

MERCURY OFFSET FEASIBILITY STUDY FOR THE SACRAMENTO RIVER WATERSHED

**Vicki Fry, P.E.
Sacramento Regional County Sanitation District**

**Stephen McCord, Ph.D., P.E.
Larry Walker Associates**

**October 5th, 2004
WEFTEC©2004
New Orleans, Louisiana**

Acknowledgements

Active Stakeholders:

**Federal & State Regulators
Public Land Managers
Scientists
NPDES Permittees
Industry Representatives**

SRCSD Board of Directors

Mercury Offset Consultant Team

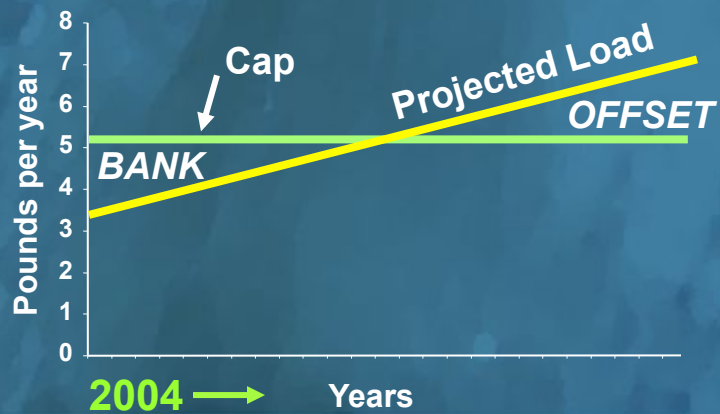
Overview

- Regulatory Framework
- Environmental Context
- Approach to Offset Feasibility

Sacramento Regional Wastewater Treatment Plant (SRWTP)



SRWTP's THg cap is 5.1 lbs/year



SRWTP August 2000 NPDES Permit

Work Plan for Reducing Pollutant Loads to the Sacramento River – Mercury

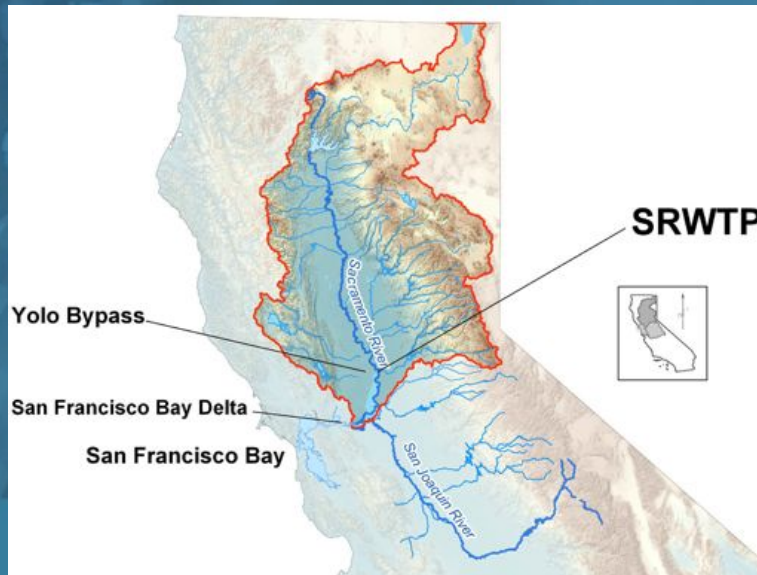
- Source Control
- Additional Treatment
- Offset Feasibility Study

Pilot under EPA Pollutant Trading Policy

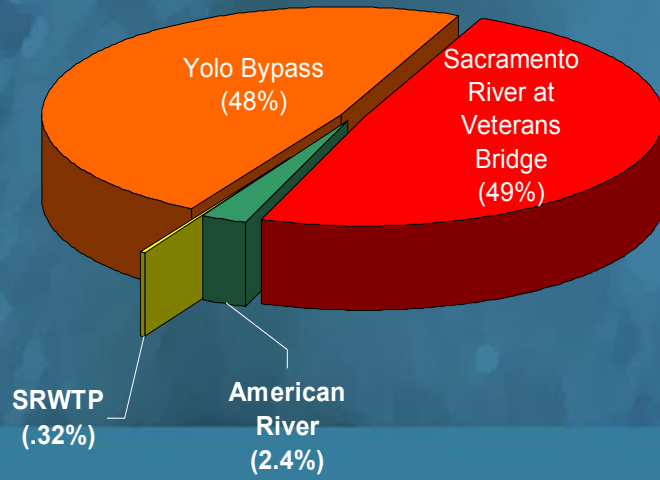
Overview

- Regulatory Framework
- Environmental Context
- Approach to Offset Feasibility

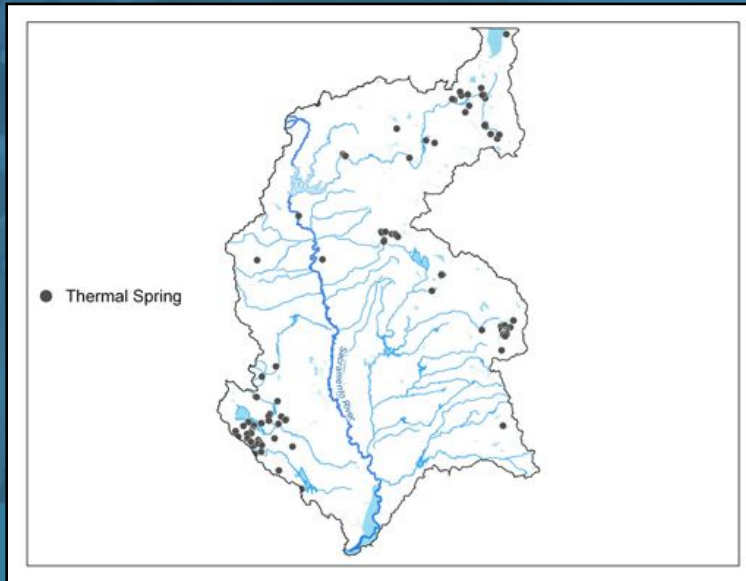
Sacramento River Watershed



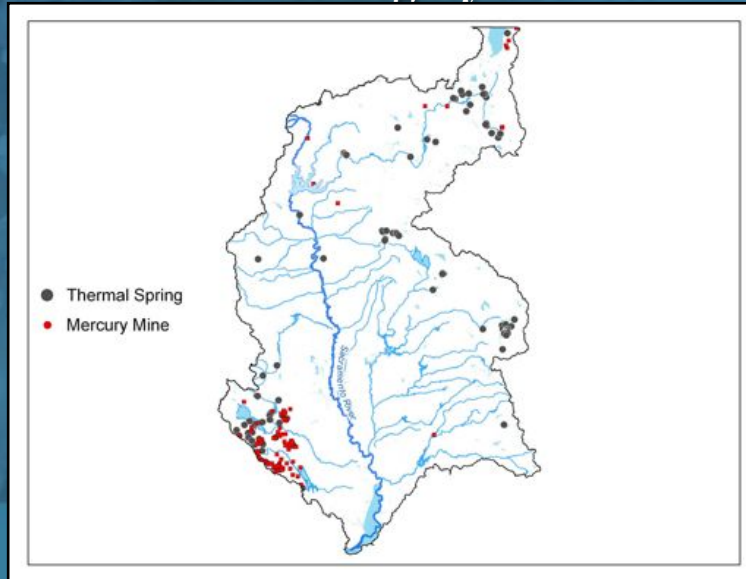
Relative Mercury Loads to the Delta from Sacramento R. 1993 - 1998



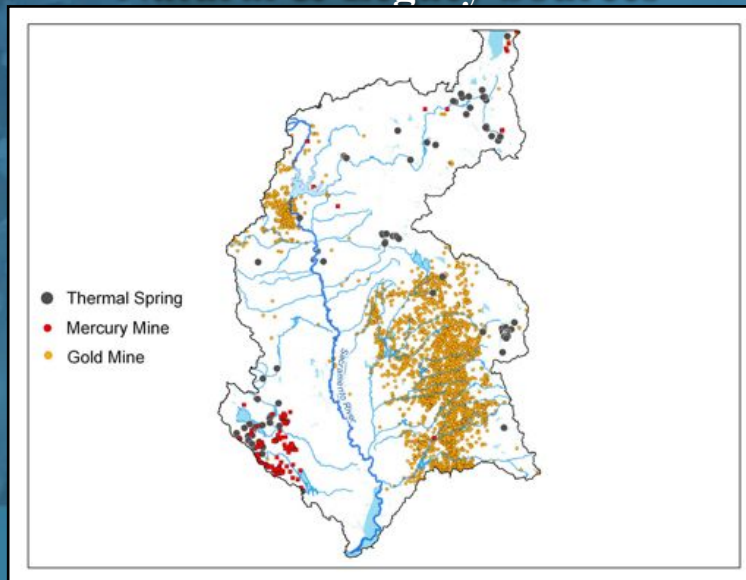
Natural Sources



Natural & Legacy Sources



Natural & Legacy Sources



Hydraulic monitors in operation, North Bloomfield mine, circa 1880s, Malakoff Diggings, Nevada County

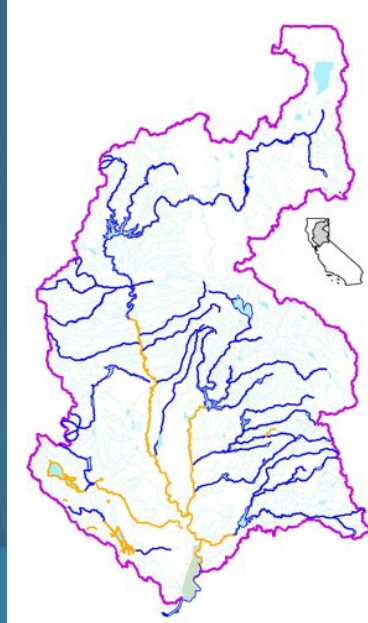


Hydraulic mine, ground sluice system, circa 1870s, Scott Valley mine, Siskiyou County



**Section 303(d) of the
Clean Water Act**

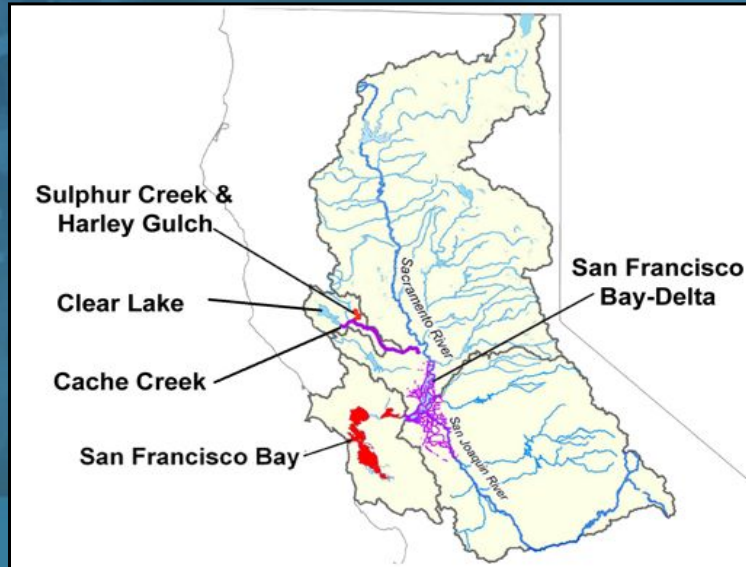
**Mercury-Impaired
Water Bodies**



**Fish
Advisories**



TMDLs



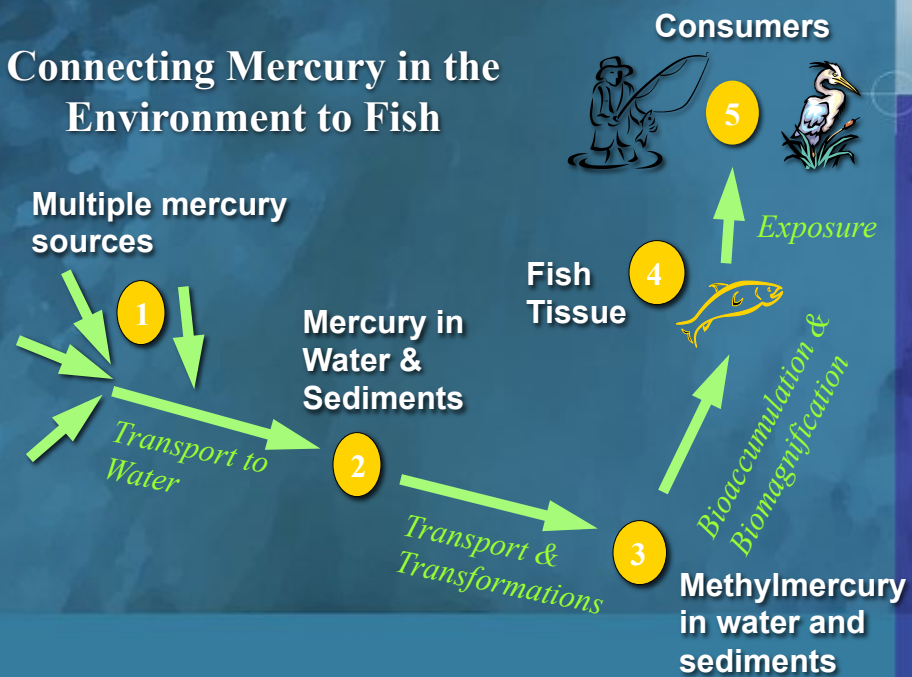
Overview

- Regulatory Framework
- Environmental Context
- Approach to Offset Feasibility

Feasibility Study Approach

- Identify mercury sources
- Quantify source loads
- Identify and address site-specific issues

Connecting Mercury in the Environment to Fish



Source Control



- Clean up contaminated mine sites
- Treat spring waters
- Control erosion

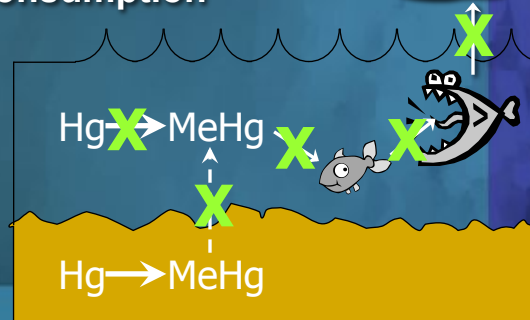
Transport Control

- Settling basin
- Dredge hotspot sediments



Break the Chain

- Oxygenate a reservoir
- Manipulate food web
- Reduce fish consumption



Dominant Selection Criteria

- Sources – Where is it coming from?
- State of the Science – Can we control it?
- Data Availability – How much is enough?

Offset Ratios

Account for differences between
point of discharge and
offset project loads

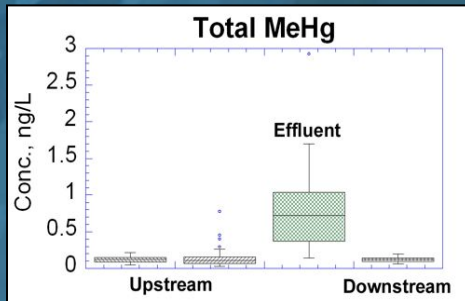
$$\begin{aligned} \text{Credit} &= \text{Load Reduction} \\ &\quad \times \text{Uncertainty} \\ &\quad \times \text{Location} \\ &\quad \times \text{Bioavailability} \end{aligned}$$

Next Steps

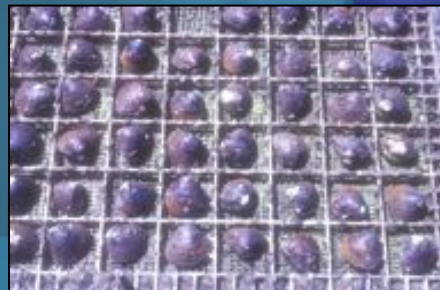
- Legal issues
- Coordinate under TMDLs
and NPDES permit
- Bioavailability study

Is Discharge Creating a Hotspot?

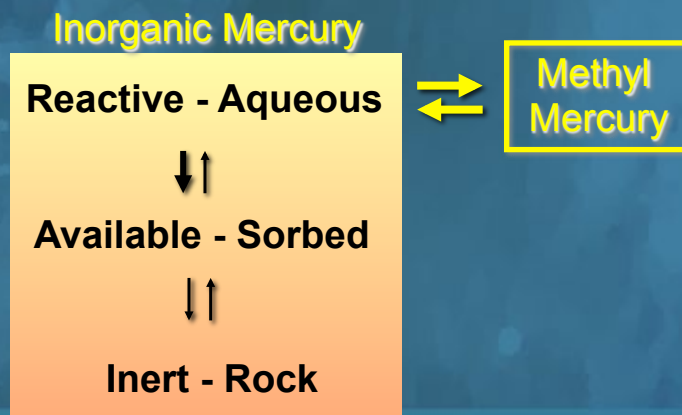
➤ Water Quality Monitoring



➤ Clam Monitoring



What is the Relative Bioavailability of Mercury Sources?



SUMMARY

- Stakeholder Process
- Regulatory Framework
- Environmental Legacy
- Defining Feasibility

Questions?



Section 303(d) List of Mercury-Impaired Water Bodies

