Background
One of the most persistent and widespread impacts of the California Gold Rush is mercury contamination. Mercury is transported off of hydraulic mine-impacted lands in headwater forests to downstream aquatic environments including reservoirs where it can methylate, enter the food web, and biomagnify and bioaccumulate in fish. The consumption of mercury-contaminated fish is the primary pathway of human exposure and a potential threat to public health.

Project
In 2017, The Sierra Fund (TSF) launched the Headwater Mercury Source Reduction (HMSR) Technical Advisory Committee (TAC) and HMSR Strategy. The HMSR strategy is a cohesive framework for collaboration on projects that address four key mercury targets: (1) hydraulic mines and mine features, (2) mercury in forest and land management, (3) mercury-contaminated sediment in reservoirs, and (4) mercury exposure through fish consumption.

Impact
In 2016 the Mercury Strategy Synthesis concluded that no efforts to mitigate mercury in the San Francisco Bay-Delta would be successful without upstream source control. TSF’s HMSR project stepped in to fill a coordinative gap, providing a critical vehicle for regional and topical experts to inform and prioritize actions associated with addressing headwater sources of mercury. The HMSR Strategy documents the evolution of a scientific approach for mercury mitigation projects with Sierra to sea benefit.
BY THE NUMBERS

62 HYDRAULIC MINES in the Yuba Watershed, comprising 3,260 ACRES of Tahoe and Plumas National Forests.

13 SIERRA NEVADA RESERVOIRS on the Statewide Mercury Control Program List.

17 Site-Specific Fish Consumption Advisories with guidelines to prevent EXPOSURE.

NEXT STEPS

TSF will work with a growing network of collaborative partners to conduct inventories and develop databases of headwater sources of mercury that can be used to prioritize pilot projects of regional significance. Specific activities are planned annually to move toward plan implementation. The evaluation of techniques used to implement projects will facilitate the ongoing identification of best-practices for assessment and remediation. TSF will integrate lesson’s learned into the HMSR Strategy and share this information with regional and state leaders with the aim of encouraging others to replicate and extend our successes.

PROJECT FUNDERS

Past and present project funders include: The Nevada Irrigation District, the Sierra Nevada Conservancy, the Resources Legacy Fund, the Giles and Elise Mead Foundation, True North Foundation.

Hydraulic Mine Feature Identification. Hydraulic mine features including pits and sediment deposits behind the Horse Valley Creek and Willow Creek debris control dams (DCDs) are visible in the LiDAR imagery of Tahoe National Forest.