

Mercury Concentrations in Fish from the San Francisco Bay Area

San Francisco Bay Regional Water Quality Control Board

Ca. Dept. Fish and Game

Office of Environmental Health Hazard Assessment

Karen Taberski



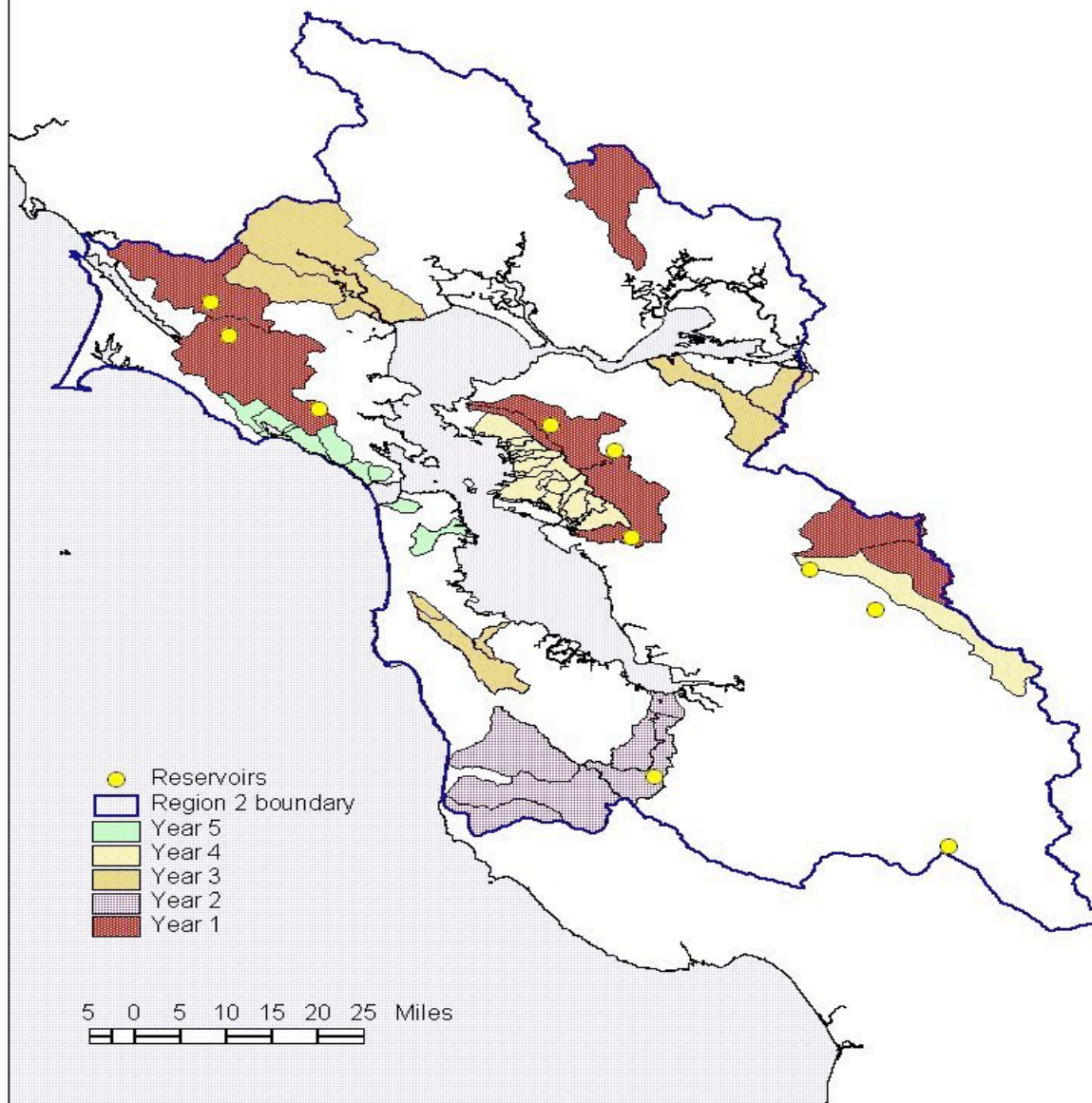
Surface Water Ambient Monitoring Program (SWAMP)

- Required by AB 982 (WC sec.13191)
- Screening level statewide program to monitor and assess surface water:
 - Determine if beneficial uses being attained
 - Identify water quality problems
- Coordinate all Board water quality monitoring programs/projects
- Comparable data
 - QAMP
 - Rigorous QA program
- Accessible data
 - SWAMP database
 - California Environmental Data Exchange Network (CEDEN)

SWAMP Goal for RWQCB Funds

- Monitor and assess water quality in all of the watersheds in the region to determine whether beneficial uses are protected
 - Aquatic life
 - Human health
 - Water Contact (REC-1, REC-2)
 - Fish consumption

SWAMP Monitoring



Watersheds Sampled

- 2000-2001 – Lagunitas, Walker, San Leandro, Wildcat/San Pablo, Arroyo de las Positas, Suisun
- 2001-2002 - Pescadero, San Gregorio, Stevens/Permanente
- 2002-2003 – Petaluma, San Mateo, Kirker/Mt. Diablo
- 2003-2004 – Arroyo Mocho, Richmond/El Cerrito/ Berkeley/Oakland creeks, Lake Temescal, Lake Merritt, Aquatic Park
- 2004-2005 – South Marin coastal creeks, SF creeks (Glen Canyon, Lobos)



Waterbodies Sampled for Fish



Reservoir Study Design

- Targeted largemouth bass, channel catfish, carp, crappie, bluegill, sunfish and trout
- 3 species per reservoir
- Filets
- Most chemical analyses (Hg and organics) conducted on composite samples
- Some mercury analysis on individual largemouth bass
- Size targets

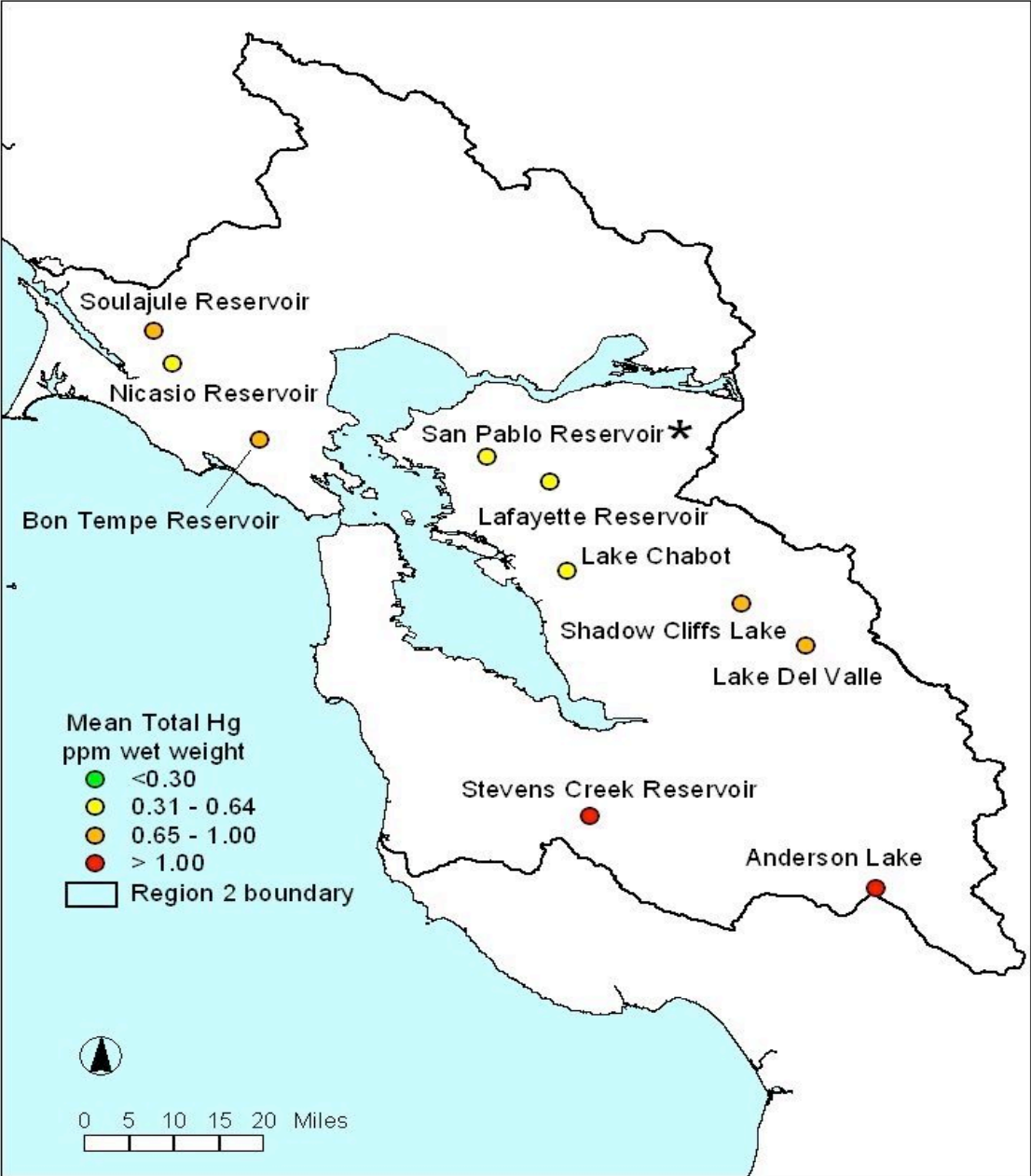
Tomales Bay Study Design

- Commercial shellfish (oysters, clams, mussels)
- Targeted smoothhound, leopard and angel sharks, bat ray, halibut, shiner, redbtail and pile perch, jacksmelt, redrock crab and clams
- Filets
- Most chemical analyses (Hg and organics) conducted on composite samples
- Some mercury analysis on individual sharks
- Size targets

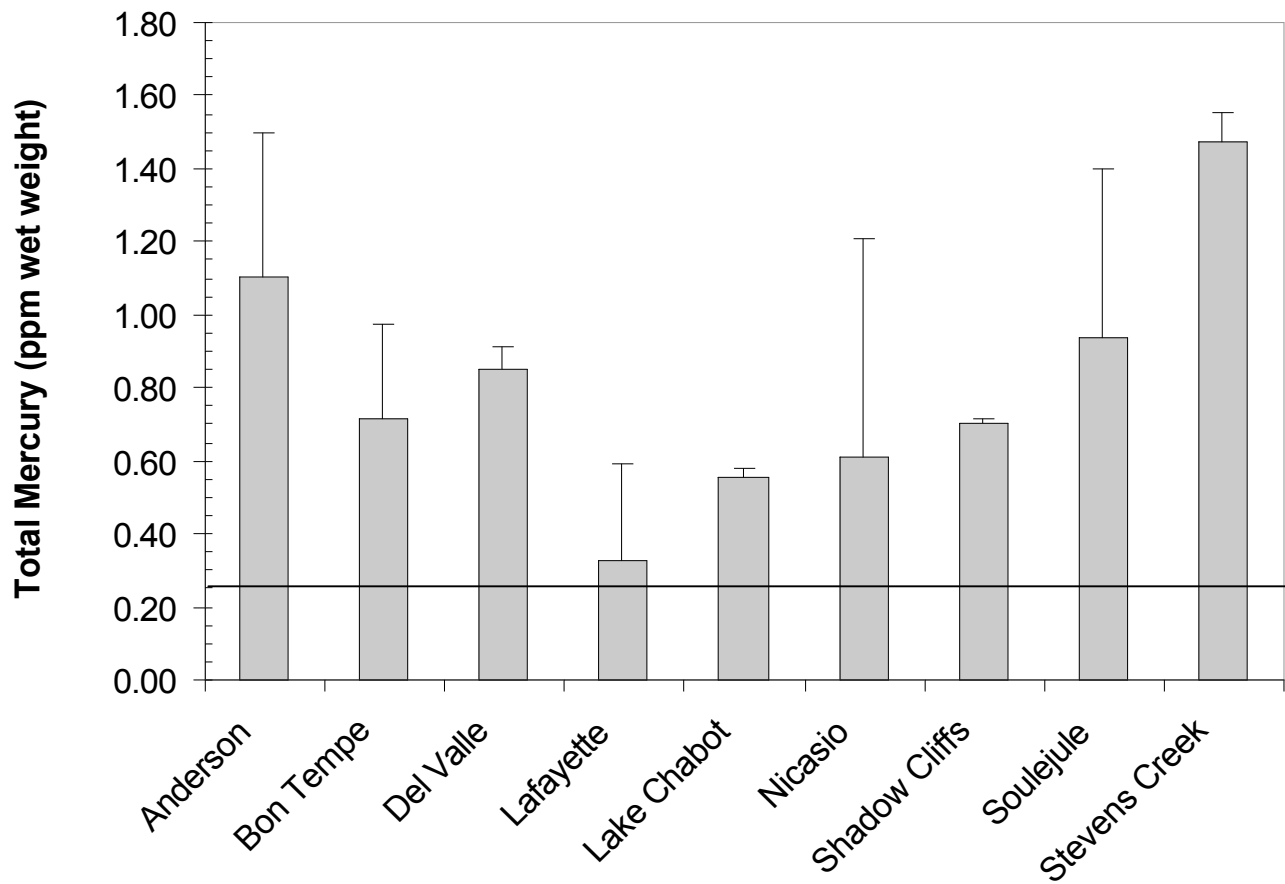
Reservoir Mercury Results

- All reservoirs had fish that exceeded OEHHA's Screening Value and EPA's water quality criteria for mercury (0.3 ppm wet wt.)
- Largemouth bass accumulated higher conc. of mercury than any other fish (3-5x)
- Largemouth bass from Soulajule, Stevens Creek and Anderson Reservoirs had the highest conc. of mercury

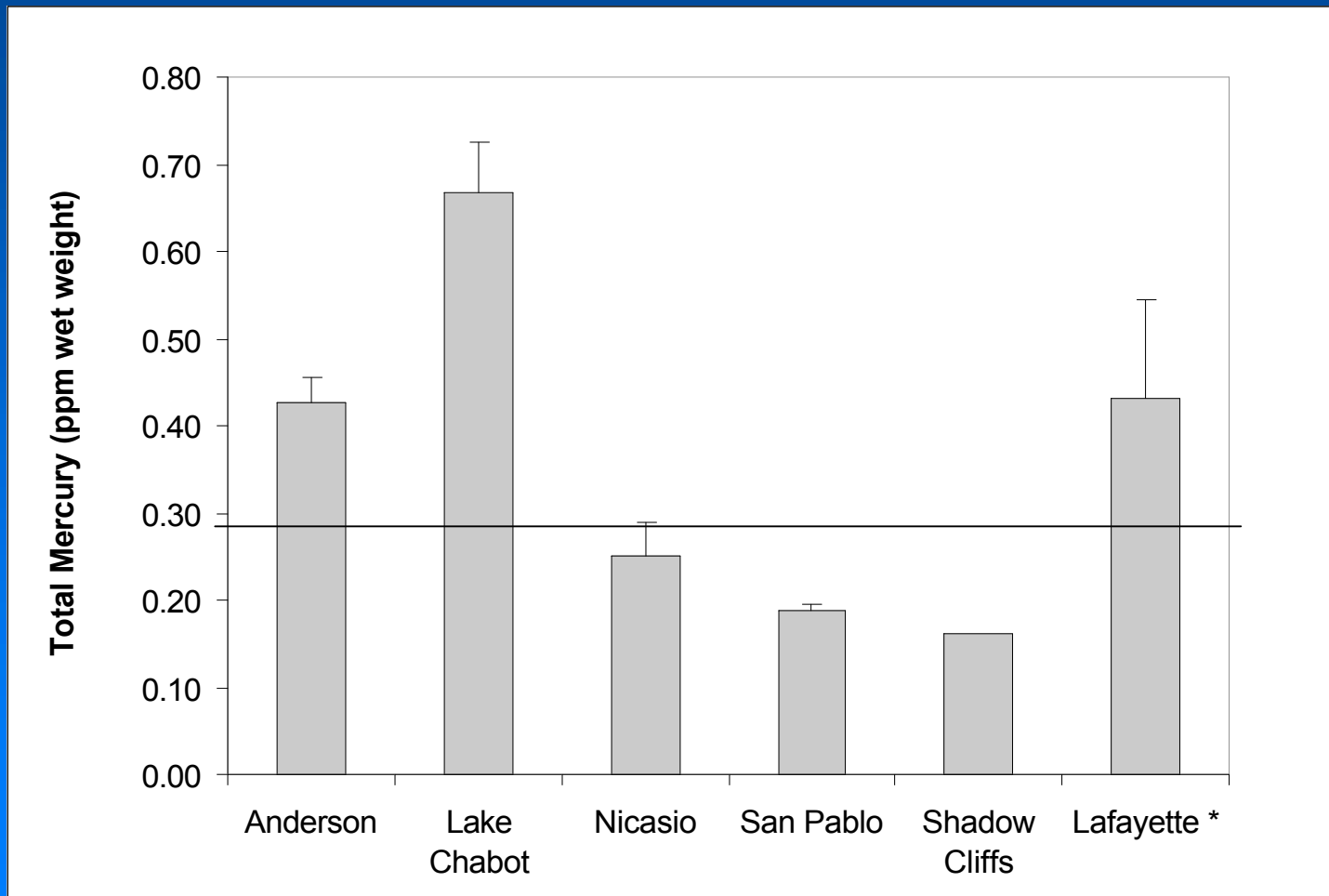
Mercury Concentrations in Largemouth Bass



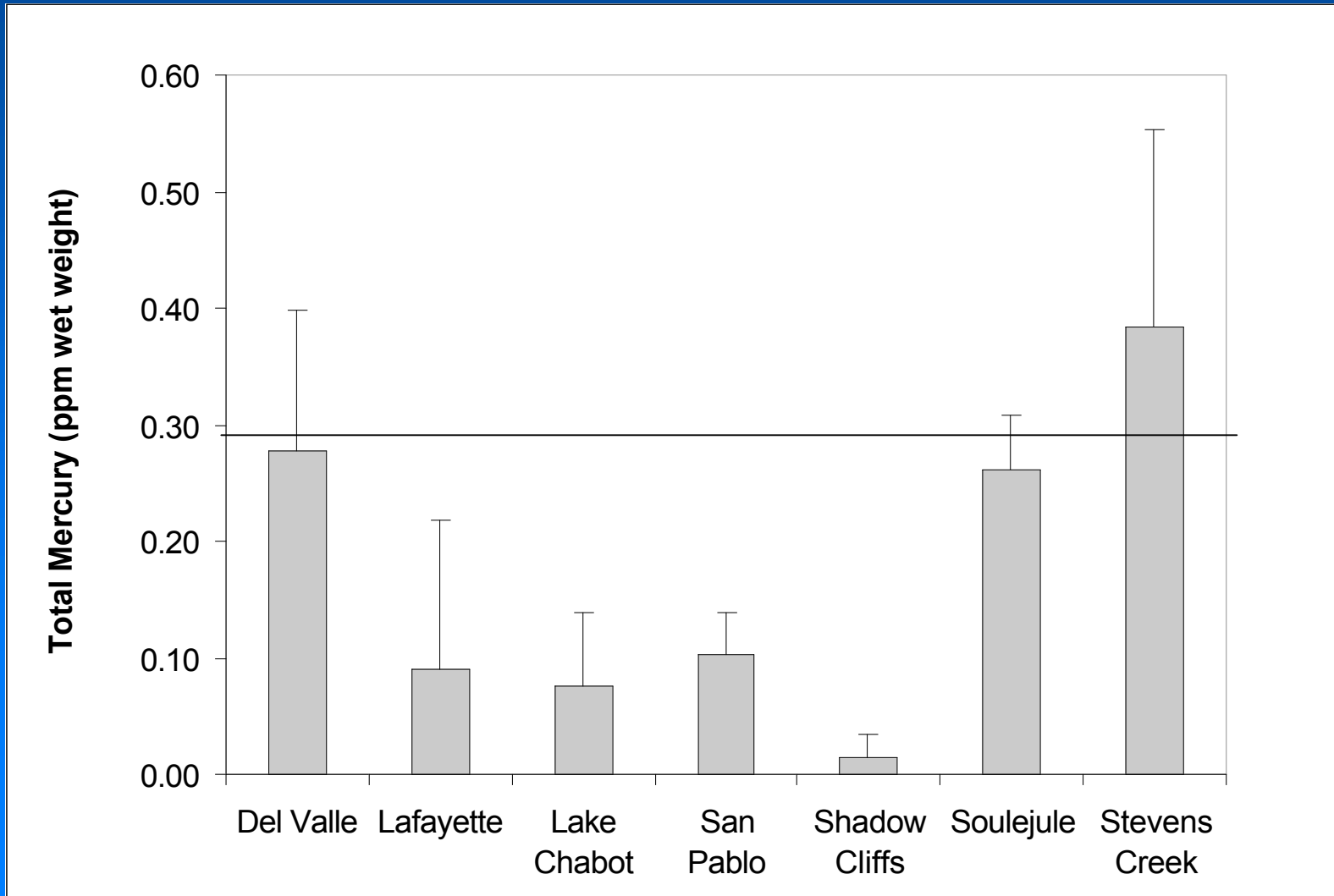
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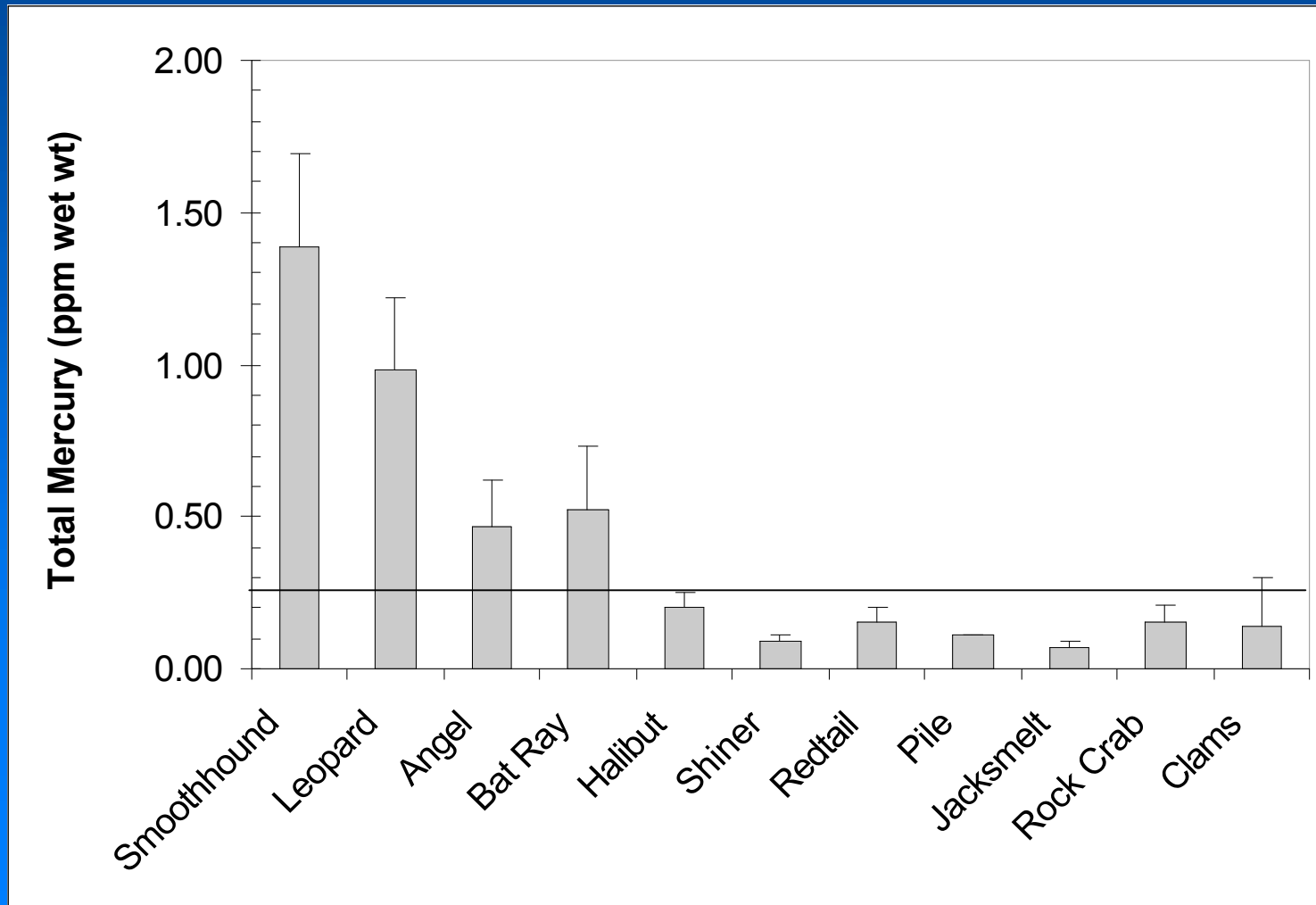
Mercury Concentrations in Carp



Mercury Concentrations in Channel Catfish



Mercury Concentrations in Fish from Tomales Bay



Public Consumption Advisories/ Outreach

- Committee - Water Board, OEHHA, DHS, County Health Depts. and responsible parties
- OEHHA, in coordination with Counties, developed consumption advisories for Tomales Bay (final) and all reservoirs (interim)
- OEHHA, Counties and responsible parties developed signs
- Responsible parties translated signs in to appropriate languages and posted them at reservoirs
- Joint press release
- DHS will incorporate information in to ongoing outreach efforts

Web Sites and Citation

- Reservoir and Tomales Bay report –
<http://www.waterboards.ca.gov/sanfranciscobay>
- Database –
<http://www.waterboards.ca.gov/programs/smw/index.html>
- Tomales Bay report and all advisories –
<http://oehha.ca.gov/fish.html>
- OEHHA screening values and San Pablo Bay –
Brodberg RK, Pollock GA.1999. Prevalence of selected target chemical contaminants in sport fish from two California lakes: public health designed screening study. Final project report. EPA Assistance Agreement No. CX 825856-01-0. Pesticide and Environmental Toxicology Section, OEHHA, CalEPA, Sacramento, Ca.