

Flows and Salinity in the South Delta

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Key Points

- Flow

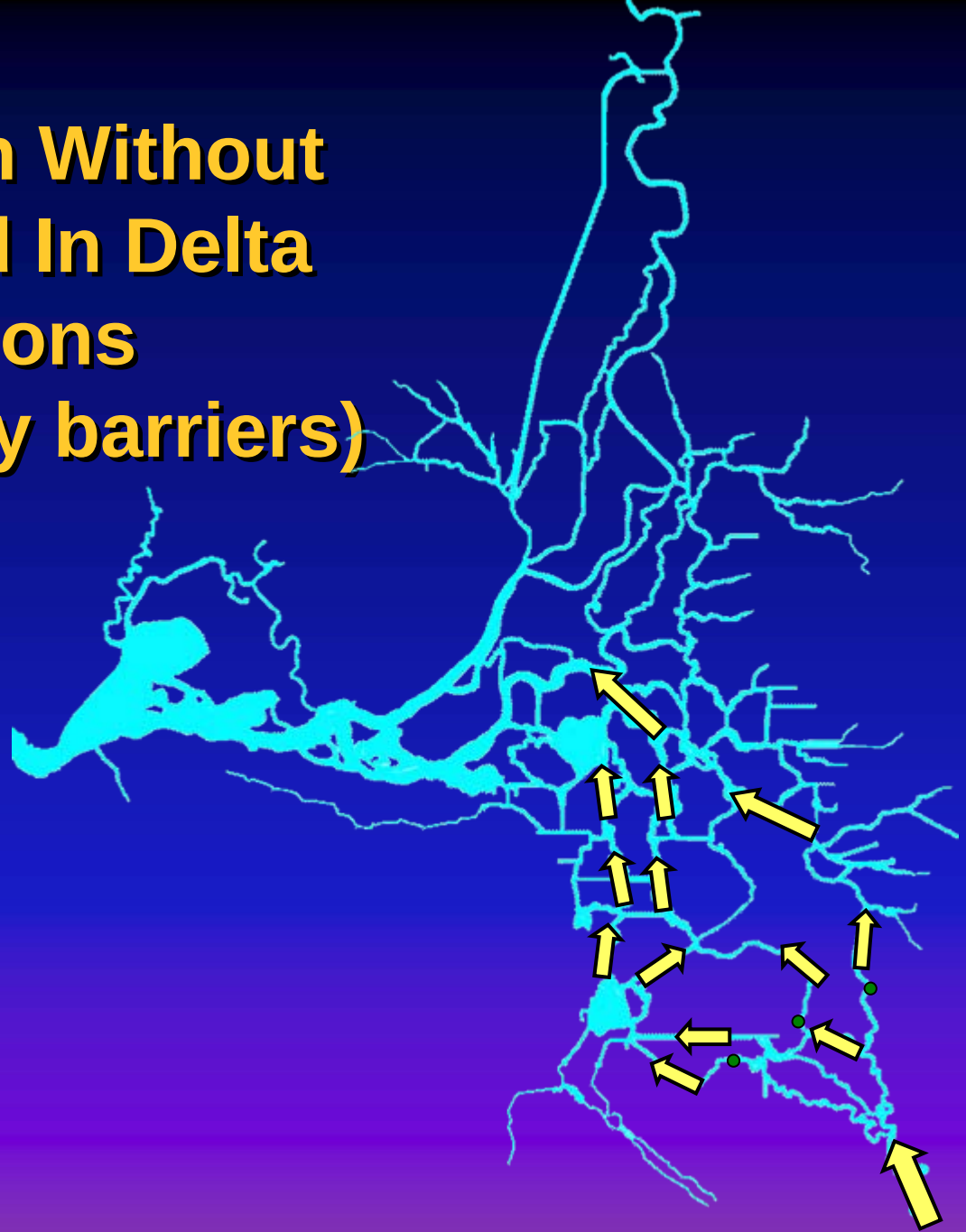
- San Joaquin River at Vernalis flow - flows downstream into the South Delta
- Exports are downstream of the objective locations
- Barriers utilize tidal energy to move water upstream into the South Delta
- Increases in San Joaquin flow do not result in a proportional increase in flow at Old River at Tracy

Key Points

- Water Quality

- Salinity in the South Delta is primarily dominated by the San Joaquin River and in Delta Sources
- Reduction in exports and/or additional Sacramento flows alone cannot cause significant changes in water quality at the south Delta objective locations.
- Circulation of “Sacramento side” water can be moved upstream to affect the water quality at two of the three objective locations by the use of temporary barriers.
- Water Quality at Brandt Bridge cannot be significantly affected by changes in Sacramento flow, export reduction, or gates

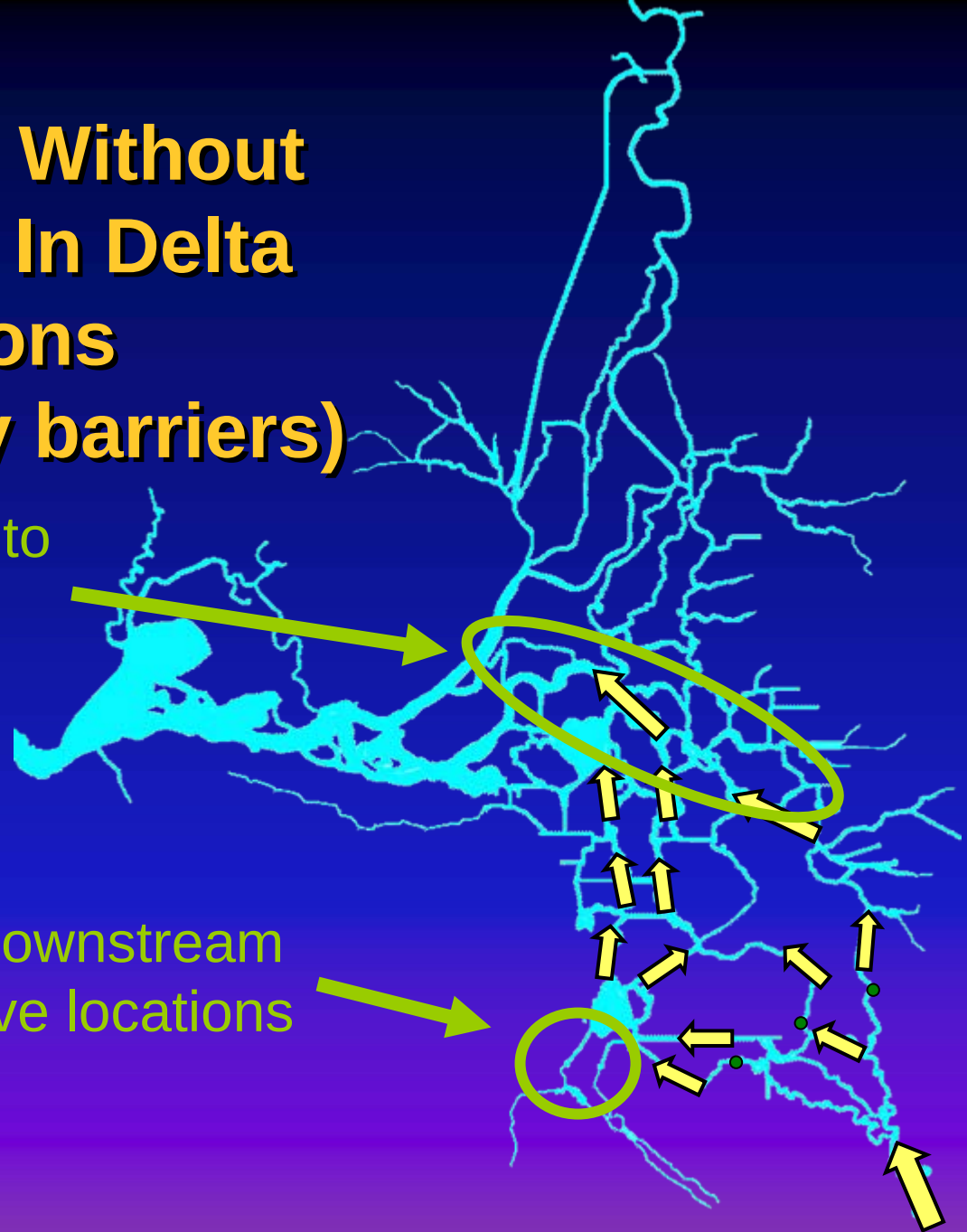
Flow Pattern Without Exports and In Delta Diversions (no temporary barriers)



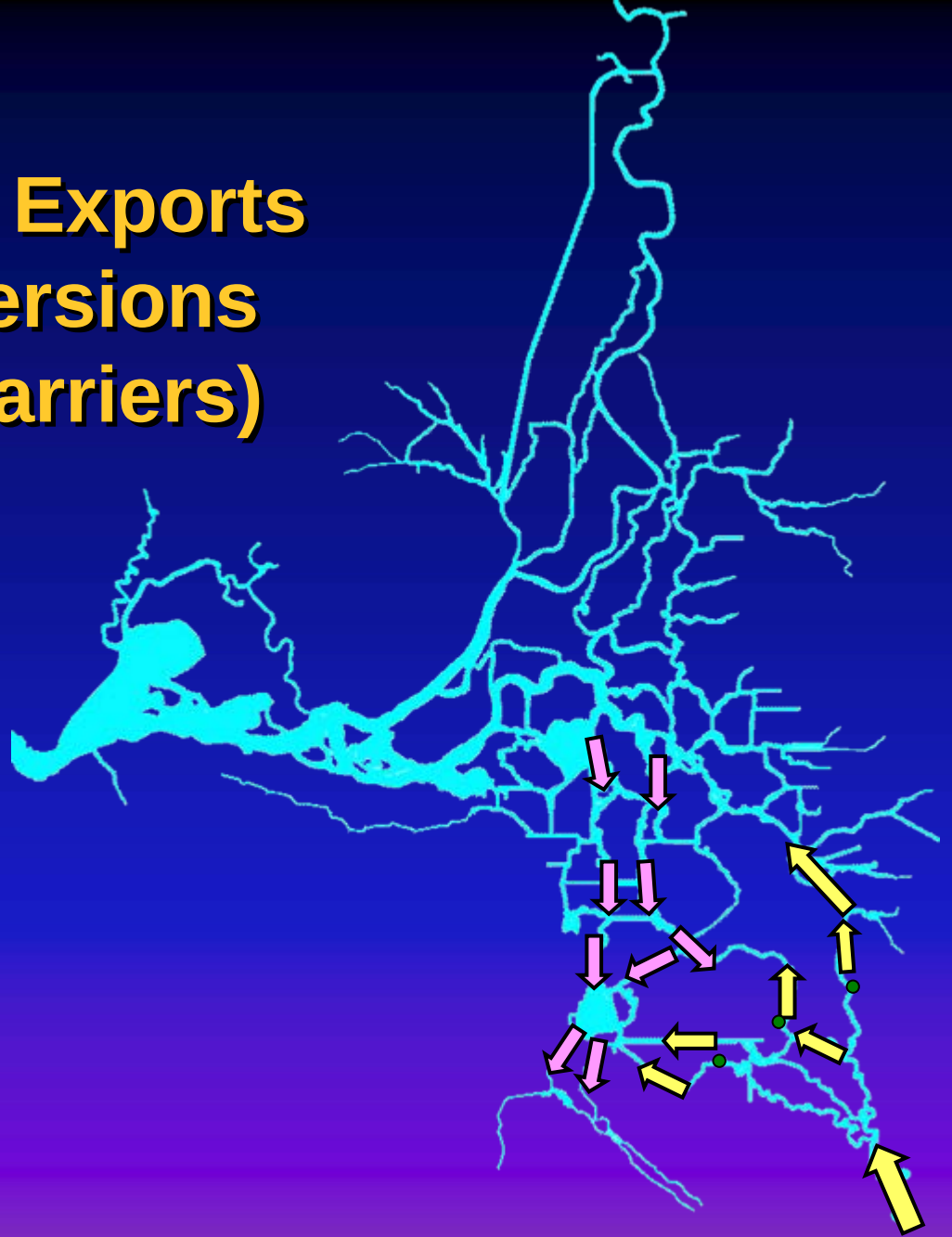
Flow Pattern Without Exports and In Delta Diversions (no temporary barriers)

Influence of Sacramento
River downstream of
objective locations

Exports downstream
of objective locations



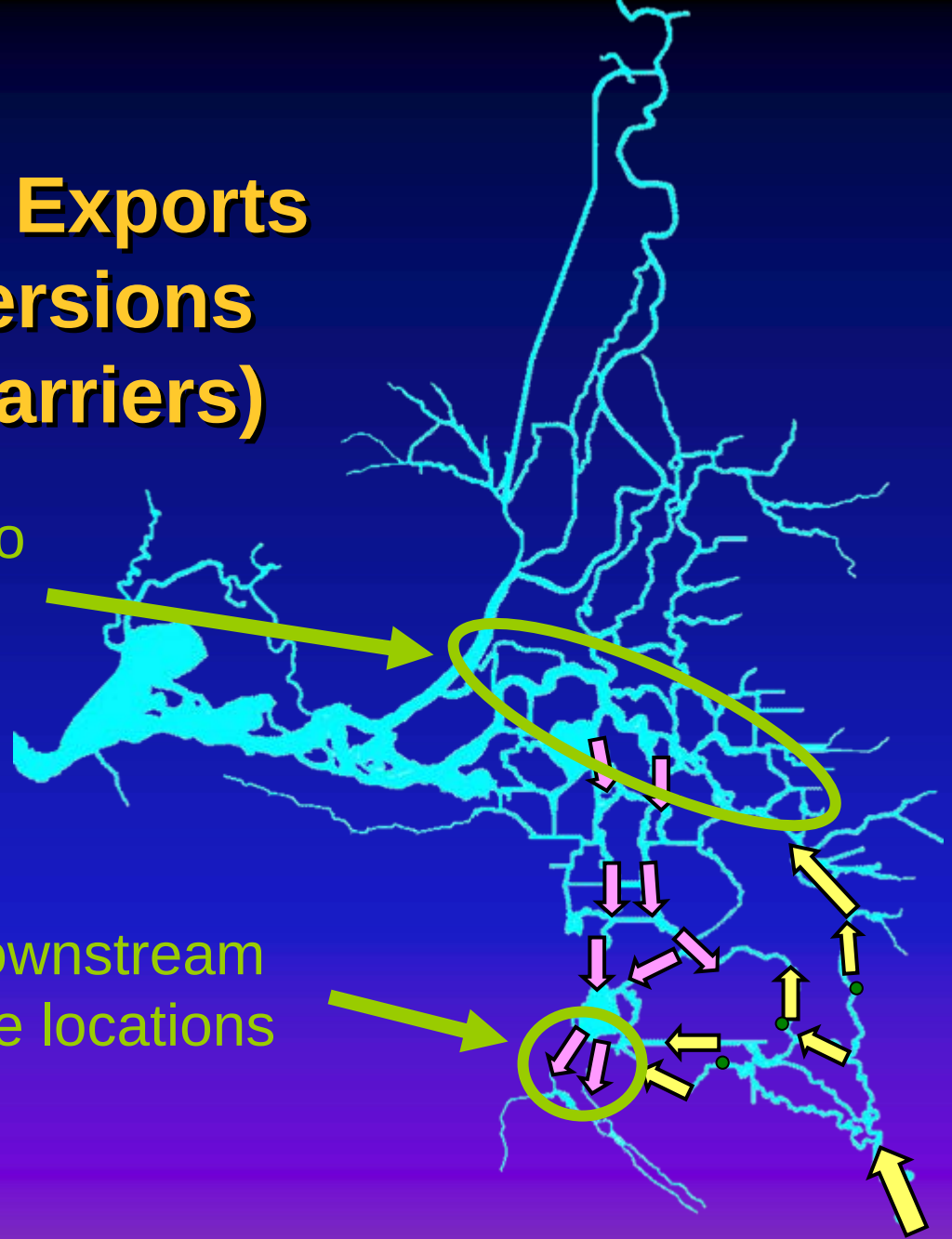
Flow Pattern With Exports And In Delta Diversions (no temporary barriers)



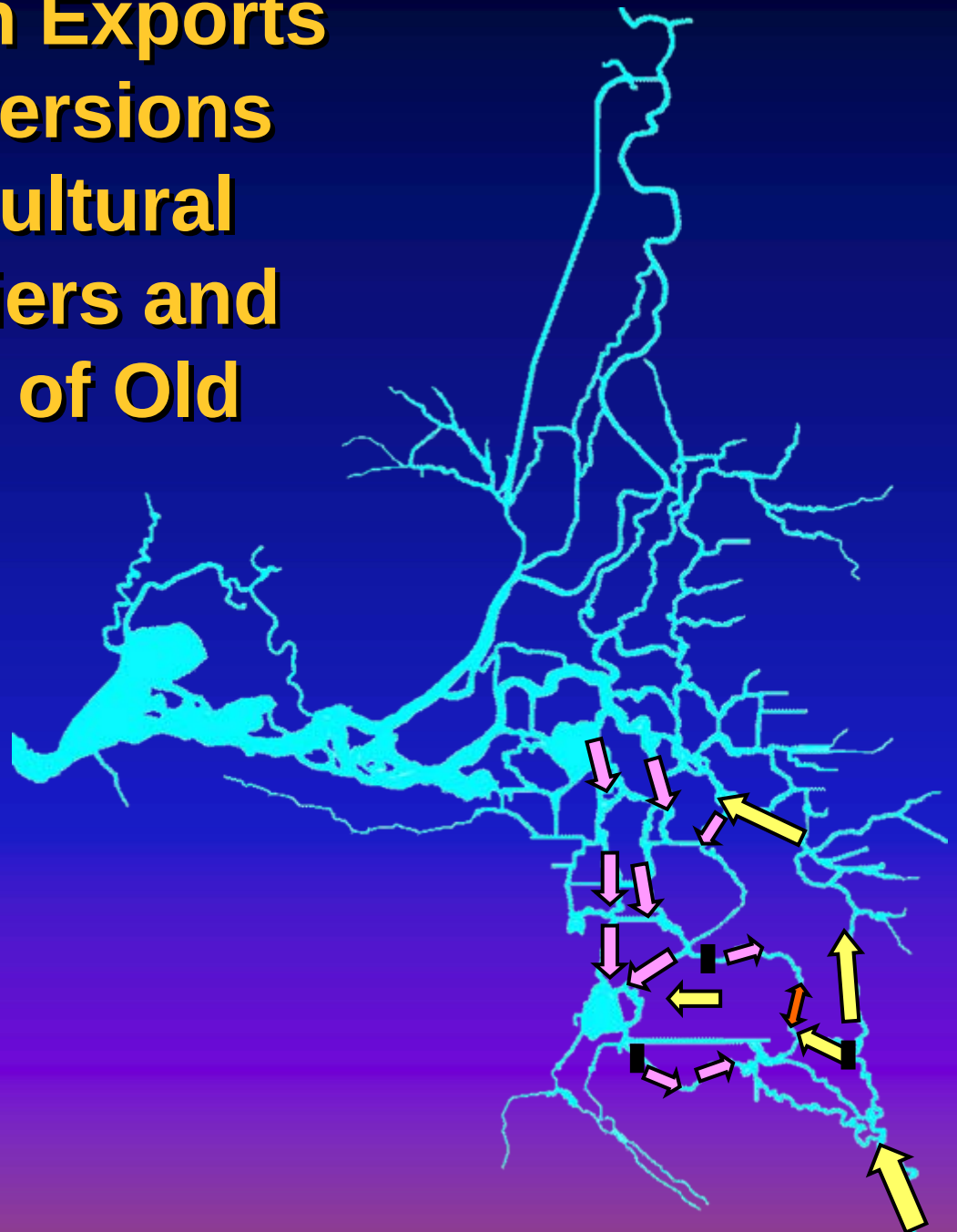
Flow Pattern With Exports and In Delta Diversions (no temporary barriers)

Influence of Sacramento
River downstream of
objective locations

Exports downstream
of objective locations



Flow Pattern With Exports and In Delta Diversions (with two agricultural temporary barriers and barrier at Head of Old River)

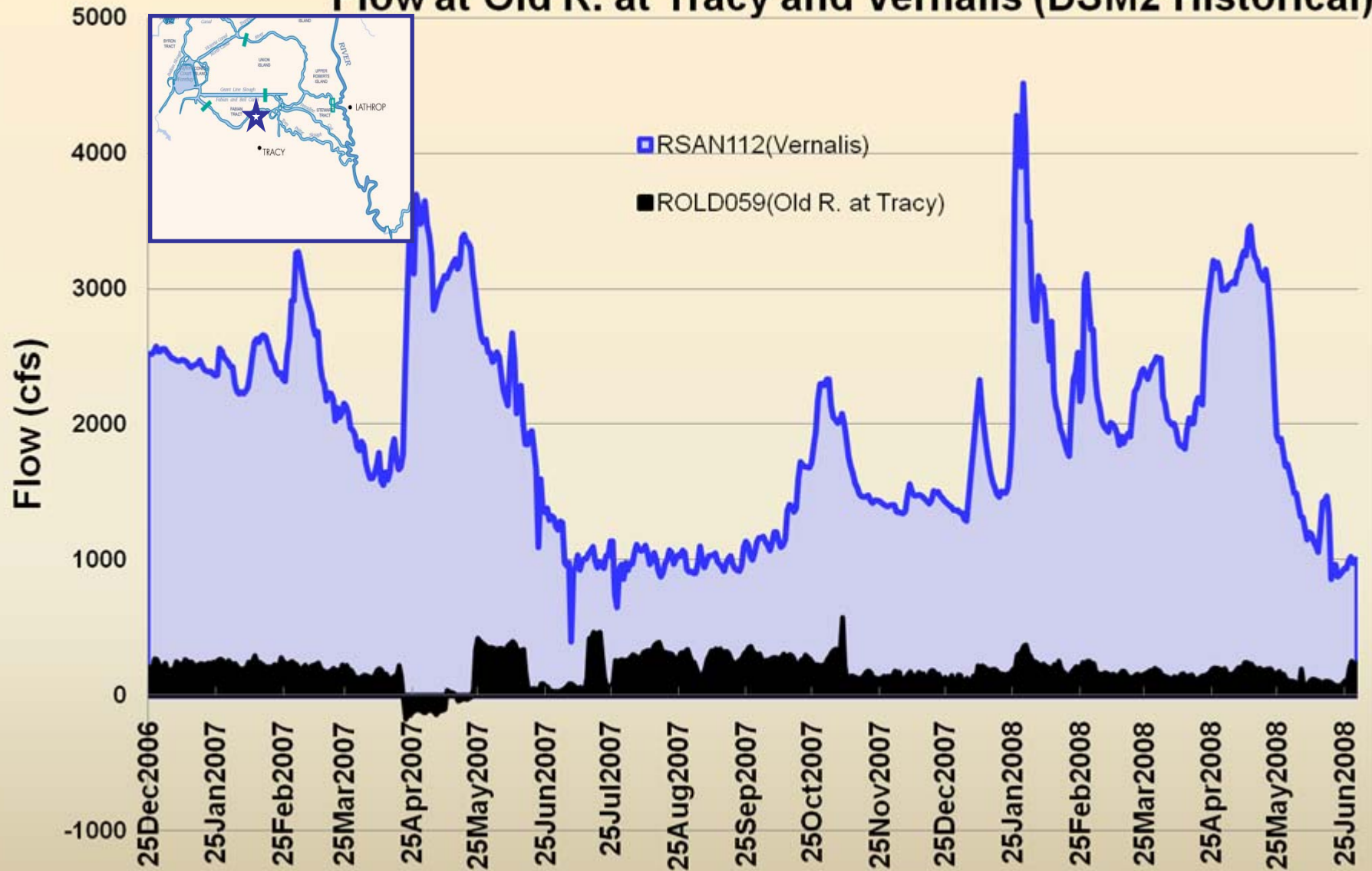


Flow Pattern With Exports and In Delta Diversions (with three agricultural temporary barriers)

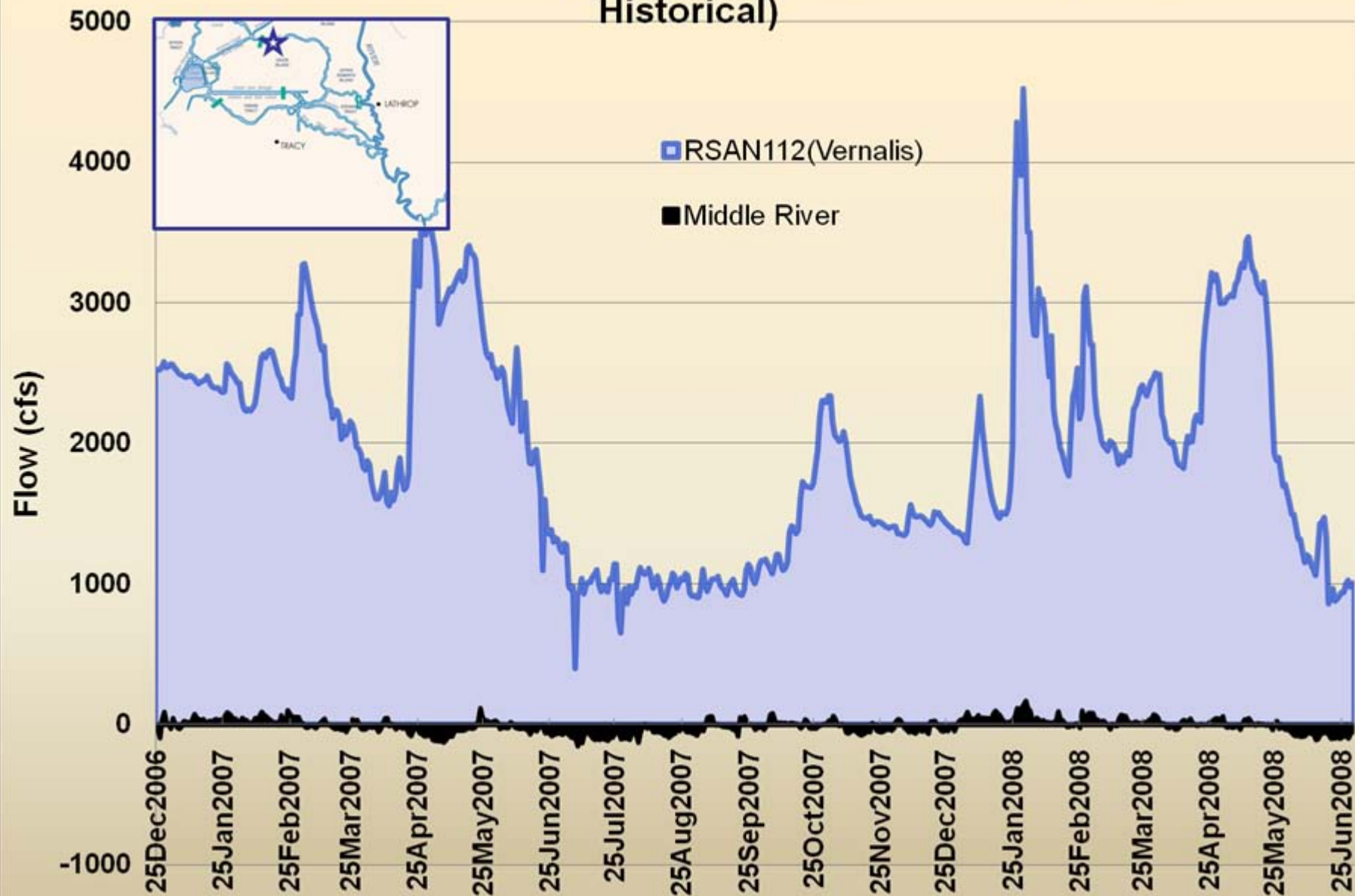


PTM Animation Generated Hydrology

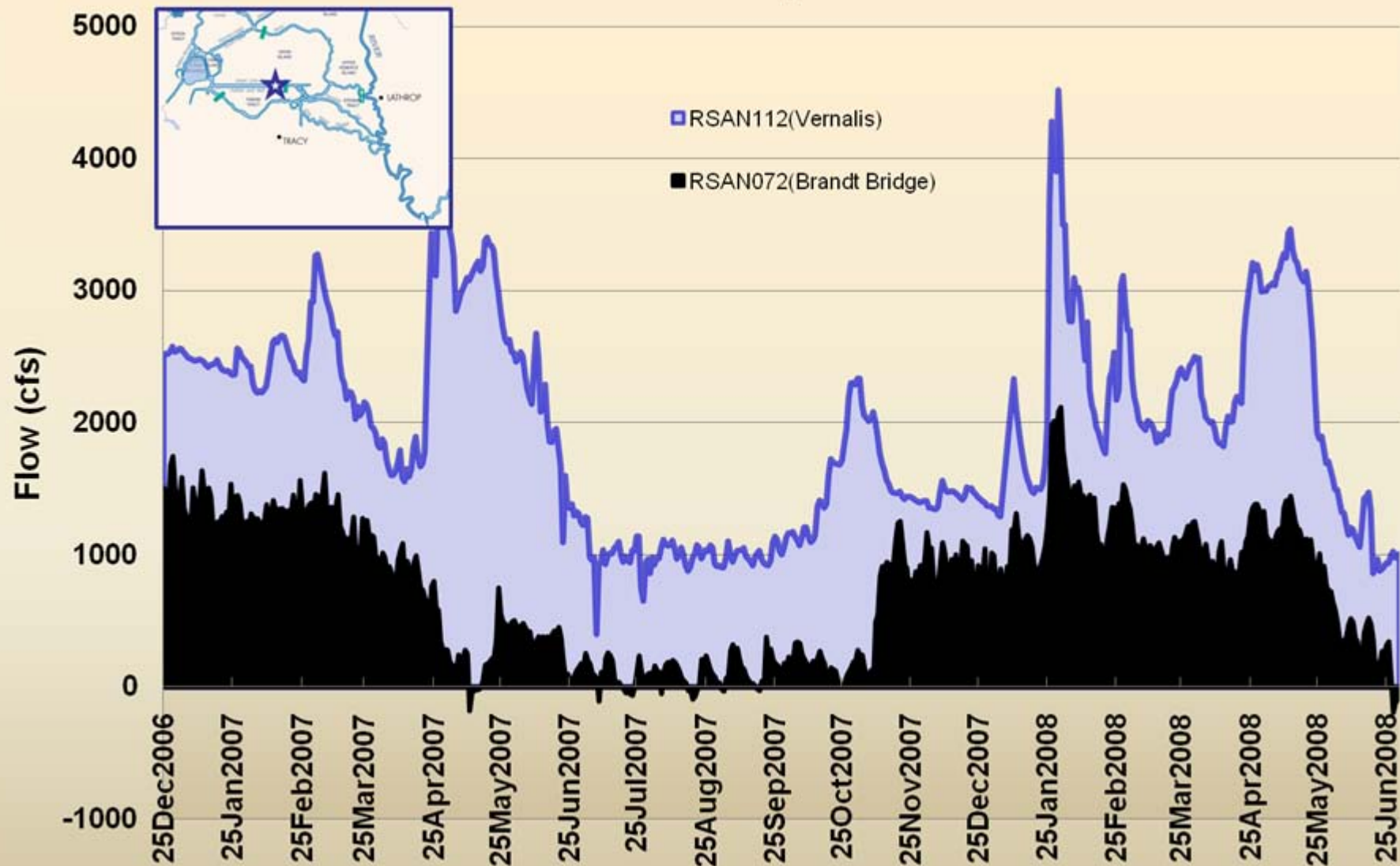
Flow at Old R. at Tracy and Vernalis (DSM2 Historical)



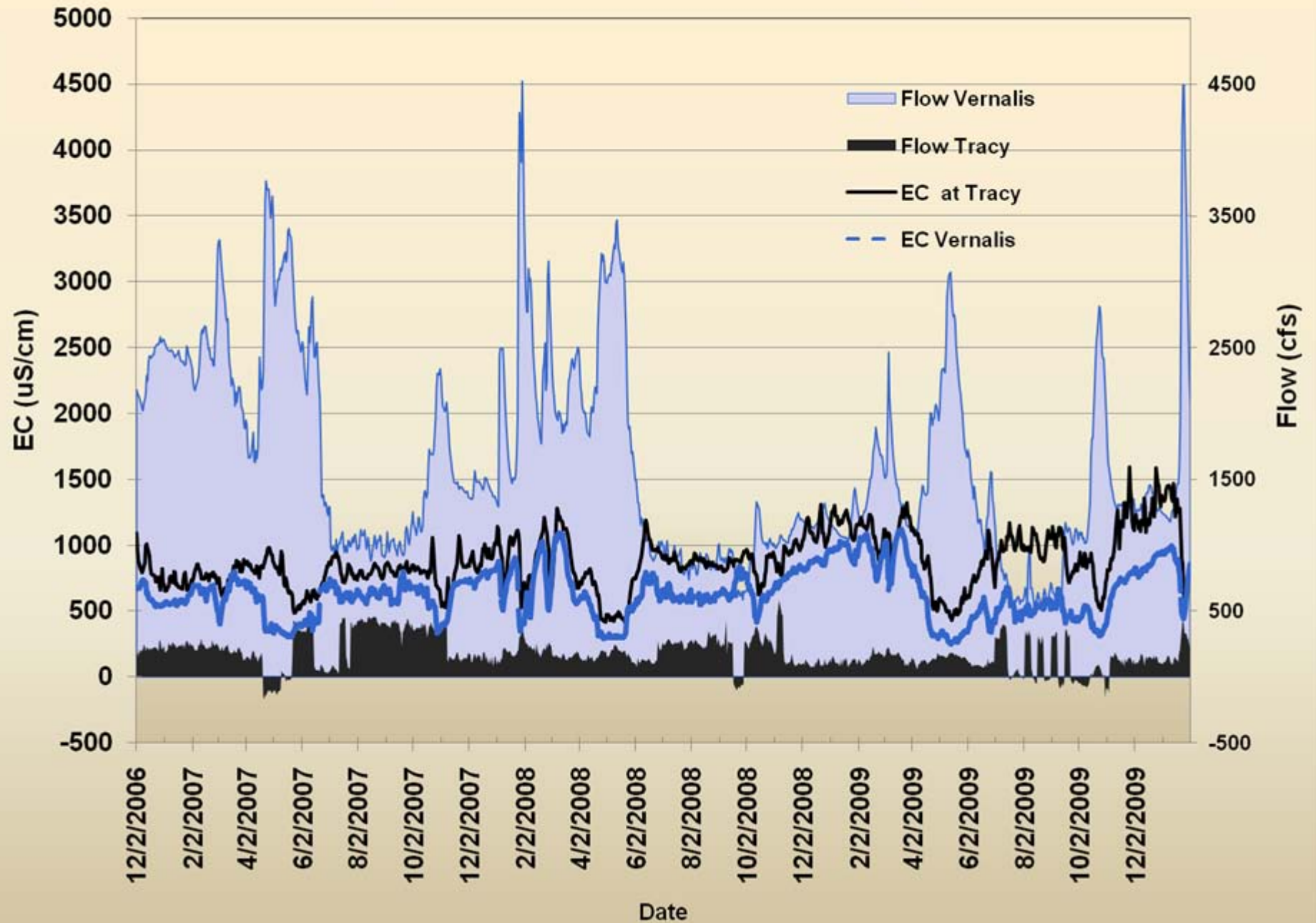
Flow in Middle River (East of Barrier) and Vernalis (DSM2 Historical)



Flow in Grant Line Canal (West of Barrier) and Vernalis (DSM2 Historical)



Thirty Day Running Average Flow and EC -
San Joaquin River at Vernalis and Old River at Tracy



Sources of Salinity in South Delta

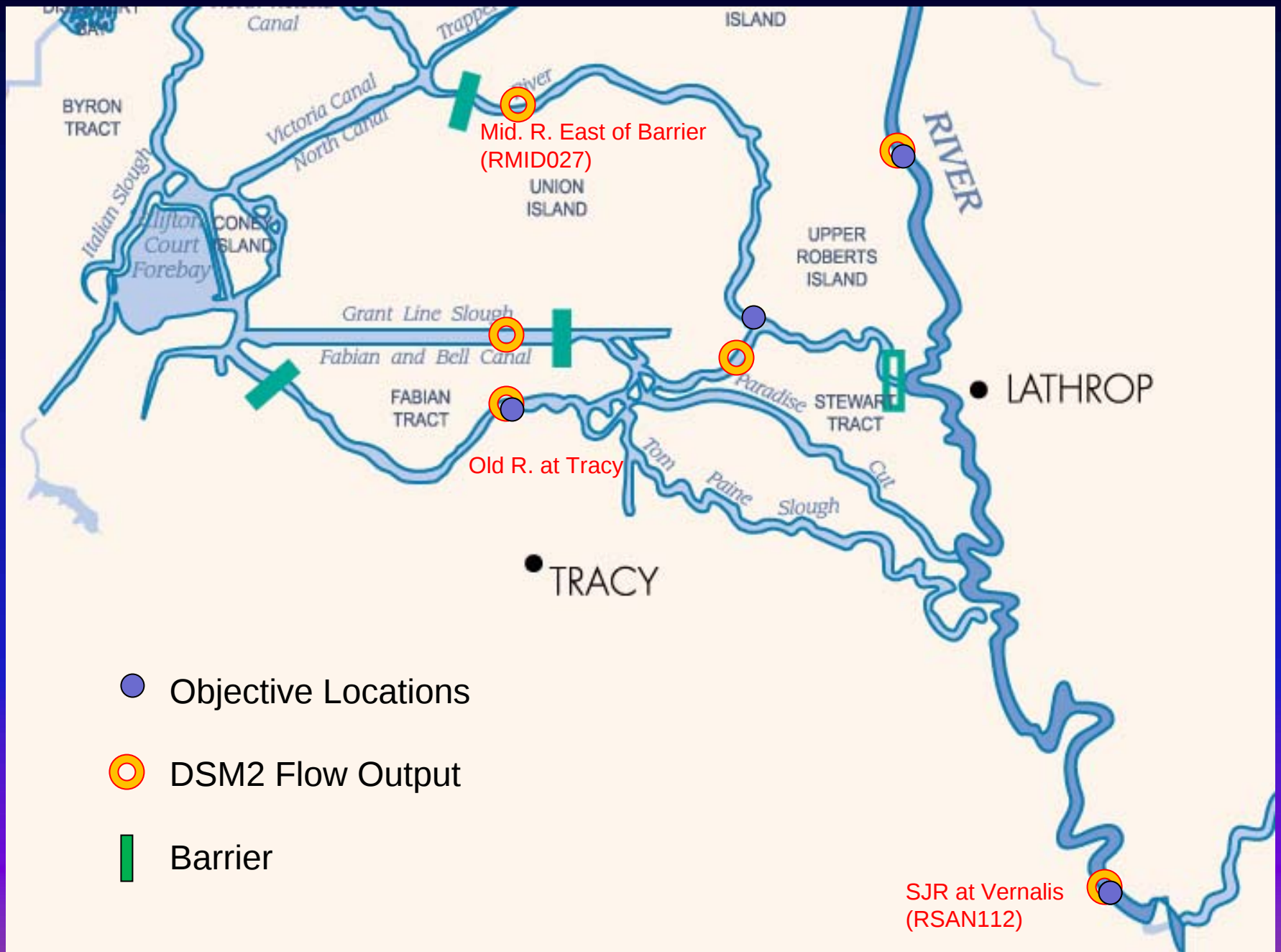
(DWR Report, B. Montoya – May 2007)

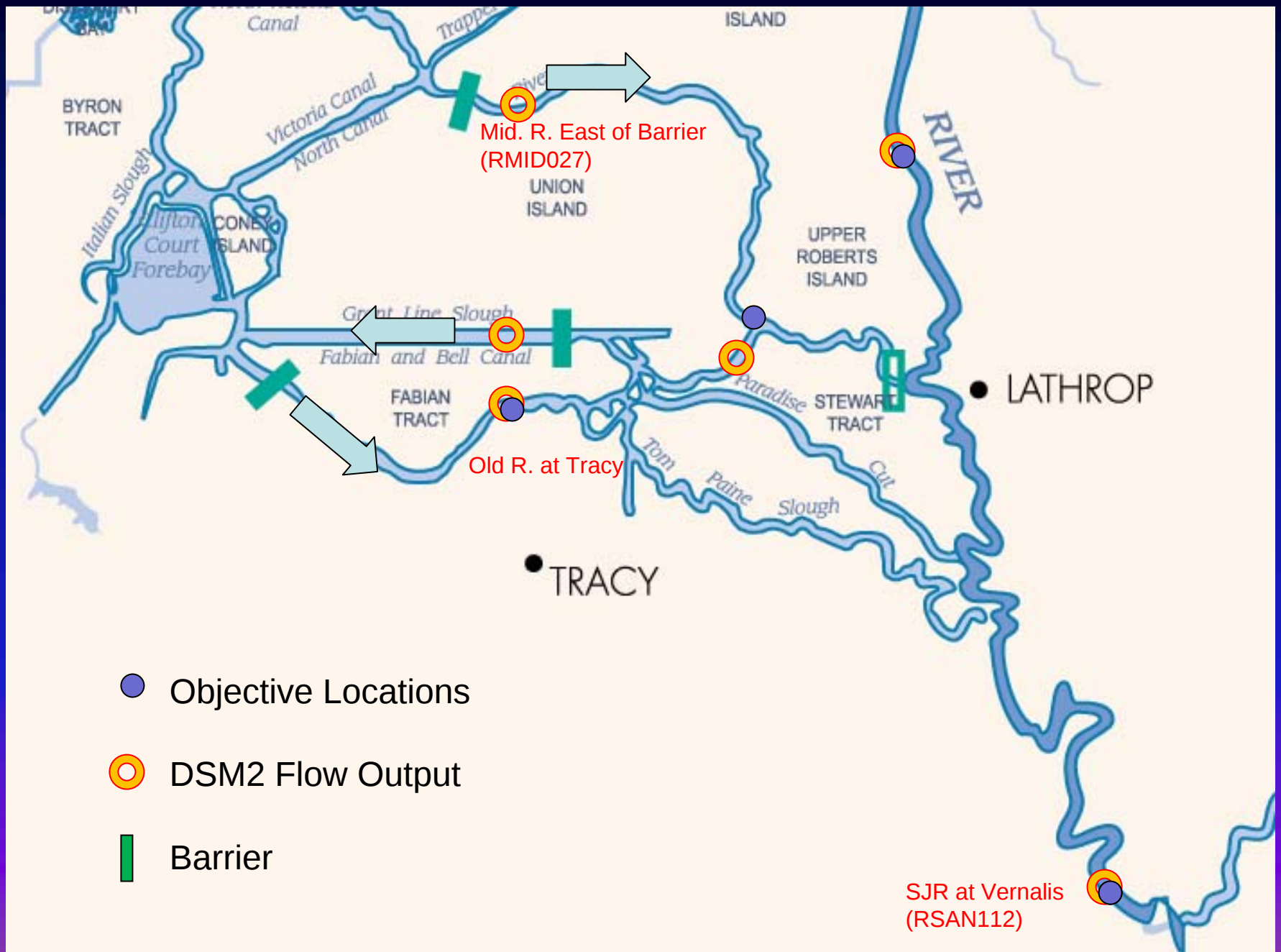
- Approximately 74 discharge sites along waterways from Vernalis to export sites via Old River and Grant Line Canal
- Agricultural return Salinity ranges from 350 to 4,500 $\mu\text{S}/\text{cm}$ with 1496 $\mu\text{S}/\text{cm}$ average
- Point Sources of Salinity (municipal) – between 1,099 and 1753 $\mu\text{S}/\text{cm}$.
- Groundwater – between 2,100 and 2,600 $\mu\text{S}/\text{cm}$

Acknowledgements

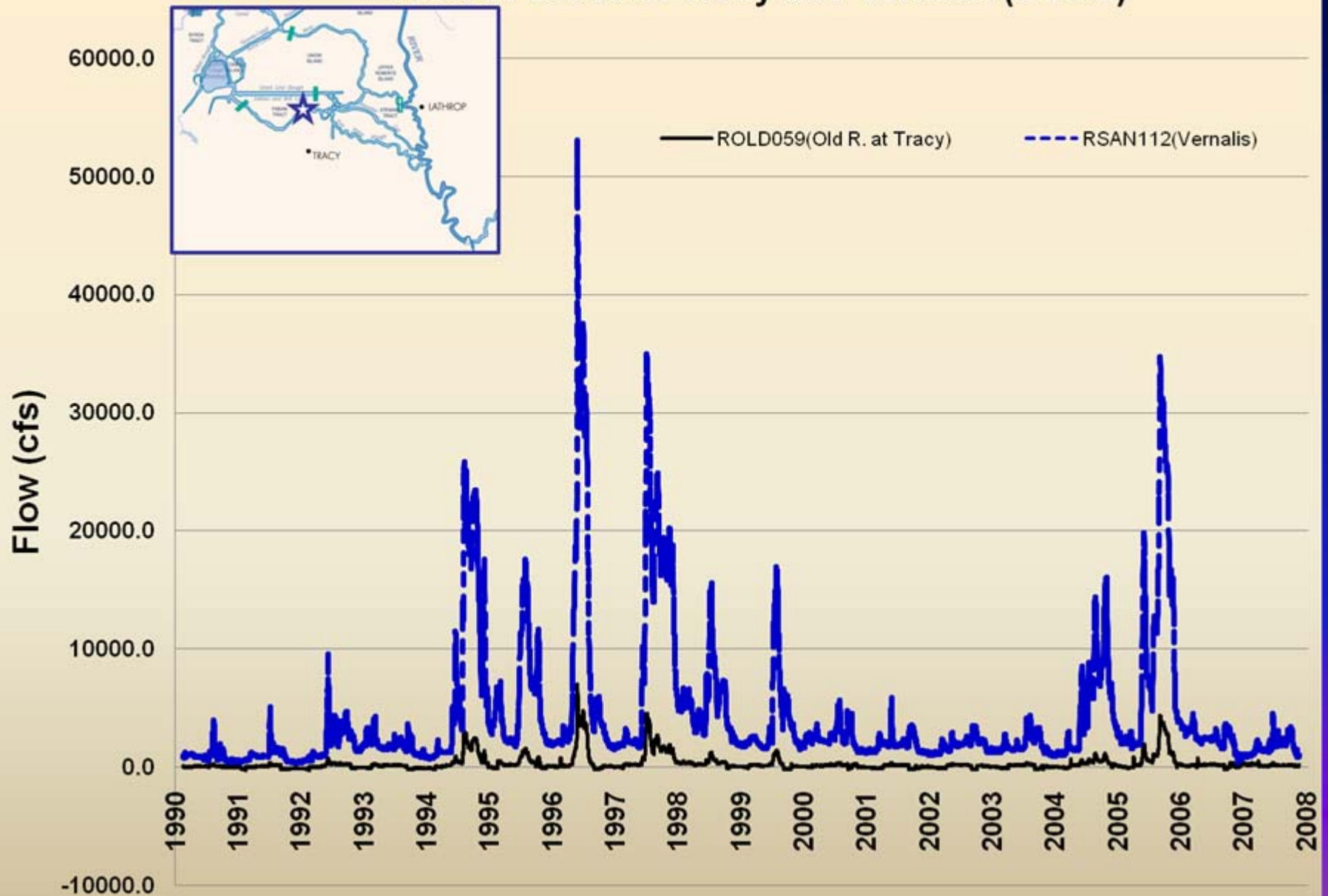
- Barry Montoya
- Myint Thein
- Lan Liang
- Min Yu
- Bob Suits
- Parviz Nader-Tehrani
- Bijaya Shrestha

Extra Slides

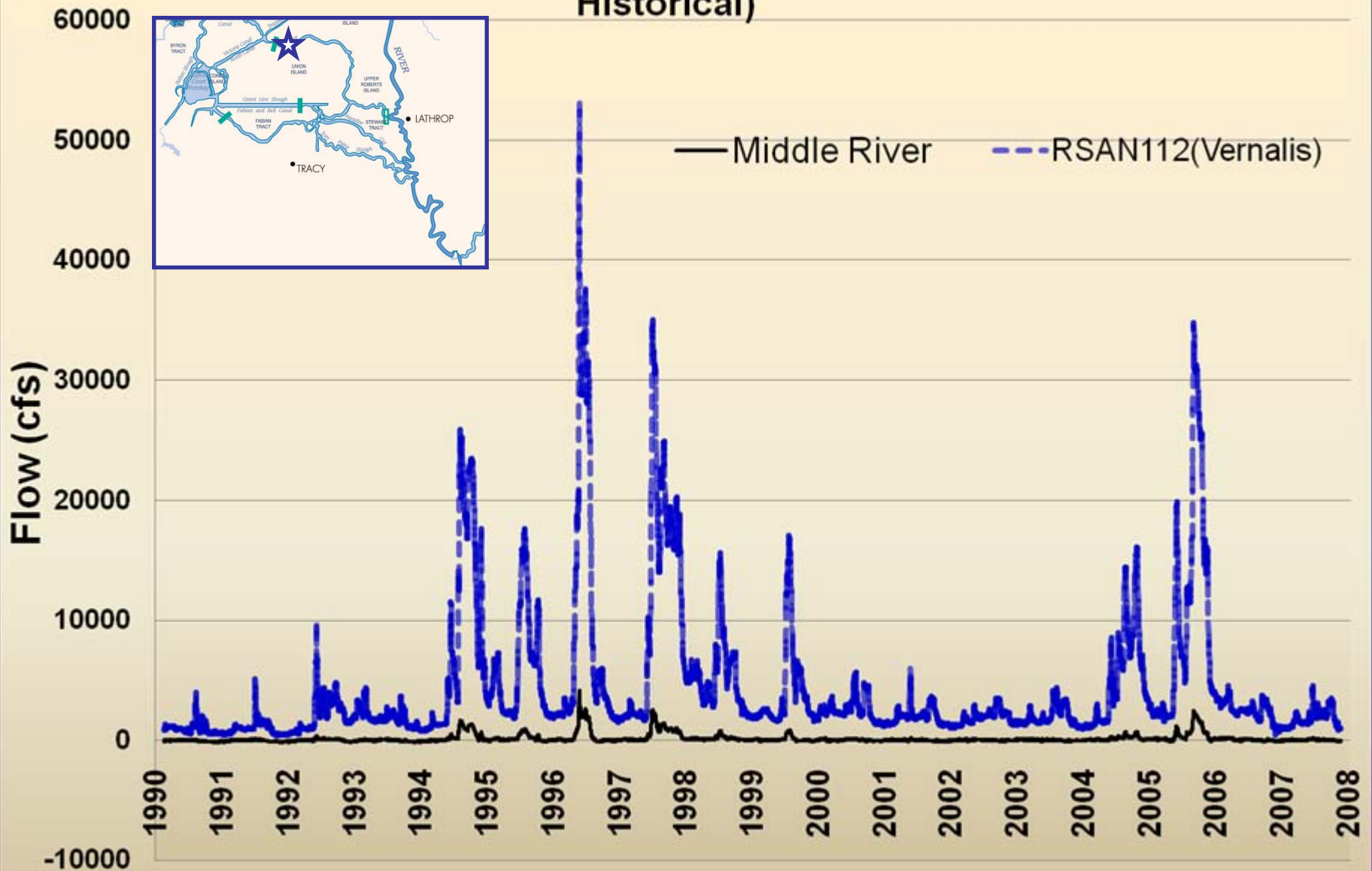




Flow at Old R. at Tracy and Vernalis (DSM2)



Flow in Middle River (East of Barrier) and Vernalis (DSM2 Historical)



Flow in Grant Line Canal (West of Barrier) and Vernalis (DSM2 Historical)

