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### **Distribution and Transport of Polycyclic Aromatic Hydrocarbons within Suspended Particulate Matter from the Columbia River and Estuary**

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This study aims to improve knowledge of the spatial distribution and transport pathway for contaminants within suspended particulate matter (SPM) in Columbia River waters, using polycyclic aromatic hydrocarbons (PAHs) as model compounds. I have hypothesized that PAHs are transported to and concentrated within the estuarine turbidity maximum (ETM), a prime feeding zone in the Columbia estuary, where organisms consume contaminants adhered to particles as part of their diet. During the Center for Coastal Margin Observation and Protection-sponsored cruise in August 2007, water samples were collected from upriver Columbia sites extending from the port of Vancouver down to Columbia River mile 53 and during neap and spring tide ETM events in both the north and south channel of the estuary. The water samples are now being analyzed for SPM concentration, PAH content and composition, organic carbon content and composition and pigment content (chlorophyll – total phytoplankton) and composition (carotenoids – taxon specific phytoplankton). The combined data set from these analysis is providing a better understanding of PAH transport with riverborne SPM and the basis for development of a hydrophobic contaminant model which will be discussed. This model should prove useful in predicting zones within the Columbia River Basin where organisms may be at high risk to toxic contaminant exposure and thereby benefit development of management strategies aimed at improving water quality.

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