

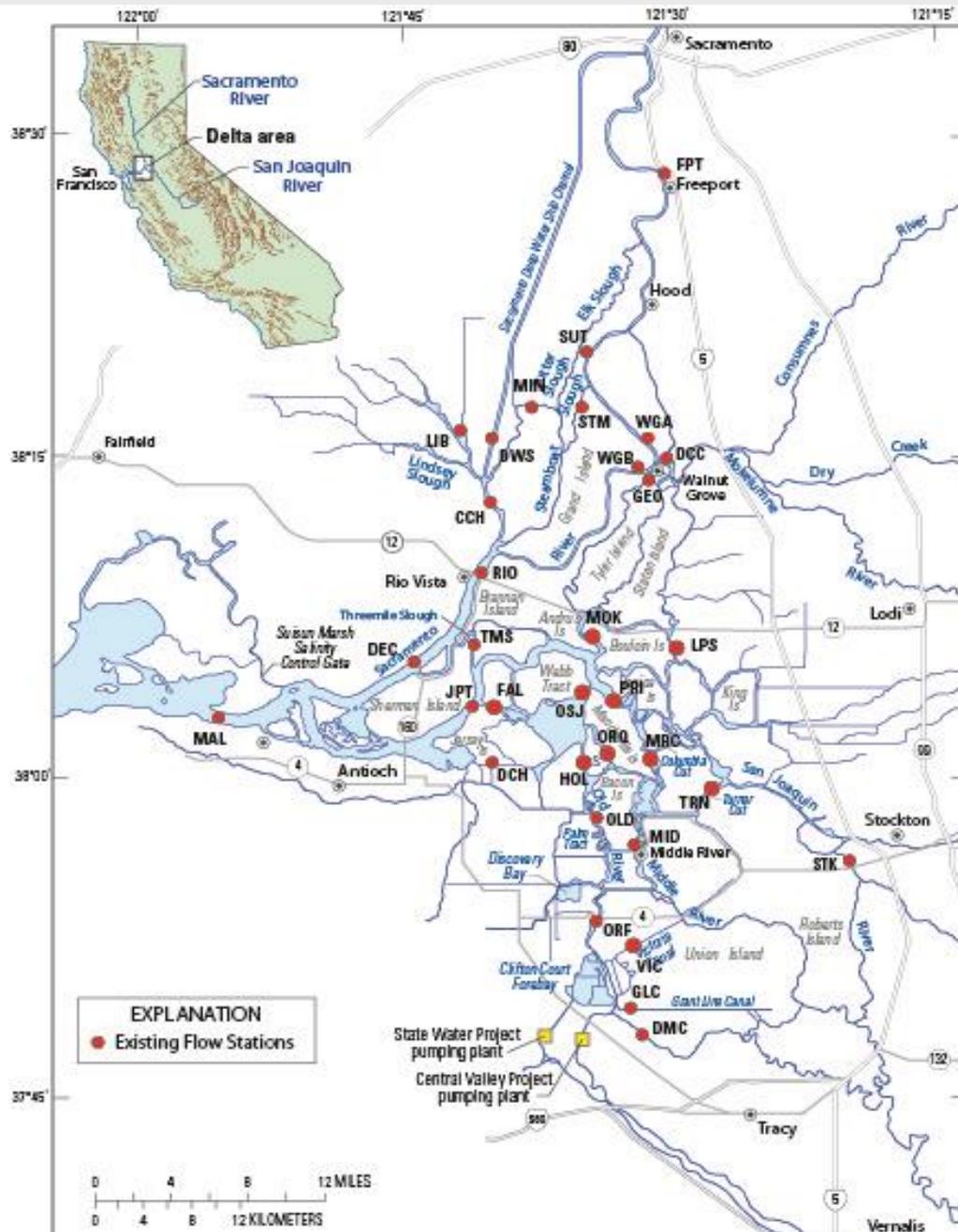
Sacramento/San Joaquin River Delta
USGS
Flow and WQ monitoring

4/19/2016

Jon Burau

The foundation of a
Delta-wide Decision Support System?

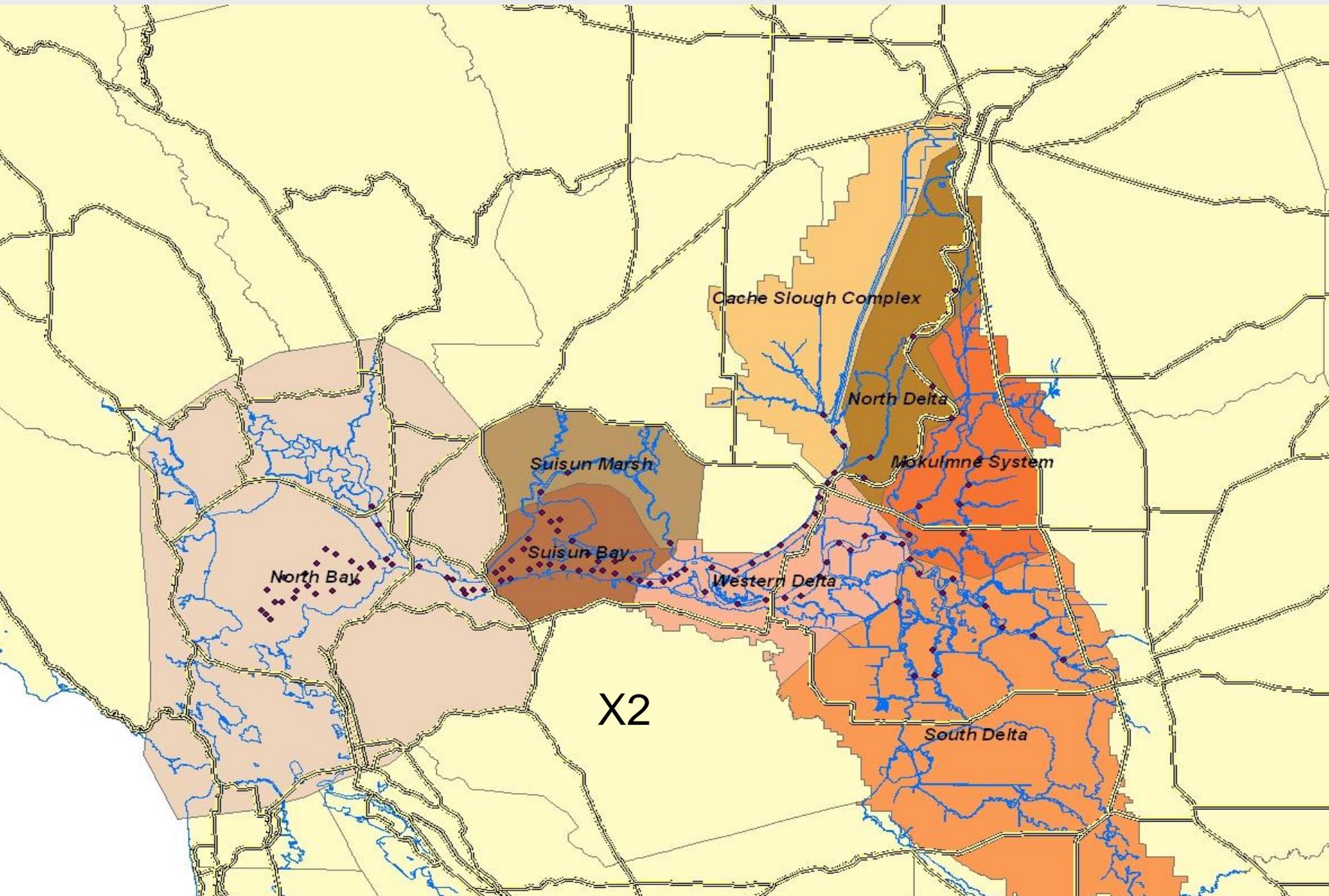
Flow/WQ Station Network (circa Nov 2013)



See Fact Sheet for
History/Explanation

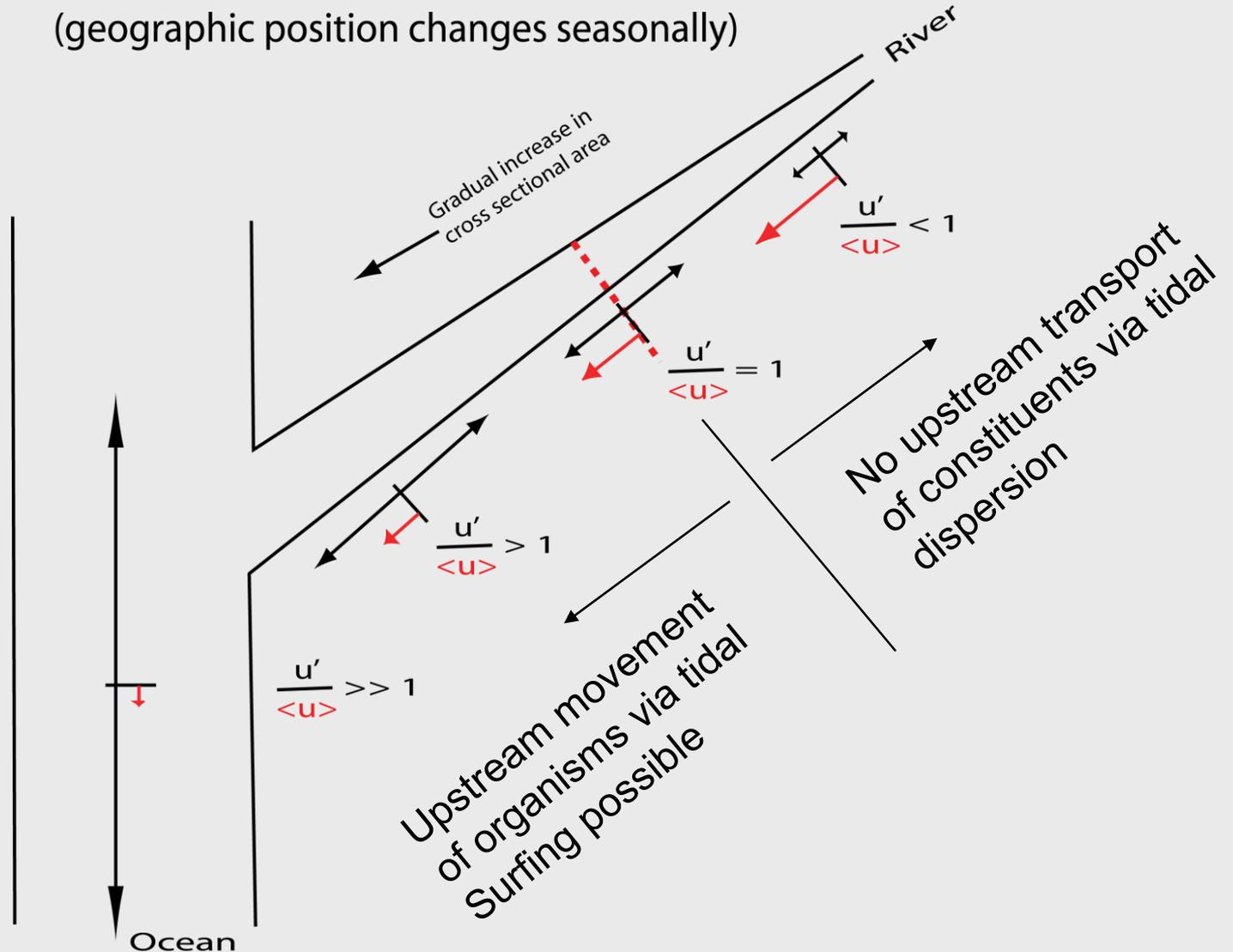


Map of hydrodynamic transport regions

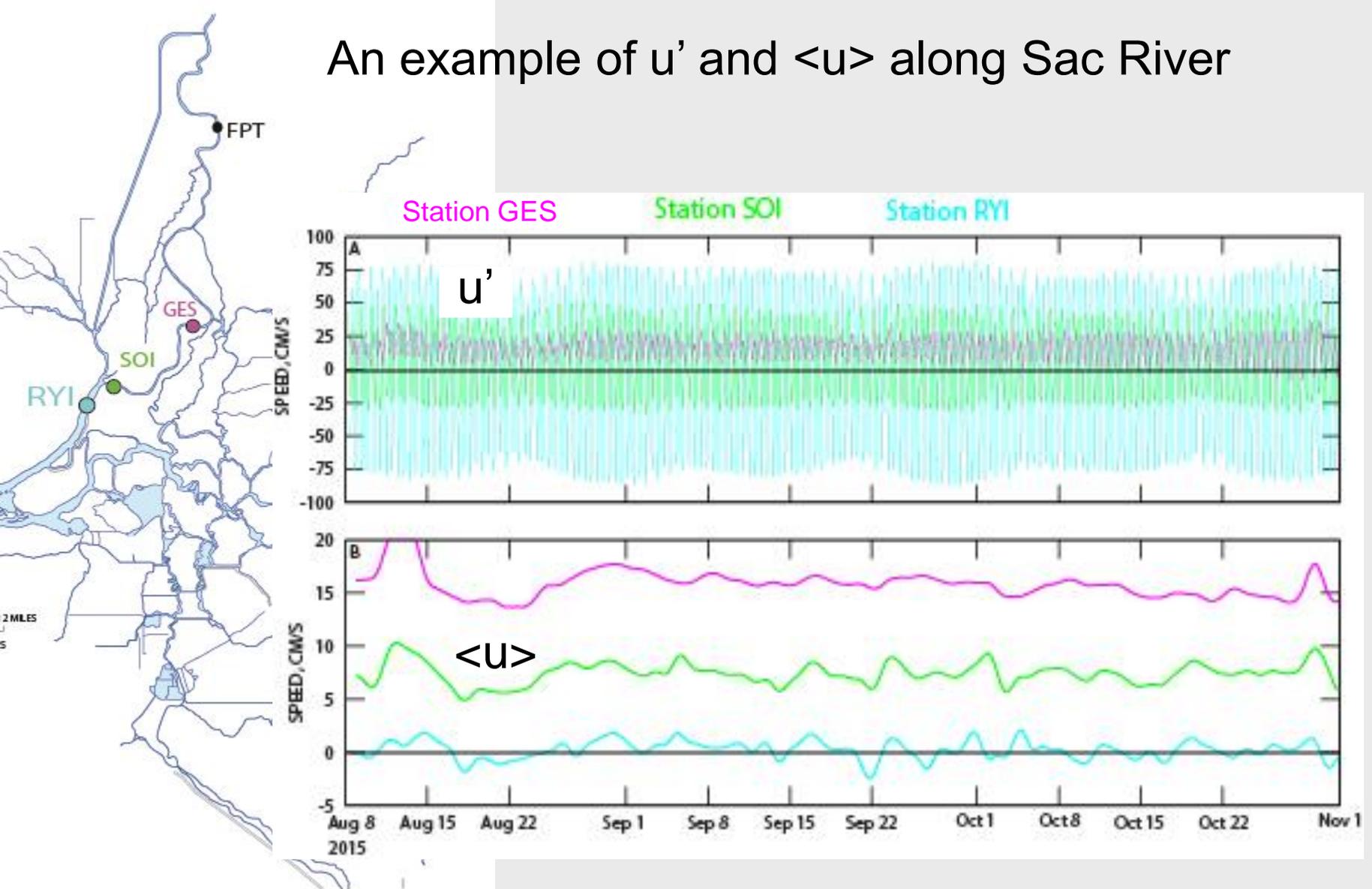


Tidal to net current ratio conceptual diagram

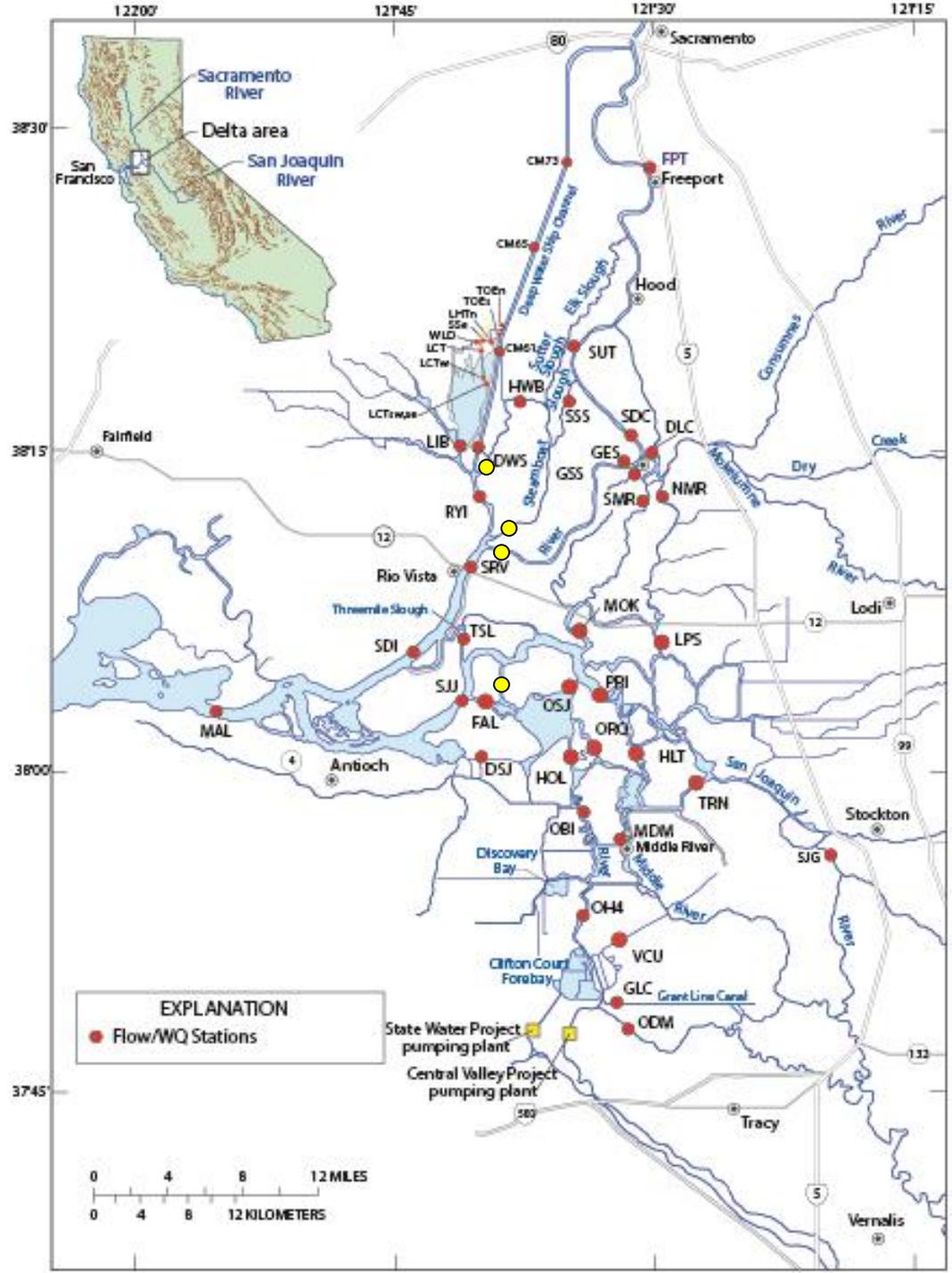
Tidal/residual current ratio
(geographic position changes seasonally)



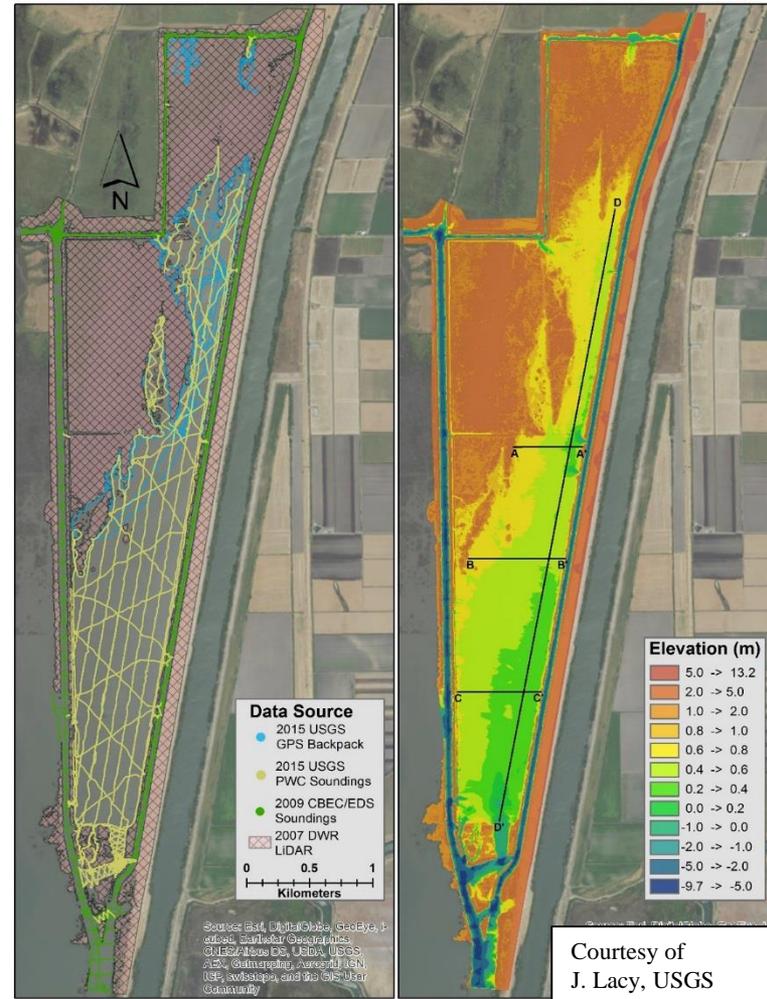
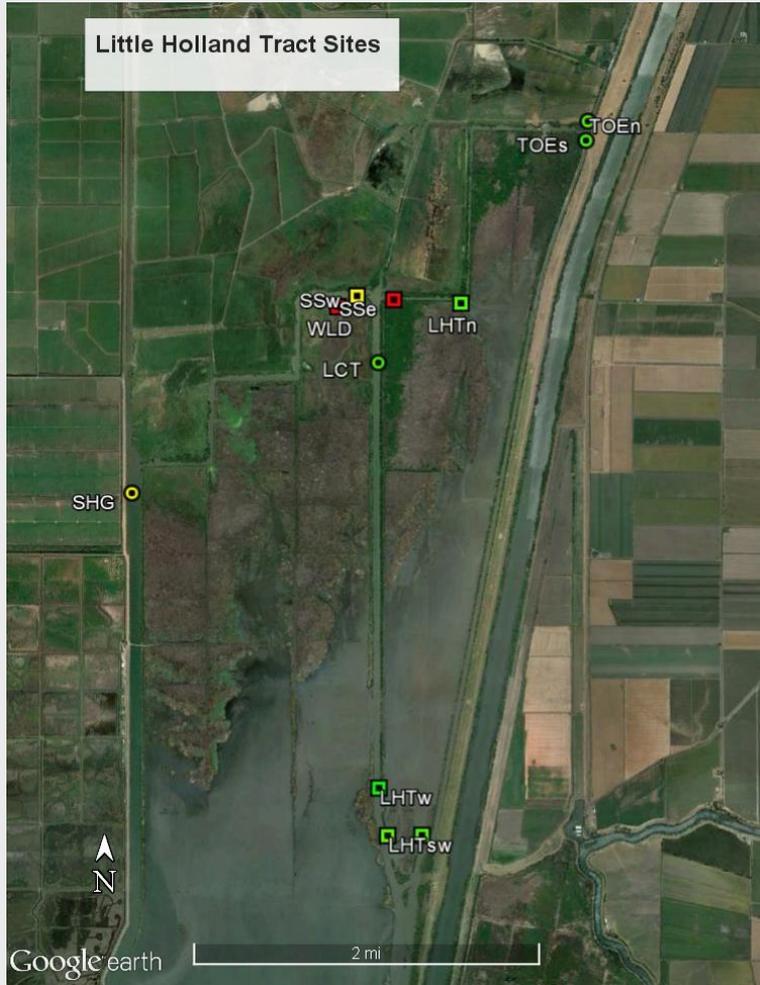
An example of u' and $\langle u \rangle$ along Sac River



Flow Station Network (circa Mar 2016)

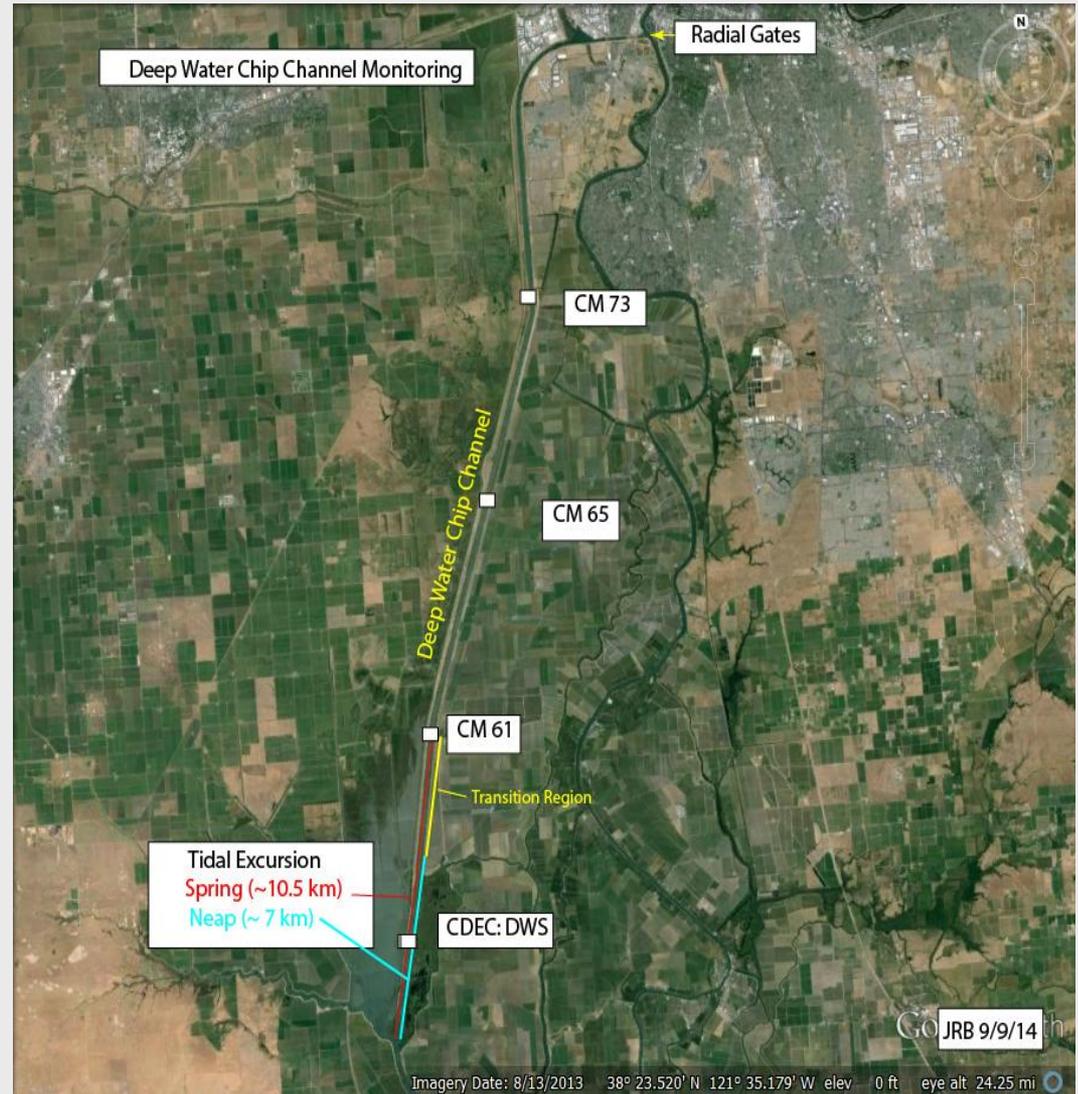


Expansion of the flow station network – Step 2



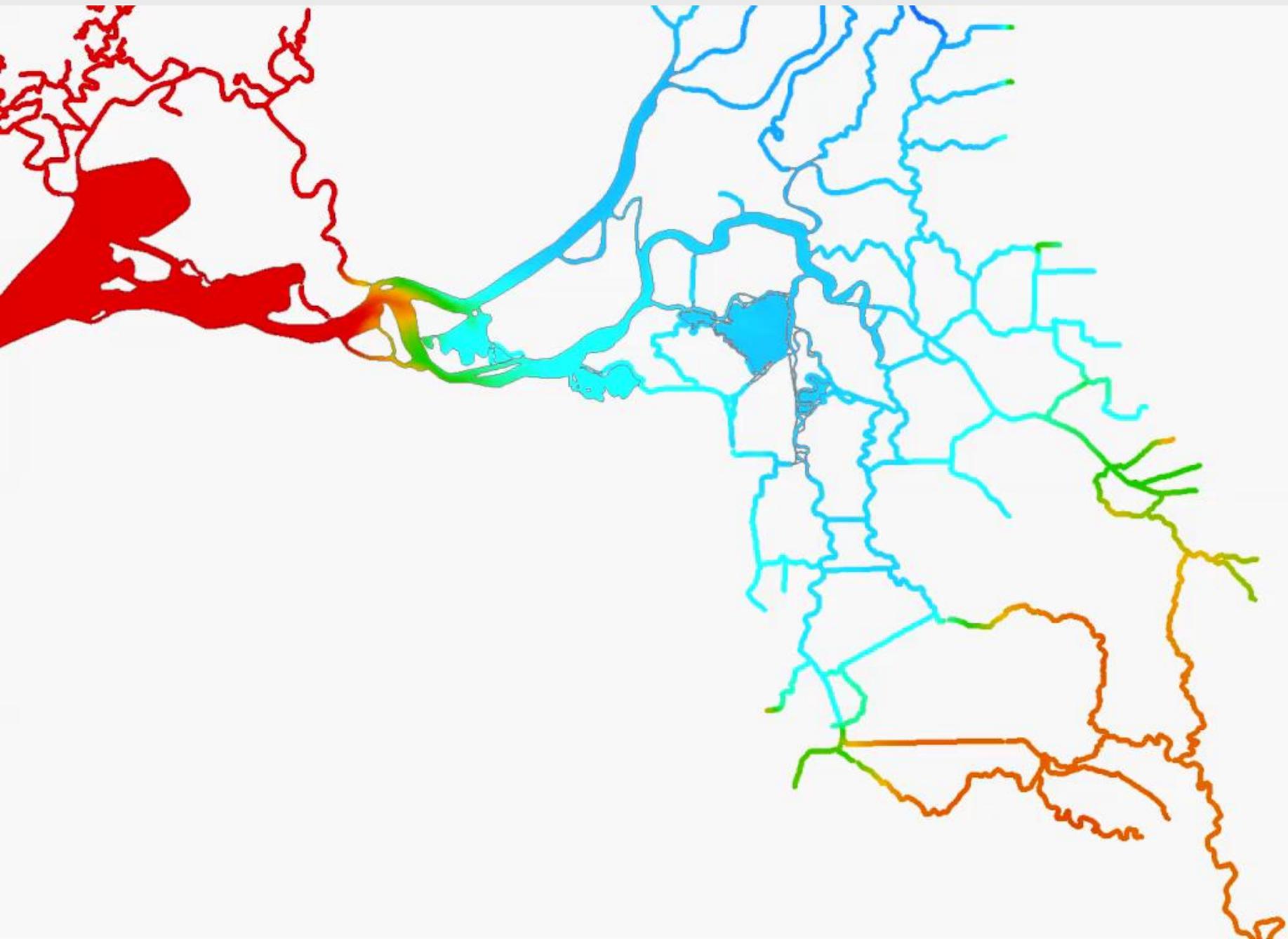
Expansion of the flow station network – Step 2

- **Delta Smelt Habitat**
- **Rare dead-end channel**
- **Long residence time**
- **Residence time variability**
- **Unique limnology**
(temperature stratification)



Uses of dense network

- (1) Real-time QA/QC
- (2) Water Quality Fields
 - (a) Interpolation
 - (b) Advection



Live Environmental Conditions

Experience live conditions by accessing real time and operations data using data visualization dashboards. Sign up for alerts to be notified of important environmental changes.

- Live Conditions
- Daily Operations
- News
- Community
- Major Reservoir Storage
- Snowpack/Runoff
- Water Quality
- DWR Fish Salvage
- Ecosystem Projects
- Scientific Studies
- Data Animations
- GIS/Map Layers
- Delta Atlas
- Photos/Videos
- Boating Fishing
- Data Workspace

HIGHLIGHTS

OPERATIONS

Salinity Conditions Dashboard

Salinity is the central management challenge during a drought. Fresh water released from Sierra reservoirs to repel saltwater intrusion from ocean tides into areas of the delta tapped by ...

[Learn more...](#)

RESEARCH

Real-Time Acoustic Telemetry Data

In support of various fish tracking studies by the Army Corp, USGS, MWD, DWR and participating agencies for management of the receiver network ops and visualization of raw and processed...

[Learn more...](#)

PROJECTS

Creating new, self sustaining

Creating new, self sustaining wetlands will require excavating new channels at various depths, sizes and configurations. This 1100acre project will apply various designs and monitor their...

[Learn more...](#)

SPOTLIGHT

NASA UPDATE

A new weather satellite was launched on Thursday (February 27) from Japan aimed at providing high-tech, three dimensional snowfall around the earth. The Global Precipitation Measurement...

[Learn more...](#)

WATER NEWS

Officials seek to dam 3 channels on Delta - KCRA ...



Water contractors will pay bulk of the bill for Delta ...



California Seeks to Dam 3 Delta Channels - NBC 7 ...



Farms threatened, basic water principles violated ...



Appellate court ruling new hurdle for Delta tunnel ...



WEEKLY QUESTION

What Delta Risks Are you Concerned About Most?



[Tweet](#)

[Return To Poll](#)

NEW UPLOADS



Salinity Conditions
MAR 13, 2014
[↓ DOWNLOAD](#)

Electrical Conductivity Real Time Visualization
MAR 13, 2014
[↓ DOWNLOAD](#)

Public Water Agencies Flow Workshop
MAR 13, 2014
[↓ DOWNLOAD](#)

Restored Ecosystem Function
MAR 13, 2014
[↓ DOWNLOAD](#)



About Us

The mission of BDL is aggregate the wealth of knowledge and information that is produced by the many governmental and non-governmental agencies, non-profits, universities and individuals and display this information in an easy to use web



Latest Tweets

Baydelta #cawater Estuary workgroup meeting tomorrow May 21st from 9am to noon at the Delta Conservancy type specimen book. It has rmy text ever since 20 May

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Use Advection to map WQ

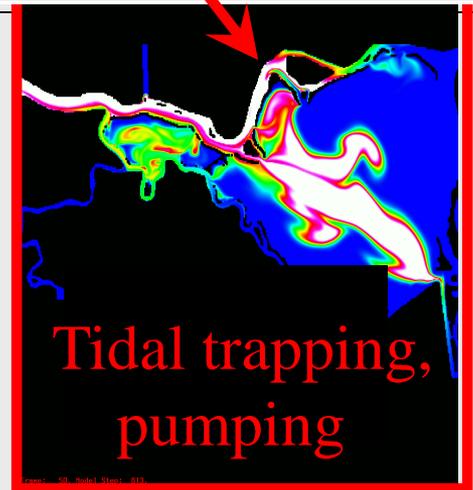
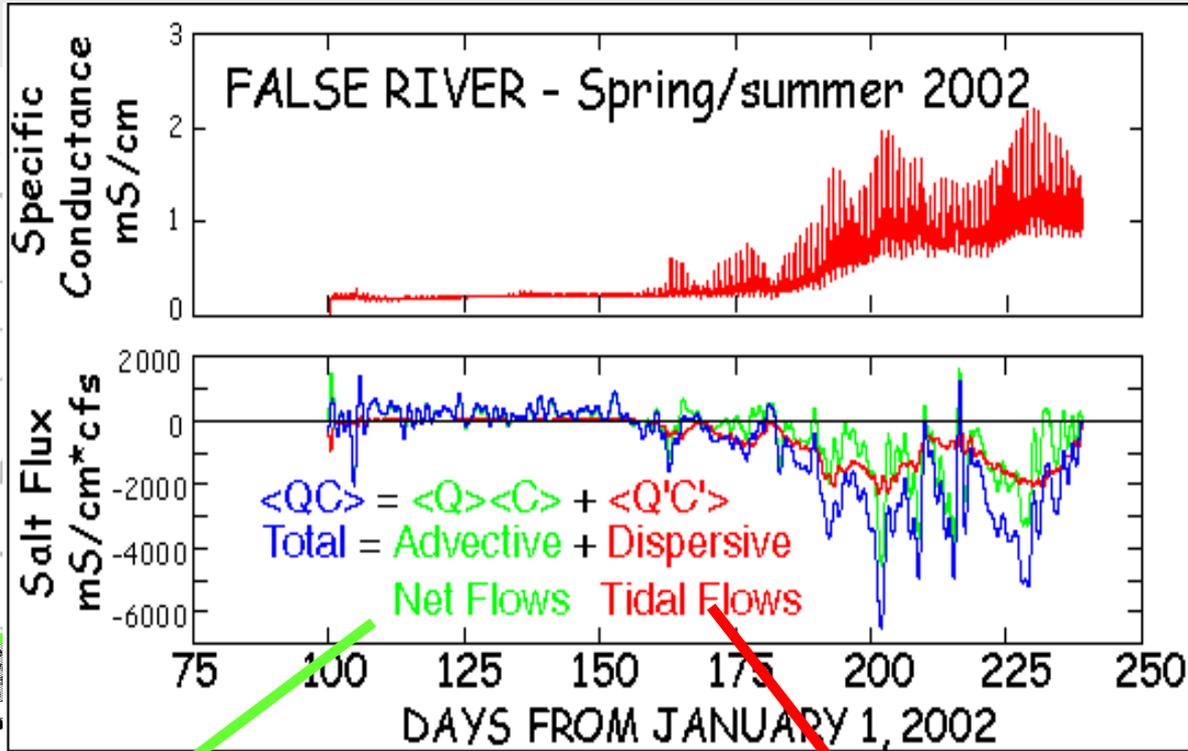
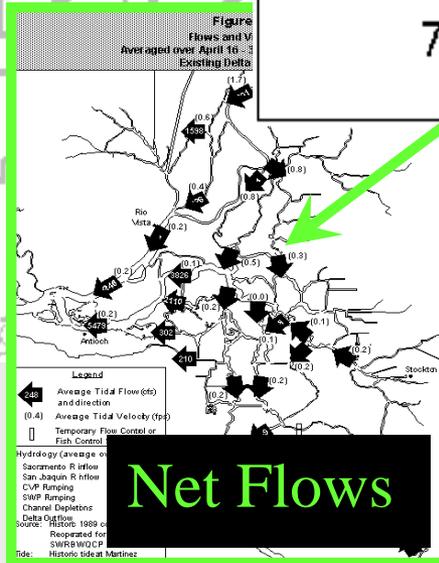
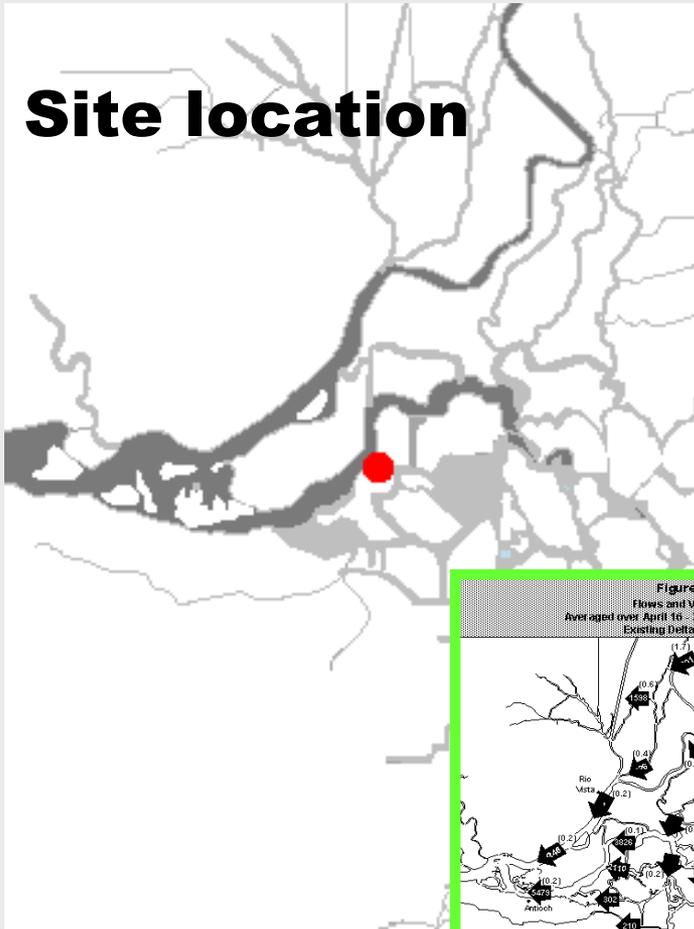


Pairing of flow + Water Quality

- Temporal variability (high frequency)
- Fluxes (how much of a constituent is moving past a given location and in which direction)
- Mechanisms behind transport (flux decompositions)

False River Salt Flux example

Site location



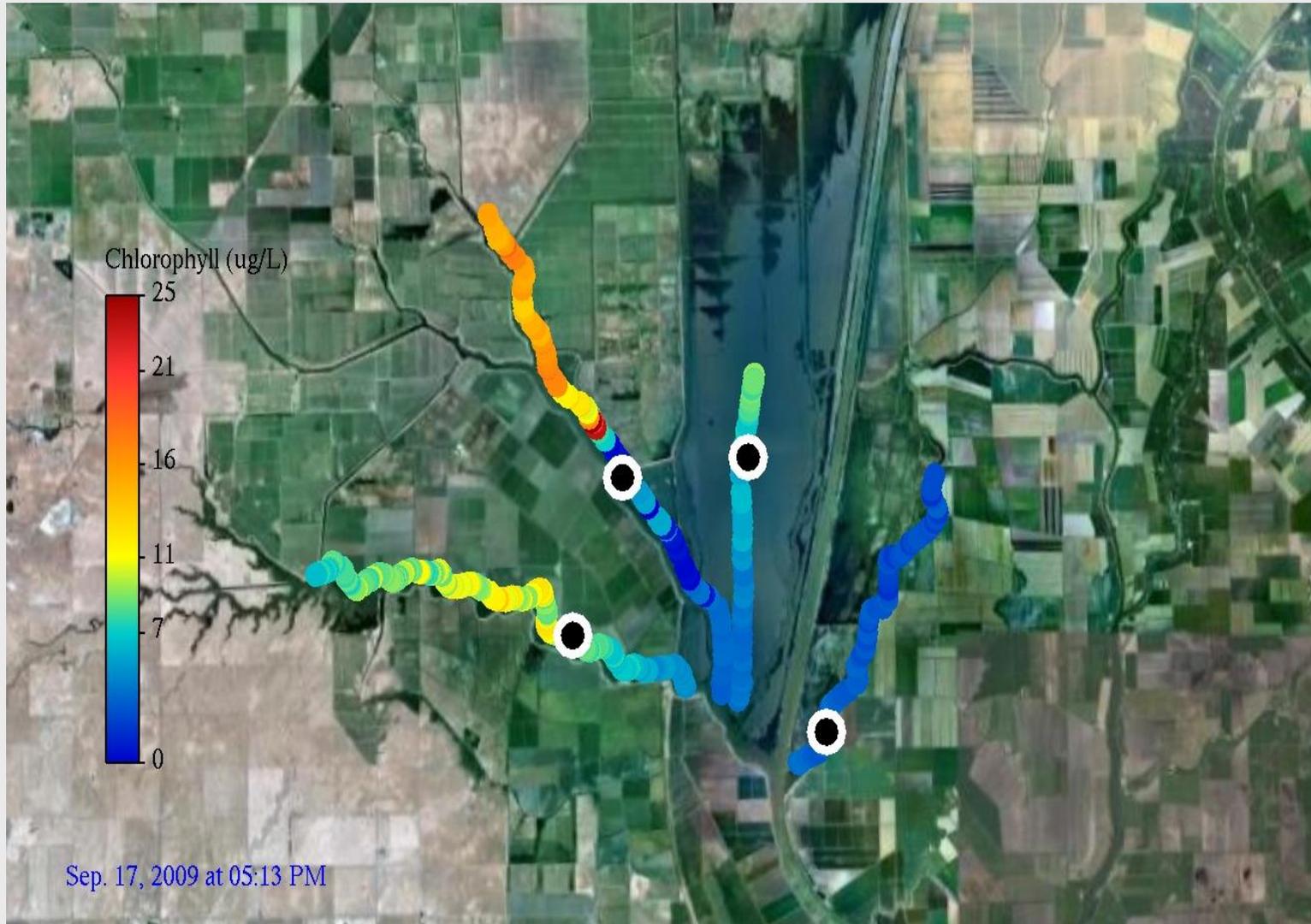
False River dye example (lots of mixing along dye path)



Importance of tidal excursion Relative to channel length (or Basin Dimension)

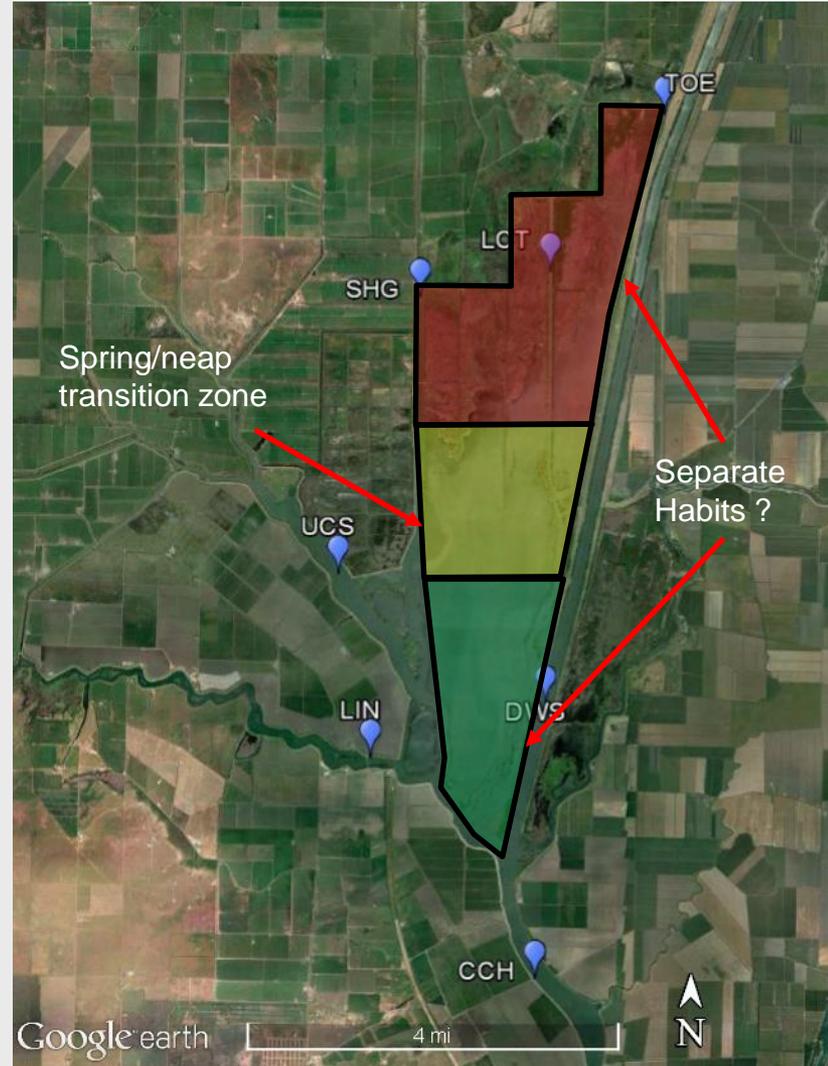
- (a) Delineates unique Habitats
- (b) Gradients!

Habitat defined by tidal excursions

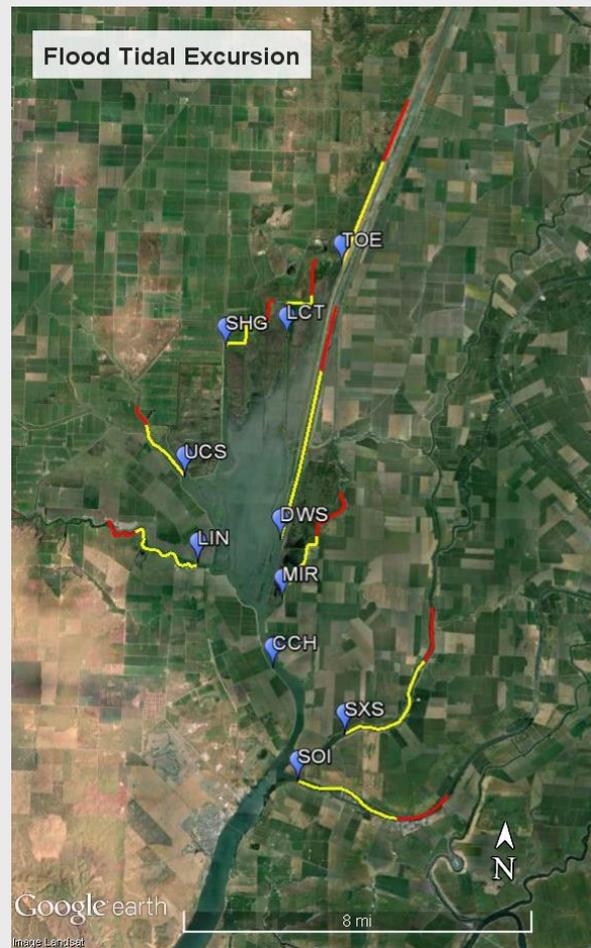
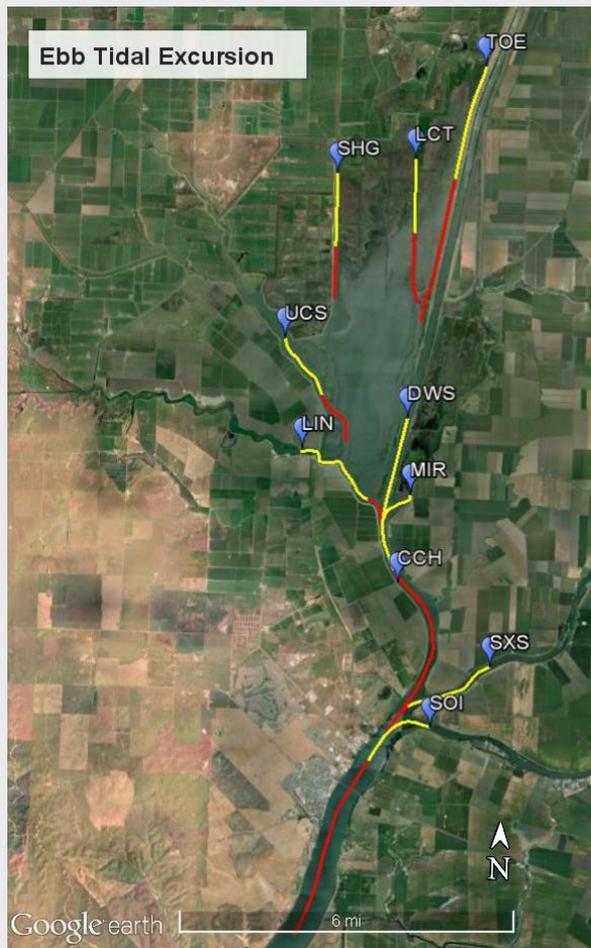


Conceptual Model of Water Transport in Liberty Island

- Unique habitats nominally separated by the tidal excursions
- Size and Position of spring/neap transition zone controlled by net flow



Tidal Excursion – Estimated from Eulerian velocity measurements



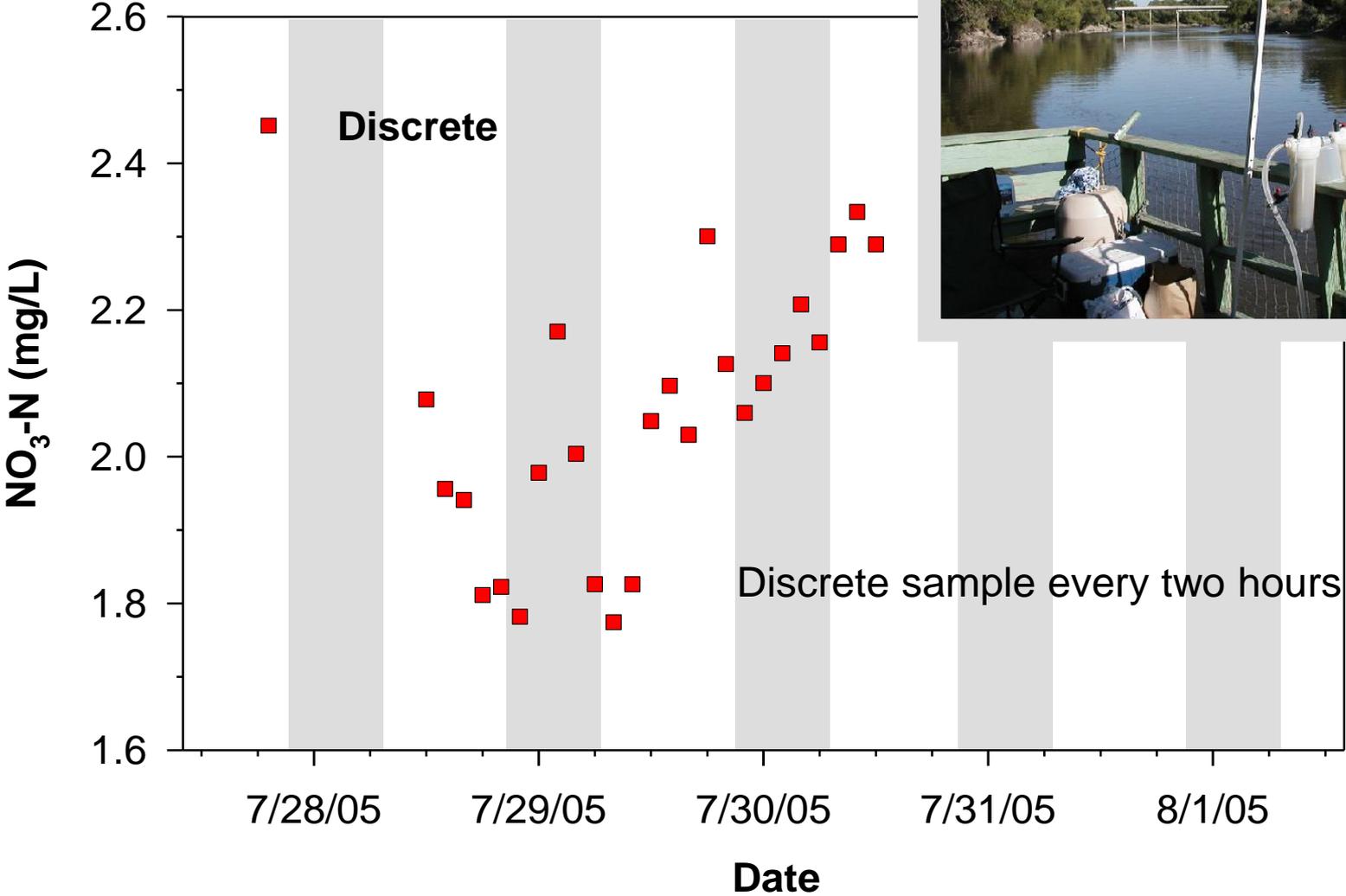
— Spring Tide Excursion

— Neap Tide Excursion



Nitrate Variability – San Joaquin River

Assessing nitrate variability in the San Joaquin River, Crows Landing, CA
(Satlantic ISUS nitrate analyzer)



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Assessing nitrate variability in the San Joaquin River, Crows Landing, CA
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