



SOURCE AREAS AND SOLUTIONS

MERCURY CONTAMINATION FROM THE GOLD RUSH

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*Special Hearing on Mercury and Abandoned Mine Lands
Assembly Natural Resources Committee
March 24, 2014*

Abandoned Mines in CA



Who Owns them?

Private Property Owners

Local Government:

City and county parks

Schools

Water districts

State Government:

State Parks

State Lands

Department of Fish & Wildlife

Federal Government:

Bureau of Land Management

US Forest Service

National Park Service

(DOC AML Report , 2000)



Hydraulic Mining

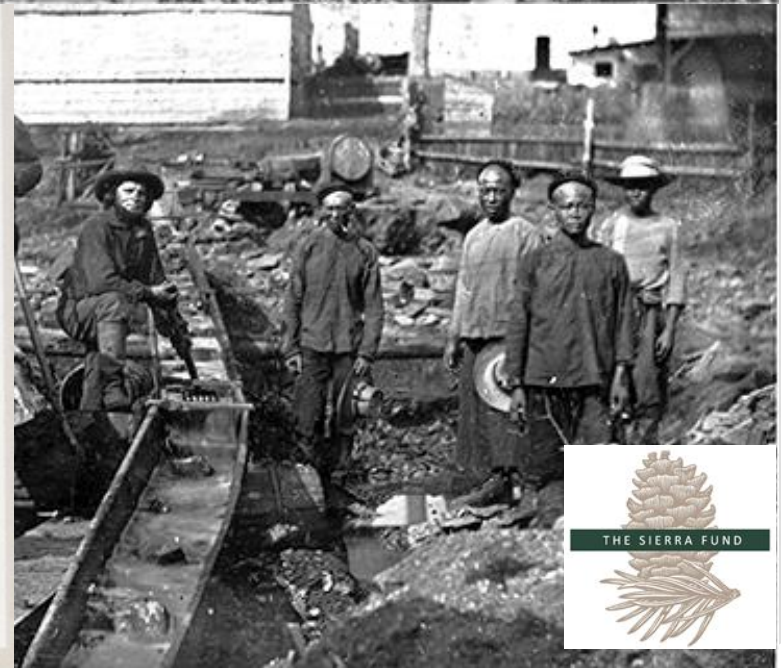


Explanation

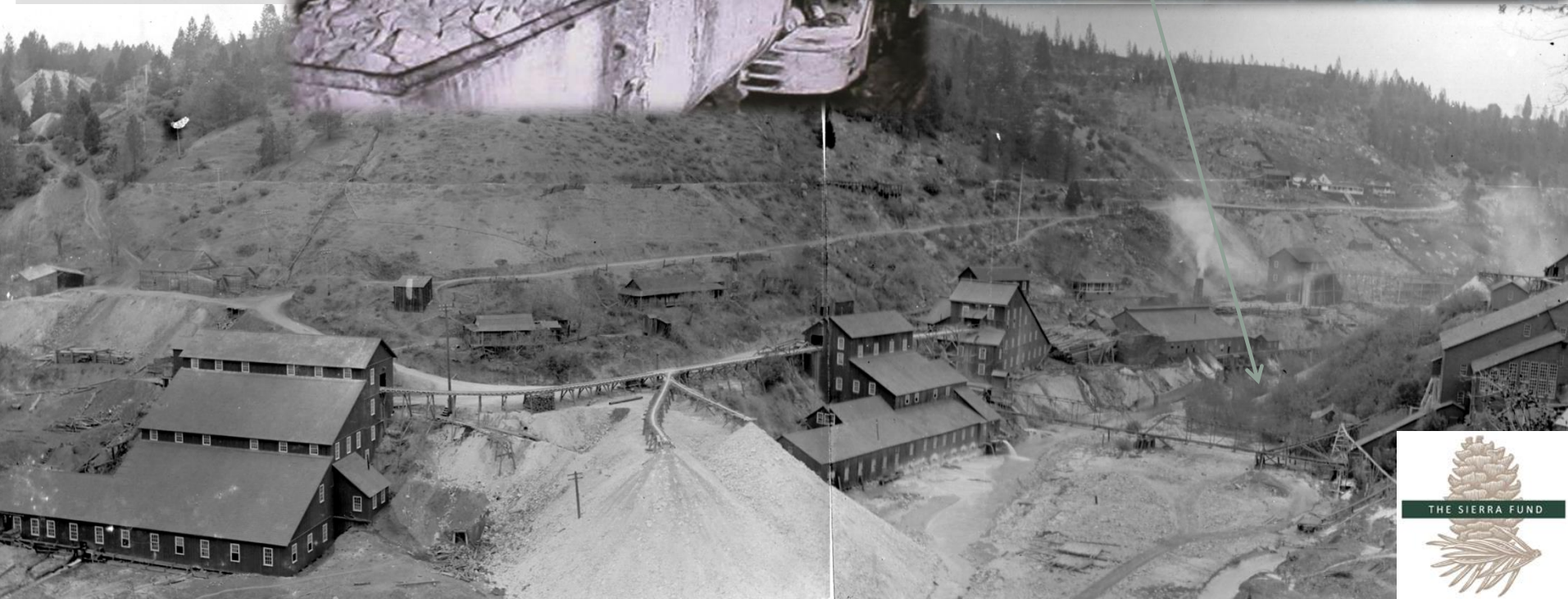
 Gold Mines

 Mercury Mines

(USGS Fact Sheet 2005-3014)



Hard Rock Mining



MERCURY AND THE GOLD RUSH

Mercury is entrained in the river gravels and travels long distances

Deer Creek 1908



Greenhorn Creek 2011



MERCURY AND FISH CONSUMPTION

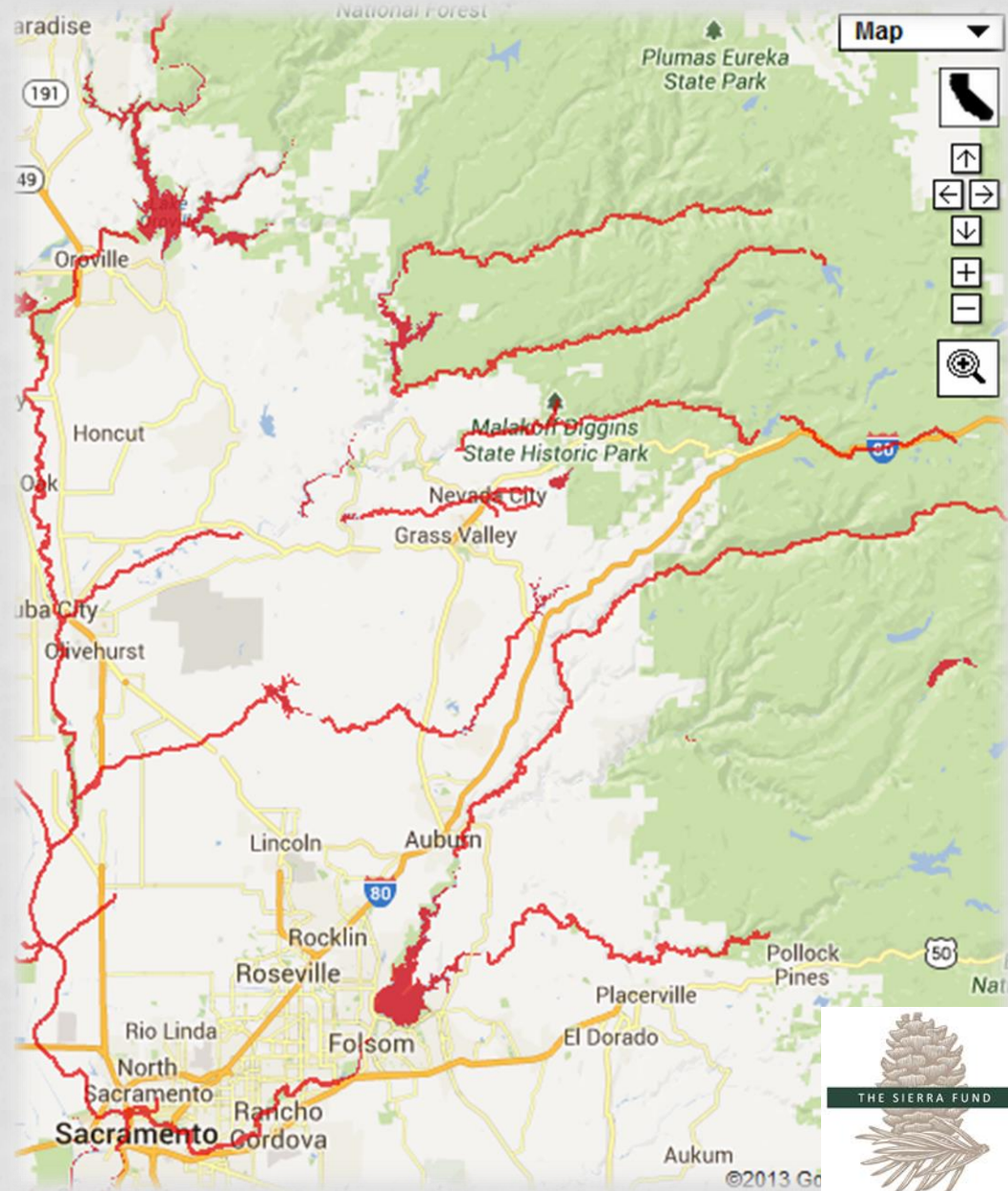


(Image used with permission: SFEI FMP, 2007)



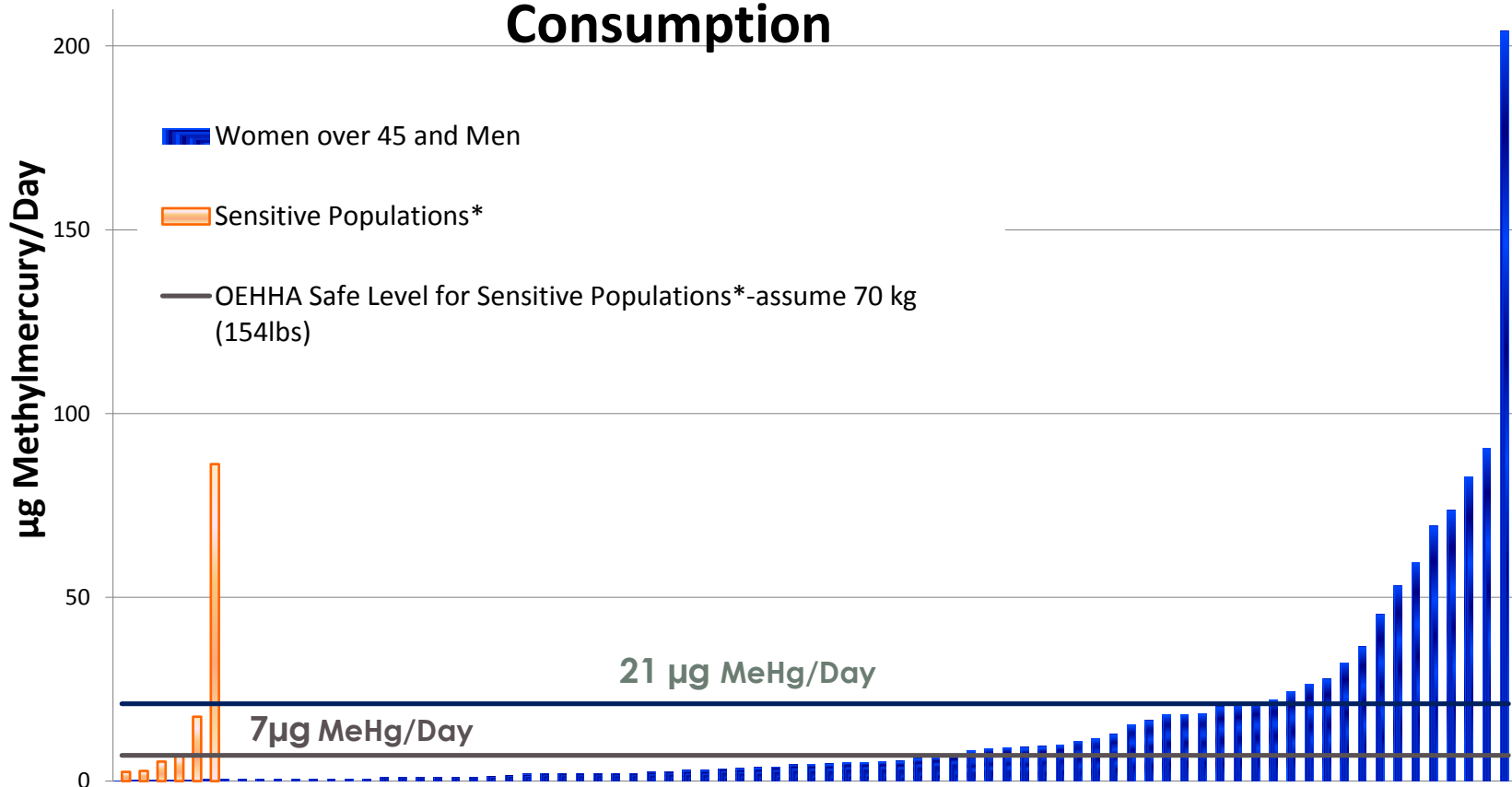
Mercury Impaired Water Bodies

- 303(d) listed/TMDL
(CVRWQCB, 2010)
- Gold County Angler
Survey
(The Sierra Fund, 2011)
- Fish Consumption
Advisories
(OEHHA, 2009)



GOLD COUNTY ANGLER SURVEY

Methylmercury Exposure from Sport Fish Consumption



n= 215

In 130 surveys mercury exposure from fish = 0 µg MeHg/Day



SITE SPECIFIC FISH ADVISORIES

SAFE EATING GUIDELINES FOR FISH FROM CAMP FAR WEST RESERVOIR (YUBA, NEVADA AND PLACER COUNTIES)

[UPDATED 03/18/09] BASED ON MERCURY

Women 18 – 45 and Children 1 – 17 Years

There are no fish in this group	 Bluegill or other sunfish	 Largemouth, Smallmouth or Spotted Bass  Catfish
2 or more Servings a week	1 Serving a week from this group	Do not eat

SAFE EATING GUIDELINES FOR FISH FROM ROLLINS RESERVOIR (NEVADA AND PLACER COUNTIES)

[UPDATED 03/18/09] BASED ON MERCURY

Women 18 – 45 and Children 1 – 17 Years

There are no fish in this group	 catfish	None
2 or more servings a week	1 Serving a week	Do not eat

Limited Fish
Consumption
Advisories
Mercury

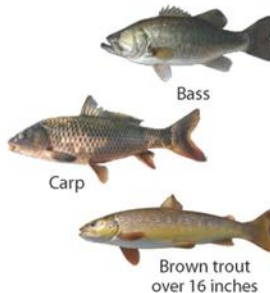
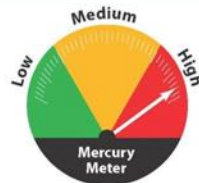
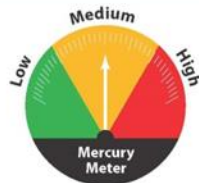
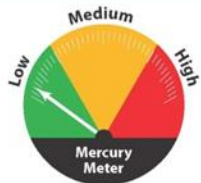


NOTICE TO SIERRA ANGLERS

A healthy guide to eating fish from California lakes and reservoirs

This information applies to all lakes and reservoirs in California without site-specific advice.

Women 18 - 45 and children 1 - 17



♡ = High in Omega-3s

Bullhead photo: John Lippincott, Wisconsin Department of Natural Resources

2 servings a week

OR

1 serving a week

Do not eat

Women over 45 and men can safely eat more fish

6 servings a week

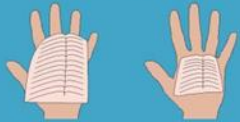
OR

2 servings a week

OR

1 serving a week

What is a serving?



For Adults For Children

The recommended serving of fish is about the size and thickness of your hand. Give children smaller servings.

♡ Why eat fish?

Eating fish is good for your health. Fish have Omega-3s that can reduce your risk for heart disease and improve how the brain develops in unborn babies and children.

What is the concern?

Some fish have high levels of mercury. Mercury can harm the brain, especially in unborn babies and children. Women over 45 and men have lower risk and can eat more fish.

The only lakes and reservoirs that have site-specific guidelines in the Sierra are: Rollins, Combie, Camp Far West, Englebright, Donner, Oroville, Folsom, and Natoma. For site-specific information about eating fish from these and other locations in California, go to www.oehha.ca.gov/fish.

This information applies to all lakes and reservoirs in CA without site-specific advice (OEHHA, 2013)



GET THE MERCURY OUT

Strategic Mercury Cleanup Targets

1 UPLAND SOURCES such as hydraulic and hard rock mines that are contaminated with mercury

2 RESERVOIRS where mercury-laden sediments accumulate

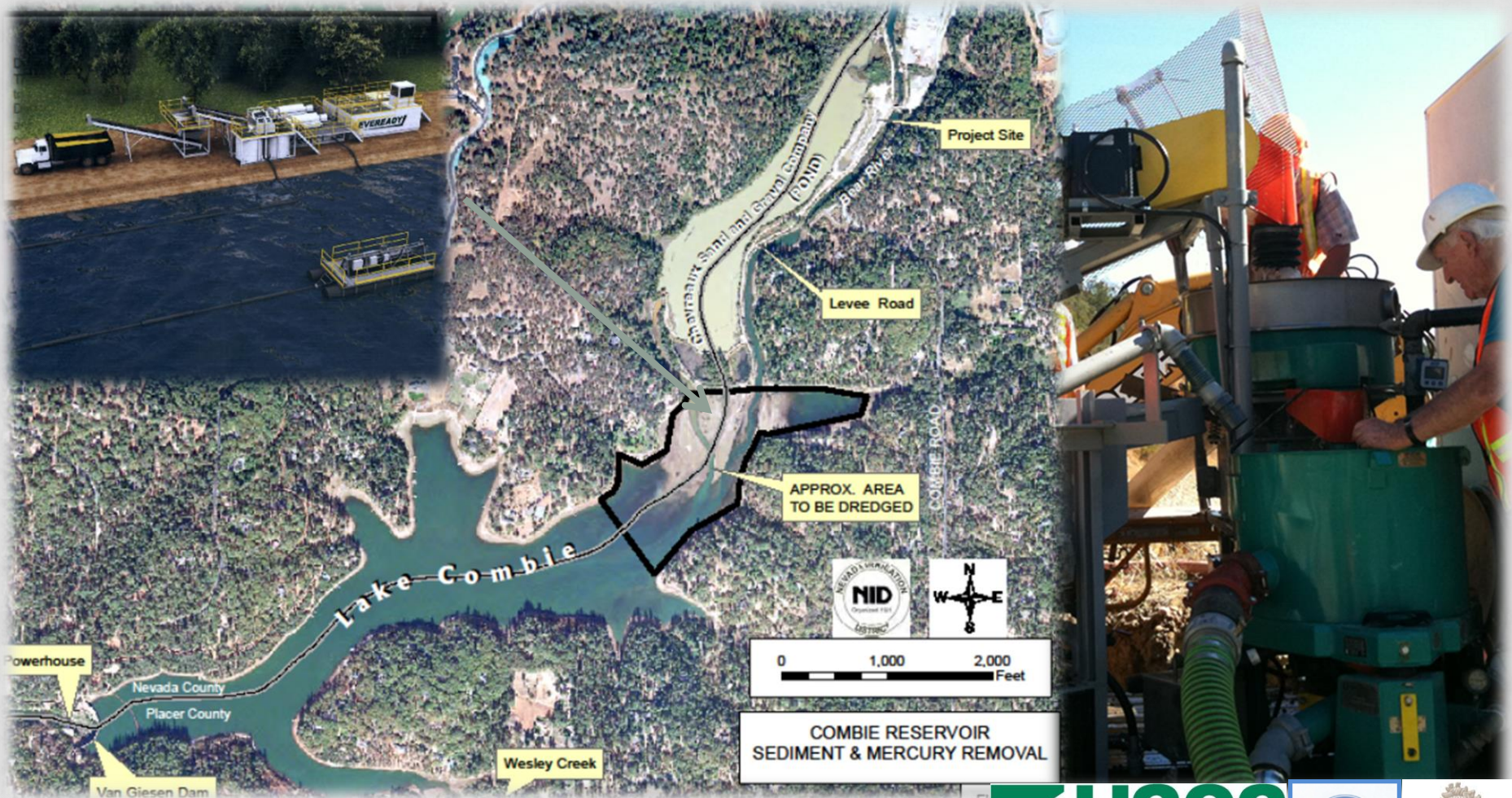
THE SIERRA FUND

MALAKOFF DIGGINS STATE PARK

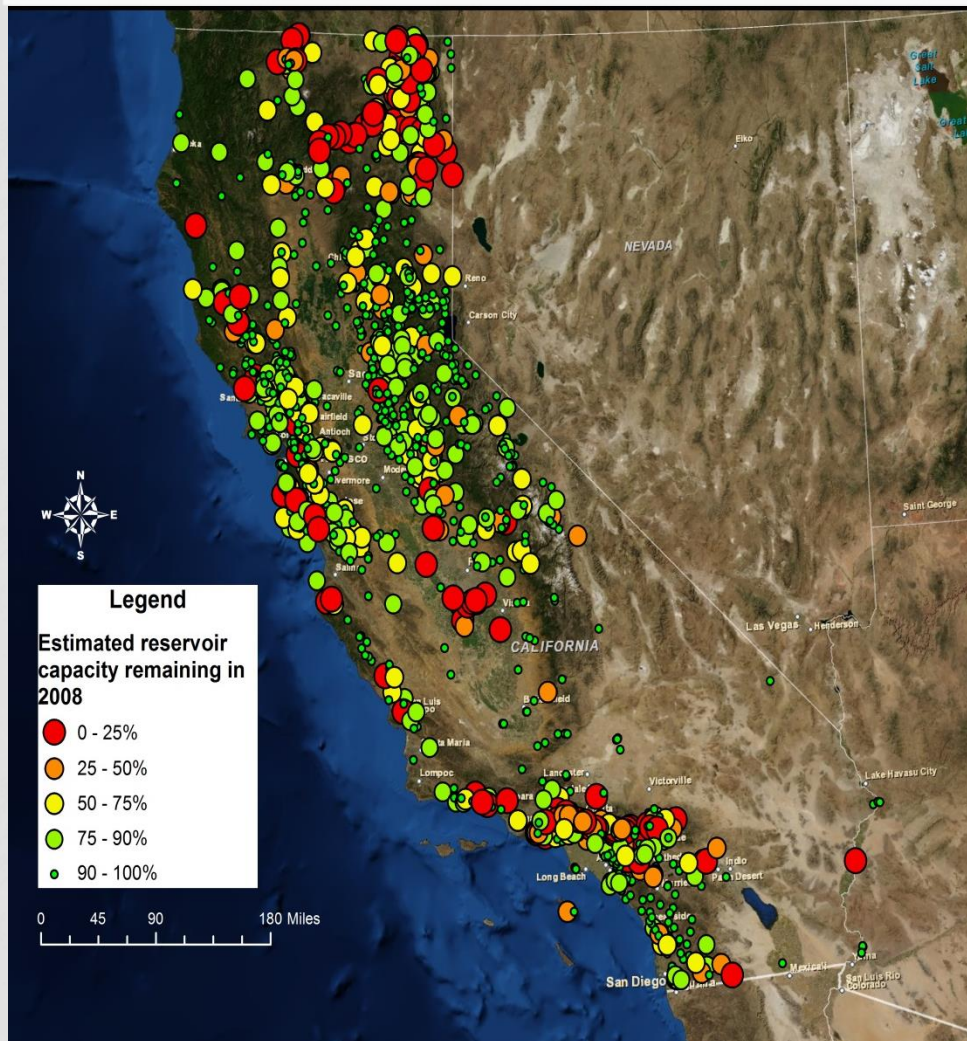
HUMBUG CREEK WATERSHED ASSESSMENT



COMBIE RESERVOIR SEDIMENT AND MERCURY ABATEMENT



MERCURY REMOVAL FROM RESERVOIRS



Opportunities to:

- Restore water storage space
- Get the mercury out
- Reduce downstream transport of mercury



GET THE MERCURY OUT

Abandoned Mine Remediation

- **Prioritize source areas for remediation**

Mercury removal from contaminated areas

- **Statewide Reservoir TMDL for mercury**

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