

Gold Mining, Mercury and Suction Dredging
Excerpts from “Minings Toxic Legacy” by
The Sierra Fund, 2008

An estimated 26 million pounds of mercury were used to extract gold from ore in California, most of it in the Sierra Nevada Gold Country (1). Of this, an estimated 10 million pounds were lost to the environment in placer mining operations and another 3 million pounds were lost from hard rock mining (2). Elemental mercury or “quick-silver” is still commonly encountered in Sierra watersheds.

Recent studies by the Delta Tributary Mercury Council indicate that runoff and erosion from gold mines in the Sierra are a significant source of mercury to the Sacramento Delta (3). In the suction dredging process, miners remove gravels from the riverbed with a suction hose powered by an engine, and then use pans or other methods to retrieve the gold. Suction dredgers often encounter mercury and gold-mercury amalgam, which tend to fall into the cracks of the riverbed like gold. Suction dredges re-suspend and “flour” mercury, increasing the surface area and making it more readily available for bacteria to methylate (4).

Dredgers collect the mercury and amalgam, and retort it or treat it with nitric acid to release any gold that may have amalgamated with the mercury. They then recover the mercury and usually store it, though some miners dispose of it in an unauthorized manner, such as pouring it back into the river, onto the ground, or into municipal sewer systems.

The full text of “Mining’s Toxic Legacy” can be downloaded from The Sierra Fund’s website: www.sierrafund.org/campaigns/mining

(1)Alpers, C., P. R Hunerlach, J. T.May, and R. Hothem. (2005a). Mercury Contamination from Historical Gold Mining in California. U.S. Geological Survey Fact Sheet 2005-3014

(2) Churchill, R. K. (2000). Contributions of Mercury to California’s Environment from Mercury and Gold Mining Activities–Insights from the Historical Record. Extended abstracts forthe U.S. EPA-sponsored meeting, Assessing and Managing Mercury from Historic and Current Mining

(3) Delta Tributary Mercury Council. (2002). Strategic Plan for the Reduction of Mercury-Related Risk in the Sacramento River Watershed. DeltaTributary Mercury Council.

(4) Humphreys, R. (2005). Mercury Losses and Recovery during a Suction Dredge Test in the South Fork of the American River. California State Water Board Staff Report. Sacramento, CA.