

Bay-Delta SCHISM: Drought Work 2015

Knights Landing

Sacramento

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Delta Modeling Section, DWR

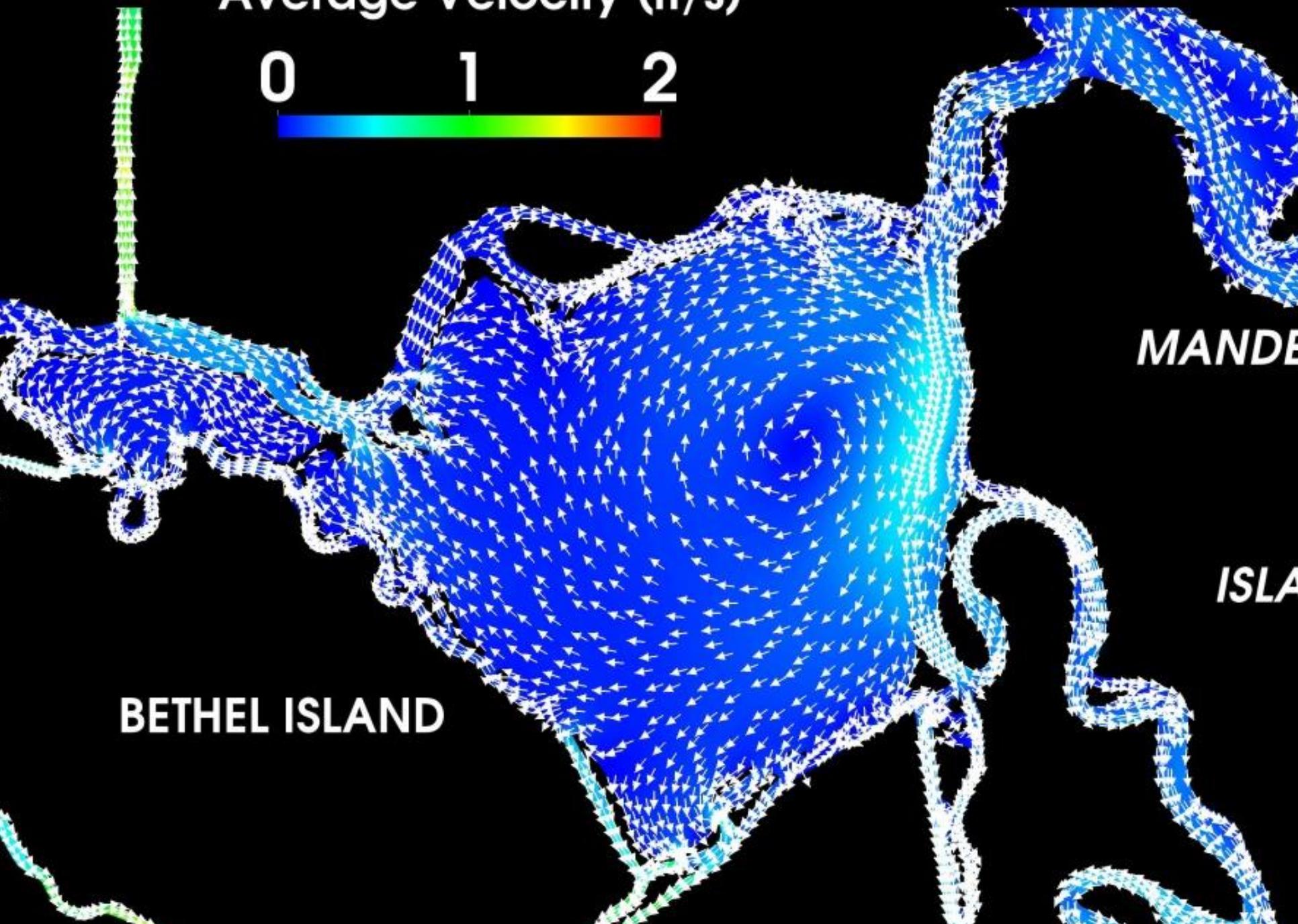
June, 2015



Far

Average Velocity (ft/s)

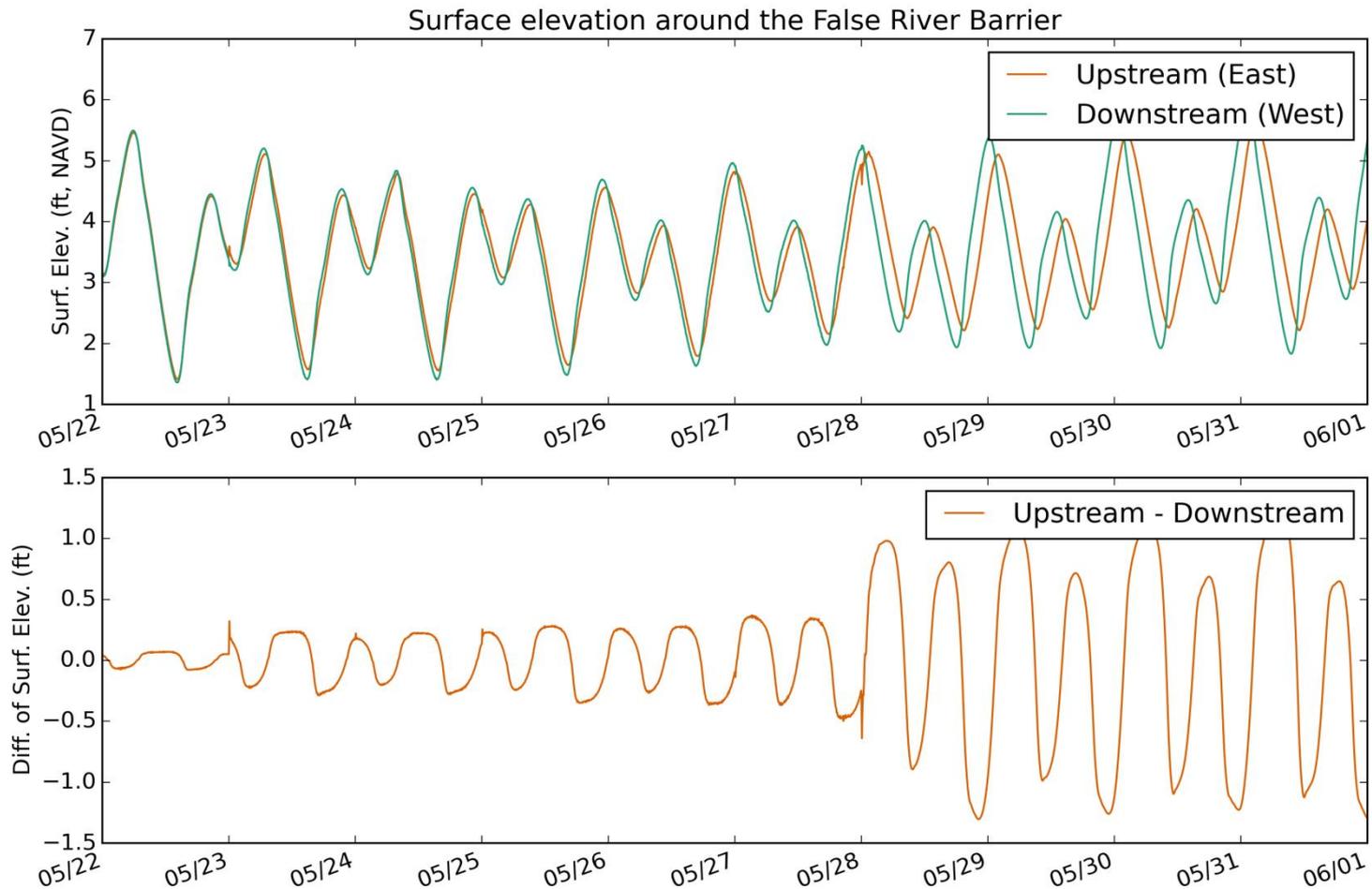
0 1 2



Circulation in Franks Tract

- Jet moves from False R to Old R
- Flow more oblique
 - Hypothesis: circulation
- Monitoring
 - Remote sensing: NASA-HICO
 - DWR: pile for W.Q.

Phase and Tide Changes

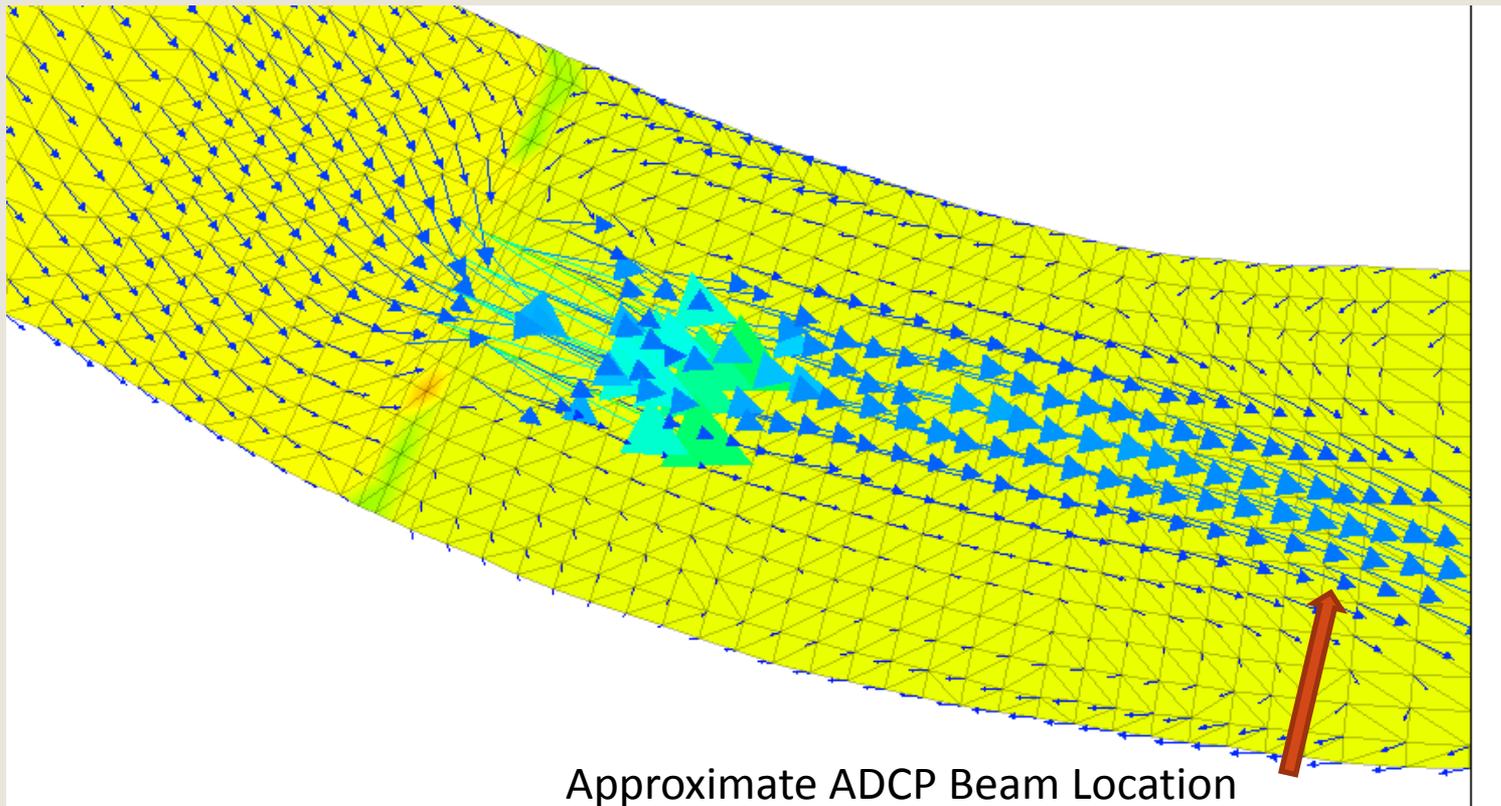


Phase and Tide

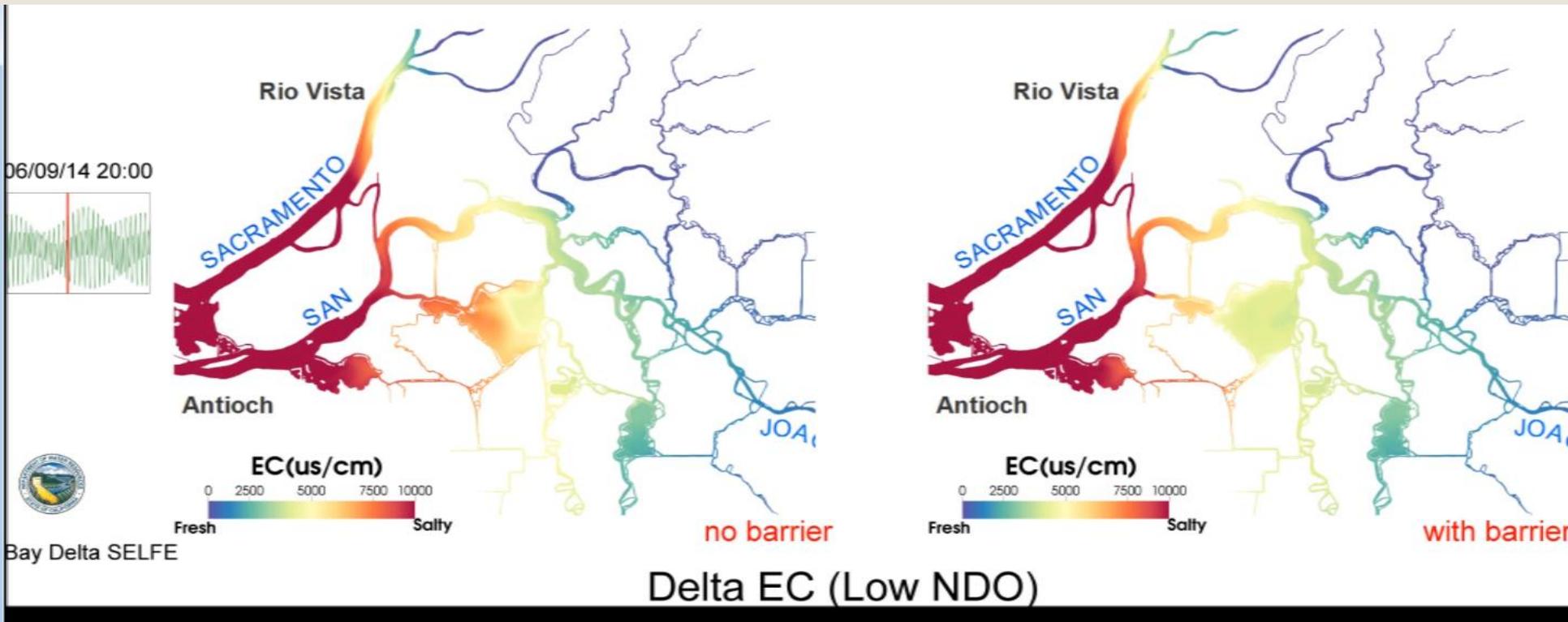
- 90-120 minute delay with barrier
- Monitoring: current network
- Hypothesis: Cross-Delta flows (Grantline/Old/Middle) significantly driven by phase differences across

Velocity Impacts of Installation

- Strong local current as gap closed (12-15 ft/s)
 - Reproduce the weirdness at USGS Flow gage



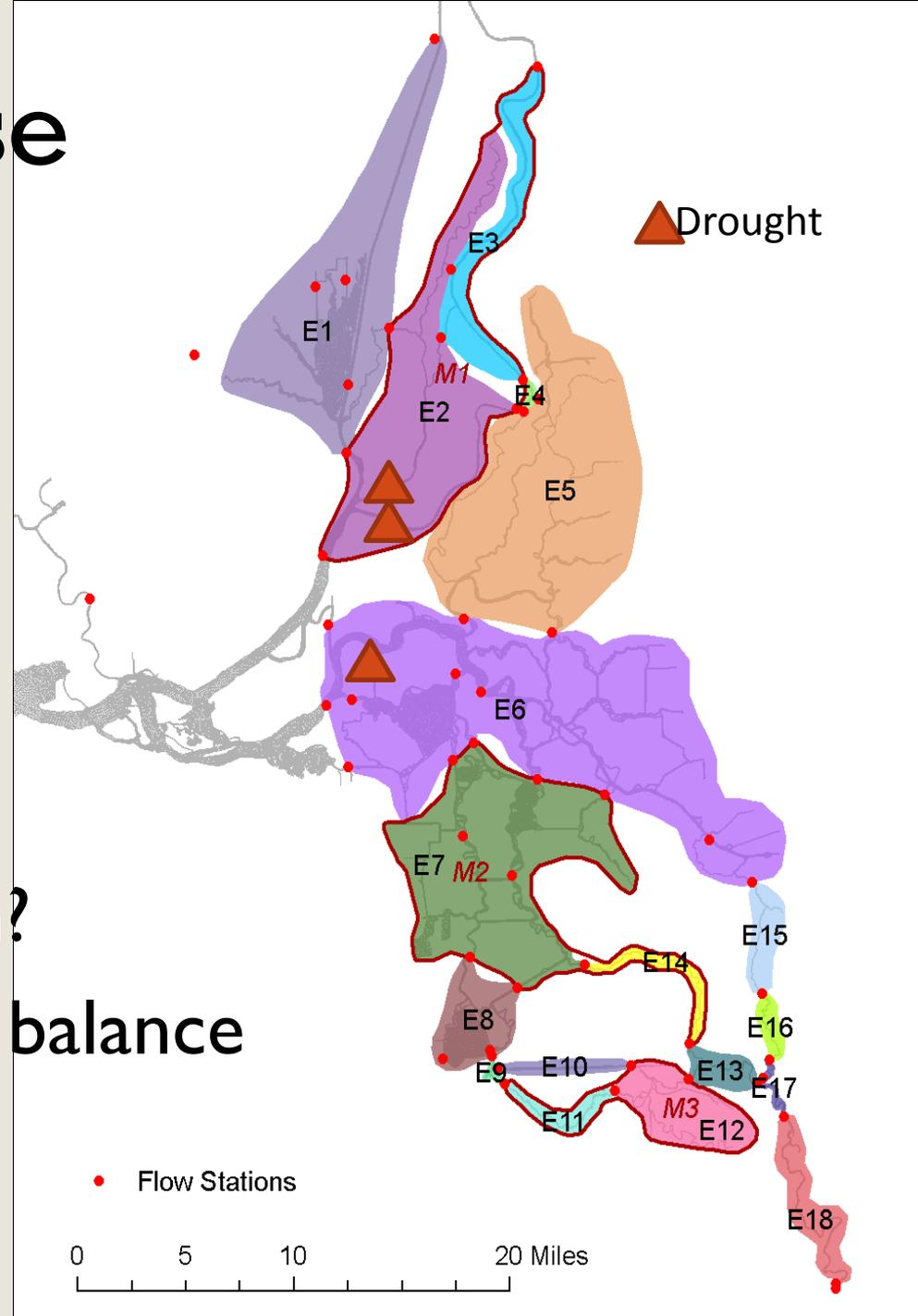
Seasonal Salinity Impacts



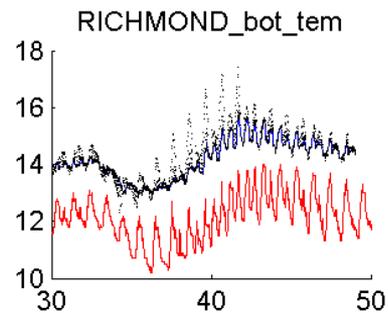
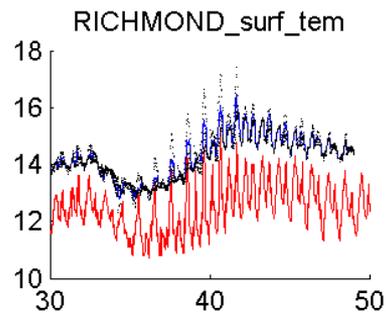
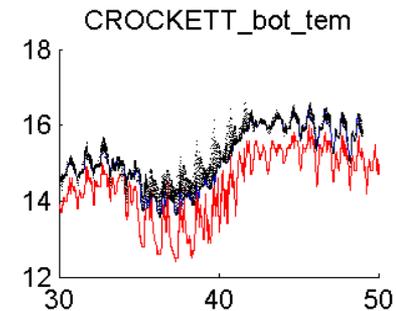
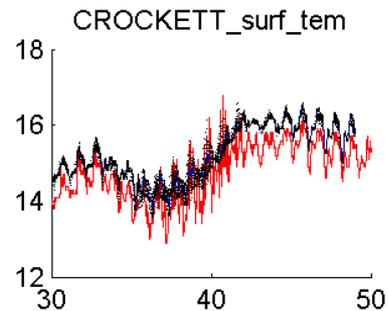
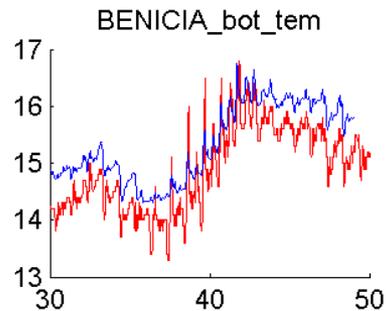
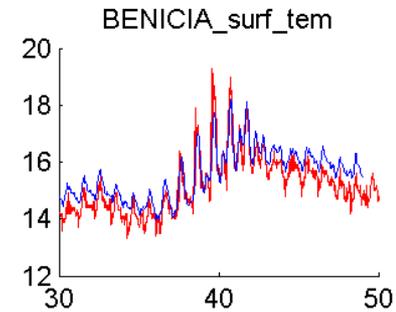
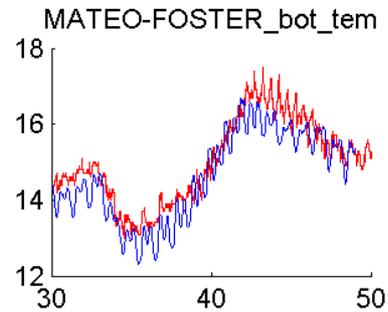
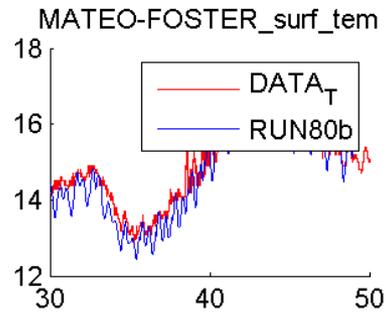
Sensitive to outflow ... as always. Also local discharge.
Above is a very low NDO scenario with barriers

Consumptive Use

- Gage-based
- Statistical
- Uses full network
- Enhanced for drought
- Detect 25% reduction?
- Also improving water balance



Temperature (calibration close)



Temperature

- Is temperature out of equilibrium?
- Can barrier impacts need to be assessed relative to those of near dead-end in South Delta
 - 2014: Reality = no barrier, model = barrier
 - 2015: Reality = barrier, model = none

Questions

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Gallery of images and animations at

https://msb.water.ca.gov/delta-modeling/-/document_library/view/301249