

# Regional Salmon Outmigration Study

Franks Tract Pilot Project  
Delta Cross Channel Reoperation  
Through Delta Facility



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August 14, 2007

# Salmon Out-migration Studies

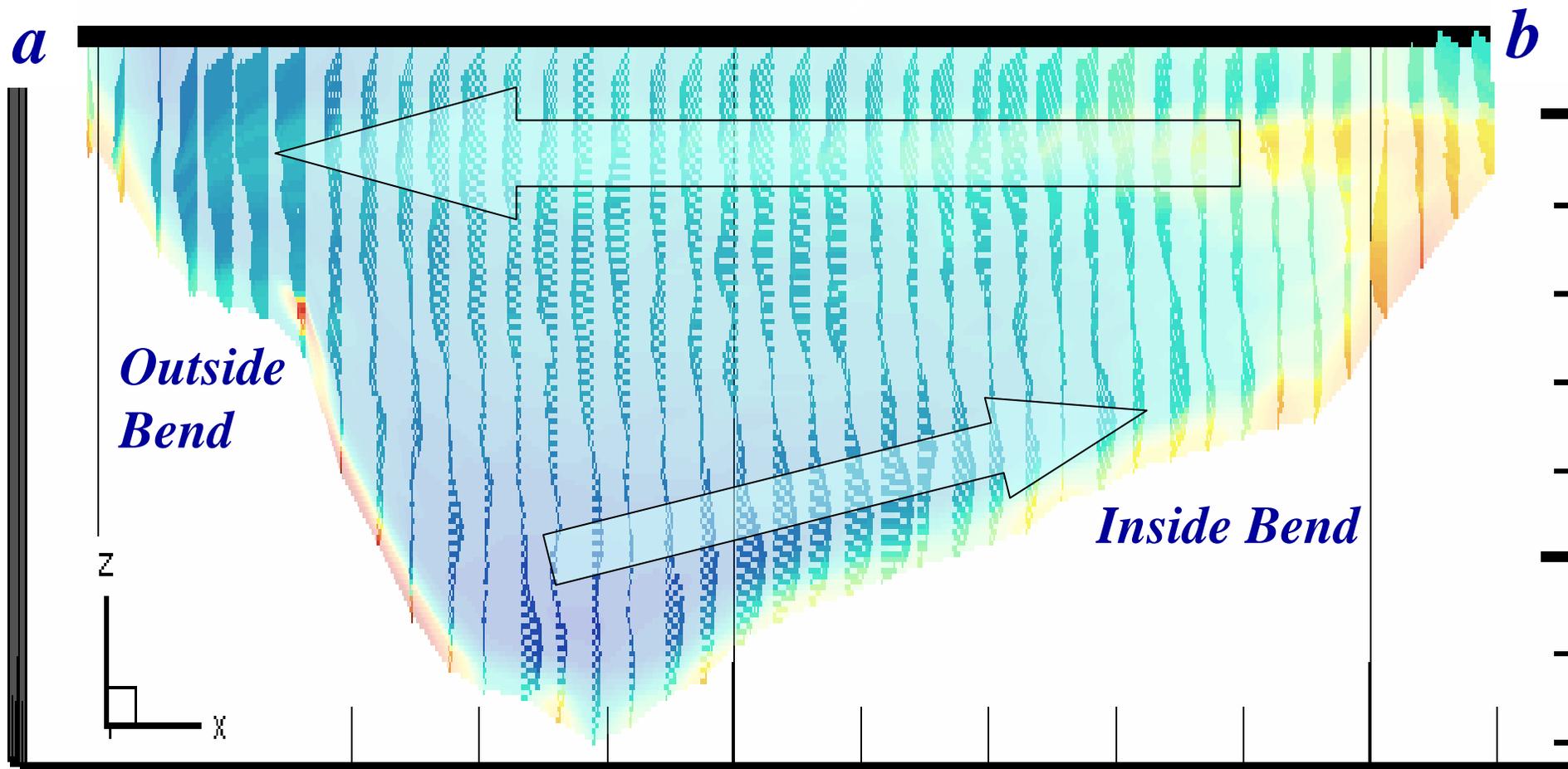
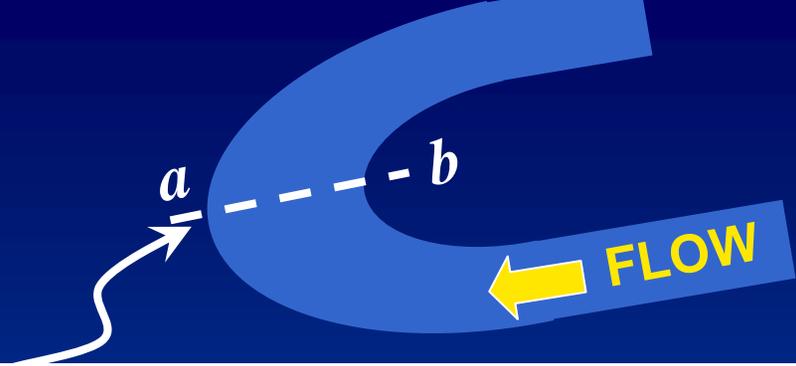
## 4' Long Salmon Smolts

- Pilot Study at Clarksburg Bend  
(Dec 06 – Jan 07)
- Regional Hydrodynamic and Fish Study  
(Dec 07 – Jan 08)



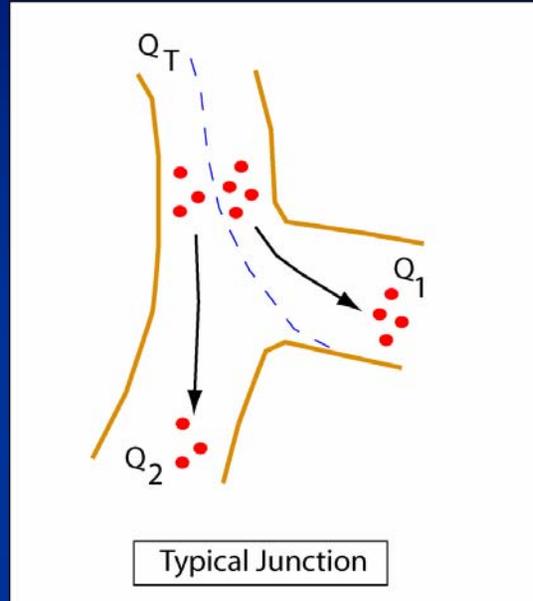
# Secondary Currents

Cross Section showing secondary currents

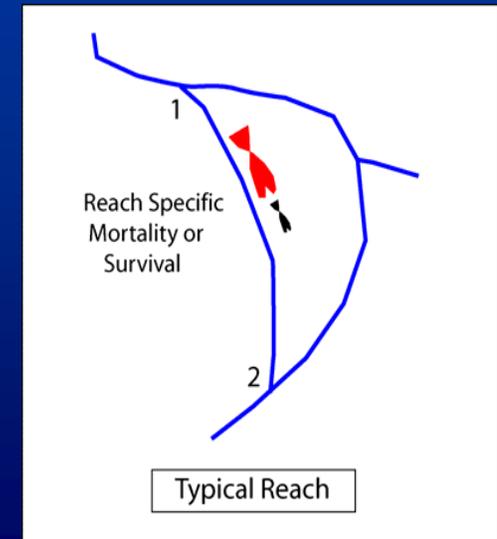


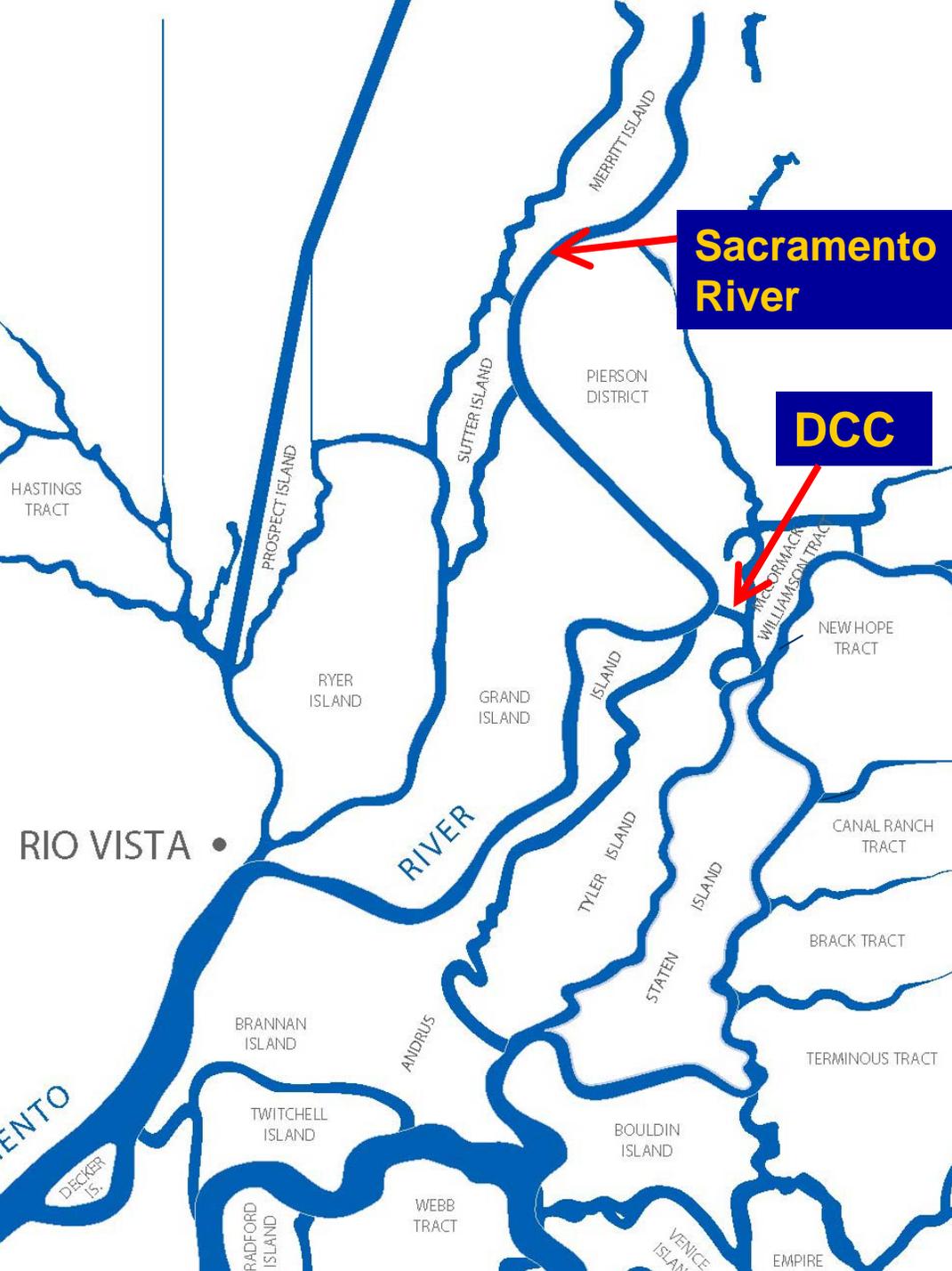
# Fish Entrainment and Survival

(1) Entrainment at Junctions



(2) Survival within each reach





# Delta Cross Channel

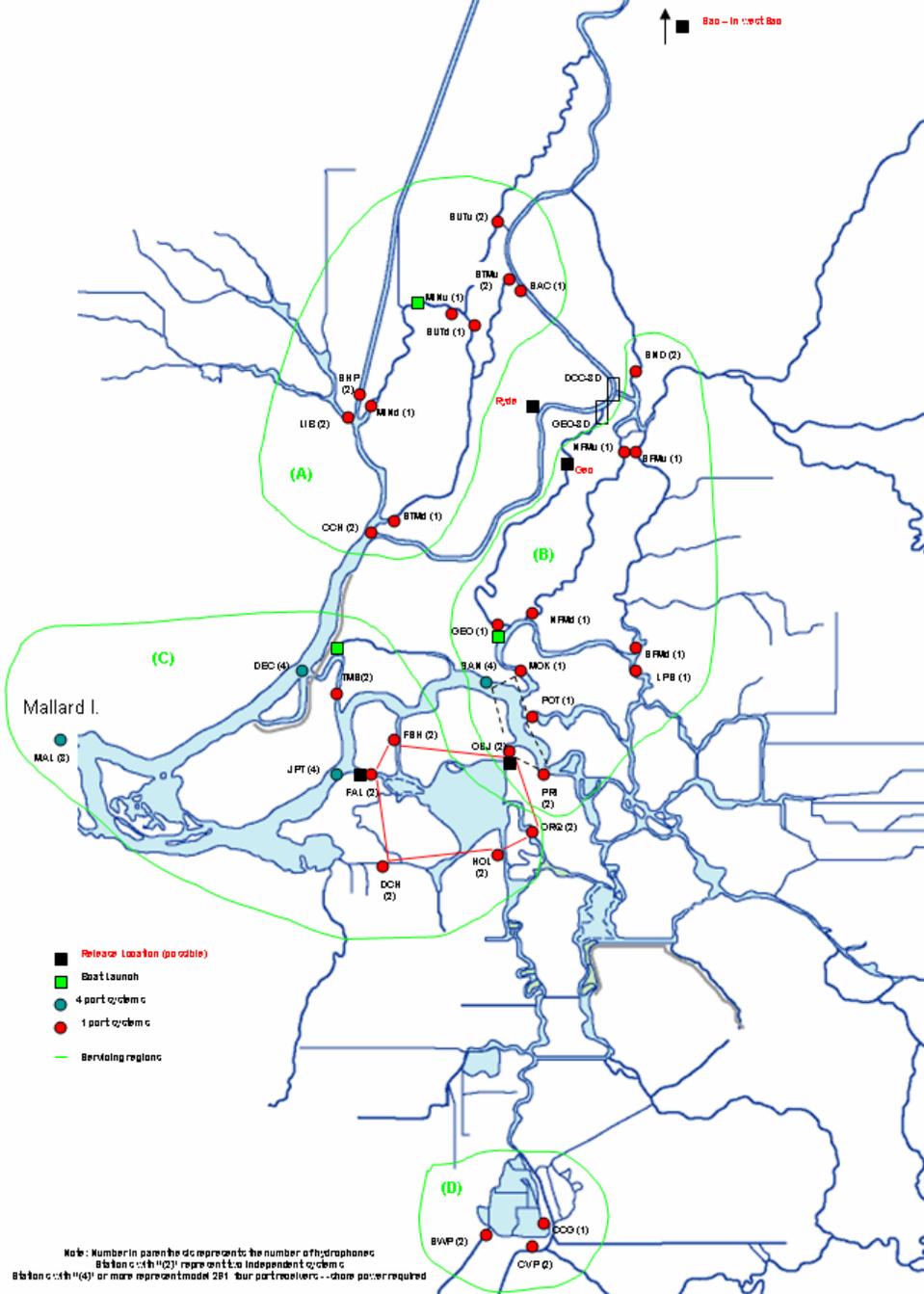
- DCC operations have regional affects
- Circulation patterns at bends in rivers affect fish behavior
- Fish higher in water column at night
- Hold during day and move at night
- Reconfiguration of slough entrances may reduce fish entrainment

# Regional Fish Study

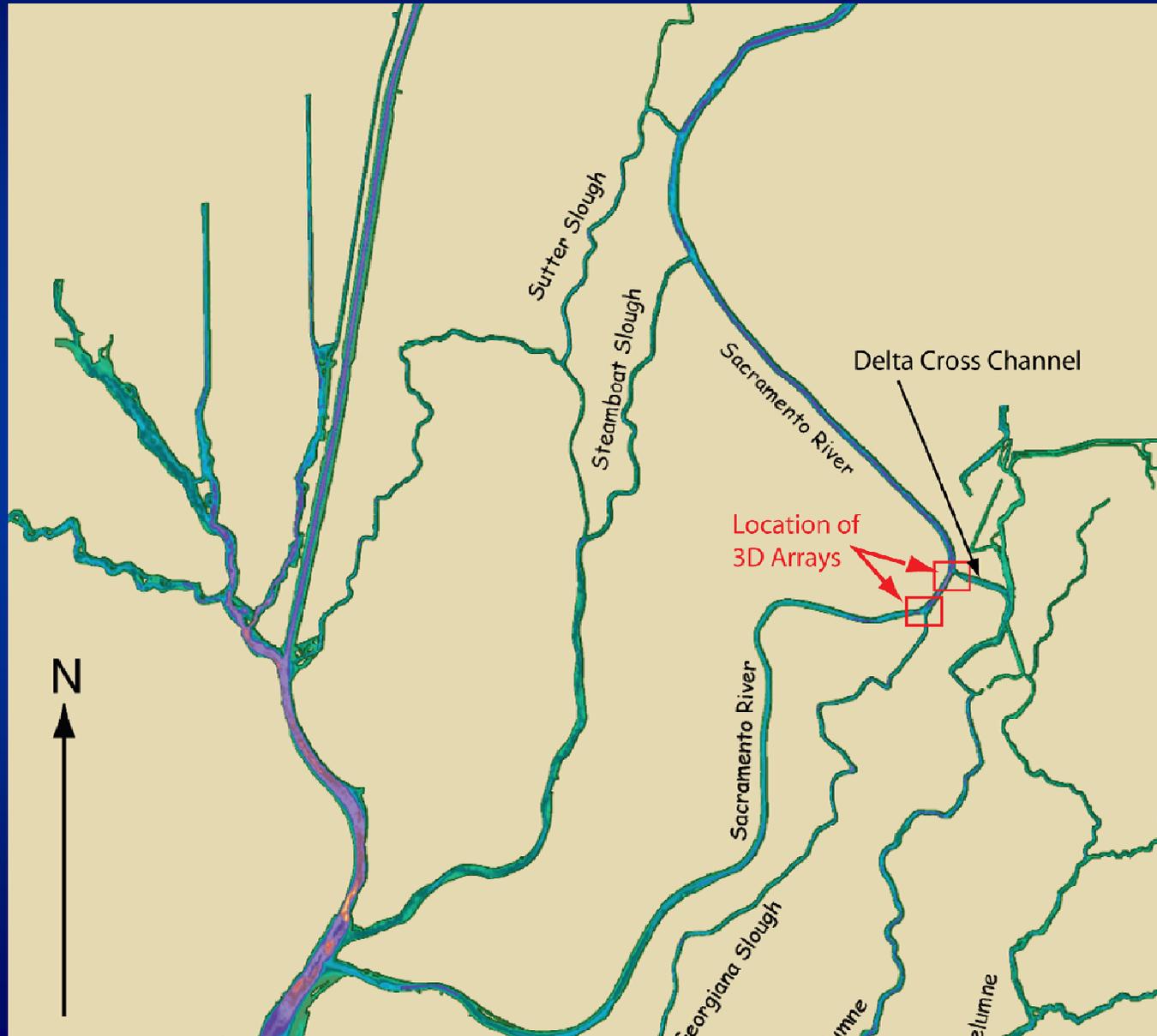
## DCC Gate Operations

1. Gates Closed
2. Gates Open
3. Closed at night, Open during day
4. 1/2 open

1200 fish per release



# 3-D Acoustic Telemetry Arrays





# Experimental Layout

← Delta Cross Channel

← Georgiana Slough

# Remote Control – Velocity Profiler





# Purpose of the Regional Fish Study

- Understand how Sacramento River discharge and DCC gate operation affect Salmon route selection and survival in Delta.
- Understand how abiotic factors and behavioral responses control out-migration of juvenile salmon.
- Provide data necessary to develop, calibrate and verify numerical models that can predict salmon out-migration and survival in Delta.
- Develop operations of DCC gates, TDF alternatives, Franks Tract project
- Data important to development/operation of Peripheral Canal (flow ↓, predation ↑).

# Questions

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