

Geologists search for mercury in Cache Creek

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Scientists with the U.S. Geological Survey's California Water Science Center tested water in the Cache Creek Settling Basin on a cold, windy and wet Friday looking for mercury.

Wading waste-deep into the water, USGS hydrologic technicians collected samples from the flow to test the suspended particulates.

Together with the Department of Water Resources, who manage the waterways, the USGS seeks to provide data that can be used to increase the basin's mercury collection efficiency. Meticulously collecting water samples and other data from various points in the basin, Research Chemist with the USGS, Charles Alpers wants to provide complete and clear data about how the basin is working.

The basin is east of Woodland and at the west edge of the Yolo Bypass and was designed not merely to catch storm water run-off but mercury coming down the creek from the Blue Ridge Mountain area west of the Capay Valley. The Blue Ridge area was at one time the source of mercury that was shipped to gold mines in the Sierra Nevada.

Mercury was also used in the mountains area of Yolo and Lake counties in the late 18th and early 19th century when people were searching for gold.

Cache Creek is responsible for 10-30 percent of the mercury that flows into the Sacramento River though it only represents 2 percent of the water flow.

Built by the U.S. Army Corps of Engineers in the 1930s, the Cache Creek basin slows the flow of Cache Creek by widening its channel, which captures most of the heavy debris such as silt, fallen trees — and heavy elements like mercury.

Mercury, and its organic counterpart Methylmercury, enter the food chain through plants, then animals like fish continuing higher up — and becoming more concentrated in the process — until it reaches humans. Methylmercury — a potent neurotoxin that impairs the nervous system — is the form most readily incorporated into biological tissues and most toxic to humans, especially fetuses and young children.

The basin partially traps sediment to minimize the amount reaching the Yolo Bypass floodway. The ongoing analysis of this data will assist the California Department of Water Resources with management of mercury and methylmercury in the basin. The USGS has been monitoring water quality and mercury in the Cache Creek Settling Basin since 2010.

The Cache Creek watershed is impacted by mercury from both natural and anthropogenic sources, particularly wastes from inactive mercury mines and gold mines, thermal springs, and erosion of geological materials with naturally elevated mercury levels.