

# Flood restoration in the Sacramento-San Jose delta in the USA

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on behalf of case study leader professor Jay Lund, co-director of the Center for Watershed Sciences, University of California at Davis

*A contribution to the international knowledge exchange symposium on controlled restored flooding cases*

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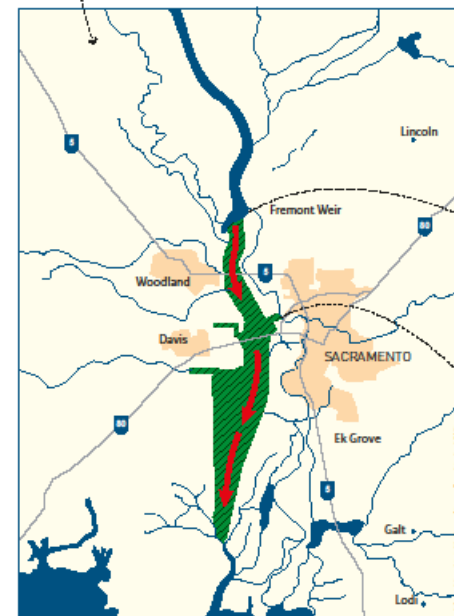
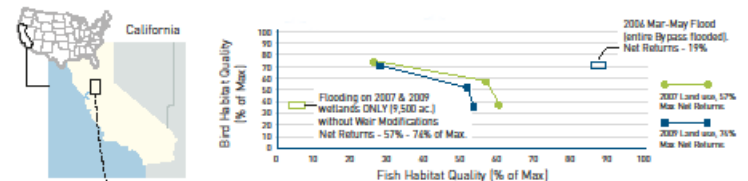


# Case introduction

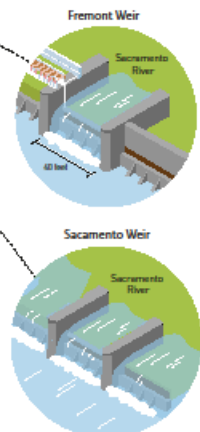
- Large area, many examples
- Salt ponds, agriculture, urban development in 19<sup>th</sup> century
- Issues: land subsidence and increased flood risks
- Example: Yolo flood diversion bypass
- Agriculture, flood safety and nature restoration
- Economics of land use

## Controlled flooding for ecosystem restoration in California

Seasonal and permanent wetlands in California have often been drained and disconnected from rivers and waterways by levees, to form 'islands' intended for agriculture and urban development. Efforts are underway to restore wetlands to permanent and seasonal flooding in many parts of California, including San Francisco Bay, some coastal lagoons, and some sizable areas in the Central Valley Bay. As an example, the Yolo flood bypass contributes to restoring native ecosystems for fish and birds, improve water supply operations, and reduce flood risks. The economic productivity of land use and associated protection costs is an important consideration. Environmental restoration goals are sometimes preferred over safeguarding lower-value economic activities in the delta's 'islands'.



A multi-objective optimization model was developed to help planners identify management options that best improve habitat quality for fish and birds with minimal costs to farmers or wetland managers. This work suggests that modest land use changes and inundation management could significantly improve seasonal bird and fish habitat quality, at little cost to farmers or other human uses.

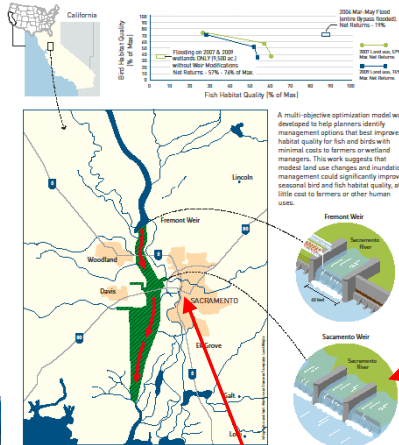


# Visual impressions



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# Key findings

## Immediate effects

- Restored flooding supports nature restoration (conditions!)
- Flood risk reduction for Sacramento (e.g 2017)

## Preliminary conclusions

- Societal development calls for new forms of land and water management
- Socio-economic tradeoffs: CBA to restored flooding
- New land ownership