Concentrations of Mercury and Other Toxics in Water and Bed-Sediment of Brownlee and Hells Canyon Reservoirs, 2012-2013.

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In May of 2012, The U.S. Geological Survey, in cooperation with Idaho Power Company, collected water-column and bed-sediment core samples from eight sites in Brownlee Reservoir for total mercury (THg) and methylmercury (MeHg). Additional bed-sediment core samples, collected from three of the eight sites, were analyzed for pesticides and organic compounds, wastewater indicators (i.e., emerging contaminants), trace elements, and physical characteristics, such as particle size.

Only 17 of the 417 unique pesticide and organic compounds were detected in sediment samples. Of the 17 compounds detected 6 were pesticide or herbicide compounds and 11 were categorized as emerging contaminants. The particle size distribution of sediment samples was predominantly clay (70%) mixed with silt (30%). Bed-sediment and water-column THg were within a typical range for systems without point source mercury inputs. However, MeHg levels and the proportion of MeHg to THg were high in the deepest water samples and very high in the upper layers of the sediment compared to published regional levels. Previous study in the fall of 2011 also detected very high MeHg concentrations and proportions of MeHg to THg in the bottom water of Brownlee Reservoir.

In October 2013, Idaho Power initiated another study of mercury levels with water-column sampling in Brownlee, Oxbow and Hells Canyon Reservoirs and bed-sediment core samples from Hells Canyon Reservoir. Preliminary results show similar patterns in water-column mercury levels as previous studies and confirm accumulation of MeHg in hypolimnion waters during periods of thermal stratification in the reservoirs. Hells Canyon sediment also showed similar patterns to previous Brownlee samples with high MeHg and proportions of MeHg to THg in the upper layers compared to regional levels.