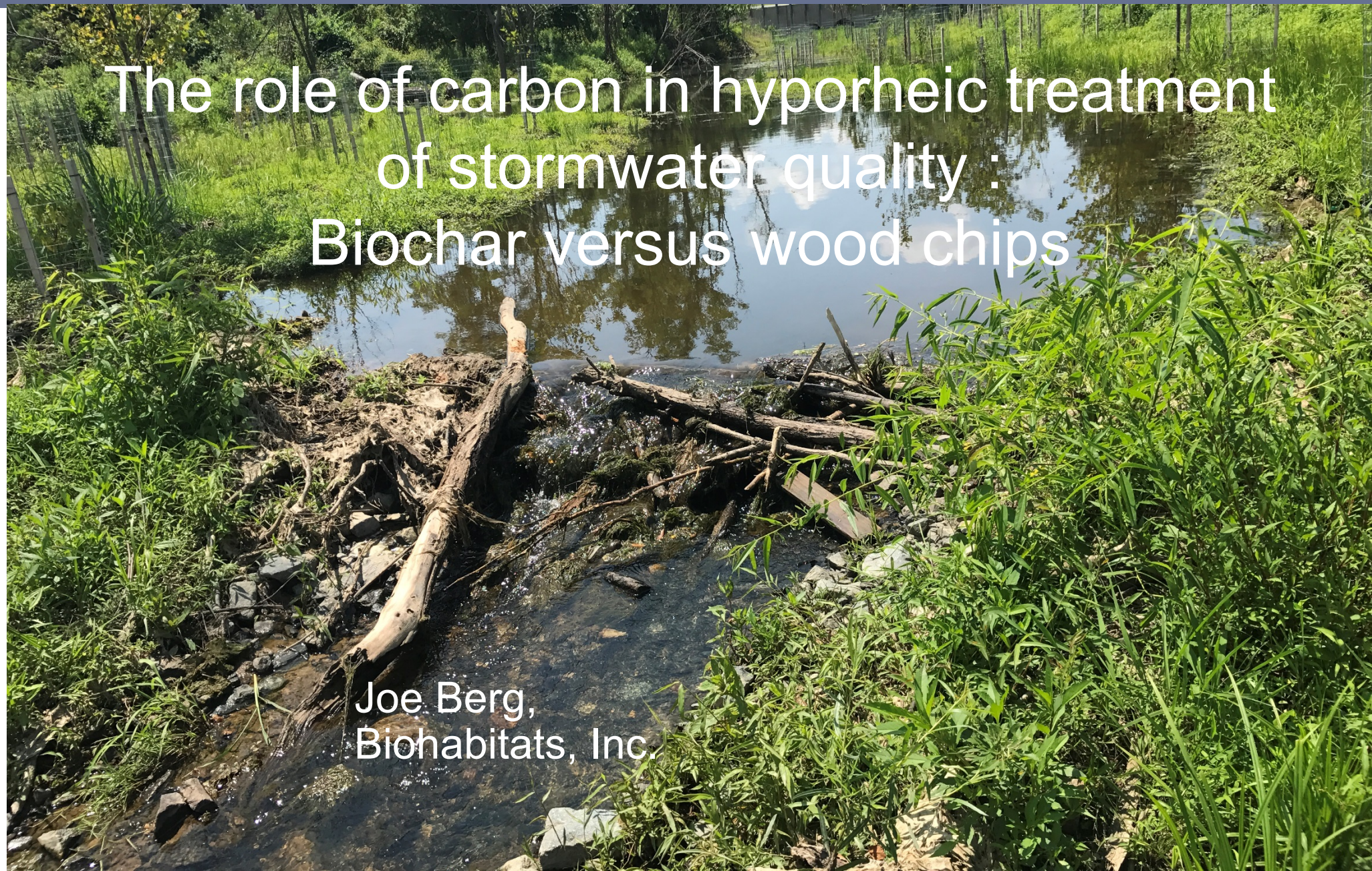


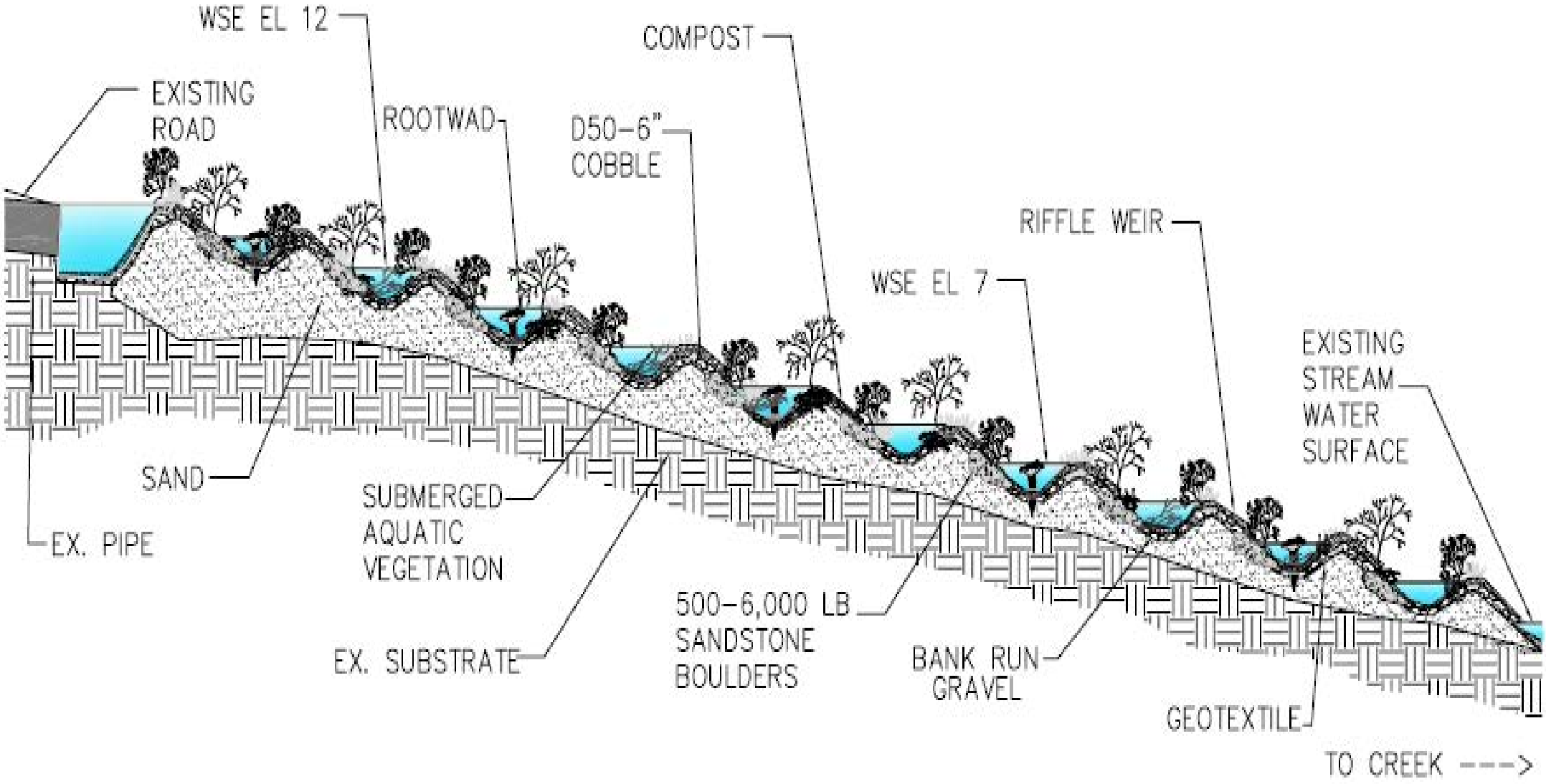
The role of carbon in hyporheic treatment of stormwater quality : Biochar versus wood chips

Joe Berg,
Biohabitats, Inc.

Biohabitats

Regenerative Stormwater Conveyance

Biohabitats

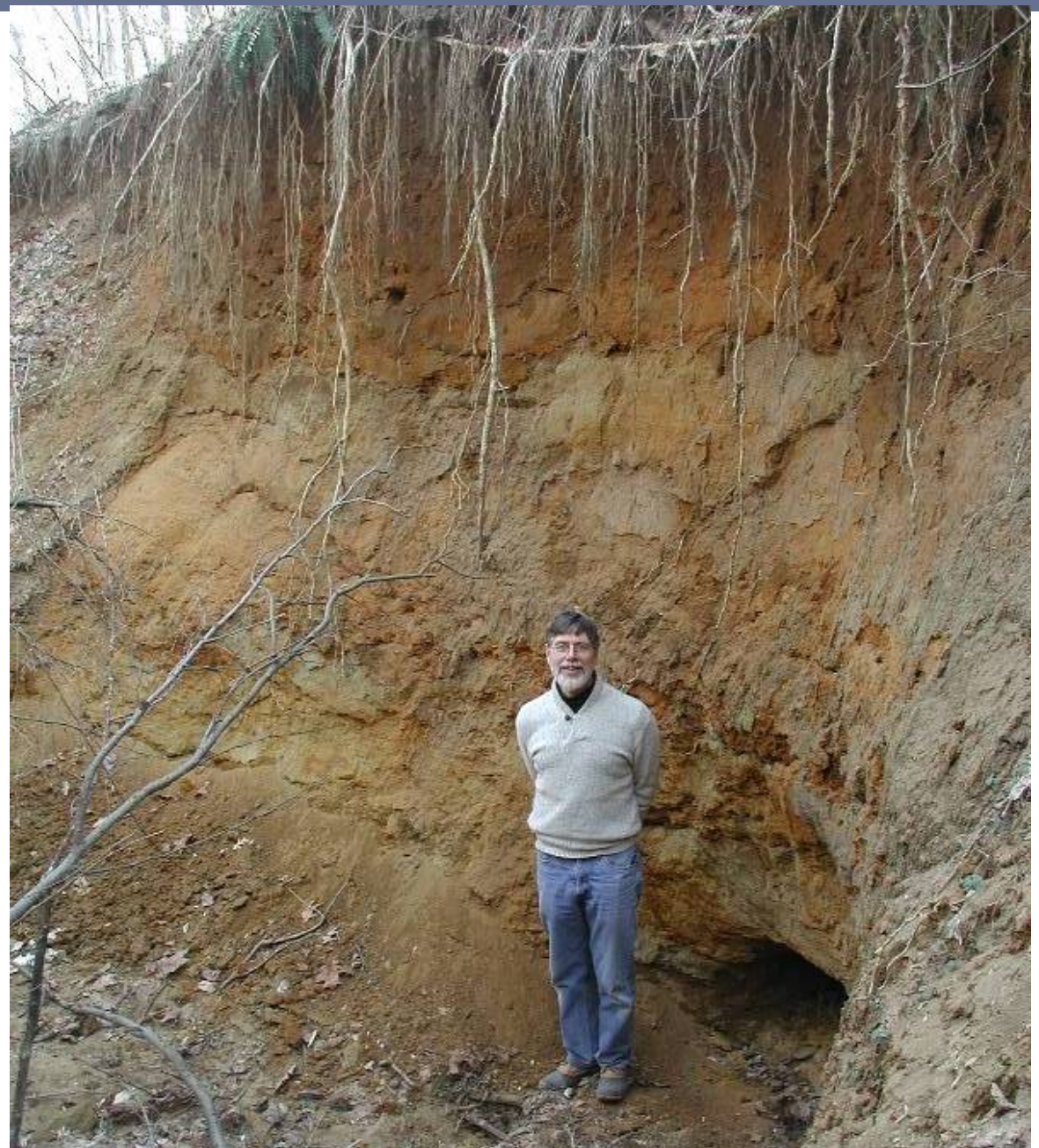


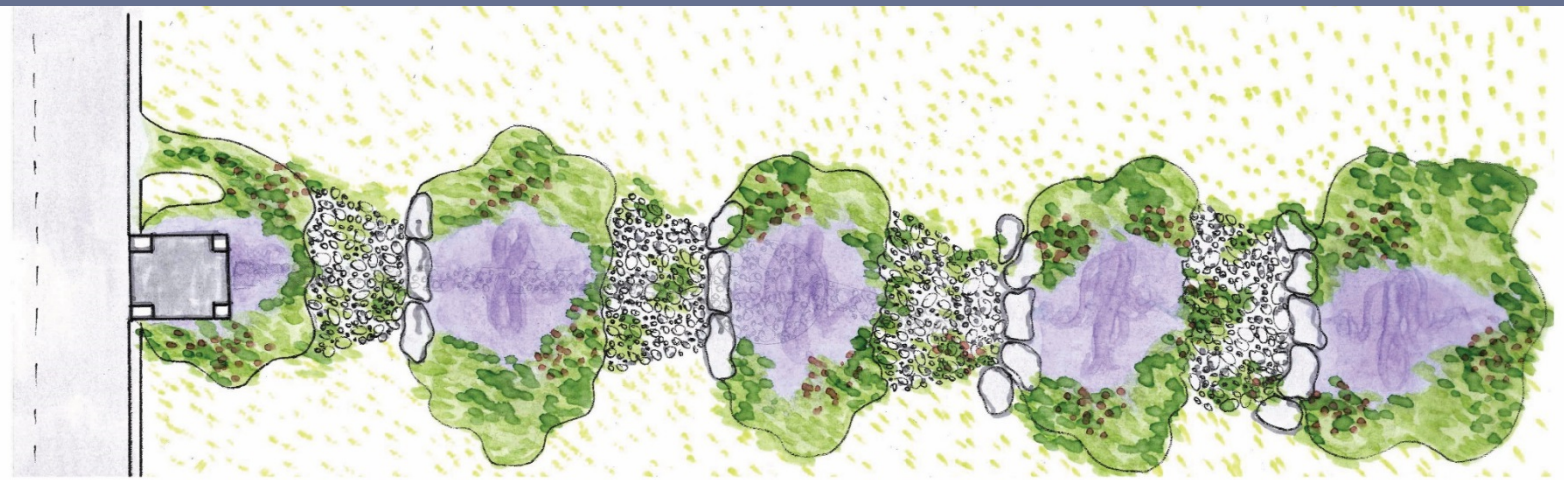
Carriage Hills Pre-restoration

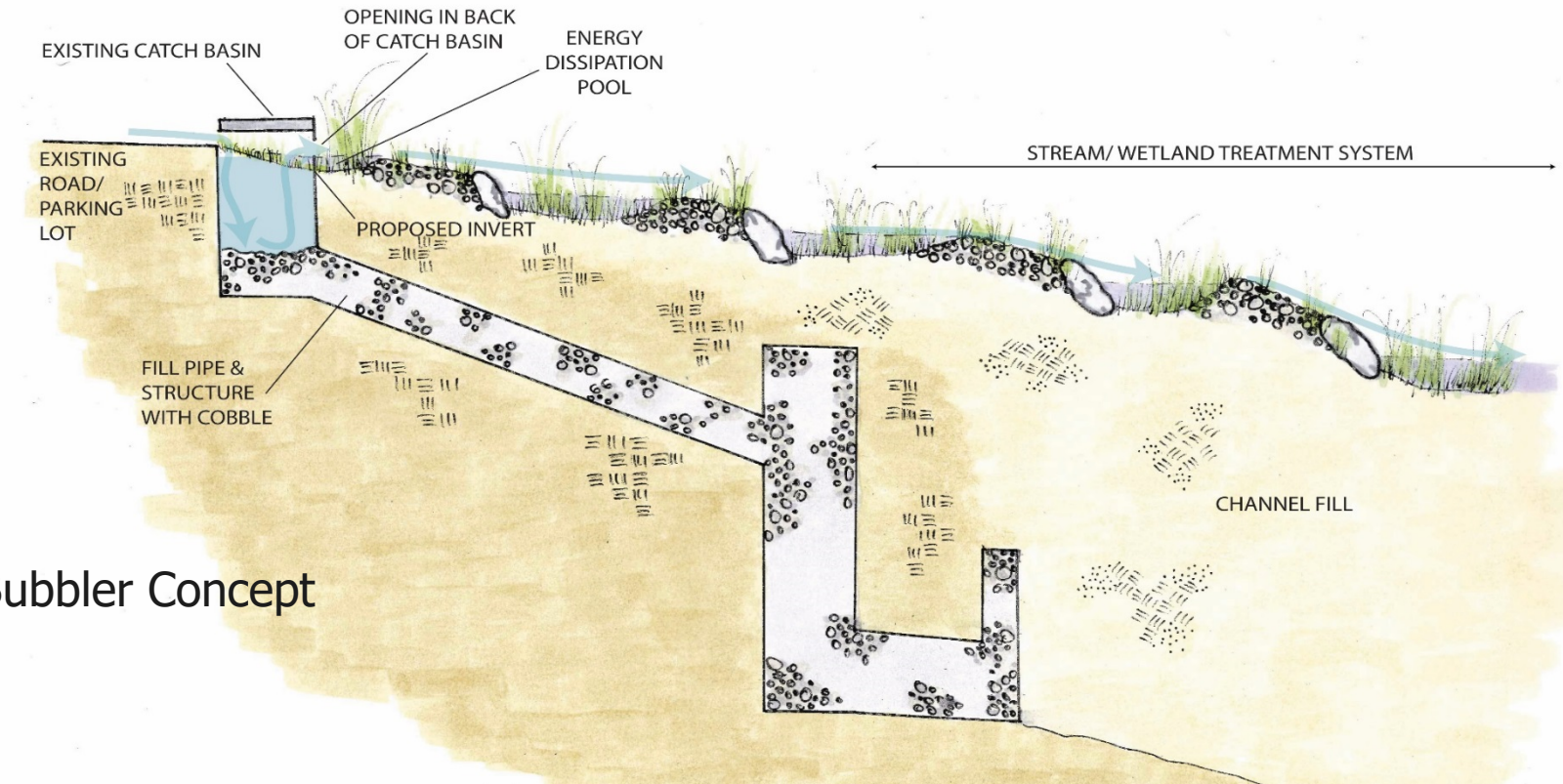
Biohabitats

22-ft incised

Adverse effect on sediment supply



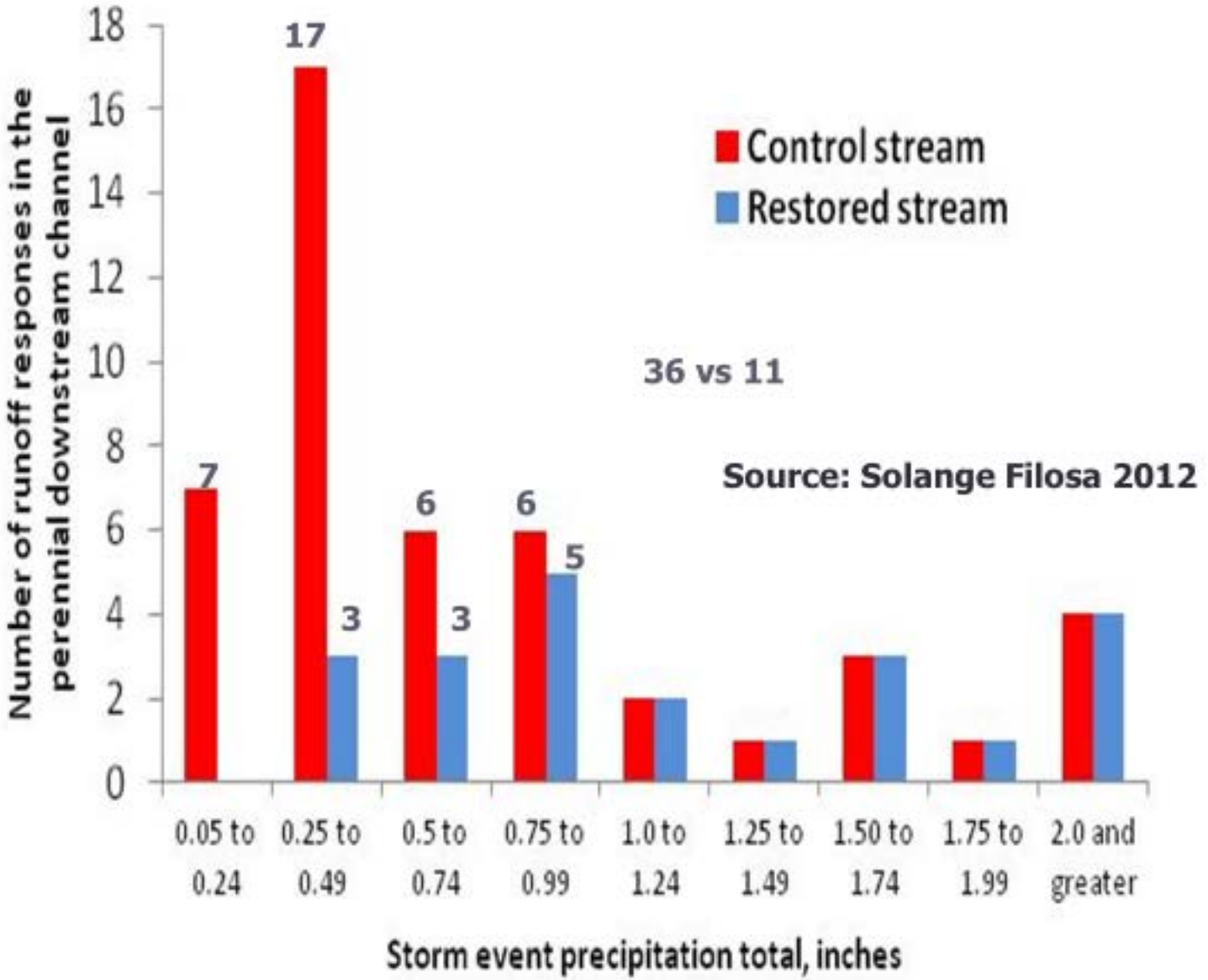




Bubbler Concept

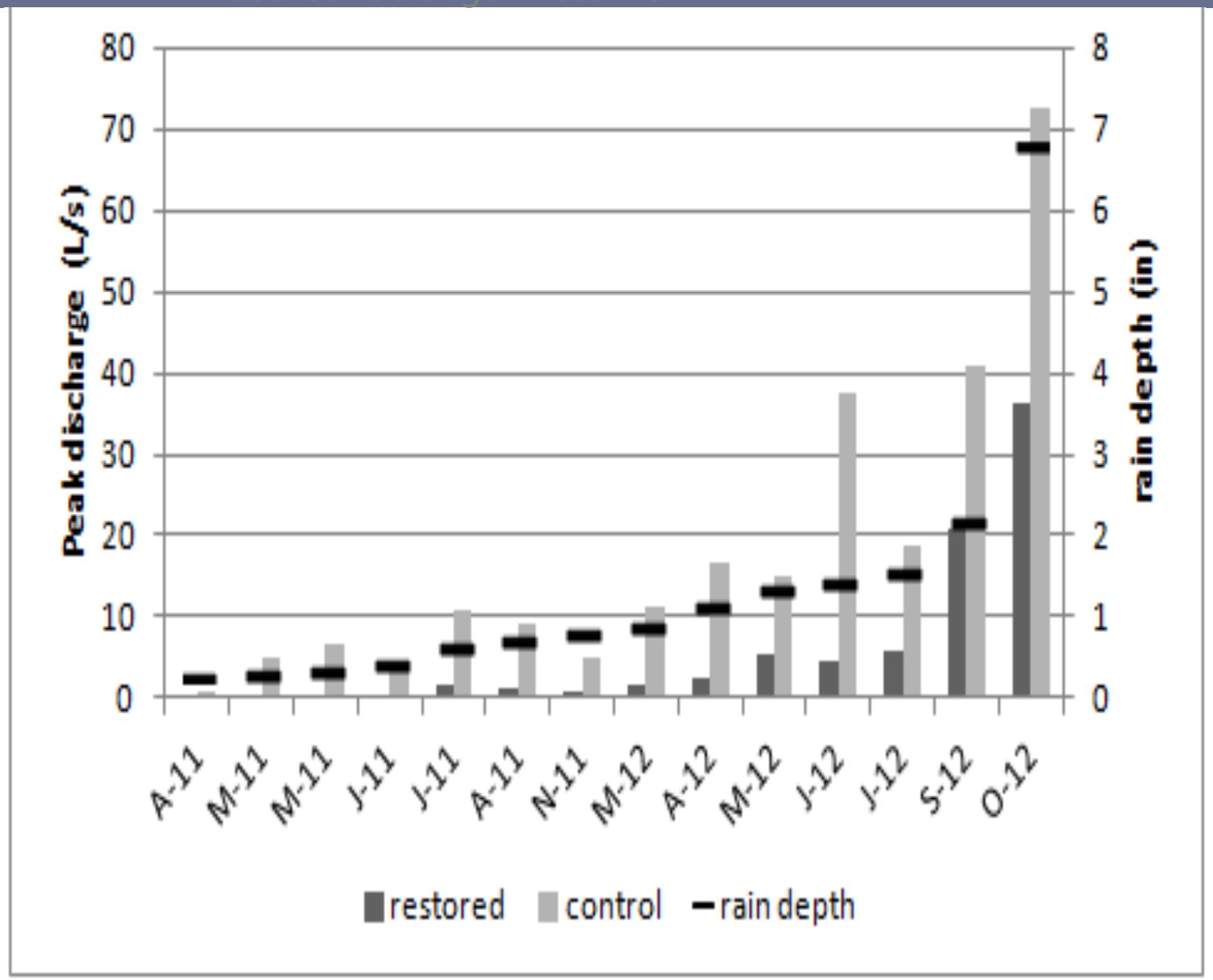
Carriage Hills Post-restoration
(during stormwater runoff)

Biohabitats



Source: Solange Filosa, University of Maryland

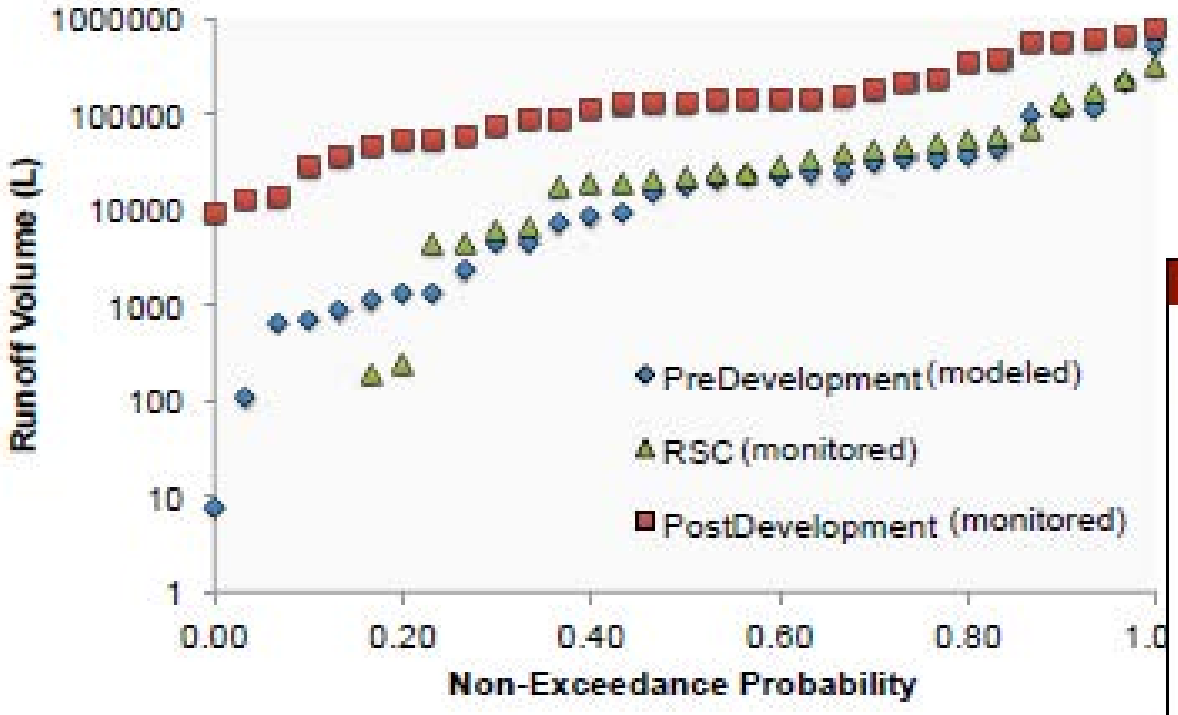
Source: Solange Filosa 2012



Source: Solange Filosa, University of Maryland

Biohabitats

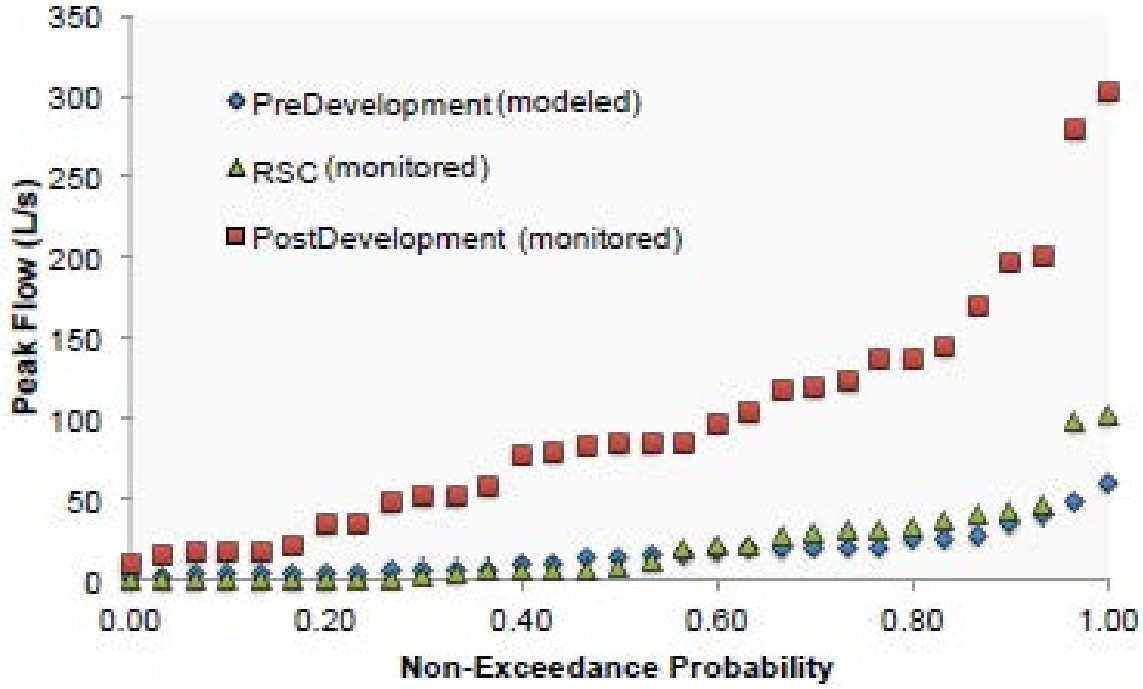
Runoff Volume



www.bae.ncsu.edu/stormwater

NC STATE UNIVERSITY

Peak Flow

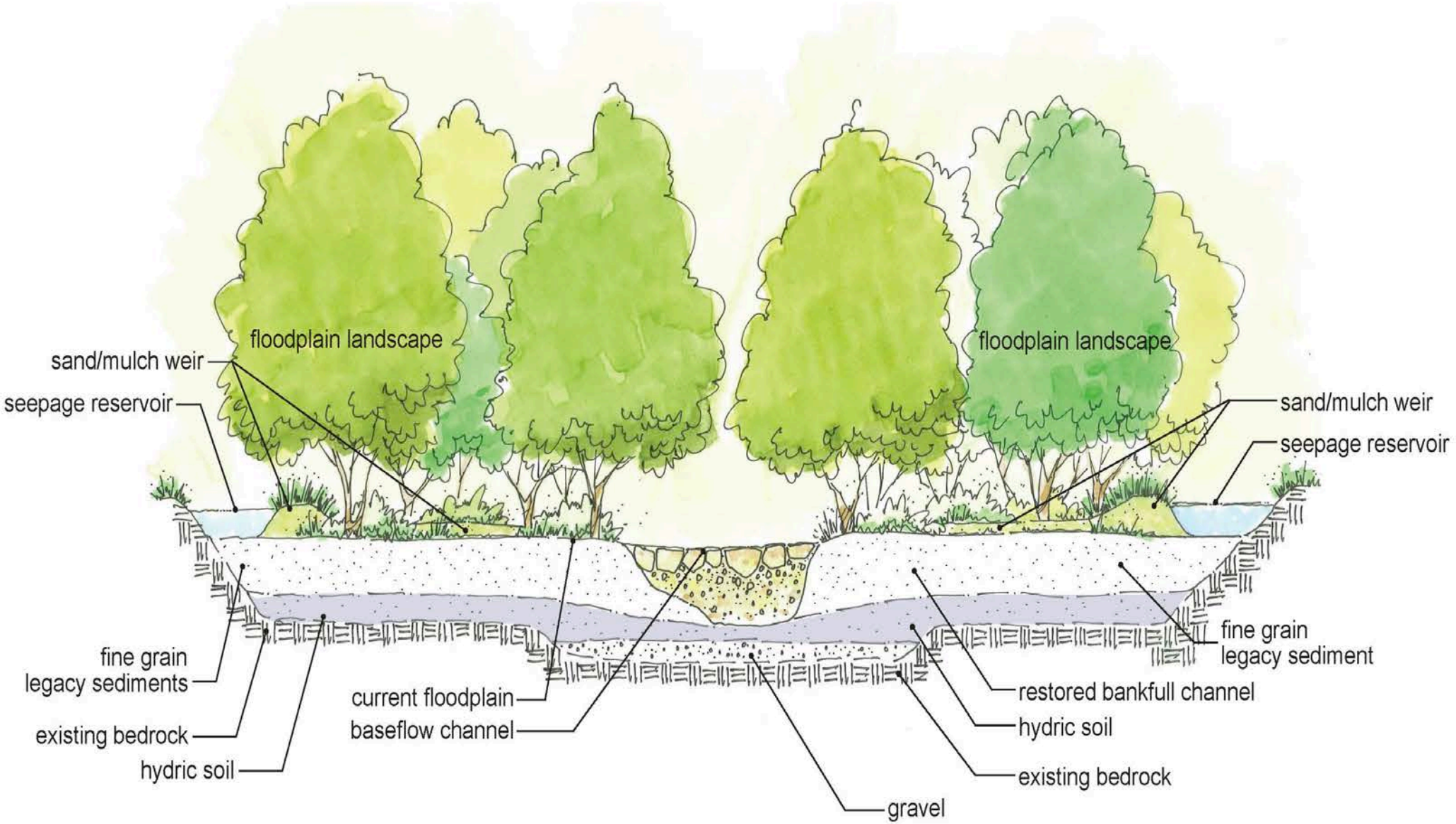


www.bae.ncsu.edu/stormwater

Source: Bill Hunt, NCSU

Floodplain Reconnection

Biohabitats



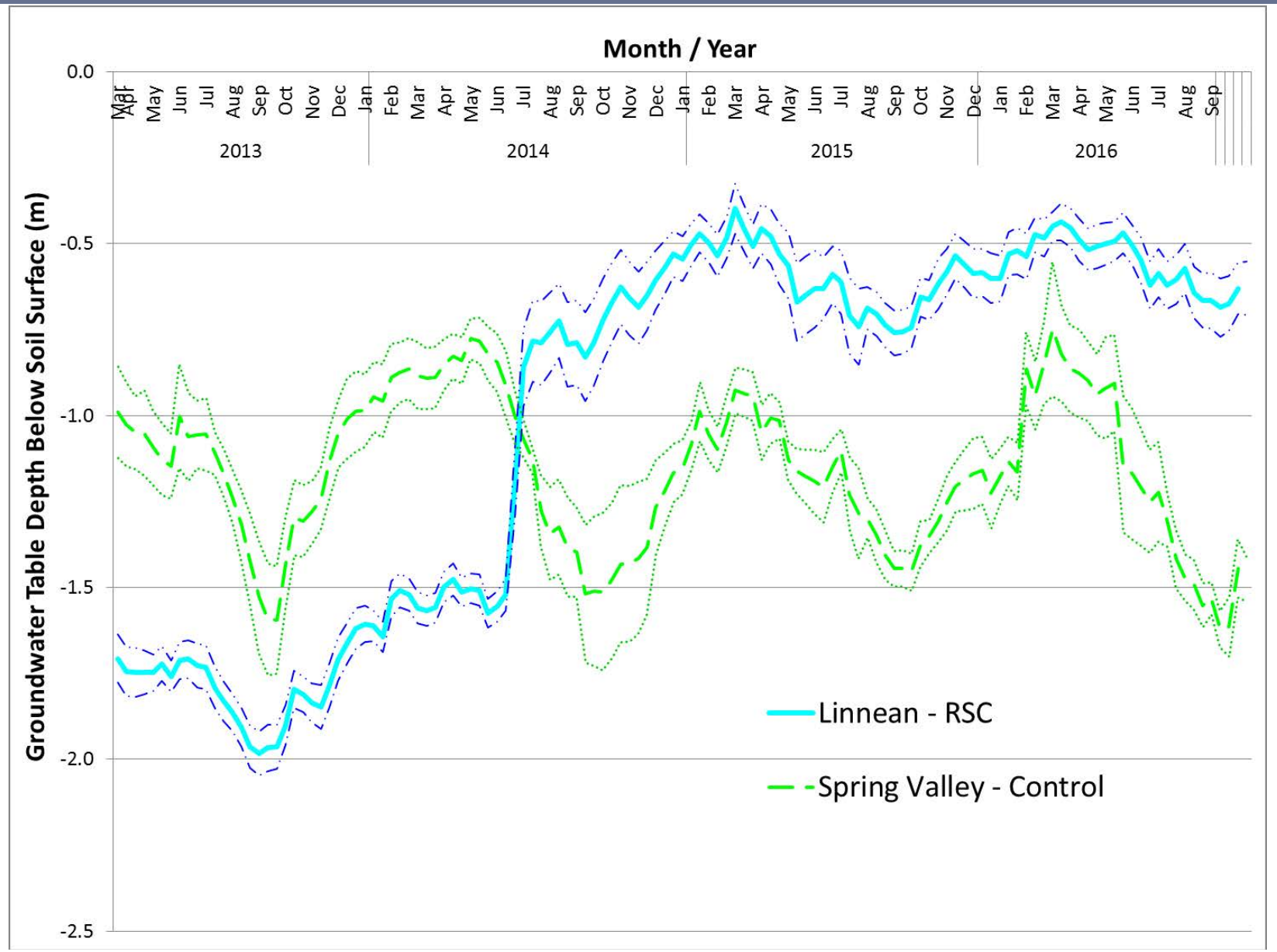
Biohabitats

Tributary to Rock Creek
Washington, DC

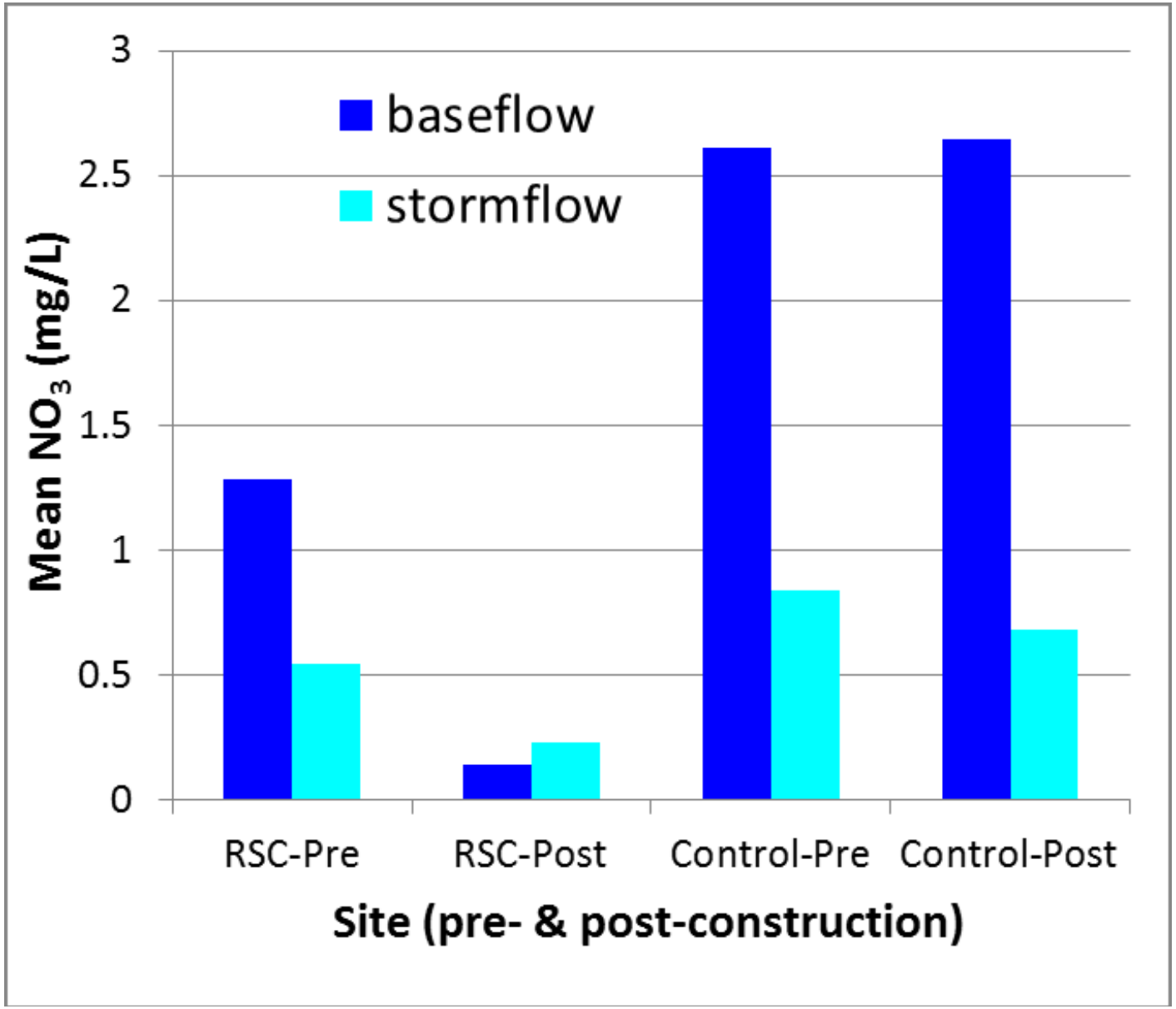
October 2011

Incised and Exposed

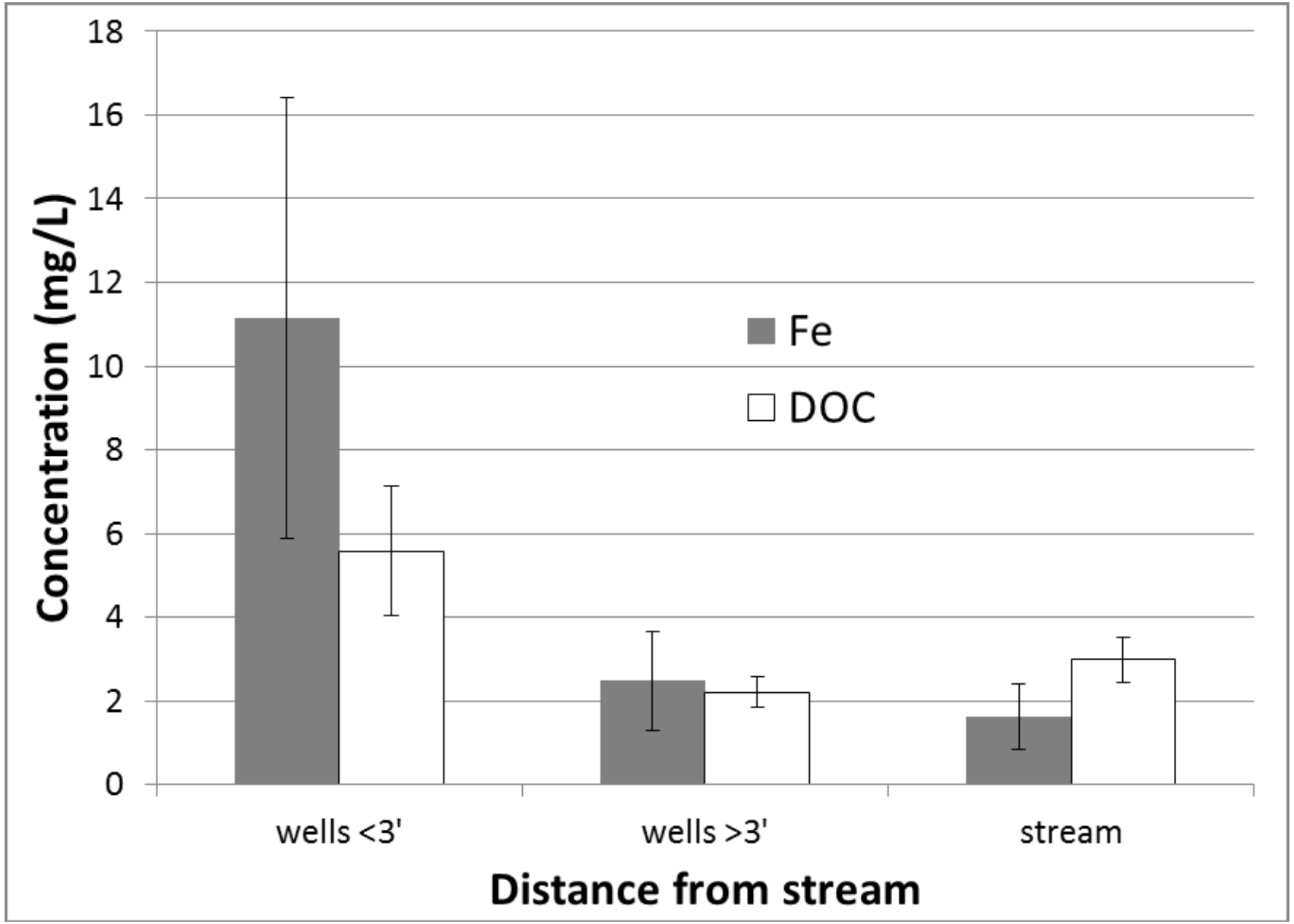

Tributary to Rock Creek
Washington, DC
October 2011
Connected to Riparian Zone



Source: Michael Williams (williamsmi@si.edu) & Solange Filoso (filoso@umces.edu)



Source: Michael Williams (williamsmi@si.edu) & Solange Filoso (filoso@umces.edu)



Source: Michael Williams (williamsmi@si.edu) & Solange Filoso (filoso@umces.edu)

Wood Chips vs Biochar

Biohabitats

- Wood Chips
- Supports microbial metabolism
  - Refractory component
  - Labile component
- Inexpensive (<$10/CY)
- Drives Fe solubility
- Performs wet or dry

- Biochar
- Serves as a microbial surface
  - Refractory component
  - Not a nutrient for microbes?
- Expensive (>$300/CY)
- Will not drive Fe solubility?
- Performs when inundated?

Questions and Discussion