

The Latest on Human Exposure: Mercury Contamination in Bay-Delta Sport Fish

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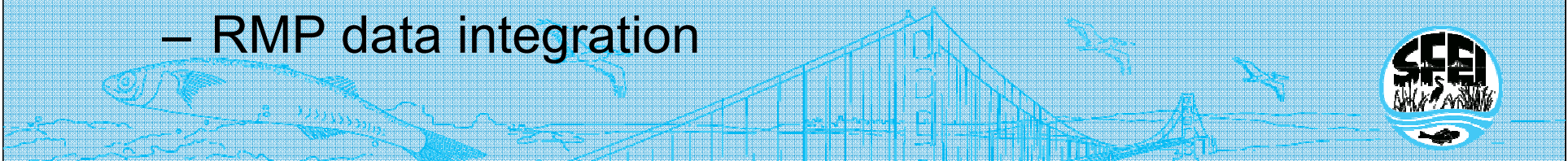
RMP Mercury Coordination Meeting, Oakland, CA

February 20th, 2008



Outline

- Overview of Fish Mercury Project
- Goals of sport fish monitoring
- **Highlights from 2006 data**
 - Latest on human exposure
 - Regional patterns in mercury exposure
- FMP mercury information
 - advisory development
 - RMP data integration



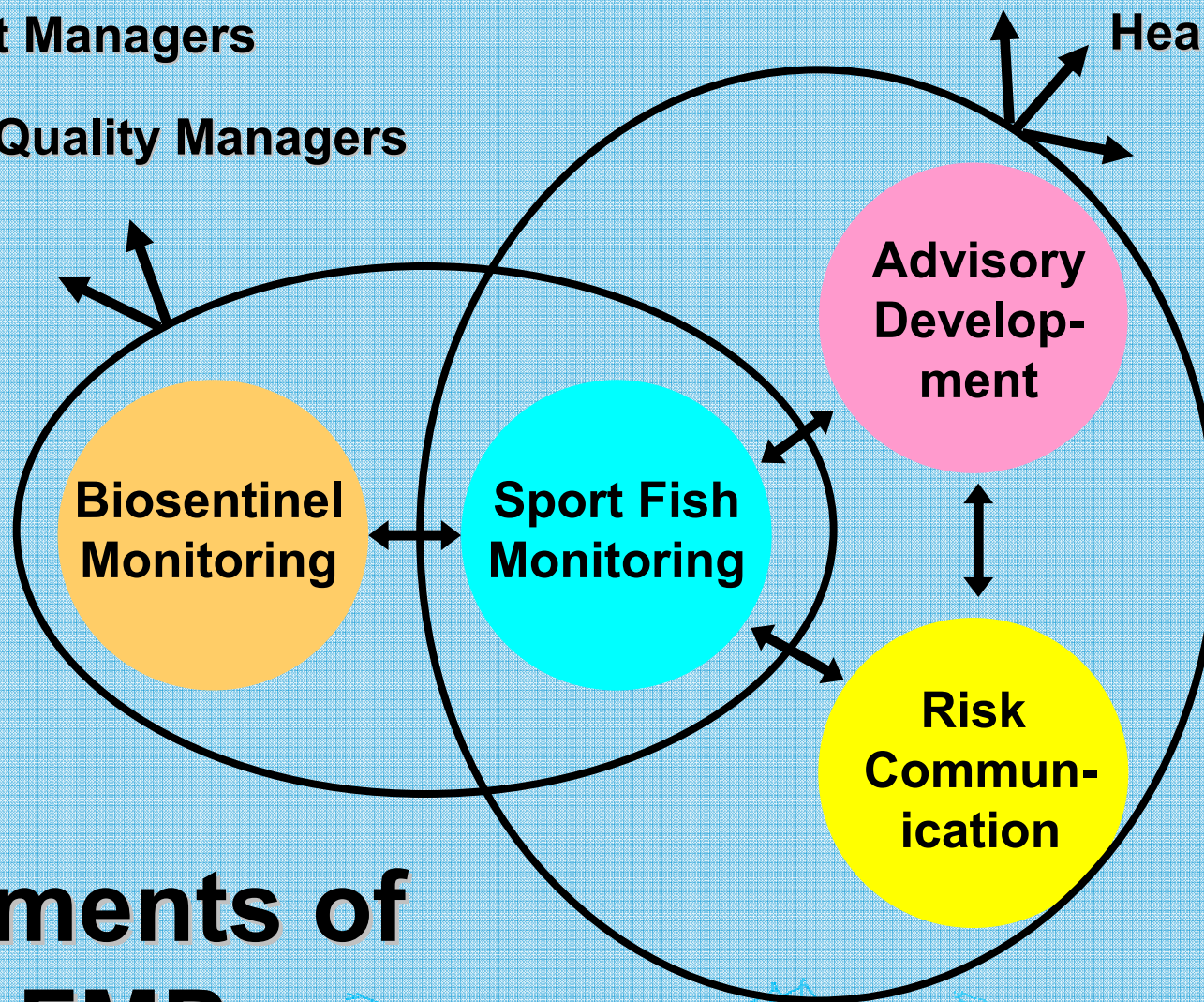
Habitat Managers

Water Quality Managers

Water Quality Managers

Health Agencies

The Public



Elements of the FMP



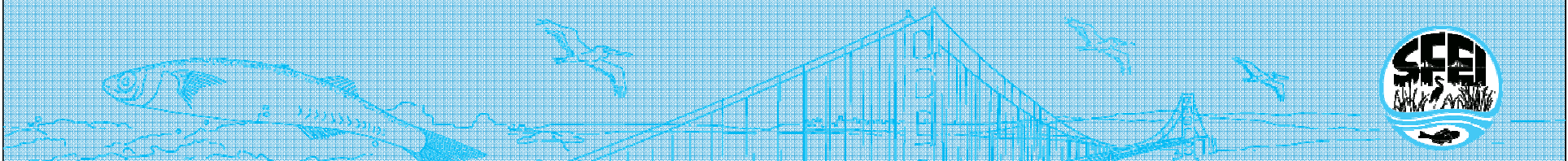
Reducing Human Exposure

Shorter-Term Solution

- Identify high and low areas and species
- Communicate risk information to the public
- Can achieve significant exposure reduction
- *FMP providing essential information*

Longer-term, Ultimate Solution for Humans

- Adaptive management
- Will take decades or centuries
- *FMP establishing a foundation for reducing exposure*



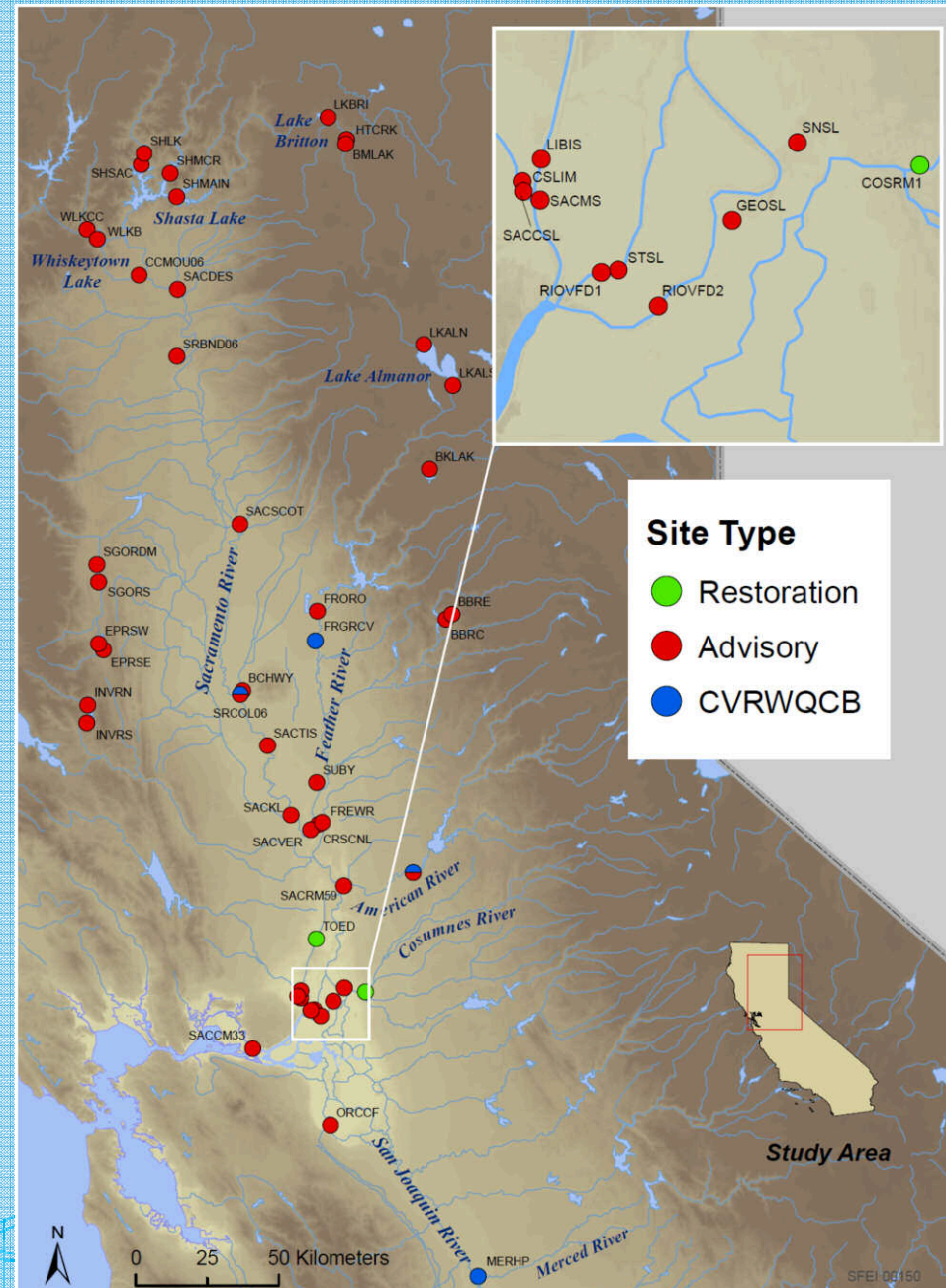
Sport fish Sampling in 2006

- 2006 was the second year of sampling
- ~ 1400 fish, 30 species, 47 sites
- Coordinated sampling with the CVRWQCB
- Total mercury in individual fish tissue samples (muscle, wet wt.)



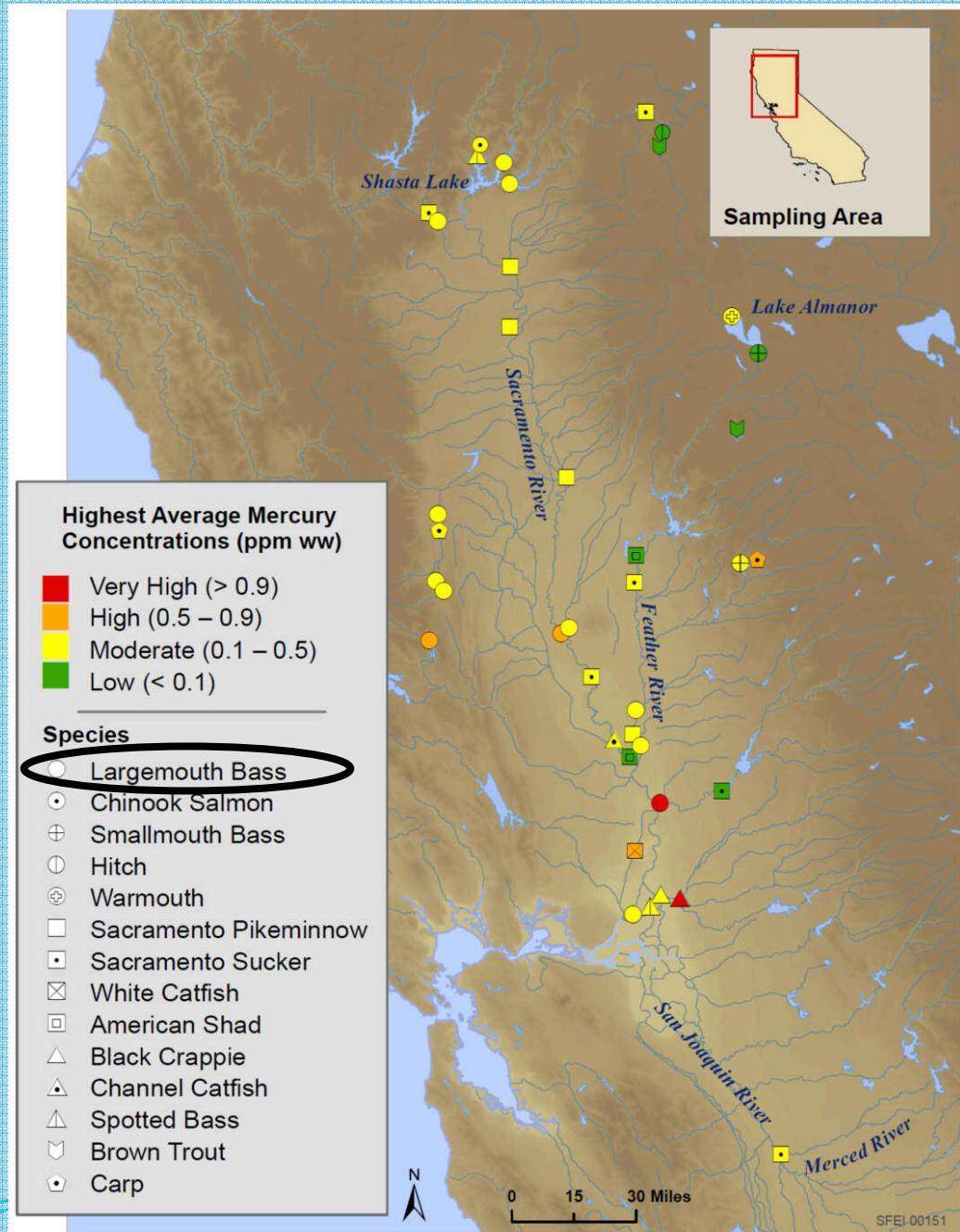
2006 Locations

- Sacramento River watershed
- 45 of 47 sites were for advisory development
- 2 restoration sites targeted



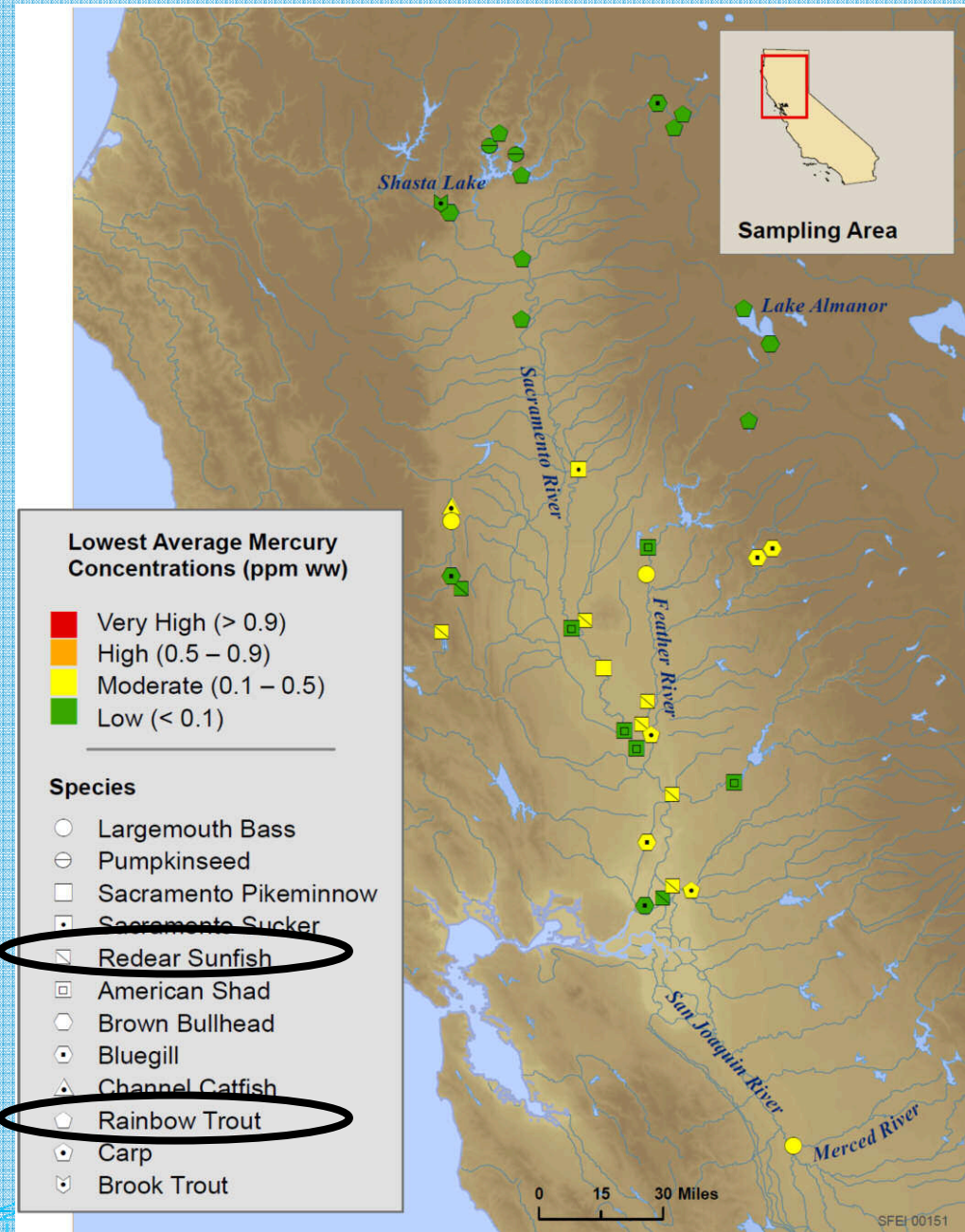
Largemouth Bass is most frequently the highest species

- More green and yellow sites in the higher watershed
- More orange and red sites close to Delta



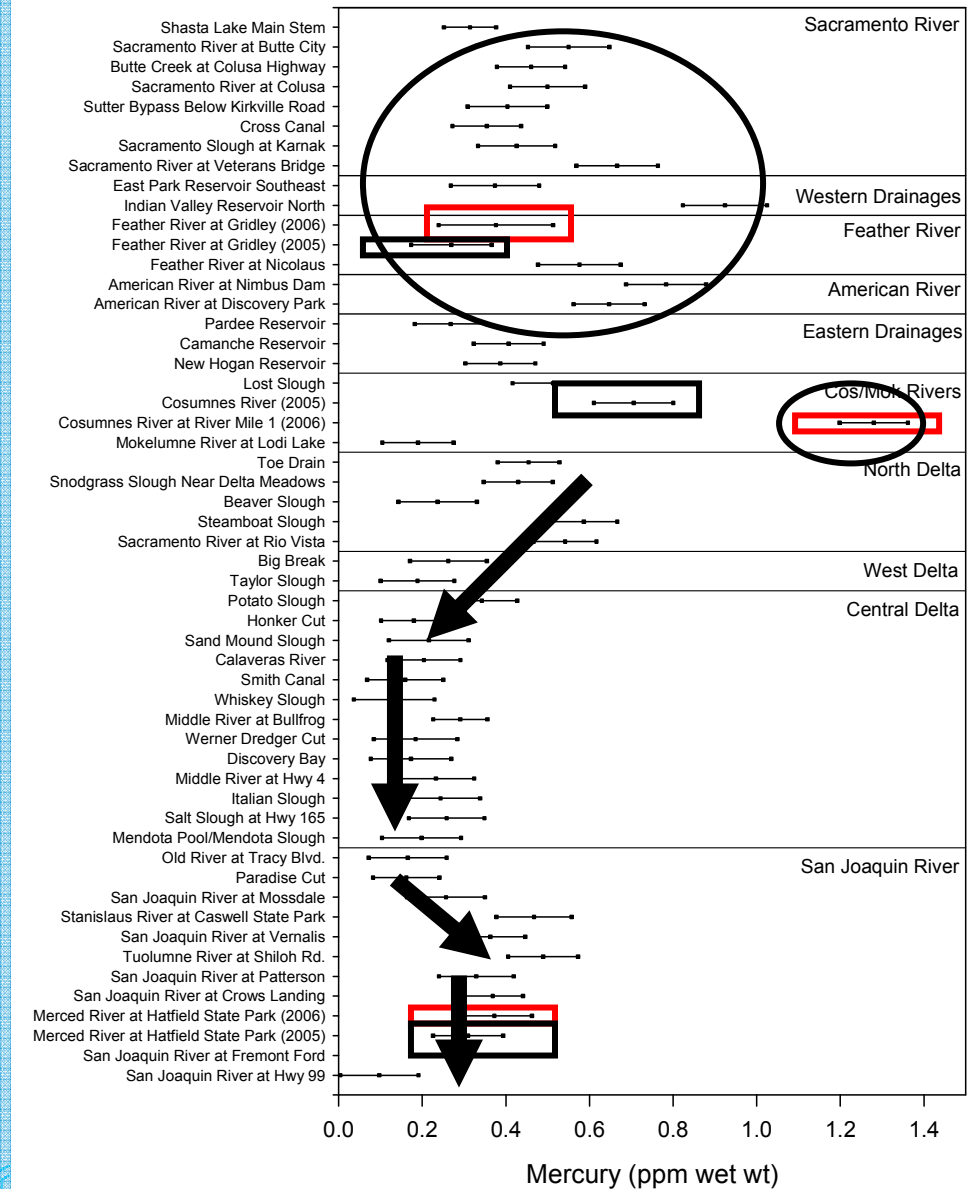
Redear Sunfish and Rainbow Trout are most frequently the lowest species

- All sites higher in the watershed are green
- Higher proportion of yellow sites closer to the Delta



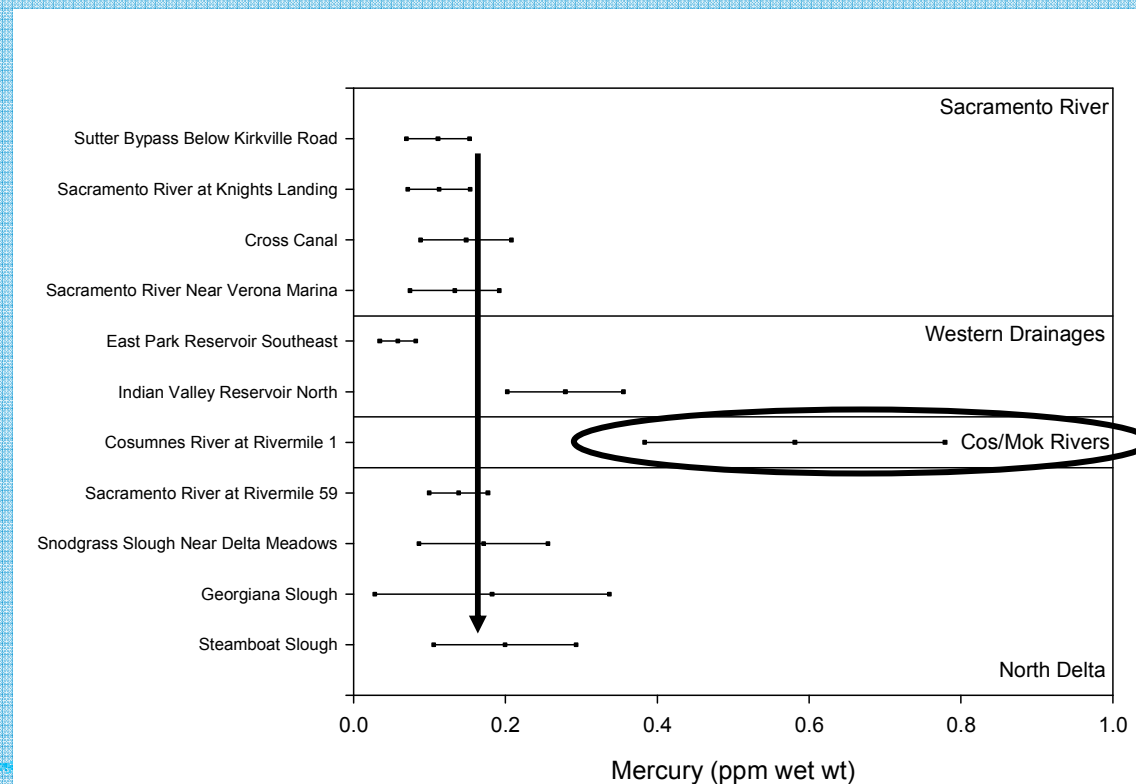
Largemouth bass Spatial Patterns

- Average mercury \pm CI estimated for 350 mm LMB
- American + Cosumnes >> others regions
- Central Delta << Sac



Redear sunfish Spatial Patterns

- Total mercury mean \pm CI
- Size limits applied, $n \geq 5$
- Sites from N to S on Y-axis



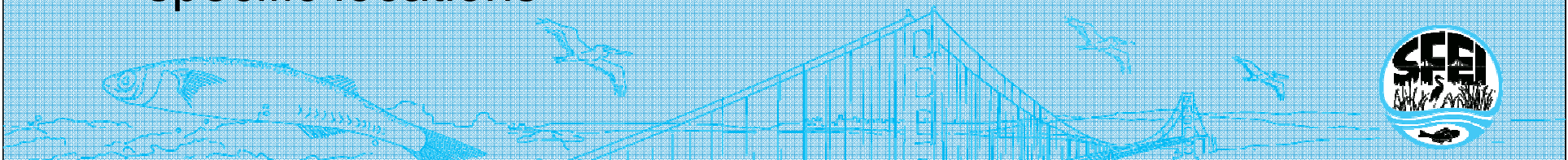
Latest on Human Exposure

- Average concentrations were moderate: 0.1 – 0.5 ppm
 - Largemouth bass was high in mercury
 - Redear sunfish and rainbow trout were low in mercury
- FMP has provided information for risk communication – important step in reducing human exposure



Regional Patterns in Mercury

- Low mercury in the central Delta
 - Hypothesis: Photo-degradation may be higher
- Higher concentrations in the Sacramento, San Joaquin, and North Delta
 - Hypothesis: conservative transport of MeHg down the rivers
- FMP is helping answer mercury MQ1 for the Delta and Central Valley - uptake is occurring regionally and at specific locations





New Information for Managers

- Advisories
 - Lower Cosumnes River and Lower Mokelumne River (2006)
 - Lower Feather River (2006)
 - San Joaquin River and South Delta (2007)
 - Sacramento River (coming soon)
- FMP + RMP - striped bass and sturgeon (coming soon)
- FMP – all three years of sport fish data will be summarized in a peer-review ms (Sept 2008)



For more information:
www.sfei.org/cmr/fishmercury

Project Management and Sport Fish

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Sport Fish Sampling & Analysis

Gary Ichikawa



**Stakeholder
Involvement and
Risk
Communication**

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