Pollution from Gold Mining: Mercury, Acid Mine Drainage - with a little interagency cooperation thrown in.

CVRWQCB – SWRCB

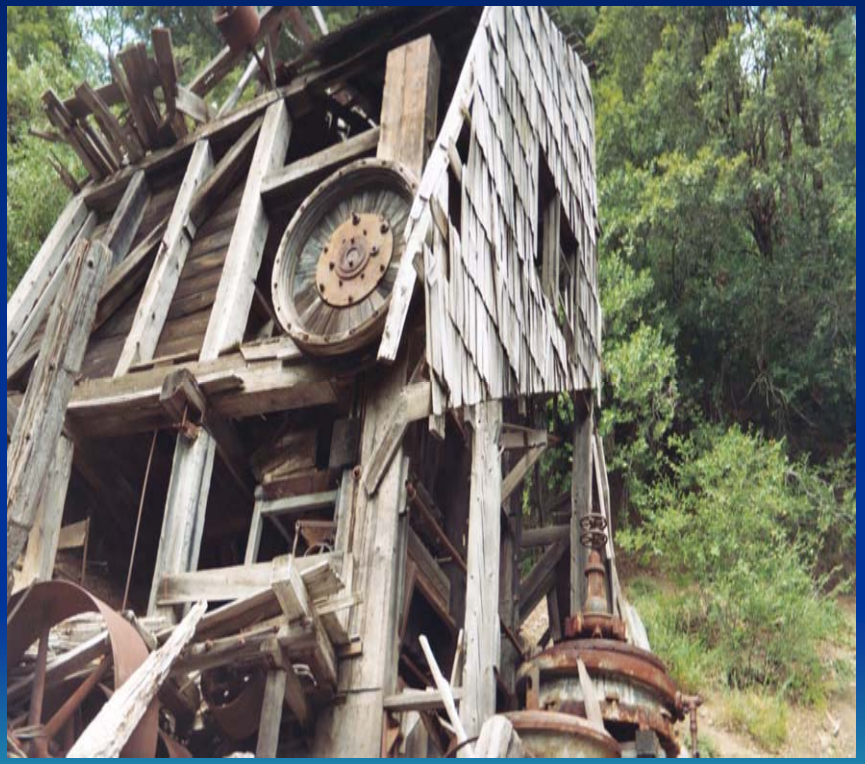
Joint meeting

October 2009

Legacy Mercury Statistics

- Total mercury released to environment (lost) ~ 10 million pounds.
  - From Hydraulic mines ~ 7 million pounds.
  - From Hardrock mines ~ 3 million pounds
- Most of the mercury lost was discharged into and remains in state waterways along with 2.25 billion tons of hydraulic mine debris

The Mining Culprits



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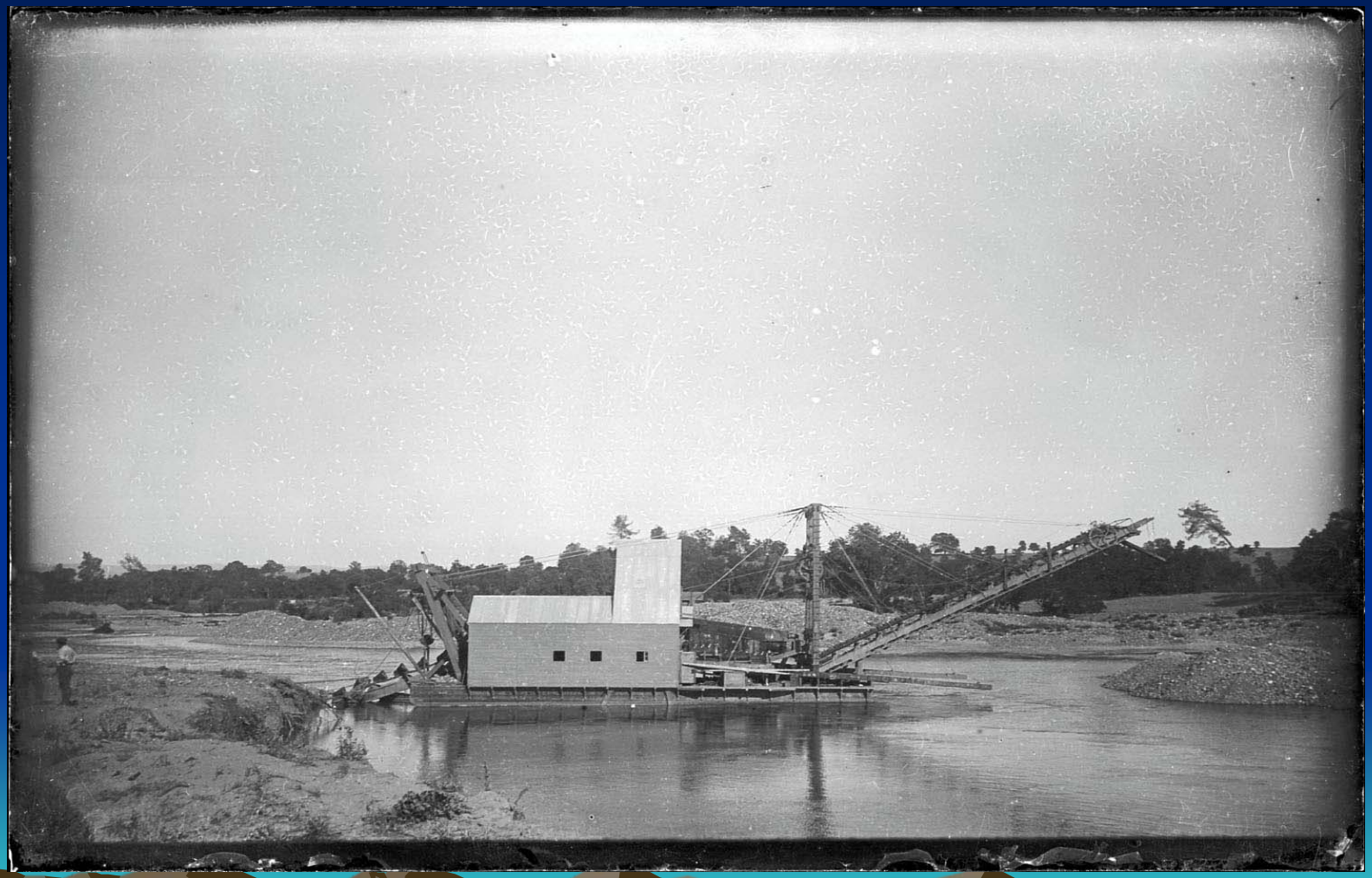


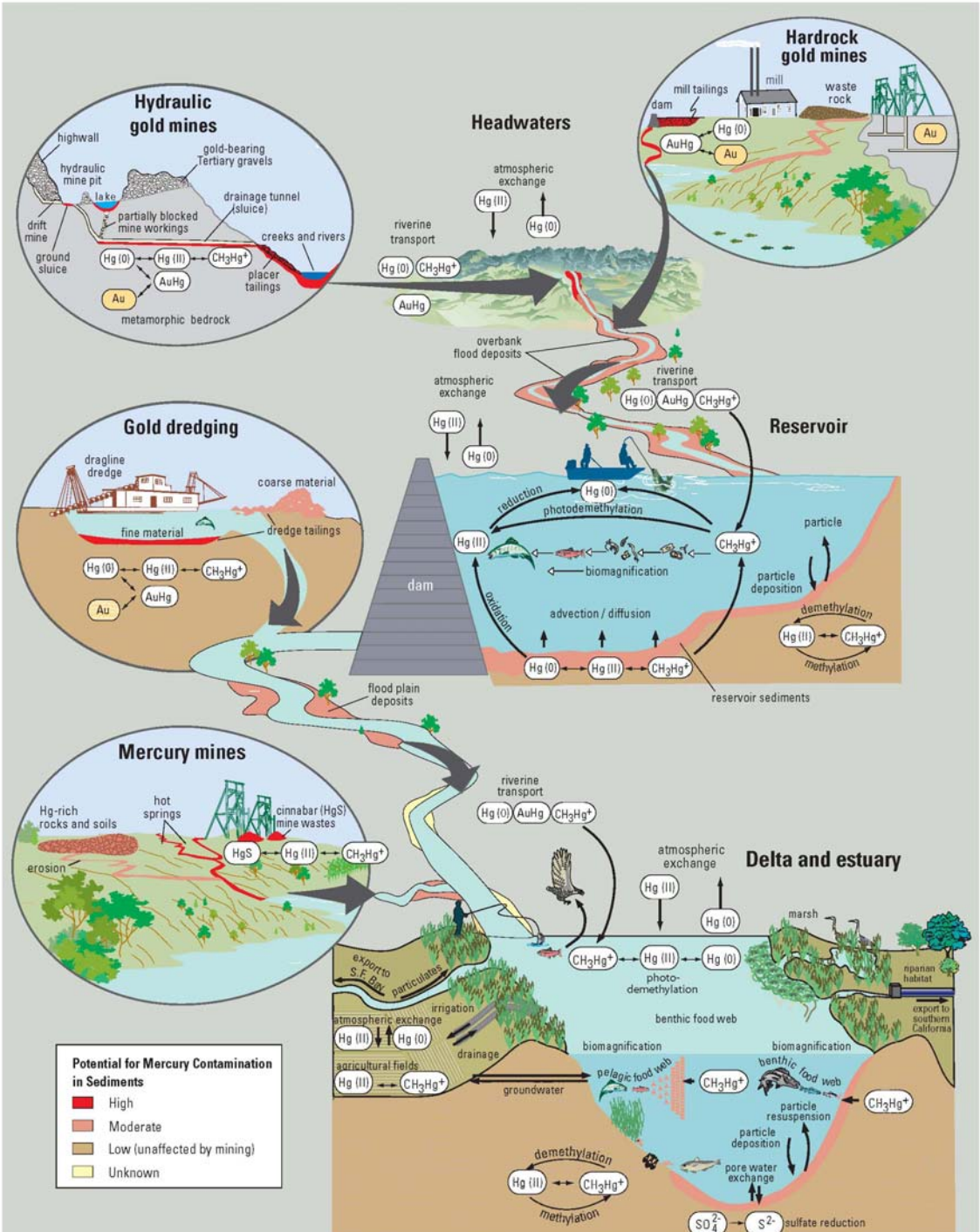
Legacy Mercury in the Watersheds

Legacy Mercury on the Move

TRANSPORT AND METHYLATION OF MERCURY

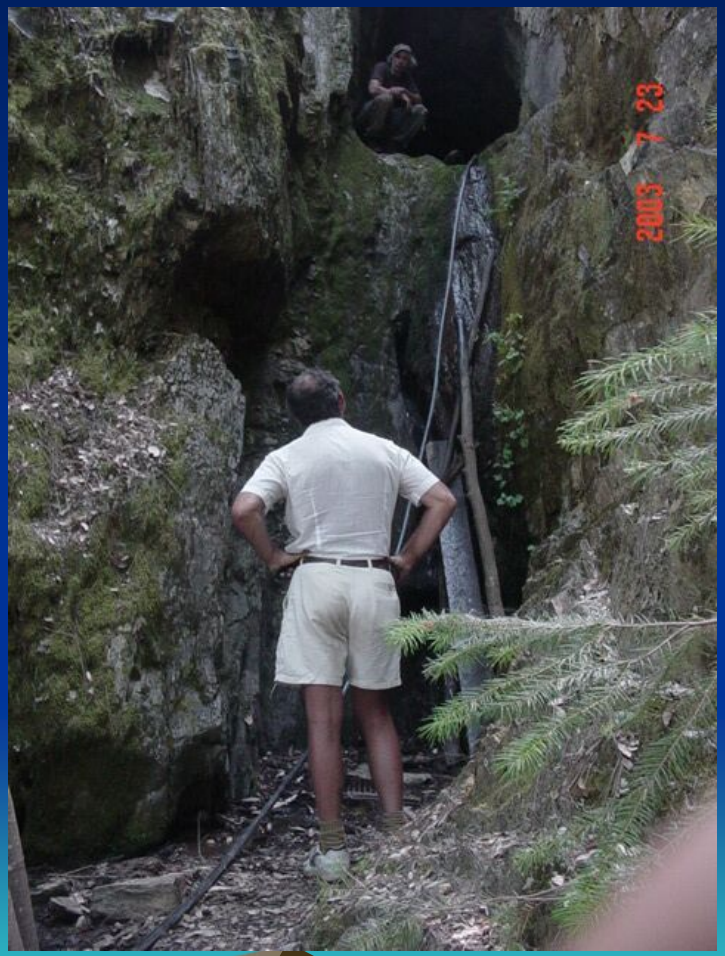
METHYLATION ENVIRONMENTS:

- Mountain streams
- Foothill reservoirs
- Rivers adjacent to and below gold dredging areas
- Floodplain deposits
- San Francisco Bay-Delta estuary
- All display strong seasonality (e.g., methylation in foothill reservoirs greater in the summer)
- Must coincide with active food web



Problems Caused by Mercury

- Elevated fish tissue levels (SFEI Lakes Report and other studies).
- Mercury removed from mine sites and streams can cause pollution in other environments.



Understanding Mercury in River Systems

- Studied sources in the Bear and Yuba River systems.
- Studied transport in the Bear and Yuba River systems.
- Studied mercury methylation processes in the Bear and Yuba River systems.
- Studied the food web in Camp Far West Reservoir (Bear River) in detail.

Mine Tunnel Cleanups

Regional Mercury Collection

- Conceived in 1994, initiated in 2000.
- Targeted Placer, Nevada, and Sierra Counties.
- Collected 140 lbs the first day.
- Collected about 400 lbs total.
- Now collected as HHZW.

Limit Summer Turbidity Discharges

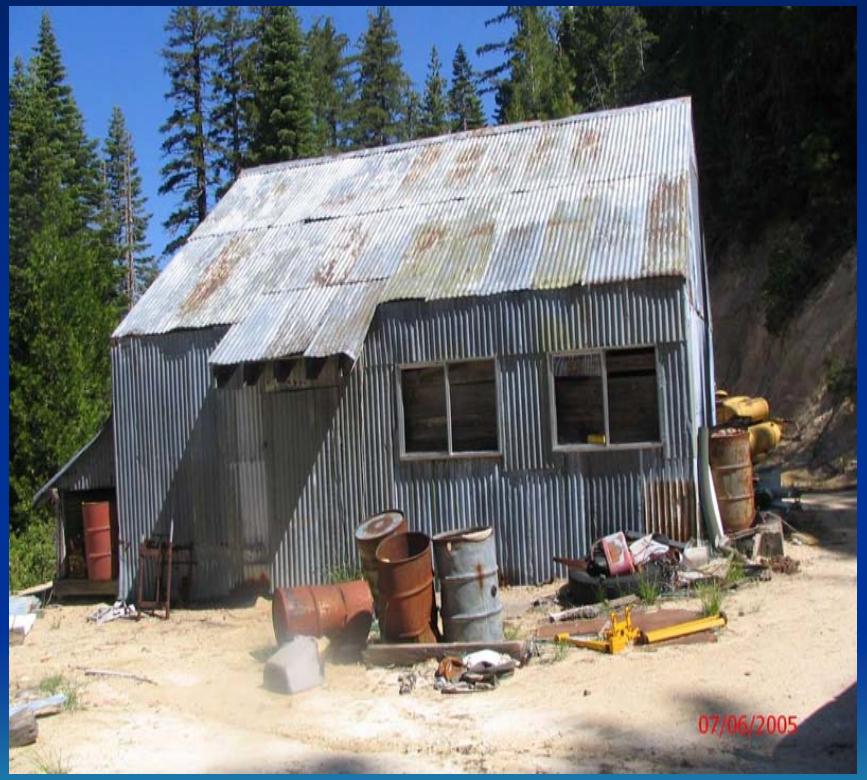
- SB 670 – NEW Moratorium on suction dredging for gold.
- DFG's revised regulations for suction dredging for gold due in 2011.

Acid Generation Prediction Training

- Introductory class offered periodically by staff.
- Advanced class developed and offered in 2009.
- Provide staff with “tools” for permitting large mines.

Federal Agency Mine Cleanup Projects

- Usually performed under CERCLA
- National Forests and BLM compete for CERCLA funding.
- Mines with water quality problems score higher for funding.
- Ancho Erie, Sailor Flat, La Trinidad, Liberty Hill, Boston Mine (BLM) Fall Creek restoration.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Interagency issues

- CERCLA cleanups by federal agencies: MOU with feds and state agencies.

- Mine cleanup oversight
  - Physical safety : Dept of Conservation.
  - Environmental hazards: Water Boards, DTSC.

The End