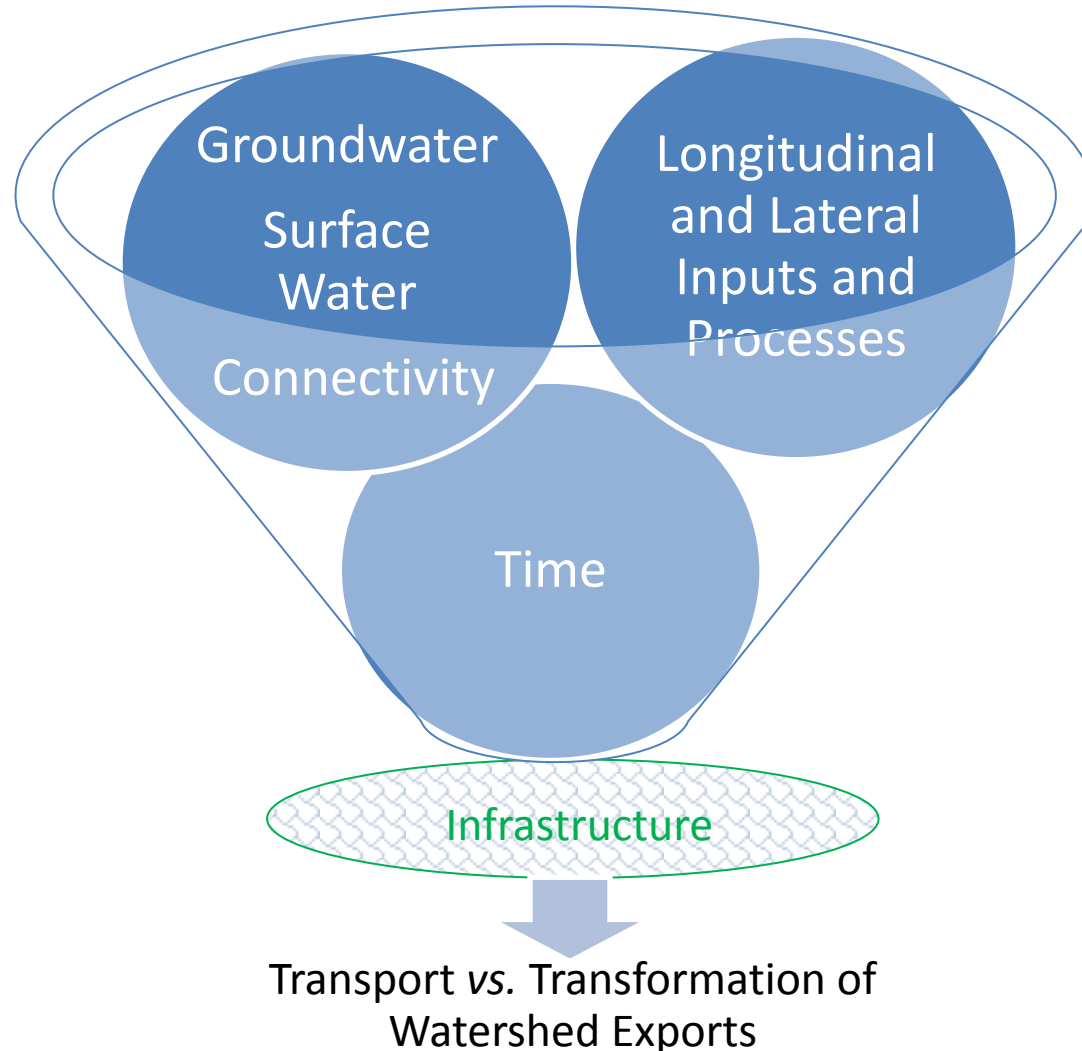

The Urban Watershed Continuum: Infrastructure and Ecosystem Function

Dr. Sujay Kaushal and Kenneth Belt

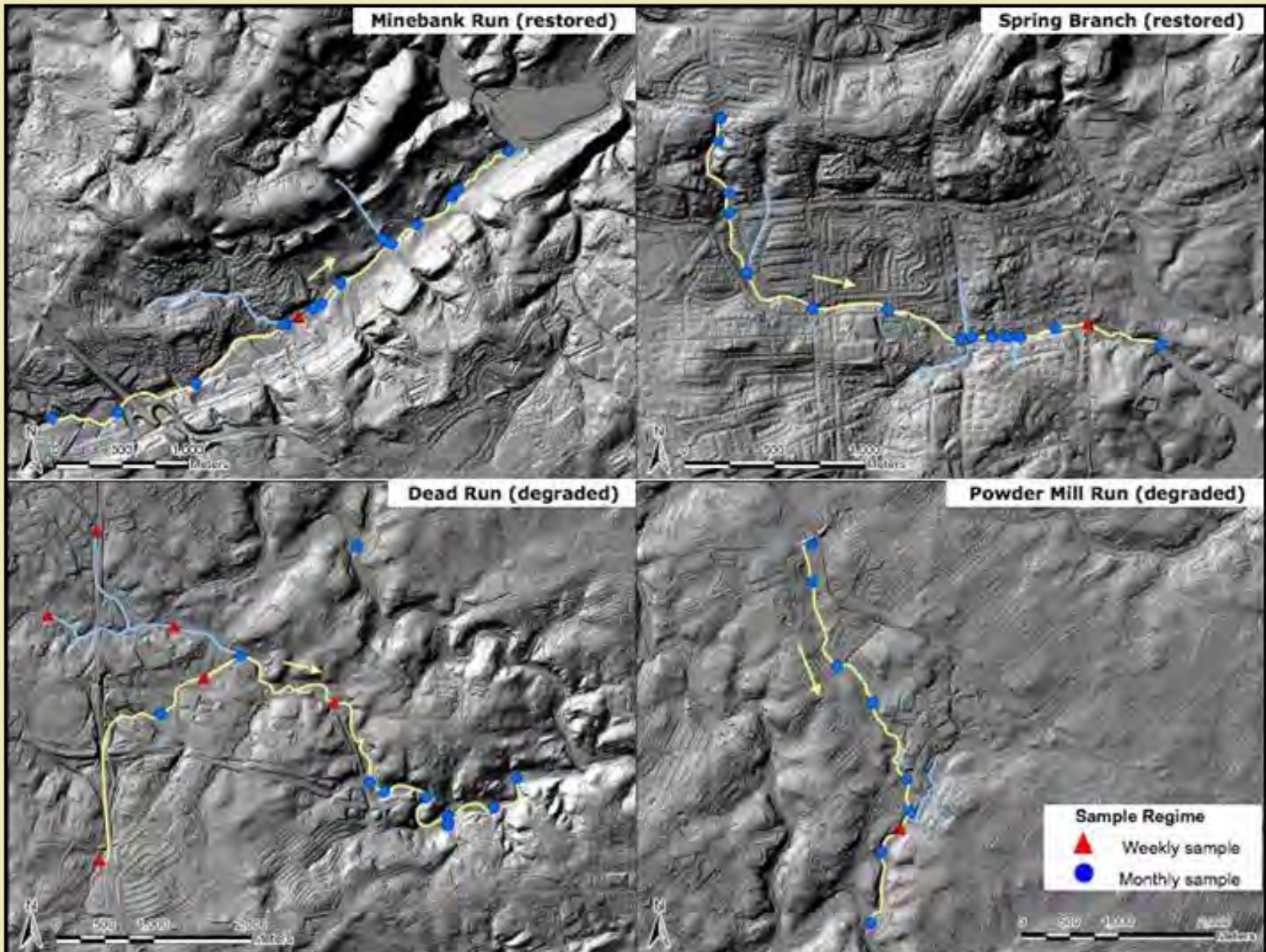
Department of Geology and
Earth System Science Interdisciplinary Center
University of Maryland-College Park

U.S. Forest Service
Northern Research Station

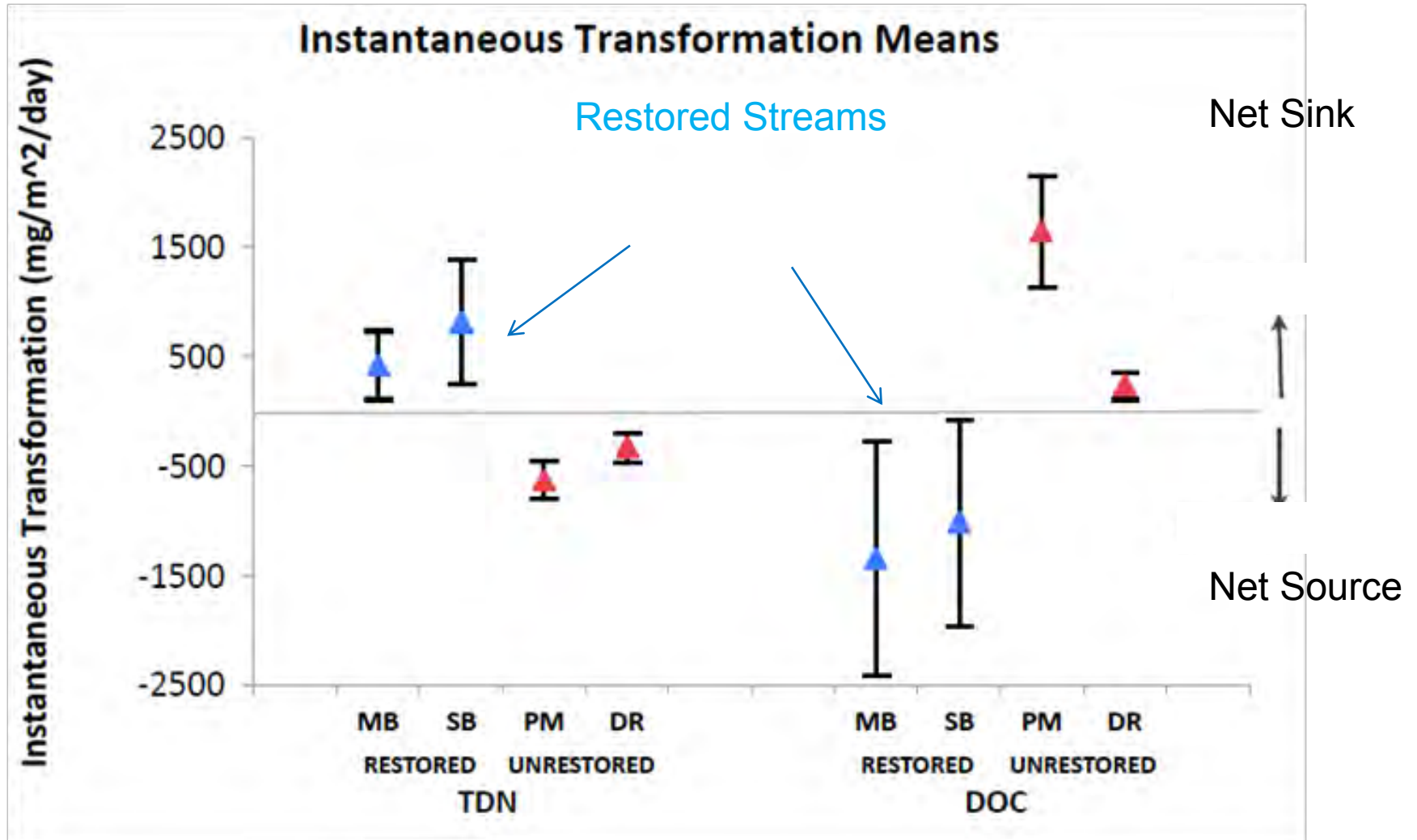
The Urban Watershed Continuum



There is longitudinal performance variability across stream reaches



Managing N Sinks Along the Urban Watershed Continuum



Stream Restoration and Stormwater Retrofit

Stormwater Retrofit

**Phase 1
Early
Restoration**

**Phase 2
Later
Restoration**

- Stream Restoration**
- SPRING BRANCH - PHASE I
- SPRING BRANCH - PHASE II
- Wet Pond Retrofit
- Roads

0 0.25 0.5 Miles



BALTIMORE COUNTY
MARYLAND

Prepared By: Watershed Management and Monitoring
Baltimore County Department of Environmental Protection
And Resource Management

Source Location: S:\WMM\Watershed Management\
Watershed Plans\Loch Raven\Spring Branch Plan
03.04.2008

**Managing
Longitudinal
and Lateral
Transformations**

**Stormwater
Retrofit**

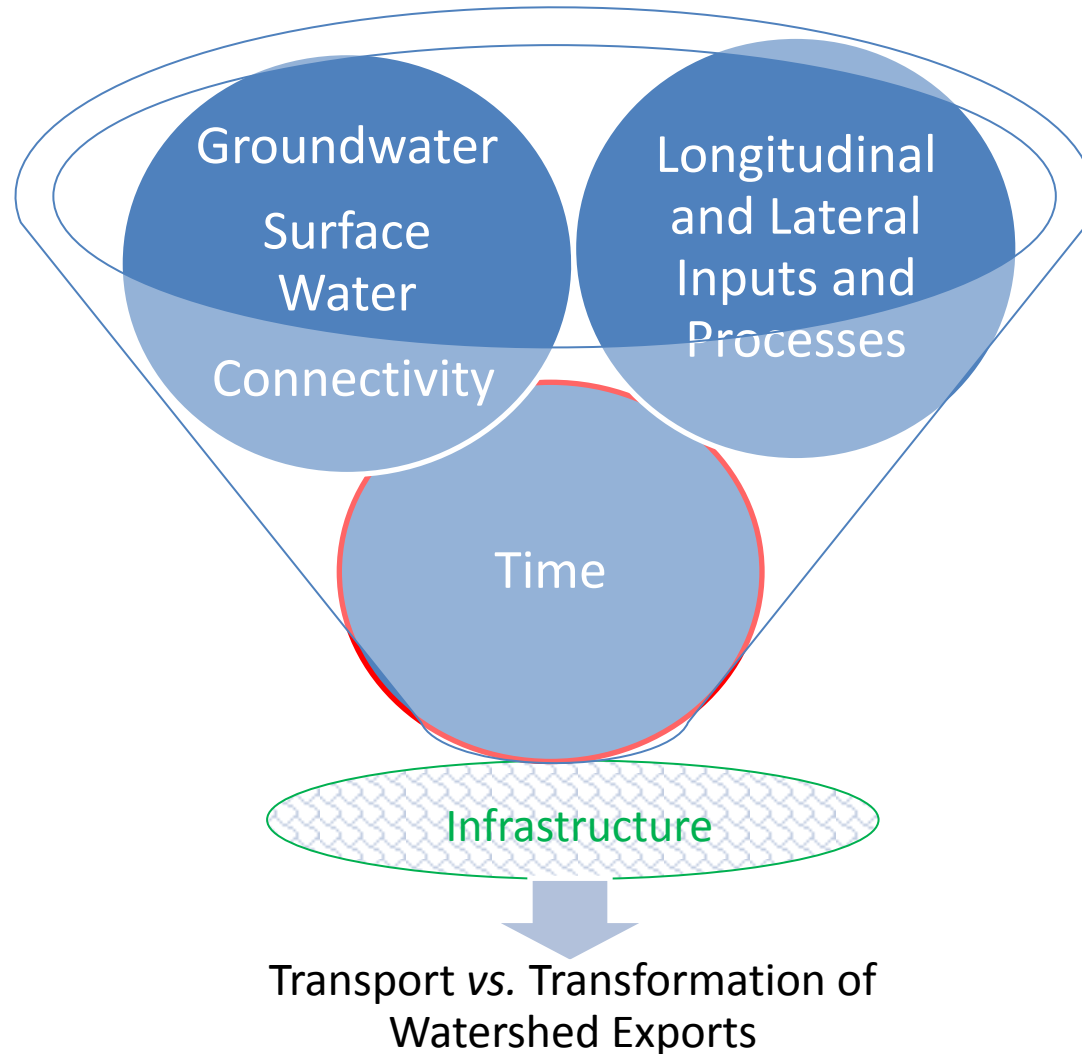
Courtesy: Newcom

The Urban Watershed Continuum: Evolution of Ecosystem Function Over Time



Kaushal and Belt (2012)
Urban Ecosystems

The Urban Watershed Continuum: *Infrastructure & Ecosystem Function*



CONCLUSIONS:

- Relationship between infrastructure and ecosystem function across space and time
- Need to consider urban groundwater matrix and longitudinal/lateral inputs to understand variability
- The urban watershed continuum is a “transporter” or “transformer” of pollutants based on infrastructure