Sources, transport, and trends for selected trace metals in the Spokane River Basin, Idaho and Washington

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Mining and ore-processing activities conducted since the late 1800's in the Coeur d'Alene mining district in north Idaho have altered the water quality, aquatic biological, and hydrologic conditions in the 6,680-mi2 Spokane River Basin. From 1883 through 1987, more than 130 million tons of lead, zinc, and silver-sulfide ores were mined from the Coeur d'Alene Mining district, primarily in the South Fork of the Coeur d'Alene River Basin. Historical ore-processing activities in the South Fork Coeur d'Alene River Basin resulted in large quantities of metal-rich tailings that were placed directly in and along streams and subsequently transported downstream. Although tailings are no longer directly dumped into streams, metal-enriched streambed sediments and abandoned tailings have produced, and continue to produce, trace-metal-contaminated water and extensive deposits of trace-metal-contaminated sediment throughout the South Fork Coeur d'Alene Basin, the channel and flood plain of the main-stem Coeur d'Alene River, and the lakebed of Coeur d'Alene Lake. Considerable effort is underway to mitigate the adverse environmental effects of past mining in the South Fork Coeur d'Alene River Valley and its tributaries. The USEPA, State of Idaho, other Federal agencies, and the mining industry are conducting site-specific sediment-removal, reclamation, and stream-channel rehabilitation projects, and evaluating environmental contamination and remediation options in mining-affected areas. The USGS in cooperation with the USEPA has a rich history of streamflow and trace-metal data collected from the Basin since the early 1990's. Findings from these data provide valuable insight into the fate and transport of trace metals in the Spokane River Basin.