

BEAR RIVER



Reservoir Sedimentation

SITE SUMMARY:

During the California Gold Rush, mercury was used in mining operations to aid in gold recovery. Today, every storm event washes sediment and mercury from contaminated legacy hydraulic mine sites into creeks and rivers. This material flows downstream and accumulates in reservoirs, where sediment reduces water storage capacity and elemental mercury methylates and enters the food web, bioaccumulating and biomagnifying in fish. Fish consumption is the primary pathway of human exposure to mercury which is a known neurotoxin.



BACKGROUND:

Numerous legacy hydraulic mines exist in the Bear River watershed and as a result the watershed is significantly impacted by sediment and mercury. Nevada Irrigation District (NID) owns and operates two reservoirs on the Bear River which are listed under Clean Water Act section 303(d) as impaired for mercury: Rollins Reservoir and Combie Reservoir.

Dams trap winter precipitation and Sierra snowmelt for use in irrigation, drinking water, hydropower and recreational use. Over the decades, erosion and sedimentation have affected NID efforts to maintain reservoir storage capacity, potentially affecting NID's ability to supply water to its customers.

NOTABLE FEATURES:

- › **COMBIE RESERVOIR ORIGINALLY STORED APPROXIMATELY 5,500 ACRE-FEET OF WATER FED BY THE BEAR RIVER AND WOOLEY CREEK. SEDIMENTATION HAS REDUCED THE LAKE'S VOLUME .**
- › **ROLLINS RESERVOIR ORIGINALLY STORED 66,000 ACRE-FEET OF WATER FED BY GREENHORN CREEK AND STEEPHOLLOW CREEK AND HAS LOST WATER STORAGE CAPACITY.**

SEDIMENT & MERCURY REMOVAL PROJECTS:

Reservoir maintenance includes sediment removal to maintain water storage space and operational capacity. Sediment carried into reservoirs on the Bear River contains mercury that originates from historical gold mining performed in the Bear River watershed over a century ago. The presence of mercury precludes some reservoir maintenance activities because they would stir up and distribute mercury into the water. Removal of sediment in the dry, when the reservoir is low, is the most economical way to maintain reservoir capacity, however, some deposits cannot be accessed in this way.

To address this an innovative approach is being developed, where by sediment is removed using a dredge and the sediment “slurry” is treated offshore to remove mercury before clean water is returned to the reservoir. The Sierra Fund supports reservoir sediment removal projects with technical expertise and monitoring. These projects have great potential to model ways to restore water storage capacity in the Sierra's existing reservoirs, while remediating mercury left in watersheds from legacy mining.

