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**Characterization of suspended particulate matter in rivers: Utility for monitoring and assessment.**

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Suspended particulate material (hereafter, seston) serves as the principal food source for a diverse array of benthic and pelagic consumers in rivers. Riverine seston is a complex mixture of organic and inorganic materials derived from allochthonous (terrestrial plants and soil) and autochthonous (aquatic algae and macrophytes) sources. This molecular complexity offers a wealth of information about sources of particulate matter and their nutritive value in supporting secondary production. Our objective is to evaluate the utility of various metrics describing seston composition in the context of river monitoring and assessment. This presentation will (1) describe candidate metrics and their linkages to anthropogenic stressors, and (2) present preliminary analyses of data collected from the Ohio, Missouri and upper Mississippi Rivers as part of the EMAP – Great Rivers project. Data from 2004 reveal both inter-river and longitudinal differences in the autochthonous (algal) fraction of seston. Subsequent analyses will focus on the effects of variable autochthonous inputs on the organic geochemistry and stable isotope ( $^{13}\text{C}$ ,  $^{15}\text{N}$ ) composition of seston. A key challenge is identifying metrics that exhibit a dynamic range of variation and linking these state variables to stressors of ecological integrity.

Paul Bukaveckas is an ecosystems ecologist whose research focuses on the role of plankton in material and energy cycles. His current work examines the role of phytoplankton in supporting river and estuarine food webs and the mechanisms by which dietary limitation constrains consumer production. He received a PhD in Ecology from Indiana University and has held appointments at the Institute of Ecosystem Studies (Postdoctoral Fellow), University of Louisville (Assistant/Associate Professor) and Virginia Commonwealth University (current). Further information is available at: <http://www.people.vcu.edu/~pabukaveckas>.

Anthony Aufdenkampe is an aquatic biogeochemist who uses molecular and isotopic tools to study the cycling of natural organic matter and anthropogenic contaminants through fluvial ecosystems. His current research topics include: (1) carbon sequestration in the foothills of the Andean Amazon, (2) controls on the bioavailability of dissolved and particulate organic carbon and nitrogen, and (3) molecular tracers of contamination sources to watersheds feeding NY City drinking water supplies. He received a Ph.D. in Chemical Oceanography from the Univ. of Washington and has held appointments at the Univ. of South Carolina (NSF Postdoctoral Fellow) and at the Stroud Water Research Center (Assistant Research Scientist). Further information is available at: <http://www.stroudcenter.org/about/aufdenkampe.htm>.