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Metal content of road deposited sediment and fluvial channel-bed sediment in the City of Prince George, British Columbia

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Over 50% of the global population live in urban centres and, therefore, an understanding of the processes acting upon urban systems is a global issue. The nature of human-made, often impervious, land surfaces and heavily engineered waterways results in hydrological and sedimentological systems in urbanised basins which contrast significantly to those within more natural (i.e. pristine, forested, agricultural) aquatic systems. In addition, the abundance of contamination sources in urban systems results in chemical pressures often manifested as high pollution concentrations or loadings which in turn have detrimental impacts on human and ecosystem health. We collected samples of road deposited sediment (RDS) and fluvial channel-bed sediment within the city of Prince George, British Columbia, in order to determine the metal content of the sediment within the urban landscape, and to investigate the link between the urban road surface and the urban river network, which flows into the Fraser River. Replicate samples of RDS were collected from street surfaces in fall 2008, summer 2009 and fall 2009, air-dried, and sieved into: 500-250 microns, 250-125 microns, 125-63 microns and <63 microns. We are currently undertaking a chemical sequential extraction to give detailed information on the metal speciation within the different size classes. Samples of channel bed sediment have also been analysed for total metal content. This presentation describes this work and presents preliminary results.