

What Does Integration of Water and Ecosystems and “Wet-Period” Diversions Mean for the Delta and Elsewhere?

Delta Vision Blue Ribbon Task Force
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Strategy 7 Overview

Restore Delta flows and channels to reflect California climate patterns and support a healthy Delta estuary



General Features of Strategy 7

- Increase environmental water quantities to achieve specific ecological outcomes and water quality improvements
 - Increase spring Delta outflow
 - Achieve variability in fall Delta outflows
 - Net positive (downstream) flows on the San Joaquin River February to June
 - Fall pulse flows on San Joaquin River
- Reconfigure Delta waterways to increase variability in circulation patterns more reflective of natural conditions

Intended Outcomes of Strategy 7

- Aquatic habitats
- Connectivity between floodplains, marshes, and aquatic habitats
- Transport
- Migratory cues
- Water quality improvements
- Physical estuarine variability

Spring Delta Outflow Increase

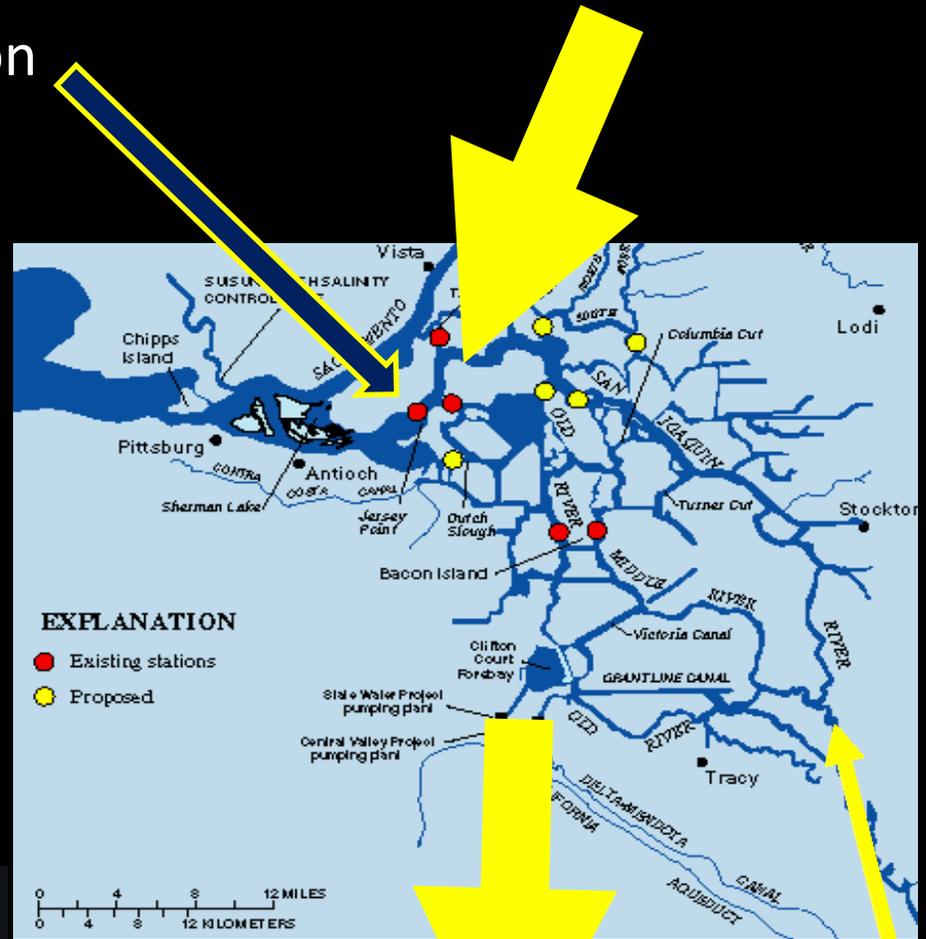
- Up to the 60,000 cfs Delta outflow, provide greater percent of unimpaired (total watershed) flow to the environment (system converts to flood control operations at higher flows)
- Greatest increases in driest periods: while *percent* increase is high; *amount* of water relatively little
- Least increases in wettest periods

Fall Delta Outflow Variability

- 12,000 to 18,000 cfs outflow for two months between August and November during below normal, above normal, and wet years
- When linked with spring outflow increases, more closely reflects natural hydrology
- In dry years will see some salinity in the Delta

Net Positive San Joaquin River Flows

- Jersey Point as reference location
- February to June each year
- Tie flows to percent of SWRCB requirements at Vernalis (2006 Water Quality Plan)
 - Short-term: 20%
 - Longer term: 50%



Combined
export flow
10,000 cfs

San Joaquin
flow 1,000 cfs



San Joaquin River Fall Pulse Flows

- 2,000 to 3,000 cfs at Vernalis
- 7 to 14 days duration
- Once or twice between September to November
- Timed for fall-run salmon adult up-migration
- Benefits lower San Joaquin water quality

Final Thoughts

- Targets in this Strategy should be construed as best estimates *at this time* (e.g., 8 River Index convenient but not thorough)
- In near term, need to *evaluate targets* and *refine and evaluate approaches* using DRERIP, water supply models, economics, other
- Clear implications for flow releases , conveyance, storage, demand reduction, contaminant discharge and other stressors control, strong adaptive management program

Strategy 4 Overview

*Improve the reliability and predictability
of water diverted from the
Delta watershed to support
the co-equal values*



General Features of Strategy 4

- Increase our knowledge of the relationships between upstream, in-Delta, and export diversions and the Strategy 7 objectives
- Establish a decision processes that concludes with an action plan to construct infrastructure improvements
- Build a “Middle River” solution as part one of improved Delta conveyance
- Build storage (and conveyance to storage) as determined necessary

Decision Process

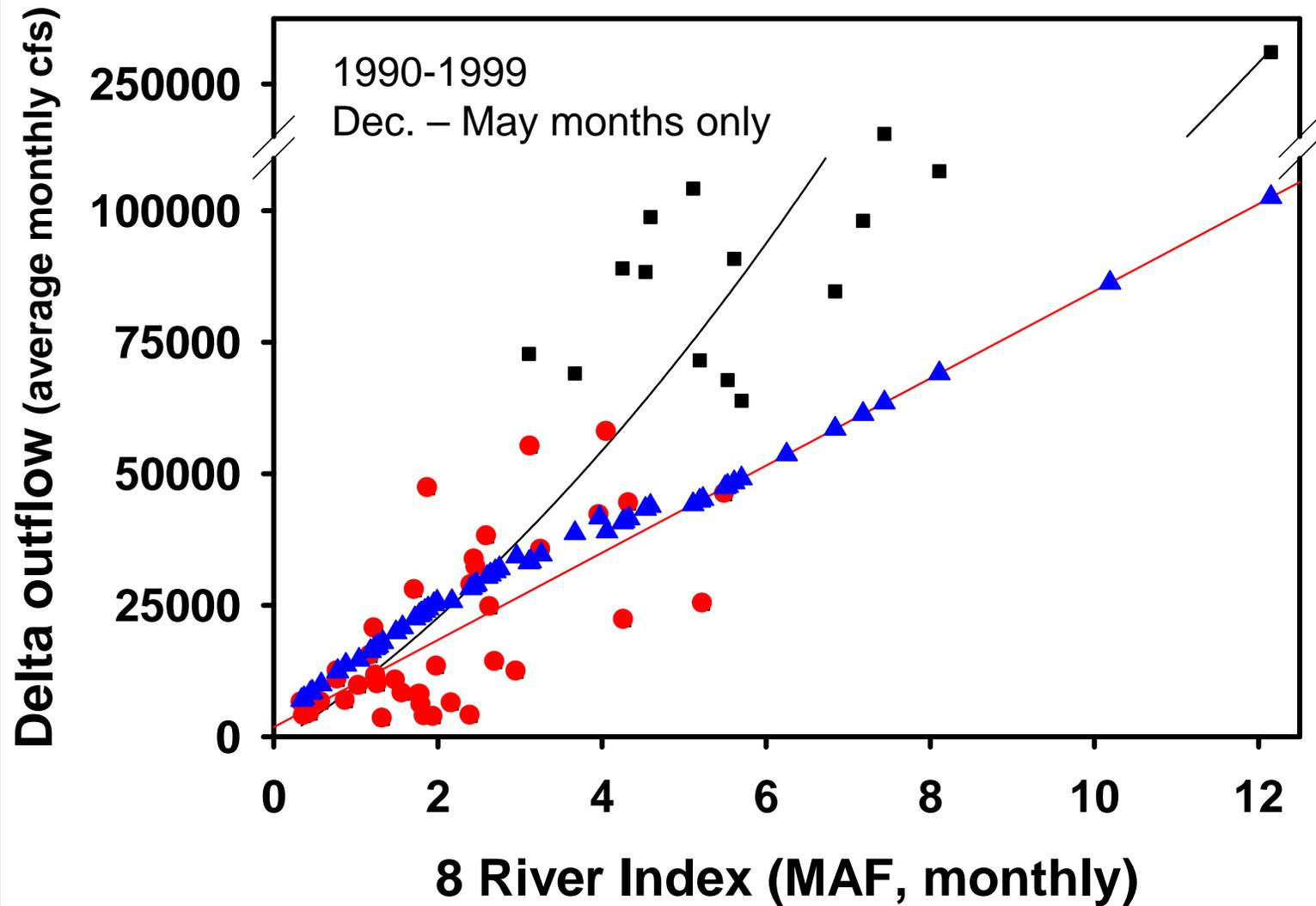
- Objective: using knowledge gained over a defined period:
 - decide on the **degree of diversion flexibility**
 - adopt an **Action Plan** for constructing infrastructure and entitling management mechanisms
- Use analysis tools to assess needed water delivery system response, ecologic functions, and economic factors when Strategy 7 flow objectives are instituted
 - Build upon BDCP modeling tools
 - Evaluation of “balancing” for co-equal goals (e.g. how big must Delta conveyance be to obtain acceptable levels of export?)

Decision Process (cont.)

- For Strategic Plan, suggest we include a final set of “decision criteria” that would include 10 to 20 factors used by CDEW Council that cover:
 - ✓ Delta ecologic performance from flows
 - ✓ Economic implications (capital for storage/conveyance, value of avoided shortage, net incomes, etc.)
 - ✓ Surface water supply reliability and quantity (upstream/export long-term averages, storage and conveyance requirements)

END OF PRIMARY PRESENTATION

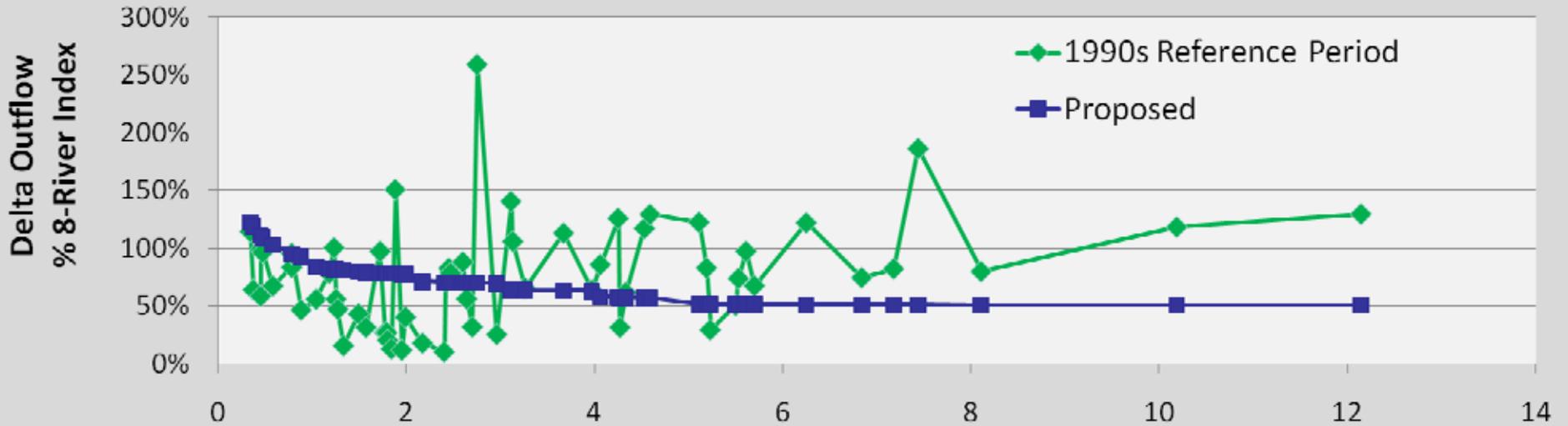
The following slides are available as reference during dialogue with the Task Force members.



- Delta outflow < 60,000 cfs (average monthly cfs, Dayflow)
- Delta outflow > 60,000 cfs (average monthly cfs, Dayflow)
- ▲ Delta outflow Objective (average monthly cfs)

Delta Outflow as Percent of 8 River Index

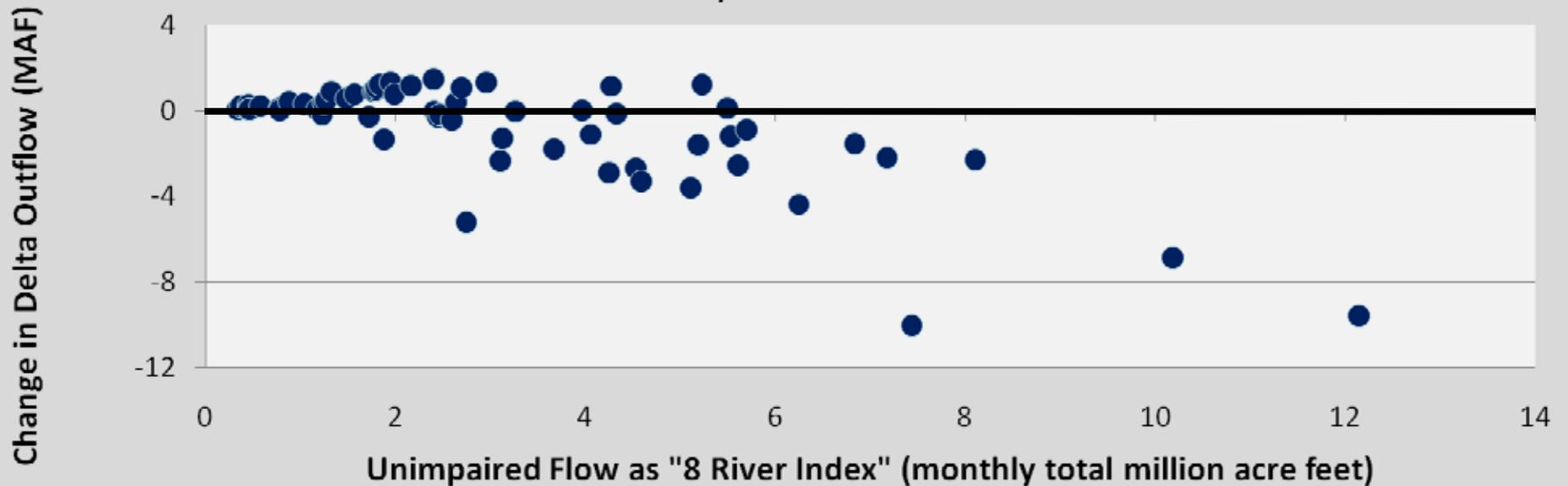
Dec-May 1990-1999 Reference Period



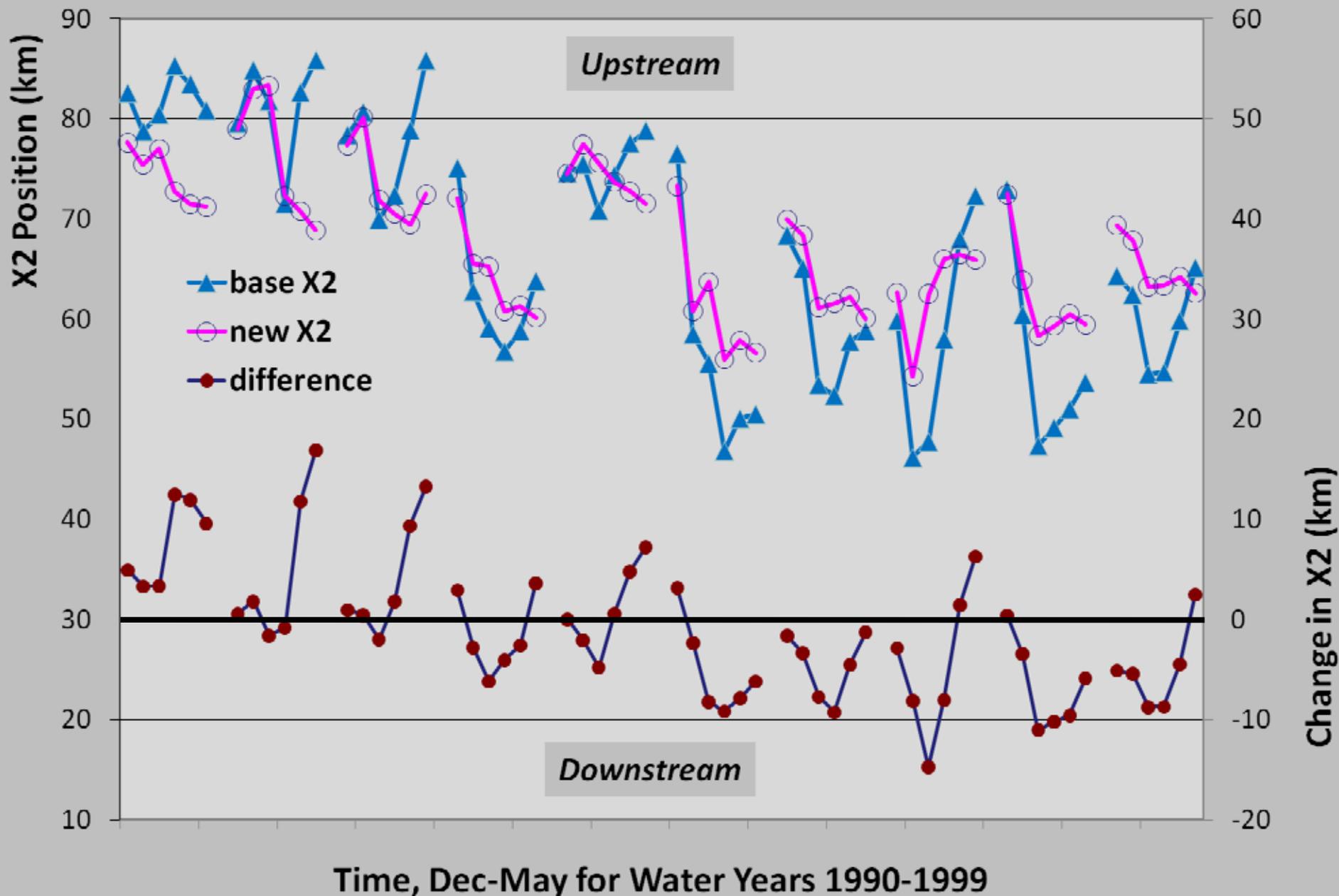
Note: each month strongly influenced by prior month conditions, making proposed changes approximations

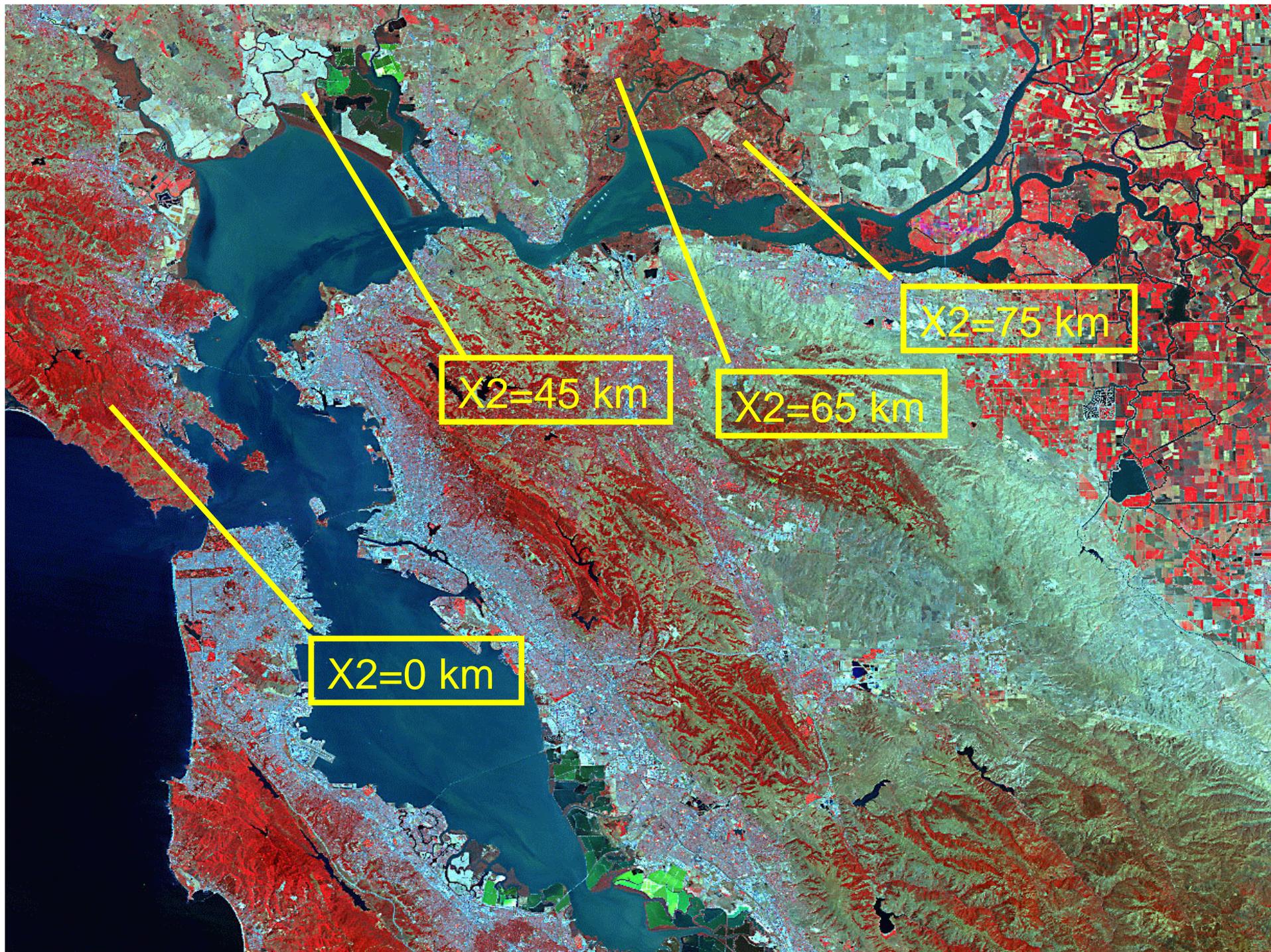
Change in Delta Outflow

Dec-May 1990-1999 Reference Period

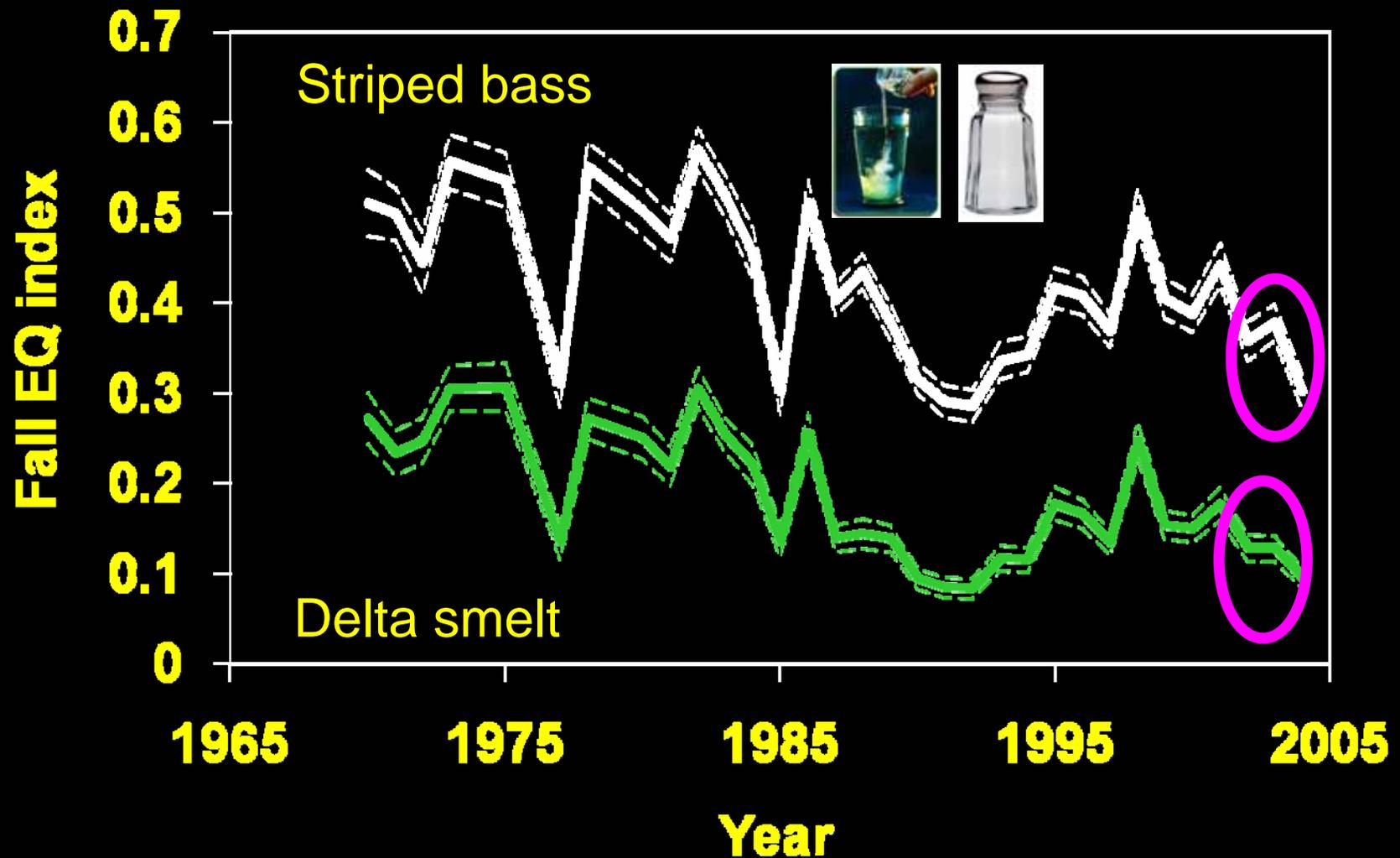


Effect on X2 of Proposed Spring Flow Changes





Fall "habitat quality" deteriorated



Source: Feyrer et al. (CJFAS 2007)

Channel Reconfiguration

