Mercury, Abandoned Mines & Reservoirs:
What Can the Sierra Nevada Conservancy Do?

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The health of all Californians is threatened by mines abandoned more than 100 years ago, after the heyday of the California Gold Rush. Toxic mercury, arsenic, lead and acid drainage from historic mines leak into the state's rivers, reservoirs and deltas, contaminating fish and the people who eat them.

Mercury is the number one contaminant in the fish of the state. The primary source of mercury in the state's water is from abandoned mercury mines on the coast, and from long-closed gold mines that left behind millions of pounds of mercury in the Sierra Nevada, the headwaters of California.

Key Strategies for Moving Forward
The Sierra Fund's Mining Initiative has identified some specific strategies that should shape the state's response to the extensively documented legacy mercury threats to the watershed and public health:

1. **Prevent future mercury contamination of the watershed by remediating discharge from mines.** It makes the most sense to remove the mercury high up in the watershed before it contaminates hundreds of miles of rivers and ends up in the San Francisco Bay and Delta. One method for achieving this is by shaping water quality regulations toward this end.

   The State Water Resources Control Board (SWRCB) is currently developing a "total maximum daily load" (TMDL) regulation on reservoir discharges of mercury. This Mercury TMDL should take a watershed wide management approach that includes abandoned mine remediation aimed at reduction of mercury contamination in our ecosystem. These TMDL's need to incentivize reclamation of abandoned mines that discharge mercury into surface water.

2. **Engage stakeholders in development of the Mercury TMDL.**
   The key decision makers in the Sierra Nevada region are the local and tribal governments with jurisdiction over their land use. Creating a collaborative environment that addresses the region as a whole, is stakeholder driven, and inclusive of local government, the conservation community, scientists, regulators, and the mining industry, ensures the solutions will be more effective and implementable. This needs to be the first step taken.

2. **Identify both Point and Non-Point control plans** for sources of mercury to be addressed by the required remediation plan. The effort must be aimed at point-sources such as abandoned mines ***and*** on reducing mercury discharge from publicly treated water systems, as well as addressing "non-point" sources such as mine scarred land drainage.

3. **Identify Best Management Practices (BMPs) and Best Available Technologies (BATs):** Require their use for mercury discharge hot spots in the watershed above the reservoir whose water discharge does not meet the new TMDL.

Prepared by Elizabeth "Izzy" Martin for the SNC Board of Directors Meeting, December 6, 2012

Potential Role for the Sierra Nevada Conservancy (SNC)
With the involvement of state, local and federal partners on the Board of Directors, the SNC is perfectly suited to the task of helping to "reclaim the Sierra." They could:

Fund More Pilot Projects: The SNC is already playing an important role as one of the few state government agencies willing to fund projects that assess and address abandoned mines. For example, SNC funded the following pilot projects now underway that can help identify BMPs and BATs including:

a. **Humbug Creek/Malakoff Diggins State Historic Park assessment and management planning project:** The Sierra Fund, in cooperation with State Parks, the Department of Toxic Substances, CSU Chico and others, is currently working on this SNC funded project to identify mercury sources and potential remediation strategies for this abandoned hydraulic mine, now a State Park, discharging sediment and heavy metals into the Yuba River.

b. **Combie Reservoir Sediment & Mercury Abatement Project:** This model project at Combie Reservoir (funded in part by the SNC) is removing mercury from dredged sediment that have accumulated in the reservoir. By removing the mercury and selling the remaining clean sand and gravel the project maintains water storage capacity while implementing a best management practice that could be a model for other reservoirs in the Gold Country.

SNC could help identify and manage new sources of funding to help local governments and non-profit organizations in the region "reclaim the Sierra." SNC could help local governments manage their abandoned mine lands and respond to the TMDL regulations under development. For example, there is an opportunity this year to advocate for funds in the new water bond to be administered by SNC to provide funds and resources to local governments and non-profit organizations that are exploring ways to reduce mercury discharge from abandoned mine lands they own, to conduct pilot projects by local water agencies to remove mercury contaminated sediments to protect reservoir capacity, and for reducing mercury discharge from public sanitation systems.

SNC could support development of a University of California/California State University Task Force on Mercury AML remediation: These institutions can help identify BATs and BMPs, establish good pre- and post- project monitoring protocols, help prioritize problems, etc. The Sierra Fund's Mining Work Group already has many of the needed partners for this effort. This Task Force should be seeded with money from federal and state sources. SNC could play a role in helping The Sierra Fund to incubate this task force.

Require a comprehensive assessment on all properties prior to acquisition using SNC funds. Only this kind of assessment ensures that legacy mines are identified before local government or land trusts assume ownership – and protects these entities from associated liabilities in perpetuity.