



South Bay Saltponds A8 Notch Mercury Study

UC Davis Slough Fish Component

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- ### Possible issues for Alviso Slough
- New Almaden mercury legacy
 - Movement of Alviso sediment
 - Transfer of Pond A8 mercury conditions to Alviso Slough



Slough fish
taken with
box seines

- Most sampling done with seines set against tidal currents.
- Sampling done on descending tides.





Threespine Stickleback

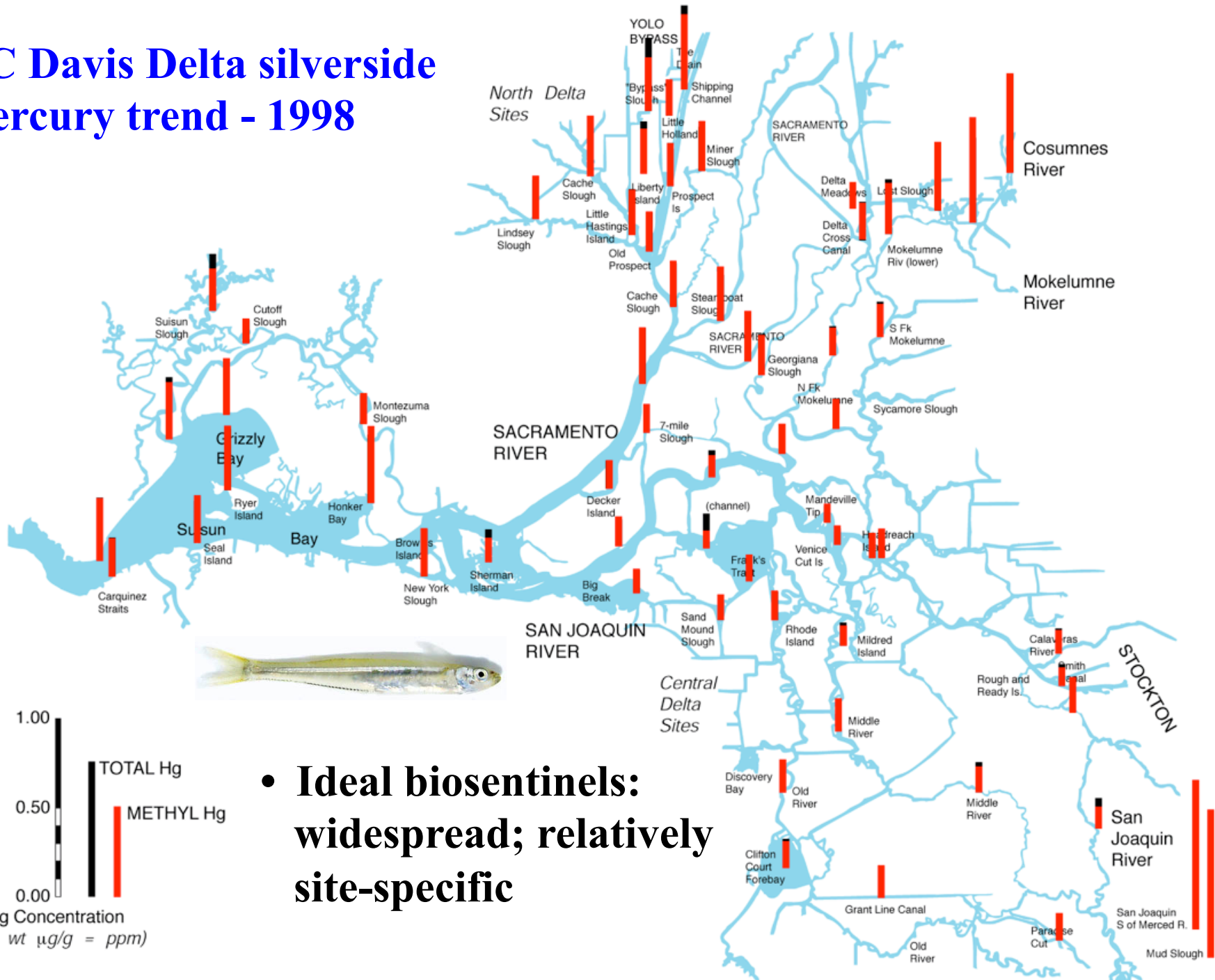
- Also sampled in Pond A8 work

Mississippi Silverside

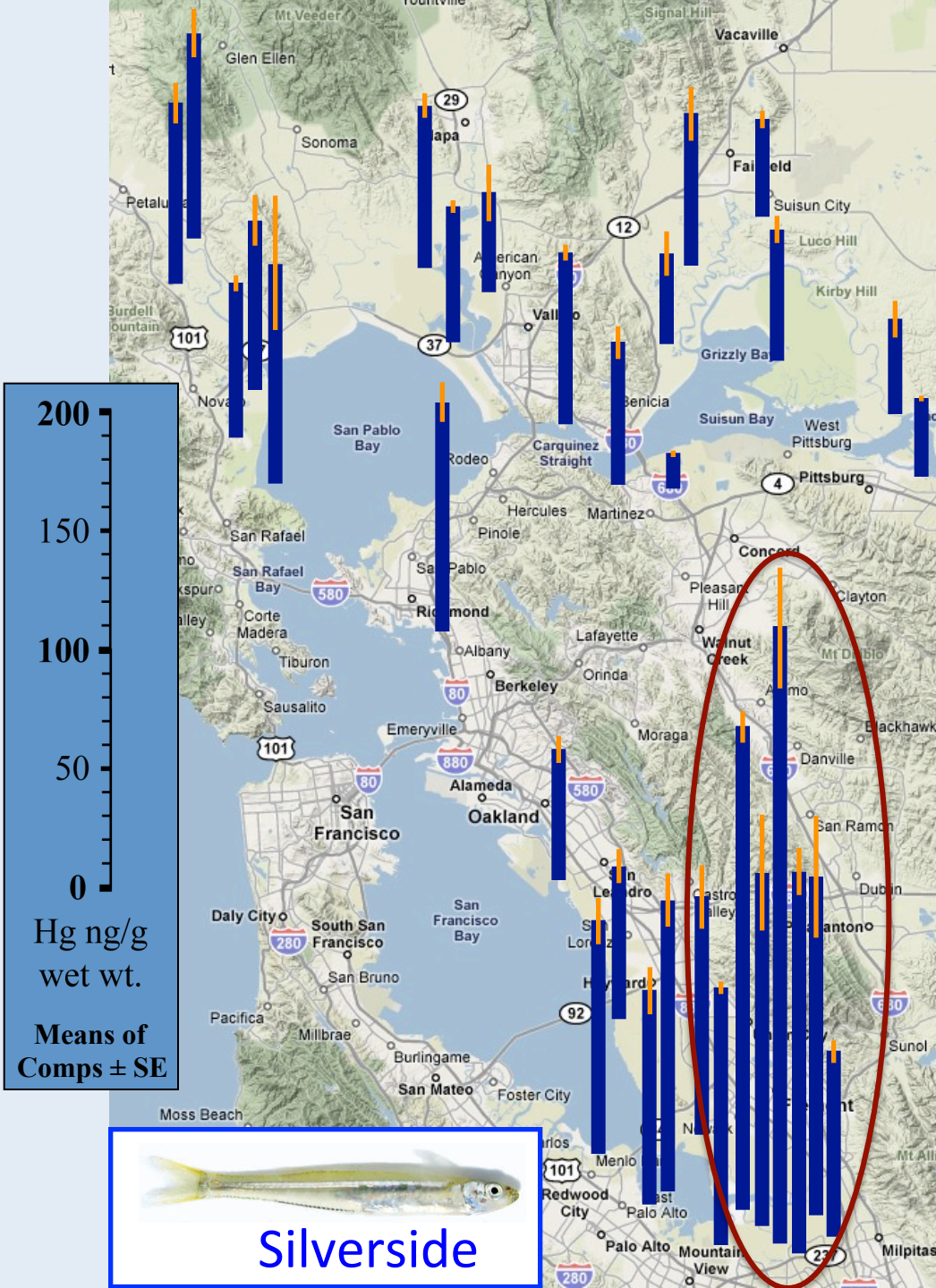
- Used in regional monitoring



UC Davis Delta silverside mercury trend - 1998



- **Ideal biosentinels: widespread; relatively site-specific**



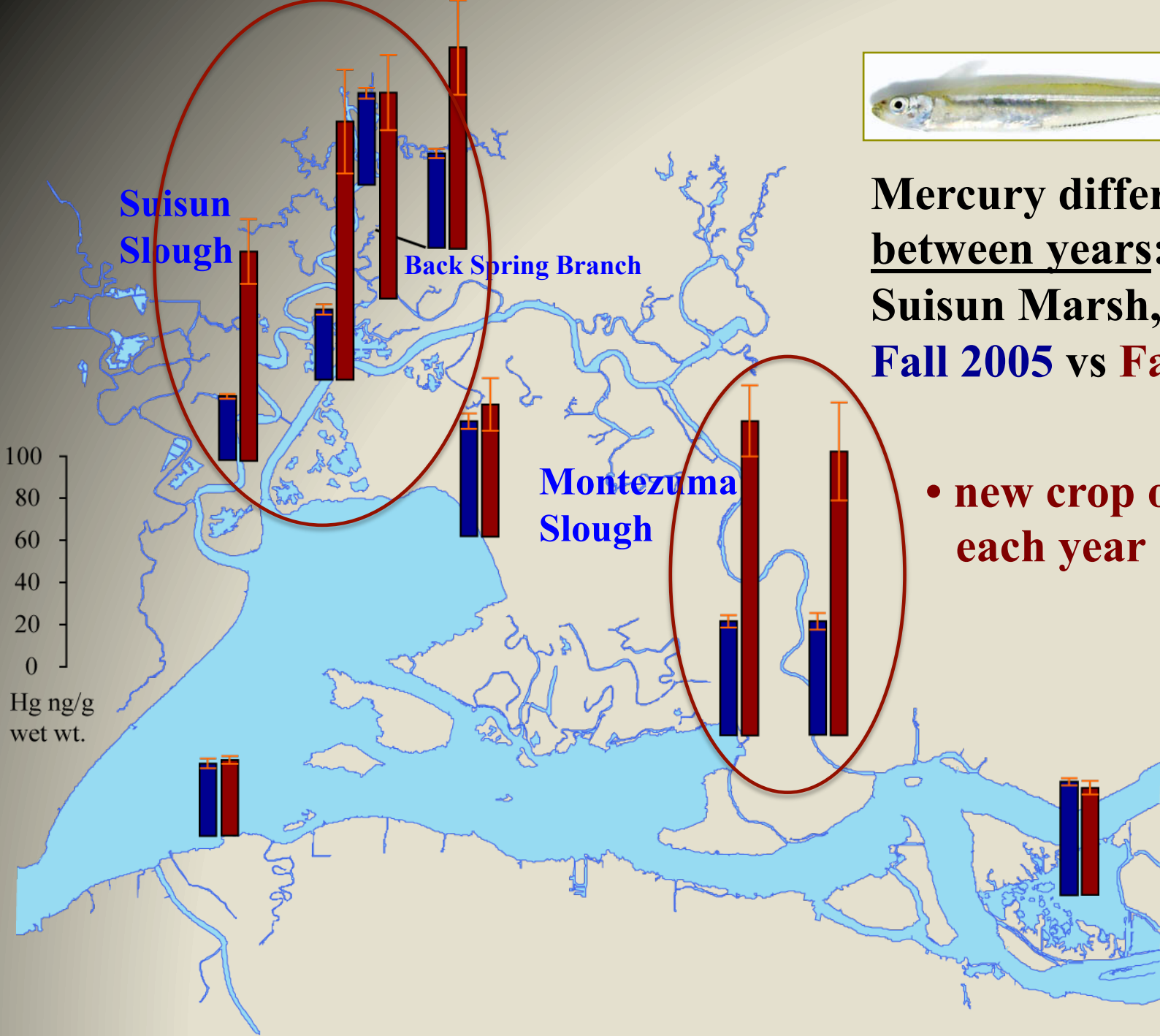
Regional monitoring around SF Bay (2008-2010)

- Alviso region a long-time 'hot spot'





**Mercury differences
between years:
Suisun Marsh,
Fall 2005 vs Fall 2006**

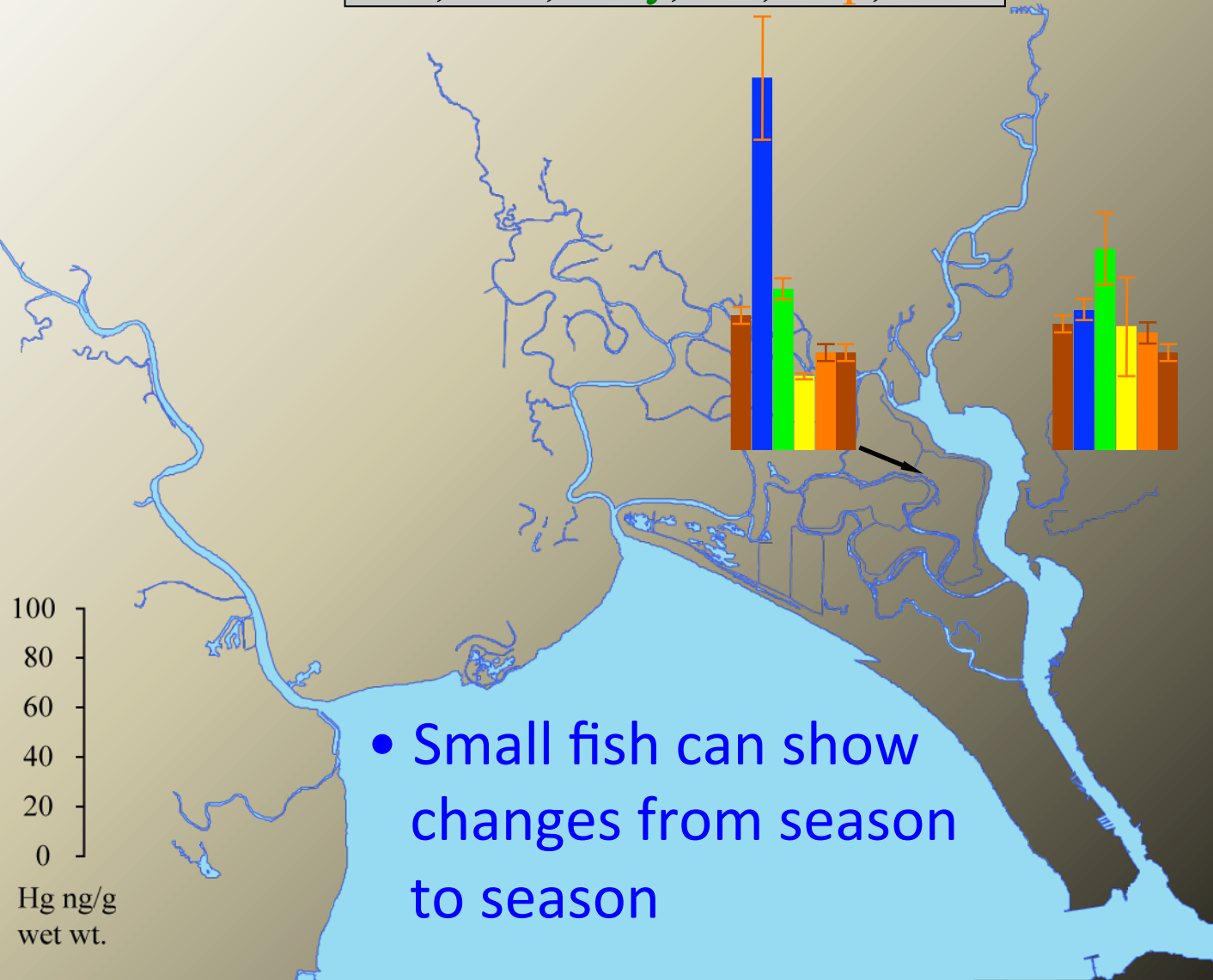


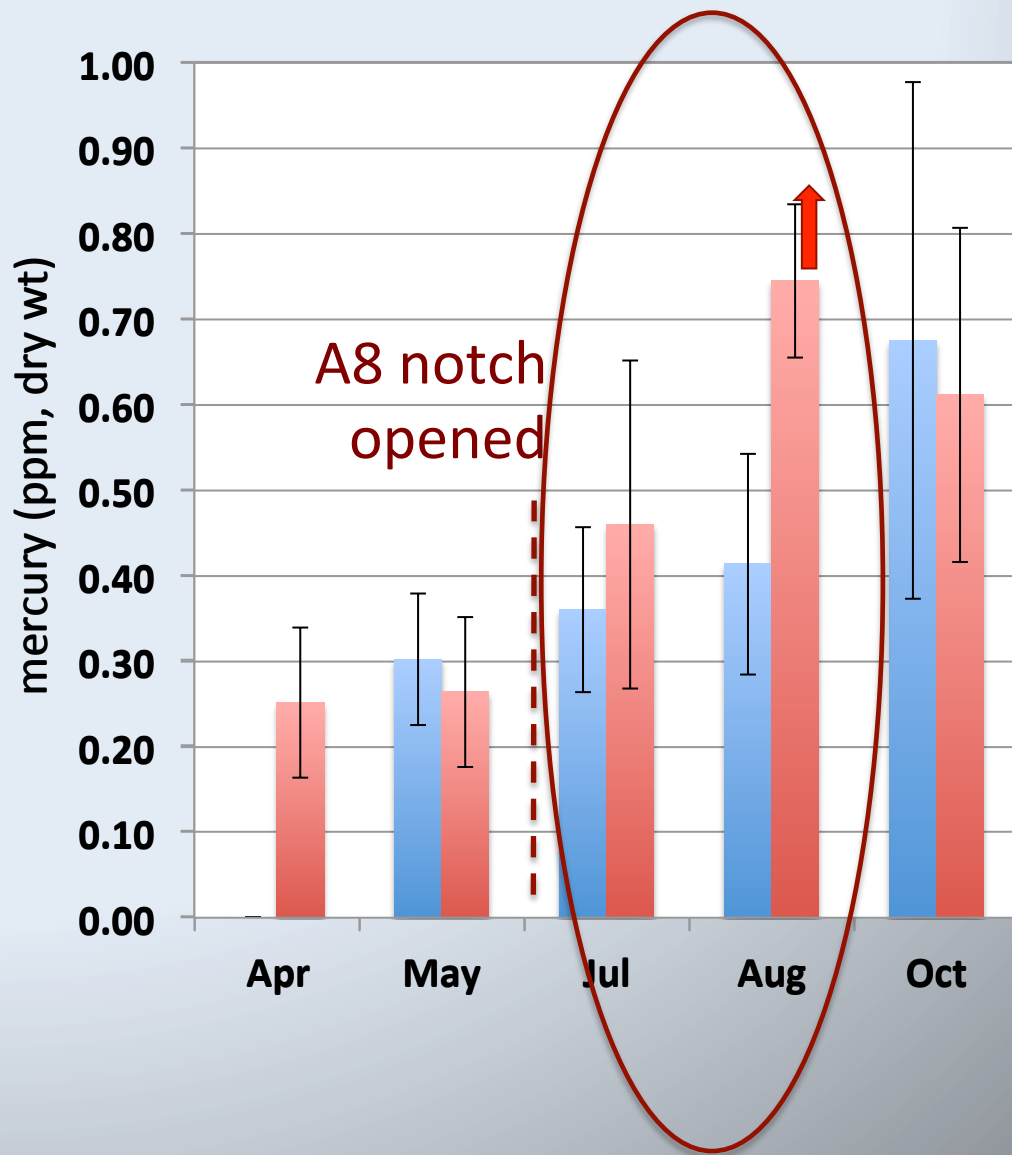
• **new crop of fish
each year**



North Bay 2005-2006 Seasonal Silverside Mercury Trend.

Oct, Feb, May, Jul, Sep, Nov





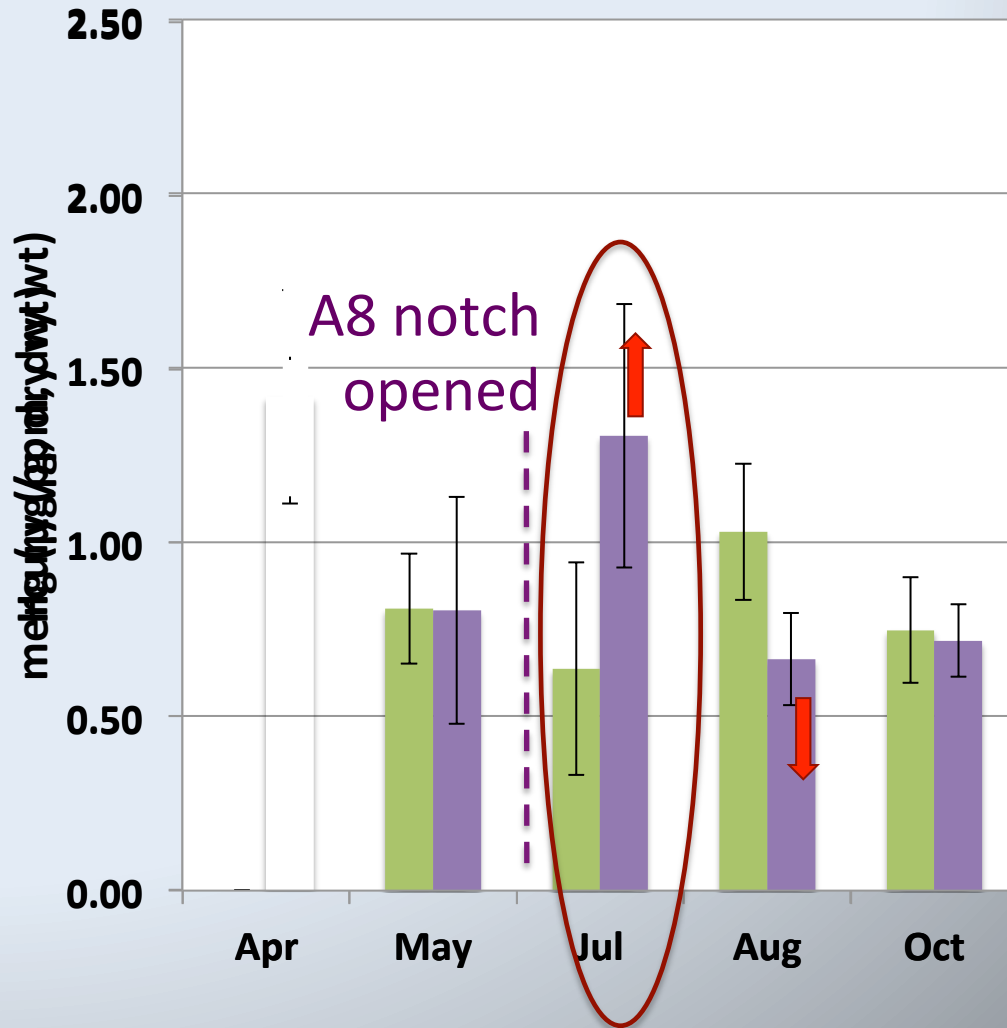
■ 2010
■ 2010
■ 2011

ALSL2
 Alviso Slough
 at the Pond A8
 notch



**Threespine
 Stickleback**

- Higher in Jul-Aug, vs 2010



■ 2010
■ 2010
■ 2011

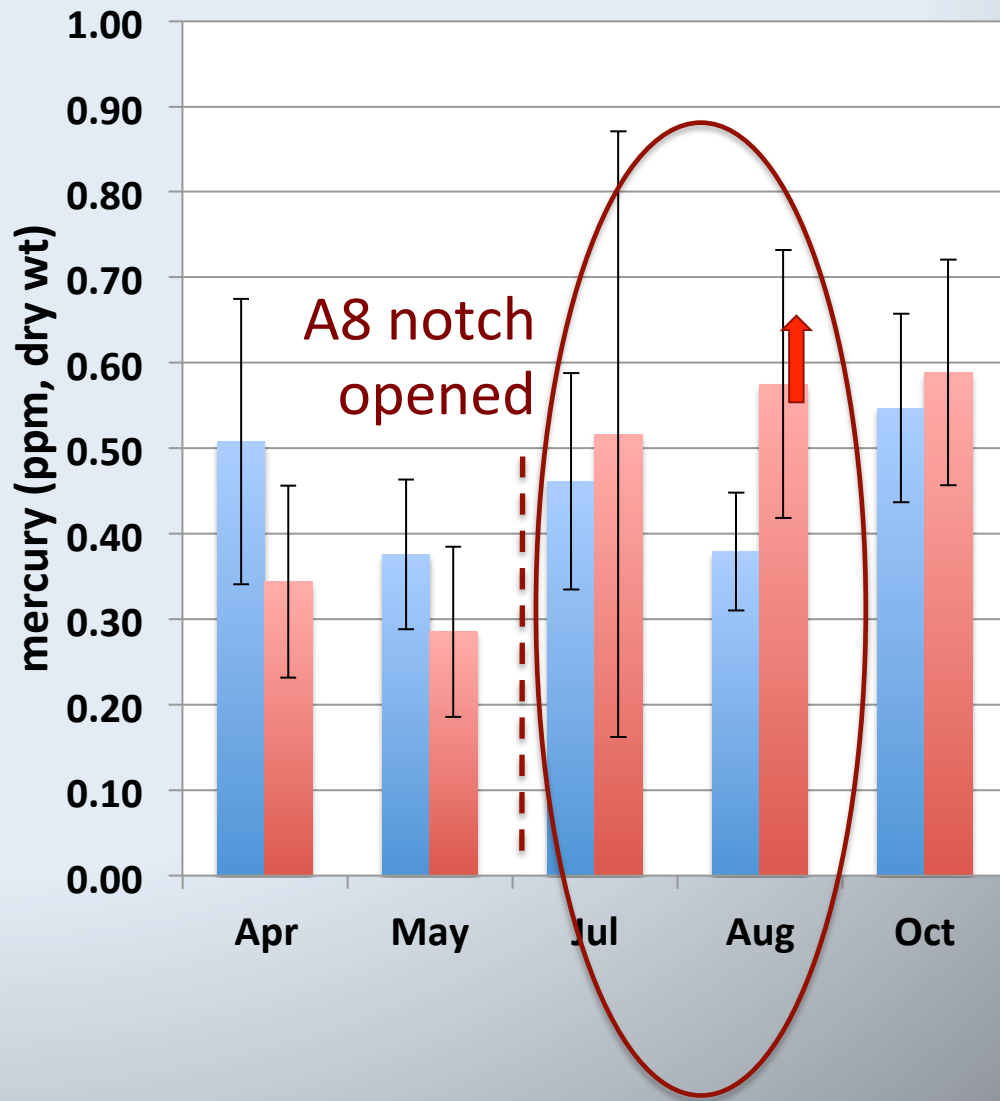
ALSL2

Alviso Slough at the Pond A8 notch



Mississippi Silverside

- Expanded scale, higher levels
- Higher in July, vs 2010



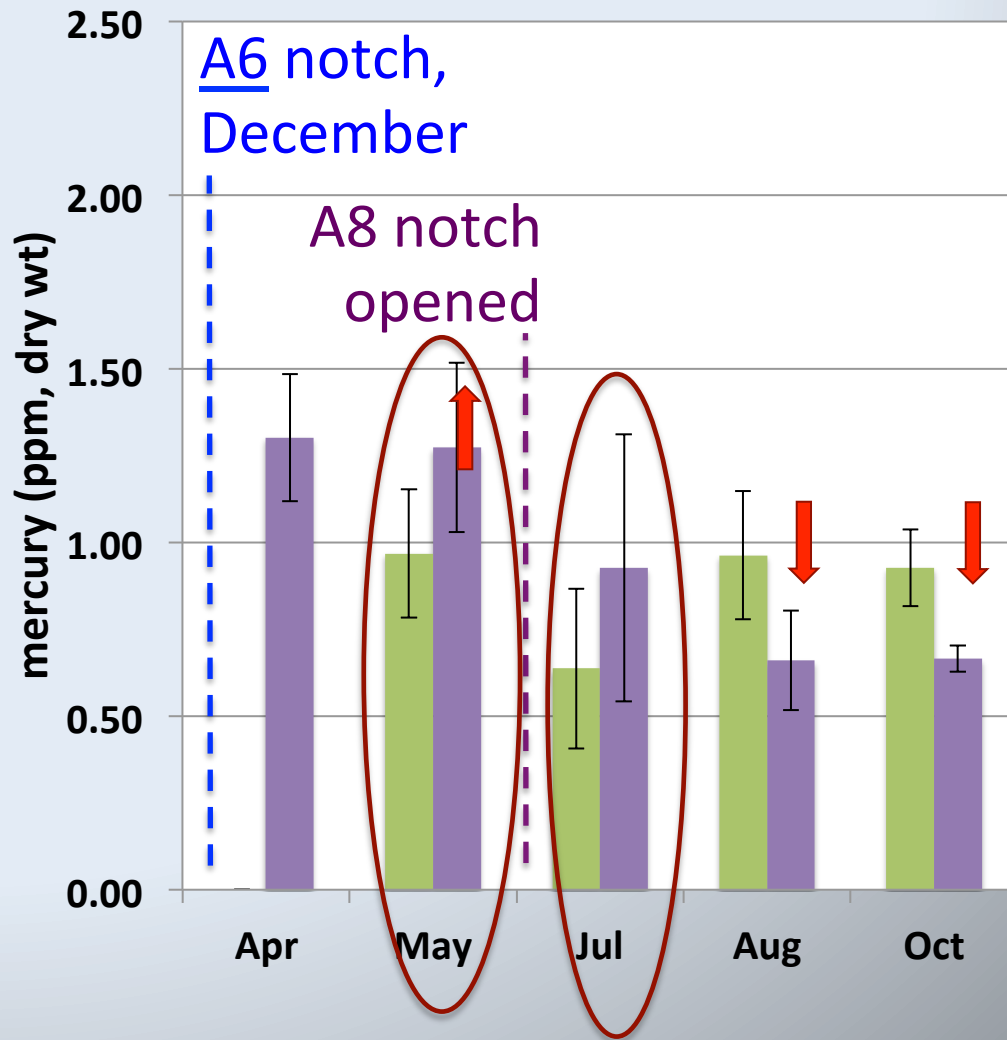
2010
2011

ALSL3
'Mid' Alviso
Slough



Threespine
Stickleback

- Higher in Jul-Aug, vs 2010



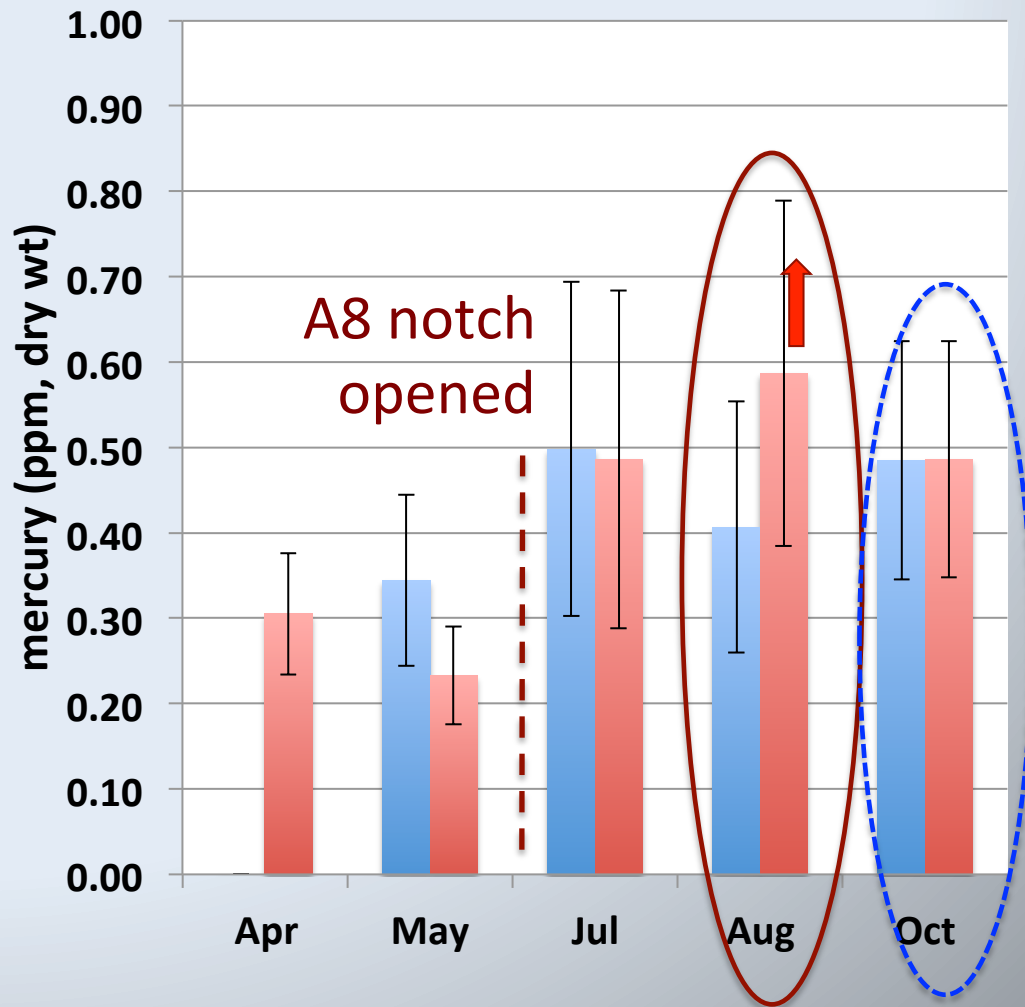
2010
2011

ALSL3
'Mid' Alviso
Slough



Mississippi
Silverside

- Higher in July, vs 2010
- But also higher in May, pre-notch



2010
2011

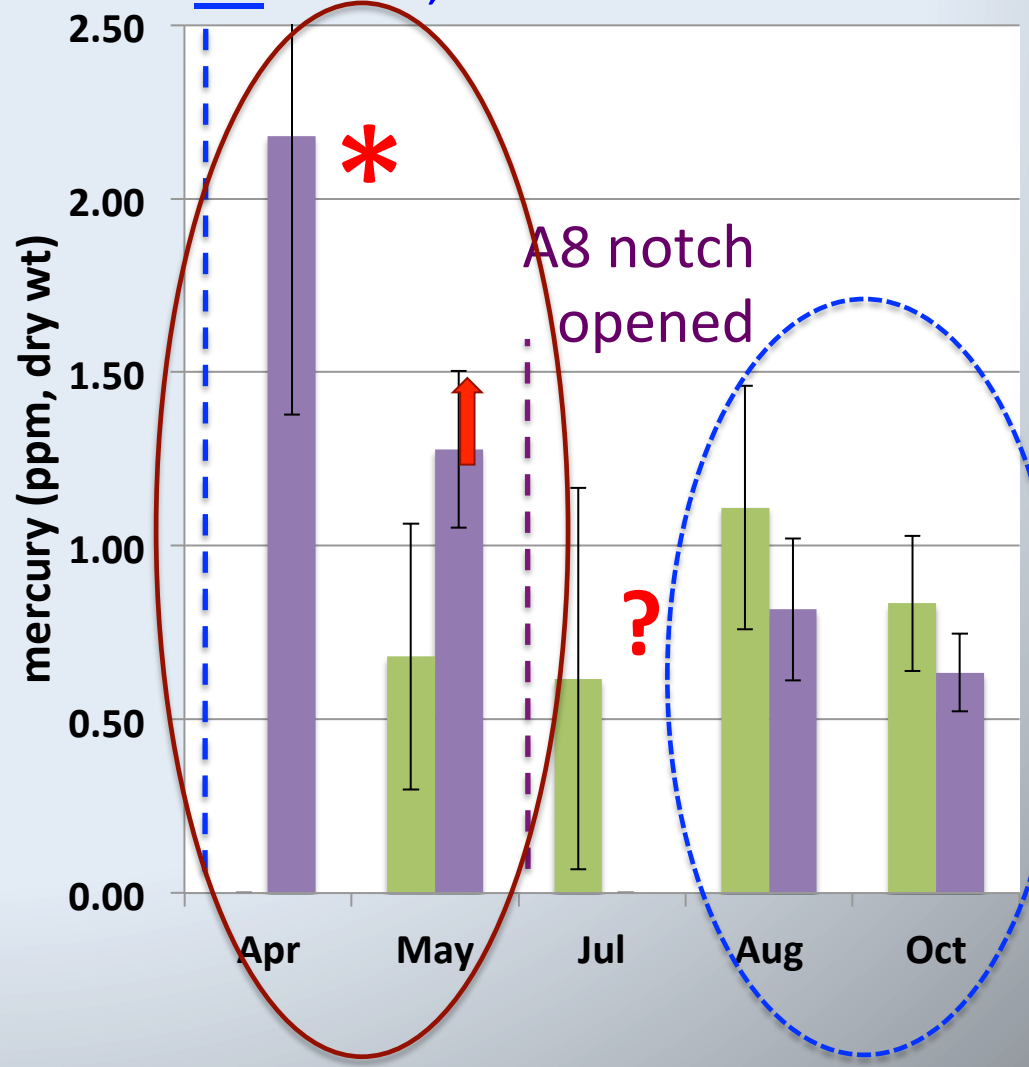
ALSL4
Alviso Slough
near Bay



Threespine
Stickleback

- Higher in August, vs 2010
- By Oct, no change

A6 notch, December



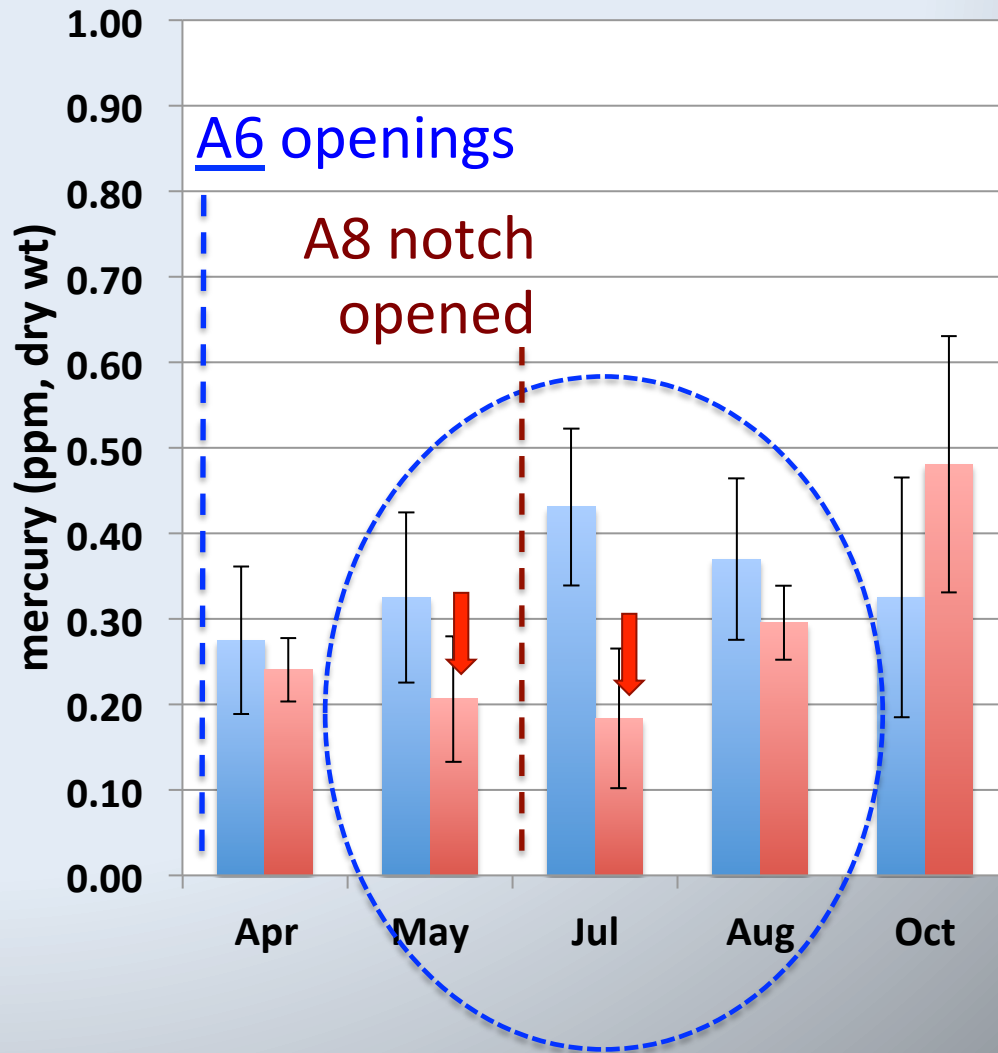
2010
2011

ALSL4
Alviso Slough
near Bay



**Mississippi
Silverside**

- Pond A6 influence
- By Aug-Oct, no effect



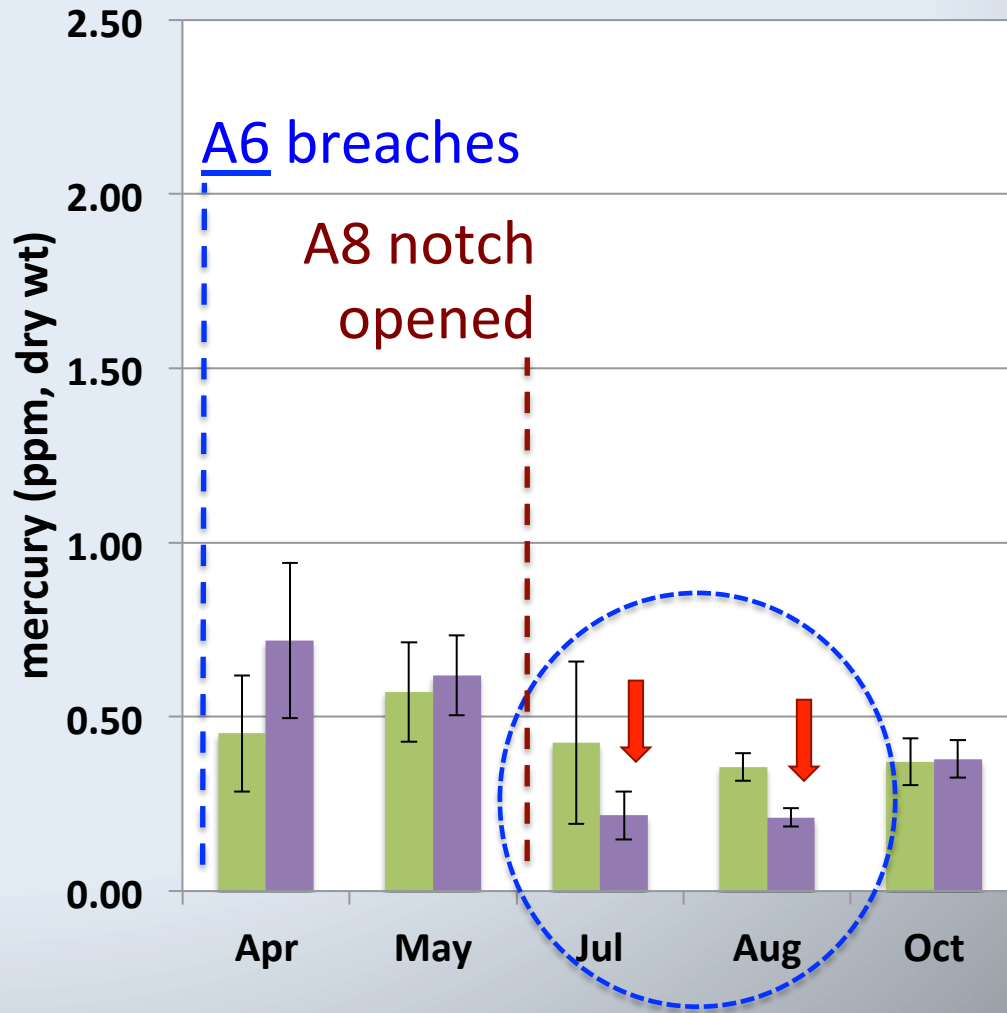
■ 2010
■ 2011

MALSL
Mallard Slough
control site



**Threespine
Stickleback**

- May-Aug 2011
lower than 2010



2010
2011

MALSL
Mallard Slough
control site



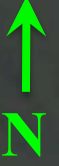
Mississippi
Silverside

- Lower concentrations
- Jul-Aug 2011 lower than 2010

Summary Points

- After the notch opened in June 2011, Alviso Slough silversides had higher mercury, peaking in July, vs 2010.
- Similarly, Alviso Slough 2011 sticklebacks had higher mercury levels, peaking in August, compared to 2010.
- Other increases were seen in downstream Alviso sites, before the A8 opening, possibly linked to the A6 breaches.
- Mallard Slough (control) showed the opposite trend, suggesting that the Alviso increases were notch-related.
- The 2011 mercury increases in both species were apparently short-lived, with 'normal' levels by October.

Followup monitoring this year (2013)



SF Bay

Guadalupe Slough

Alviso Slough

Mallard Slough

MALSL

ALSL3

SUNNY

Pond A8

ALSL2

GUASL



Thank you!

