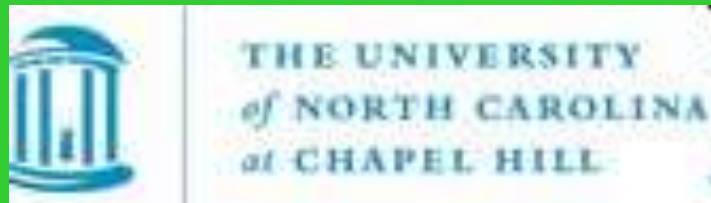


Knickpoint effects on habitat and the invertebrate community

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What is a knickpoint?

- A distinct slope break in the longitudinal profile of a stream
- Due to a base level lowering (disturbance) downstream
- Propagate upstream over time
- Cause stream channel instability, important to consider in restoration



Research Questions

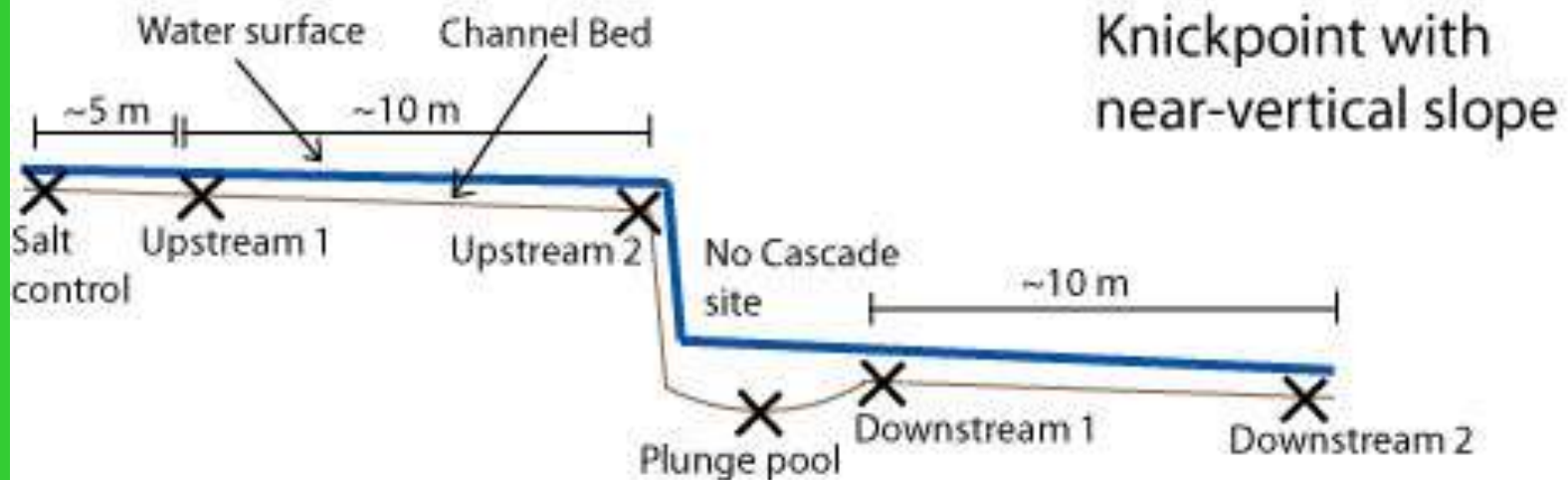
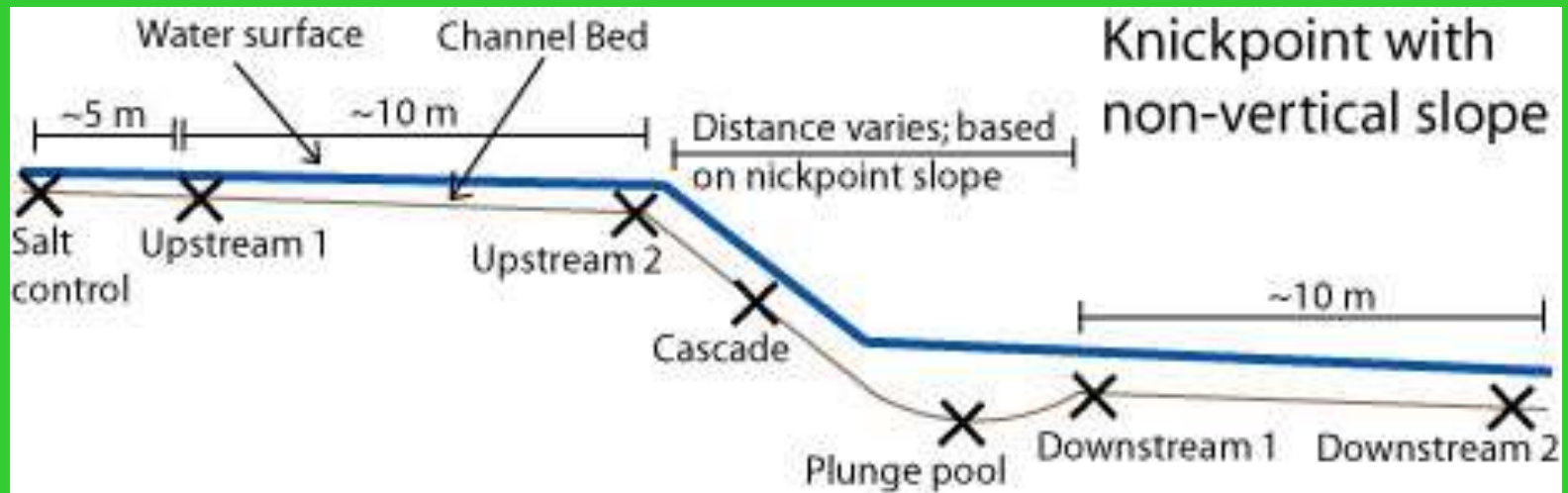


- How does a knickpoint influence local hyporheic/surfacewater interactions?
- How do grain size distributions vary around a knickpoint?
- How does a knickpoint affect macroinvertebrate community composition?
- How are these effects different from a “typical” riffle-pool sequence?
- How do these effects vary in urban vs. non-urban stream reaches?

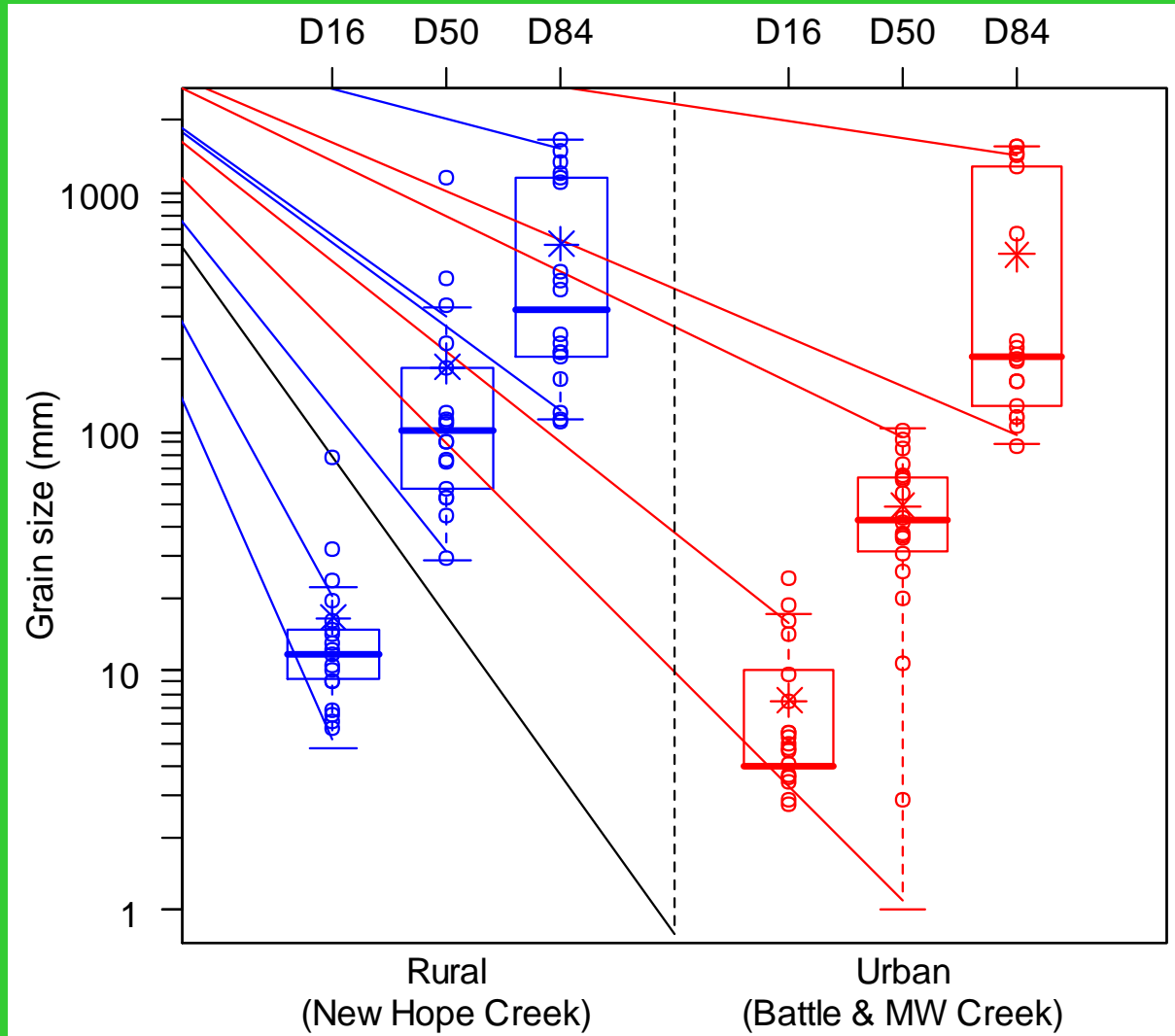
Sample Sites



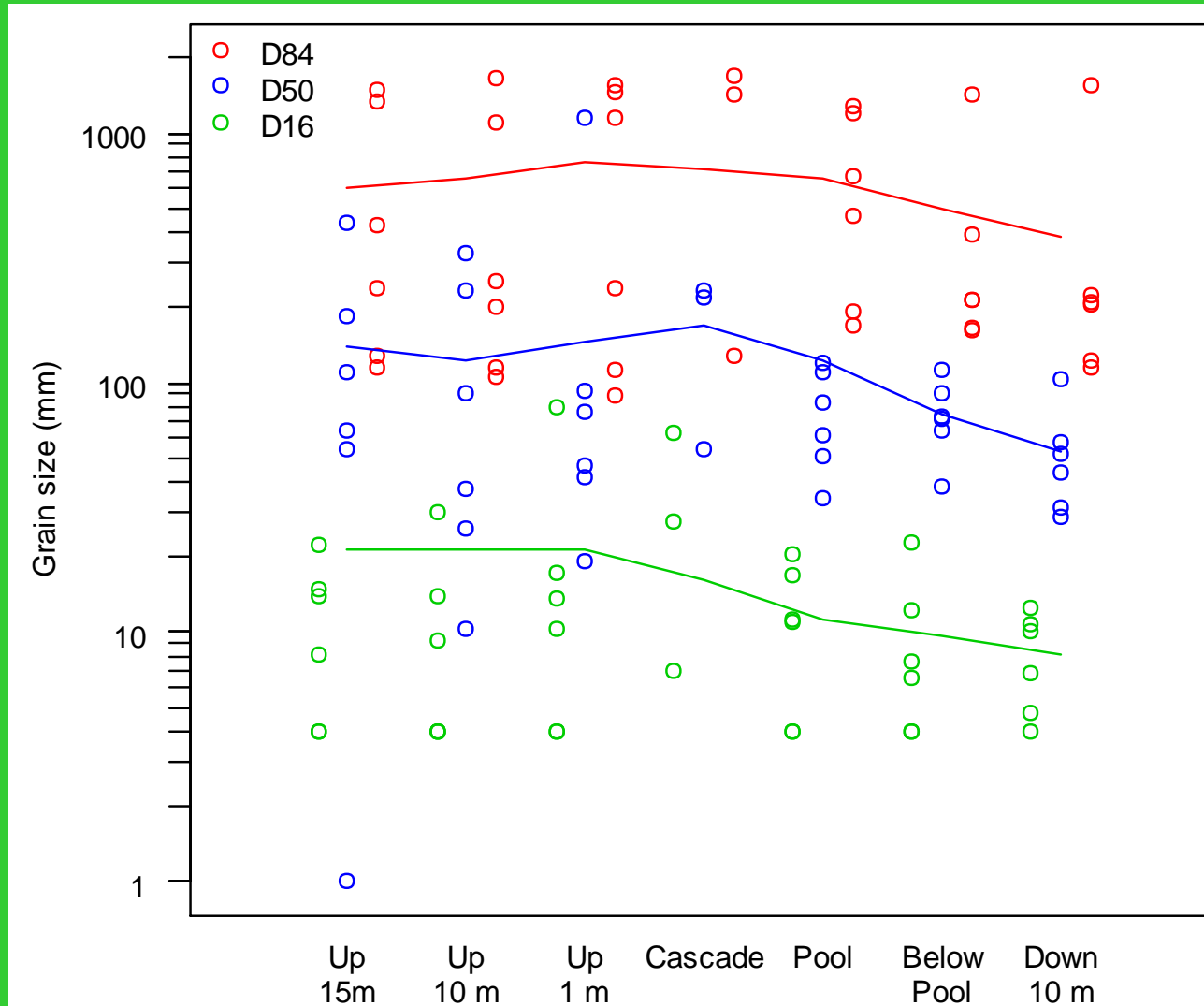
Sampling locations



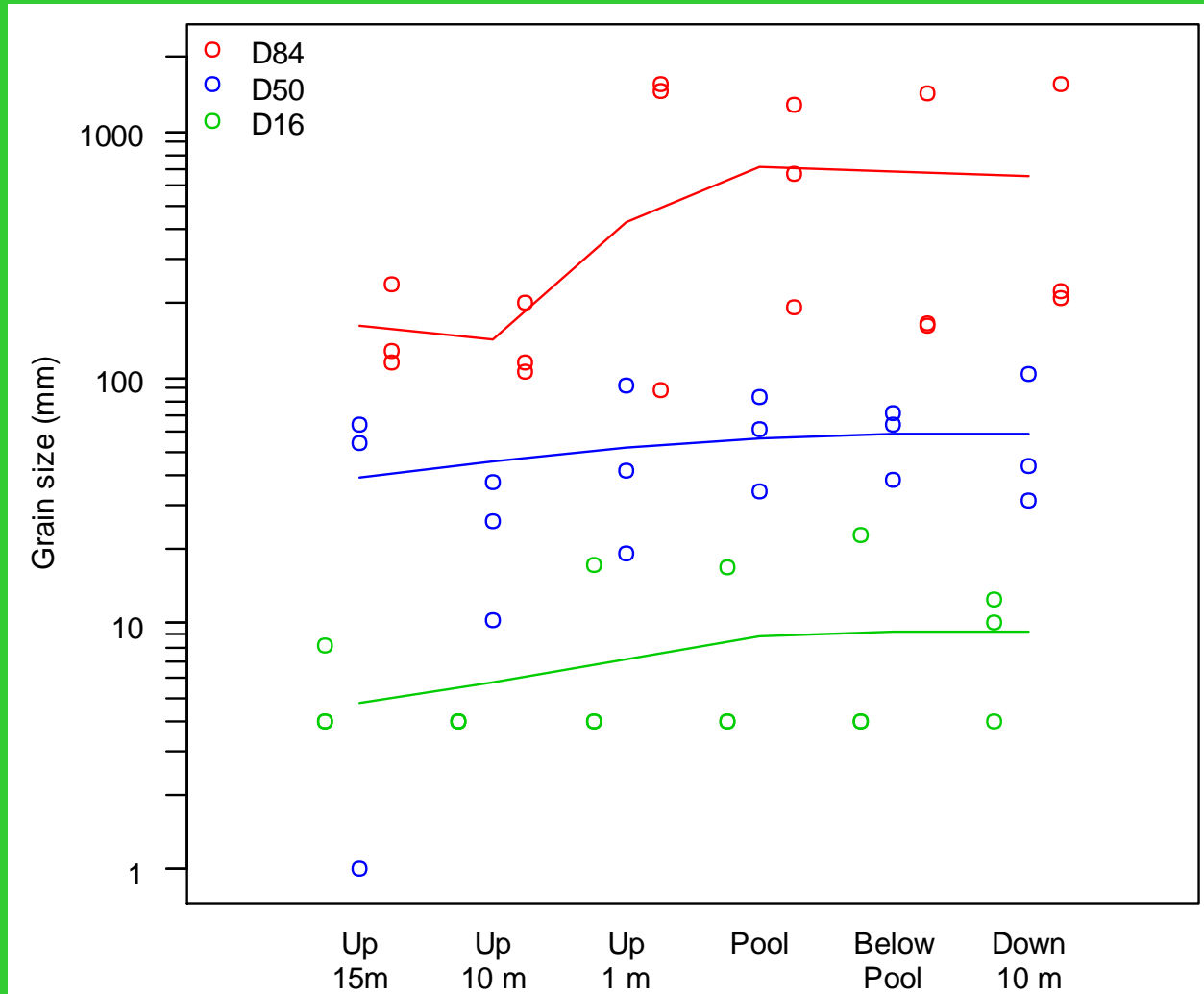
Grain size distributions by site



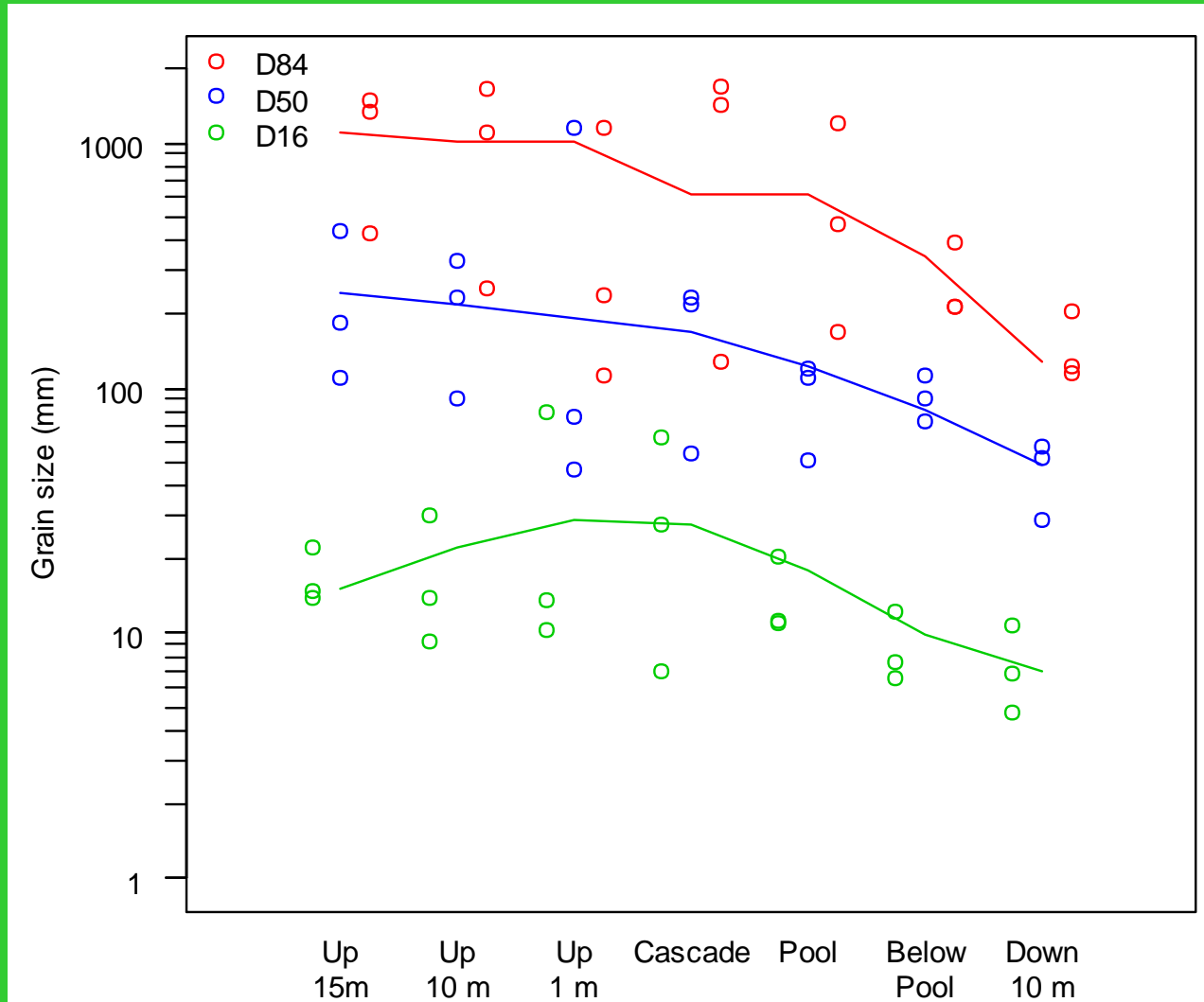
D by sample location



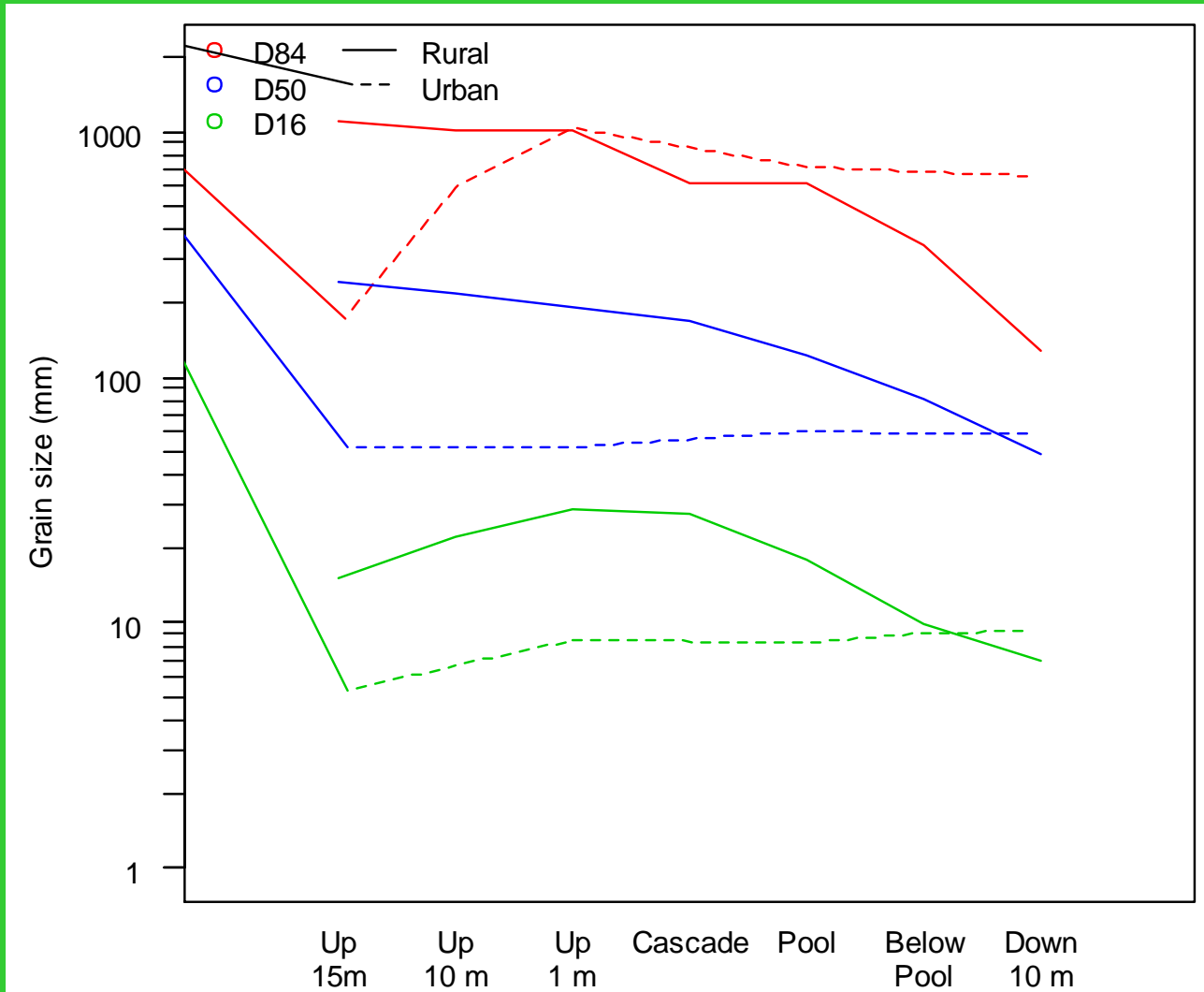
Urban D by sample location



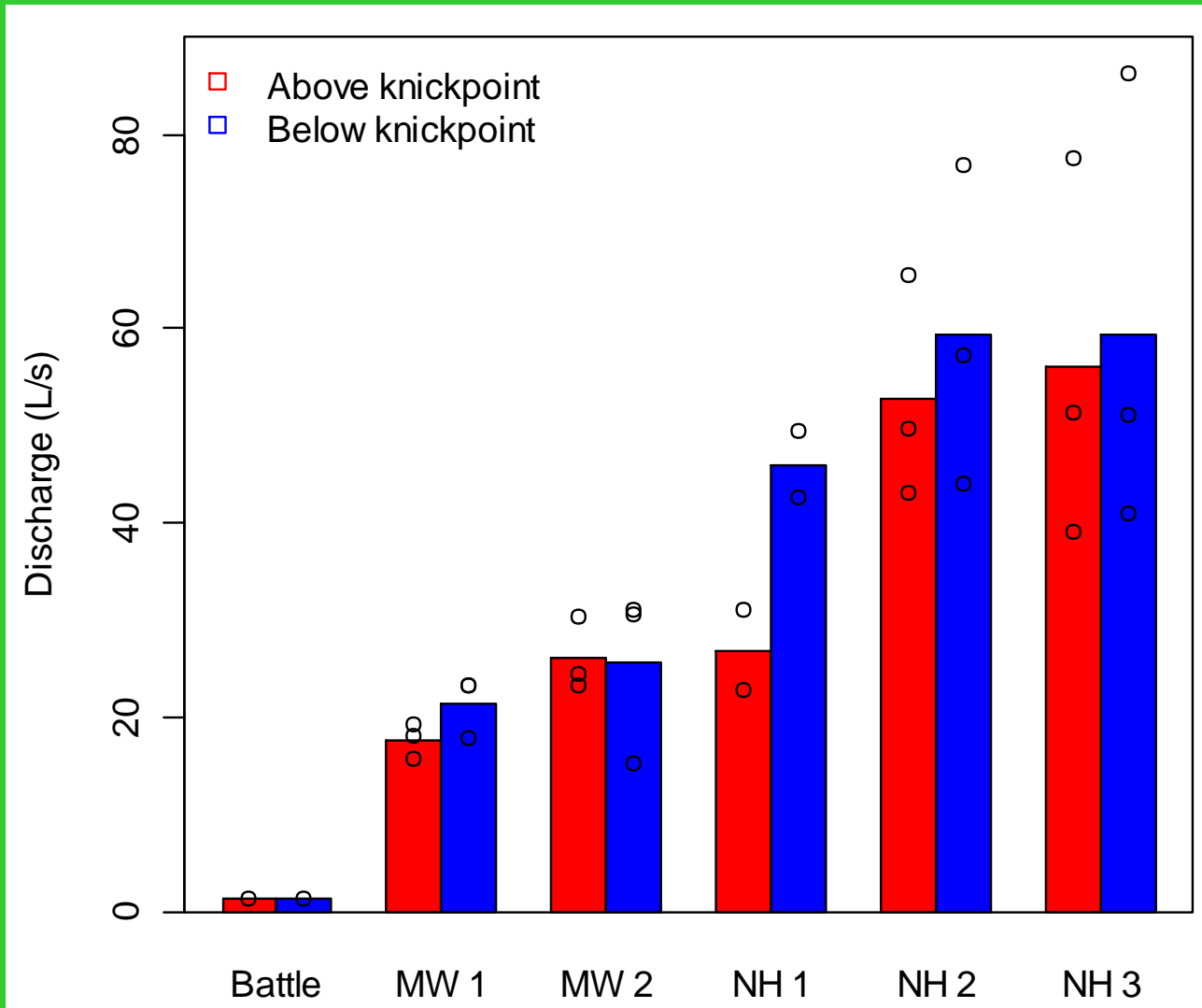
Non-Urban D by sample location



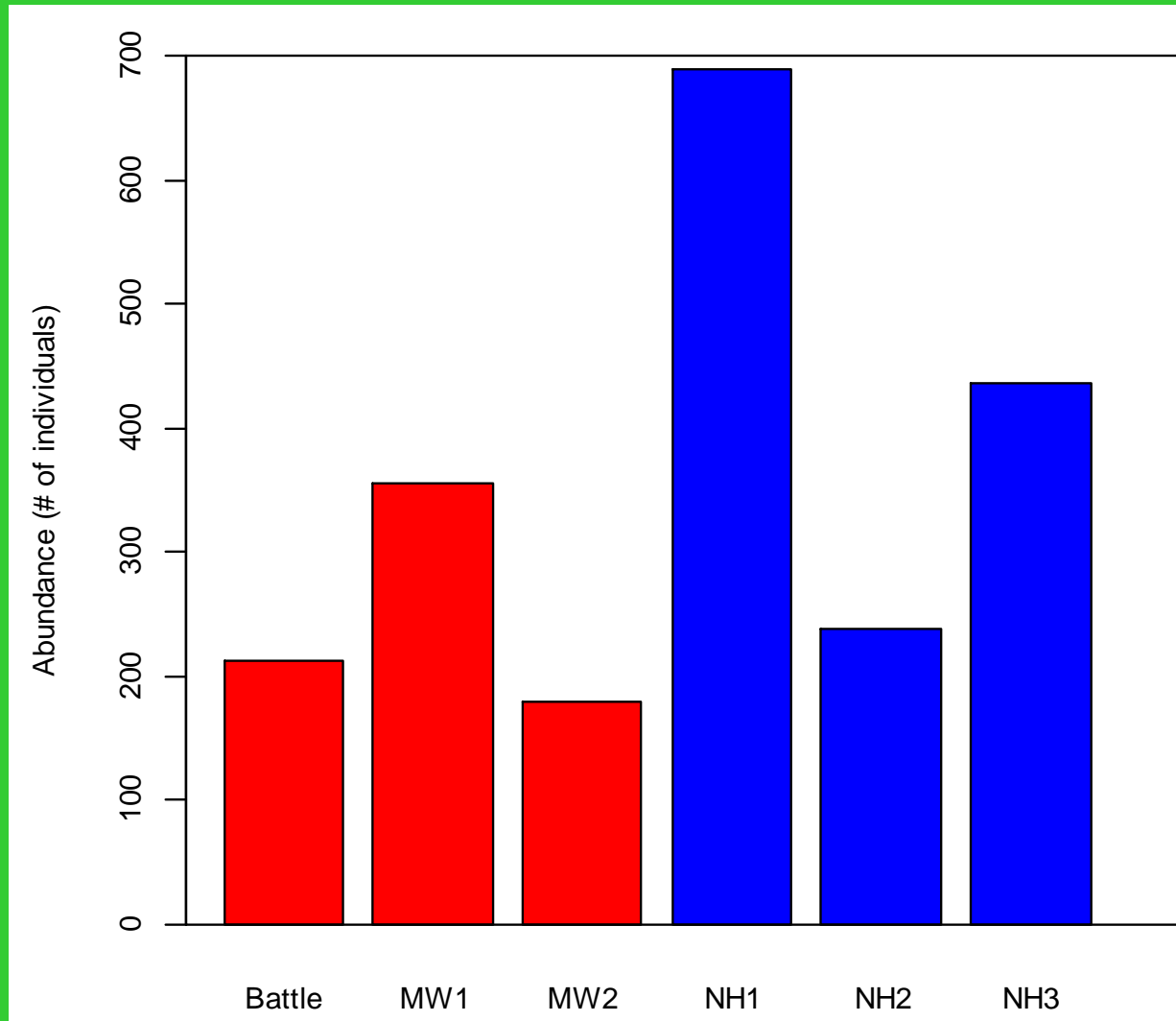
Urban /Non-Urban D by sample location



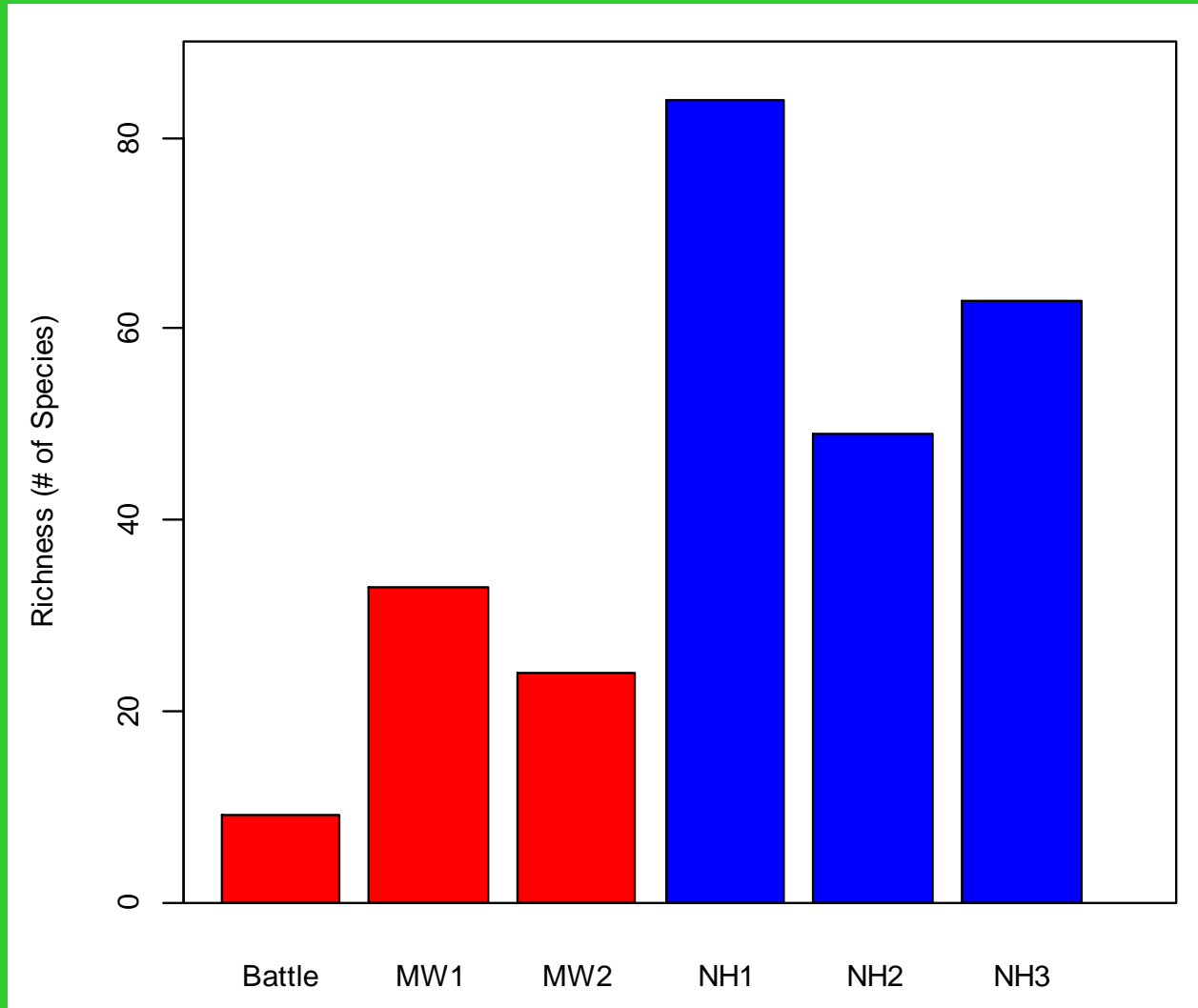
Discharge by site



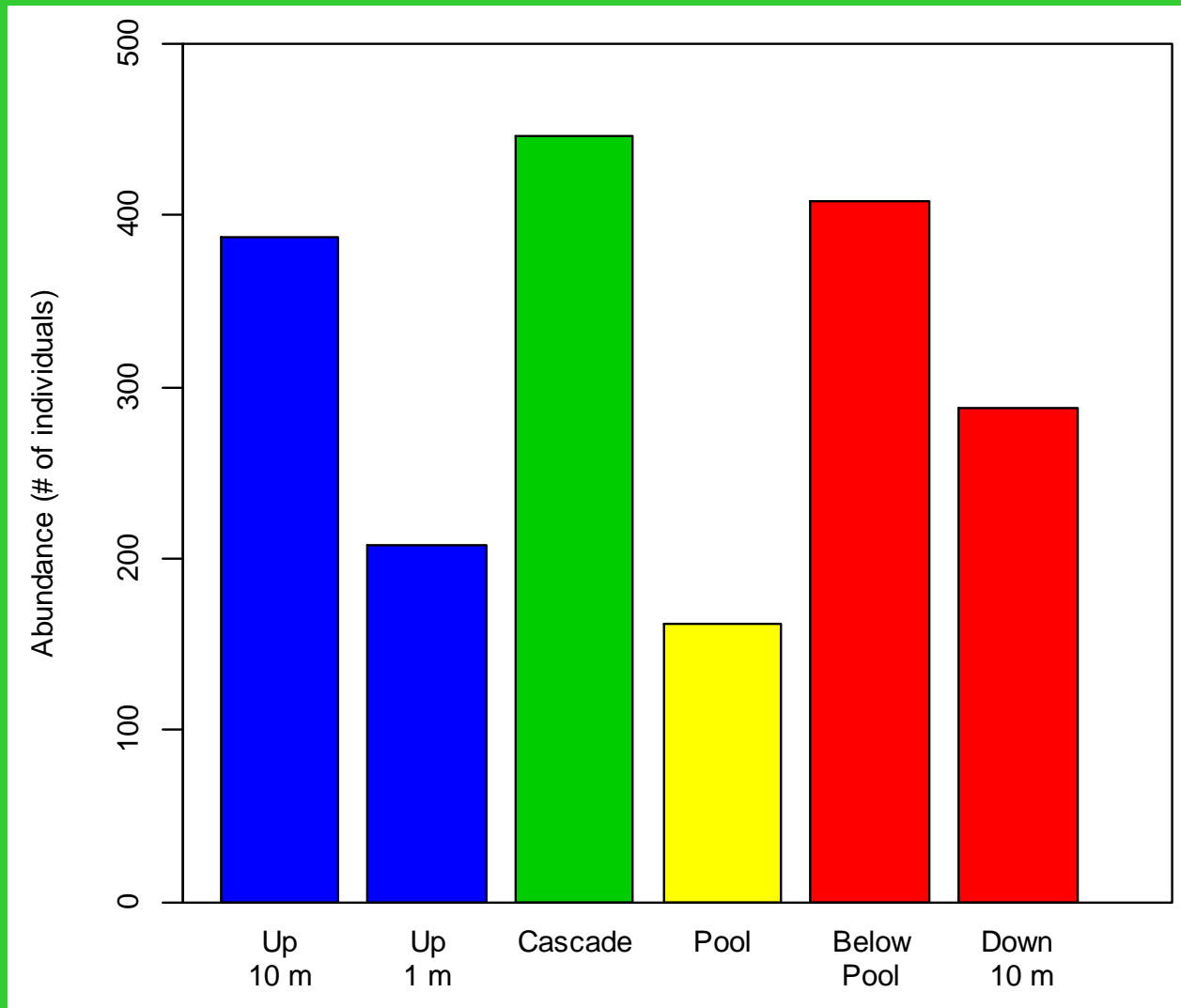
Macroinvertebrate abundance by site



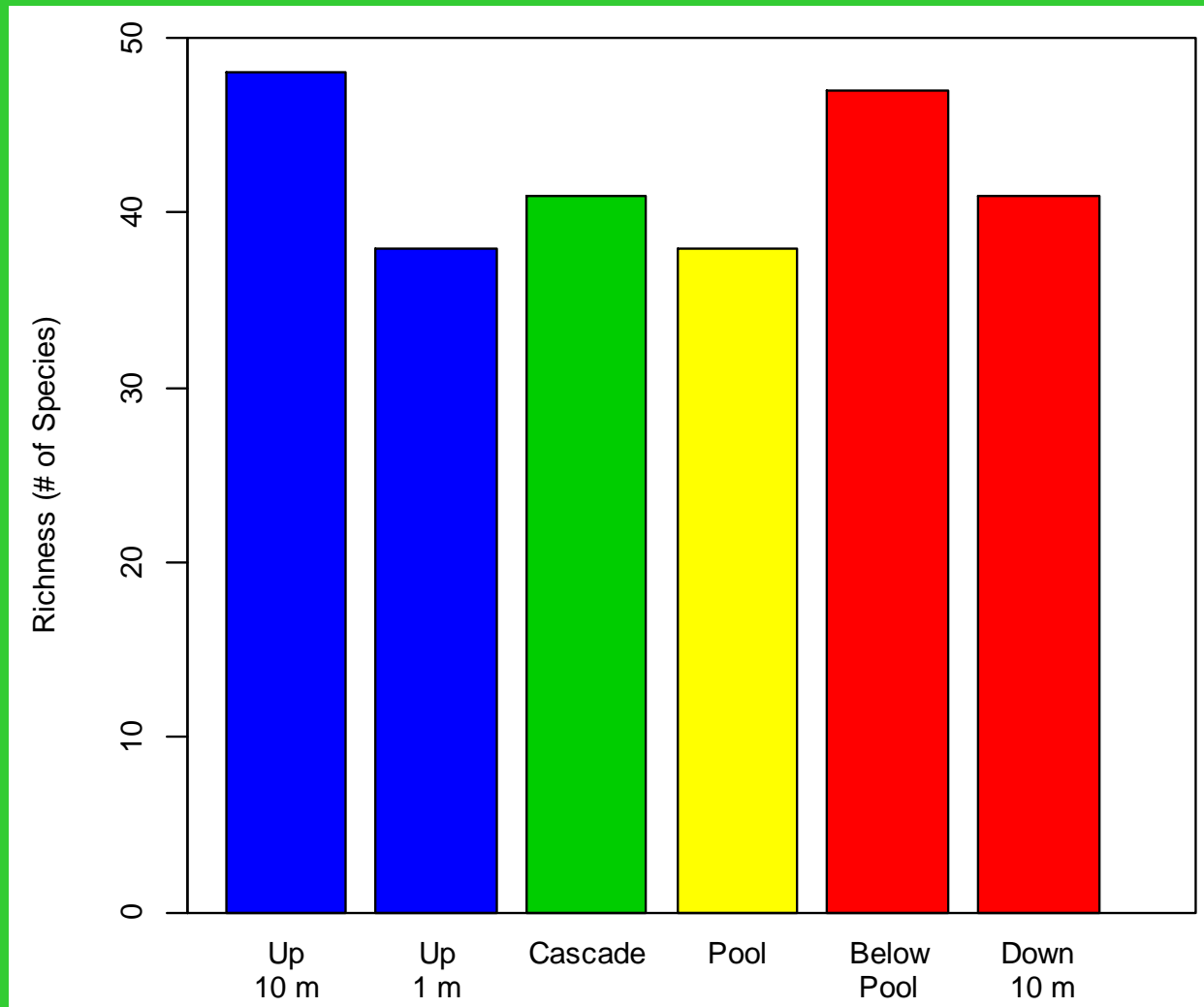
Macroinvertebrate richness by site



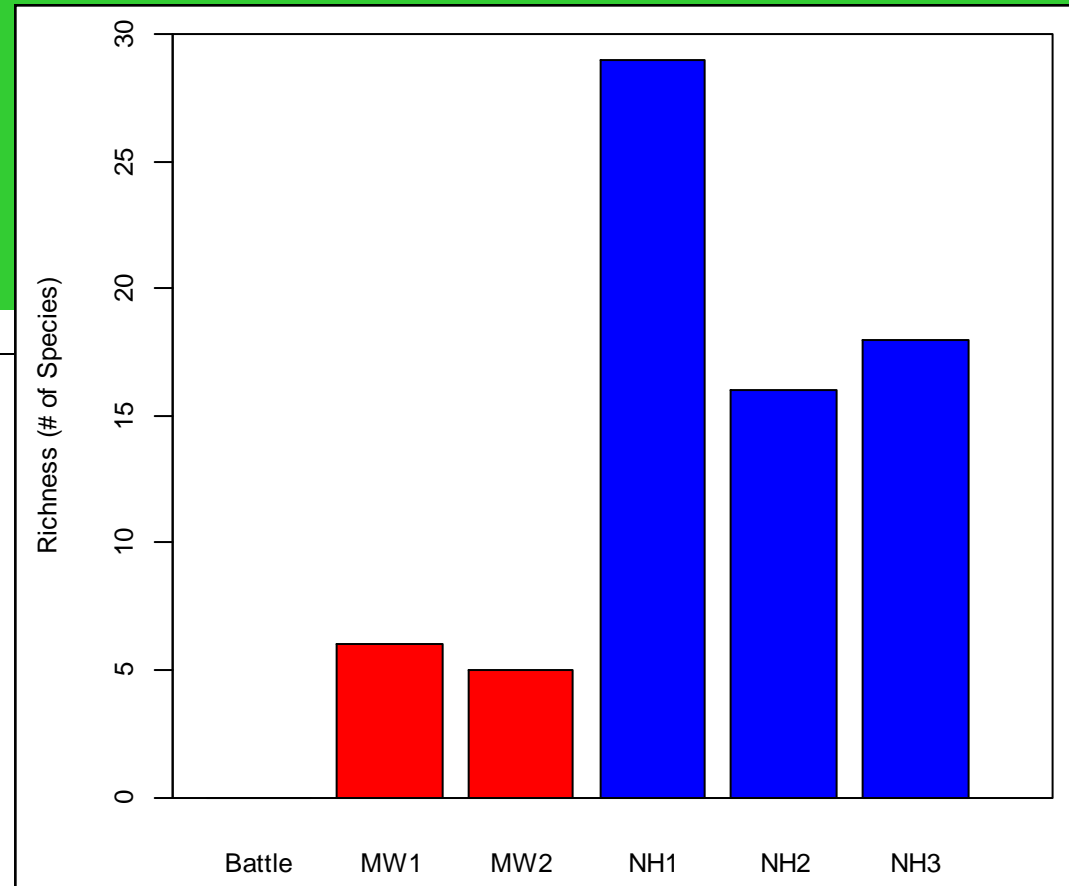
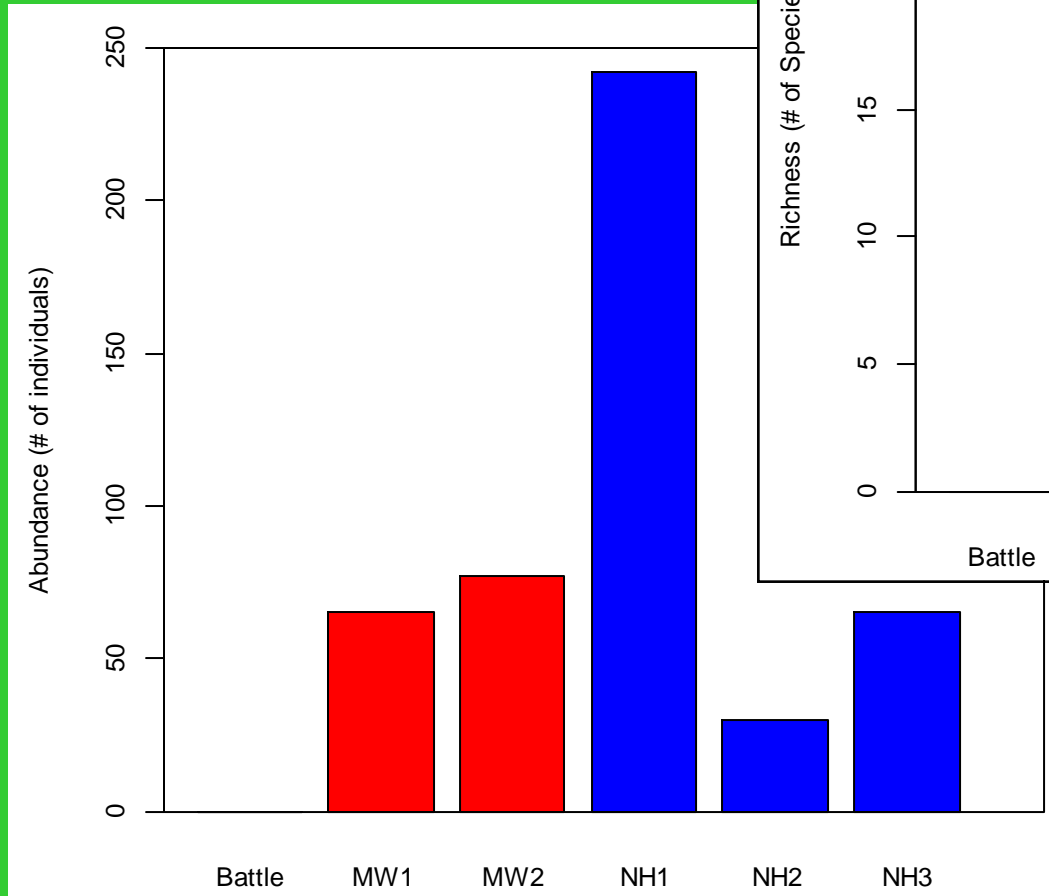
Macroinvertebrate abundance by sample location



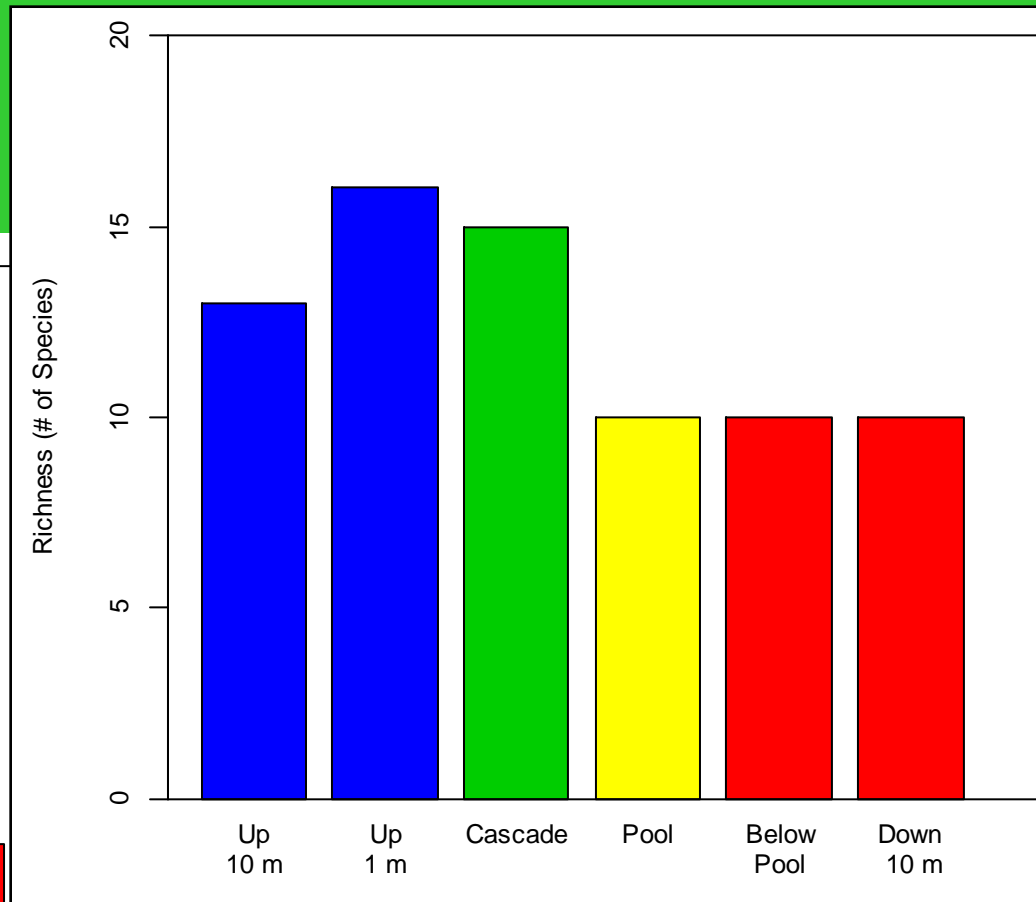
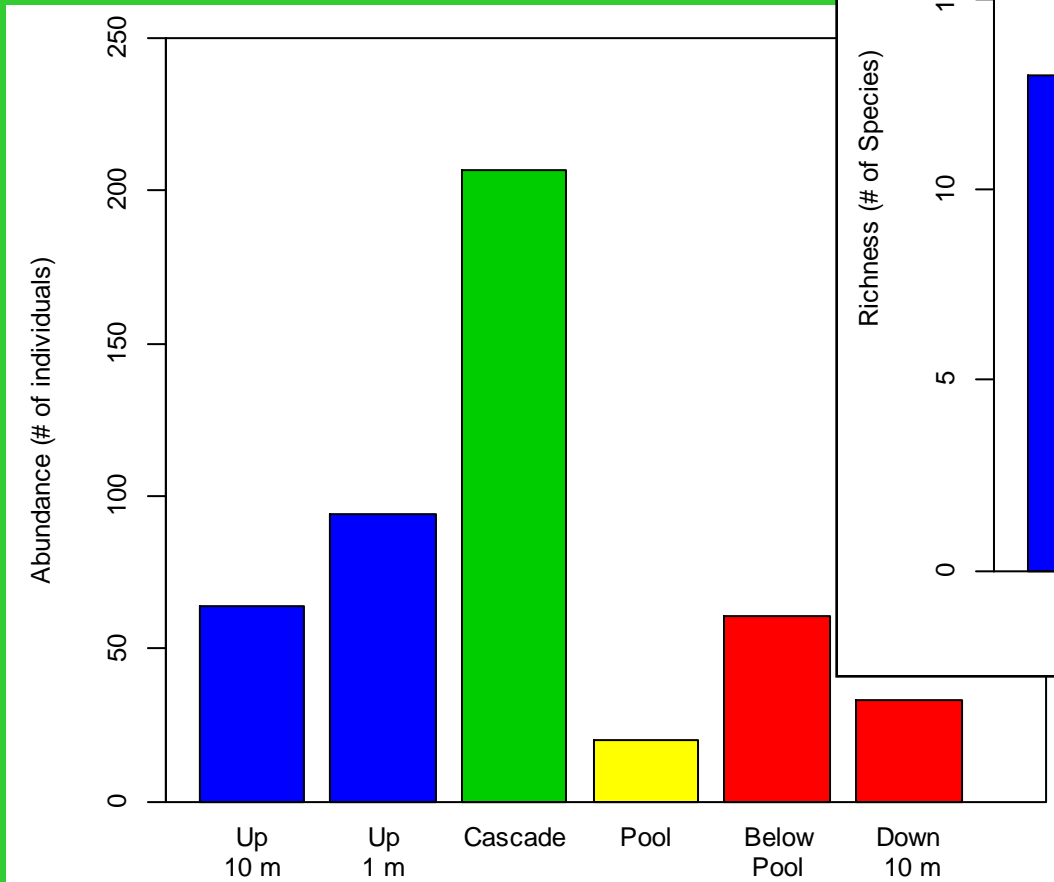
Macroinvertebrate richness by sample location



EPT abundance & richness by site



EPT abundance & richness by sample location



Conclusions

- Sediment grain size maxima at knickpoint; downstream urbanization differences
- Subtle discharge increase below knickpoint
- Macroinvertebrate composition similar to urbanization and riffle-pool expectations
- “Pockets” of moving habitat?



Thanks! to...

- Ben Bogardus, Kate Dickson, Sally Whisler, Joel Sholtes, Daisy Small, & Jacque Muehlbauer

