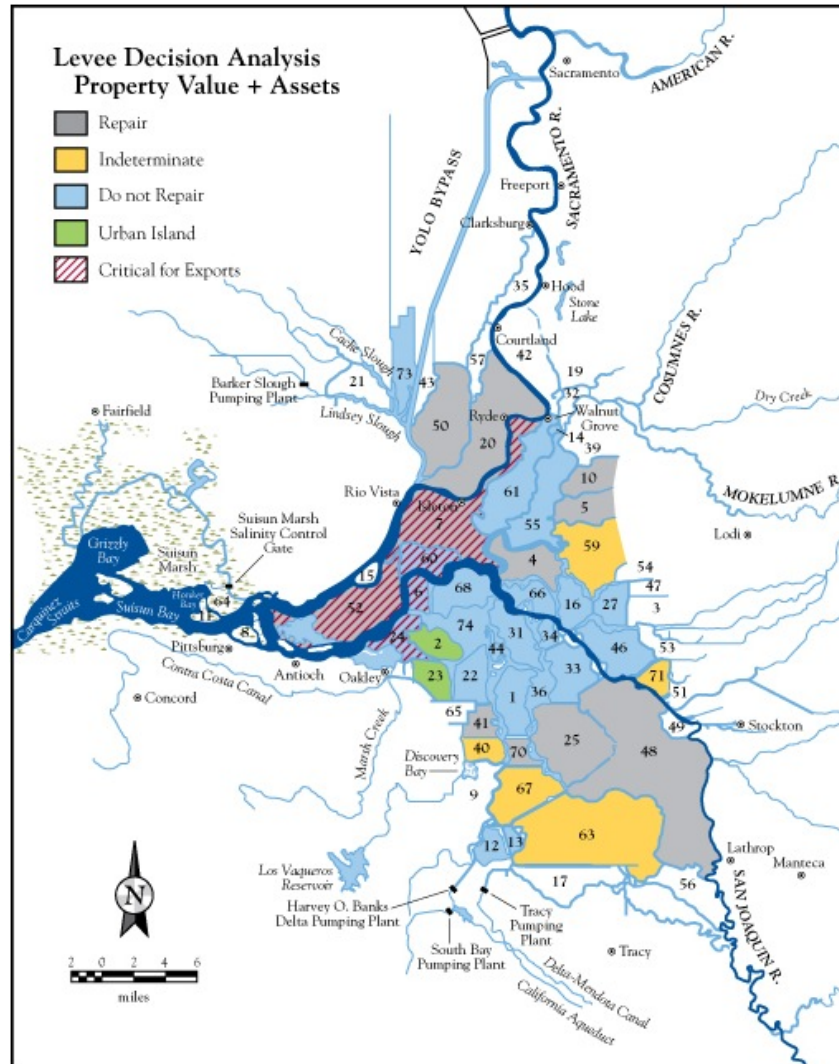
Peripheral Canal Will Require Governance Safeguards



June 1982 vote on Prop 9

- Key concerns:
 - Environmental flows, habitat investments
 - Nor. Cal. (Sac. Valley) safeguards on water exports
- Transition assistance also needed for Delta region

No Matter What We Do, Delta of Tomorrow Will be Different



- Large bodies of open water and higher sea level
- Losses of 15-20 islands where repair costs prohibitive
- Some declines in farm economy, potential gains in recreation

Based on economic value of land and assets, many islands not worth repairing after flooding (blue)



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California Needs to Resolve the Delta Crisis

- Build a peripheral canal or tunnel to meet environmental and economic goals
- Move away from levees as key means of managing Delta
- Actively prepare for a changing Delta ecosystem
- Develop a new framework for Delta governance, regulation, and finance



Financing Principles for the New Delta

- Users pay for canal
 - Model: State Water Project
- *All* diverters contribute to eco-flows/eco-funds
 - Upstream diverters use nearly twice as much Delta water as export users
- Public funds may be appropriate for
 - Ecosystem investments
 - Mitigation for Delta residents and landowners

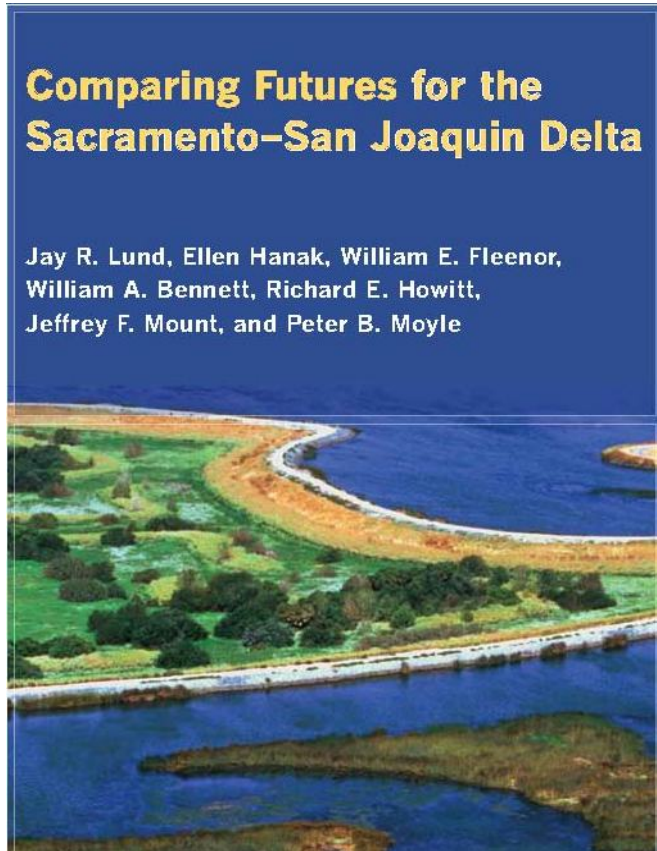


2009 Legislative Package Is a Start

- Delta governance: Delta Stewardship Council and flows proceedings
- 20 % by 2020 water conservation targets: Can reduce dependence on Delta
- New rules for groundwater monitoring and funds for water rights enforcement
- Nov 2010 water bond: Costly to taxpayers but would fund Delta ecosystem and many components of water portfolio



Findings and Recommendations from PPIC Delta Report



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Available at: www.ppic.org

Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.

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