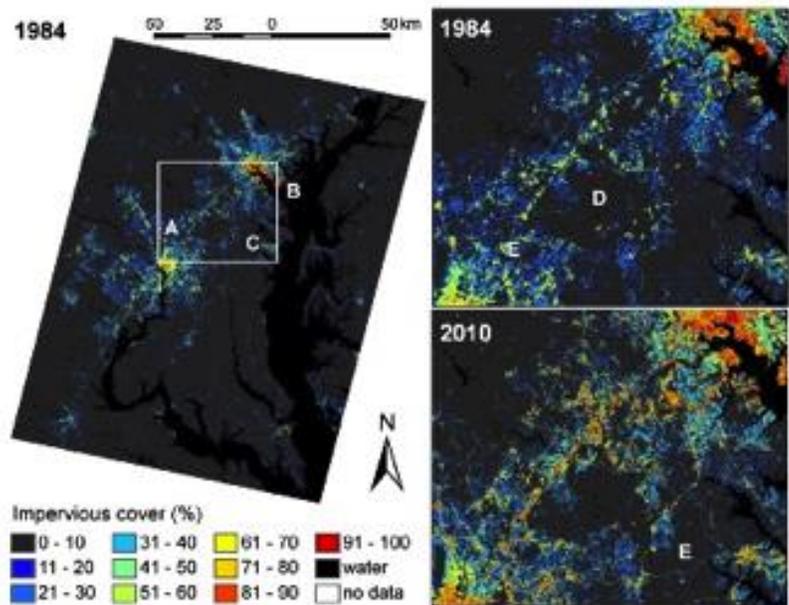


Maryland-Delaware-District of Columbia Water Science Center  
Seminar Series

Tuesday, December 3, 2013 1:00-2:00

## Impacts of urbanization on stream chemistry and macro-invertebrates: a spatially extensive, 25-year time series

Over the past quarter-century, urban expansion has posed an increasingly serious threat to freshwater systems, yet most studies investigating urban impacts rely on space-for-time analysis to characterize chemical and biological responses or infer causal mechanisms. Despite a well-articulated rationale, such inference is often confounded by inability to separate gradients of urbanization from strong spatial covariates and historical legacies. Temporal analysis of monitoring can control for these covariates, but continuous urbanization data have been lacking. We used a newly developed 25-year annual time series of 30m impervious cover (IC) encompassing the DC-Baltimore metropolitan corridor to relate urbanization patterns to long-term stream biota and water quality monitoring data in 45 watersheds from Maryland's core/trend program. This study represents a first and important step toward more comprehensive understanding of impacts of urbanization on freshwater systems enabled by widespread and long-term stream monitoring programs.



Matthew E. Baker, PhD  
Associate Professor  
Department of Geography & Environmental Systems  
211 Sondheim Hall  
University of Maryland, Baltimore County

mbaker@umbc.edu  
(410) 455-3759

*Presentation also available remotely via Webex: <https://usgs.webex.com/>*

For directions to the USGS MD-DE-DC WSC: <http://md.water.usgs.gov/directions/baltimore.html>