# Effects of Riparian Buffers on Nitrogen, Phosphorus, and Total Suspended Solids

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# Introduction

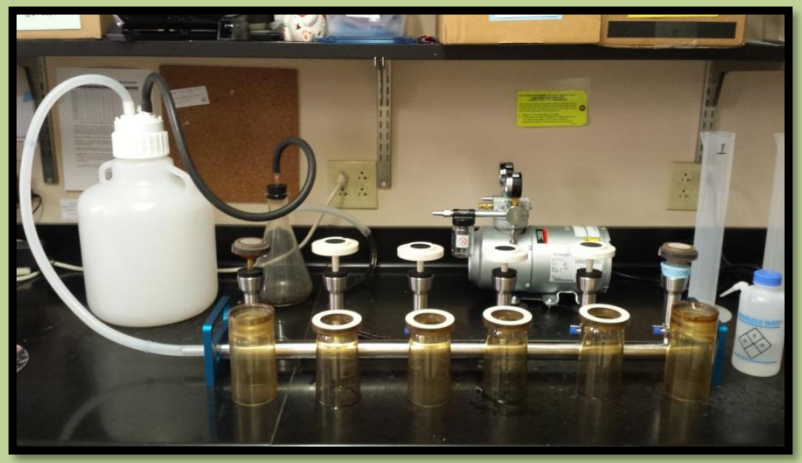
- Flow of nutrients increases eutrophication
- Riparian buffers often used to help absorb excess nutrients
- Buffers also provide stabilizing factor
- Composition plays an important role
- Soil type, slope and land use

# Hypothesis

In this study, I am examining the width of riparian buffer zones in agricultural sites along both the Missisquoi and Winooski rivers, and showing how those buffers affect the amount of phosphorus, nitrogen and total suspended solids found in those watersheds between 2013 and 2015

# Materials and Methods

- Buffers
  - Composition
- TSS
- Nitrogen
- Phosphorus



# Results 2013

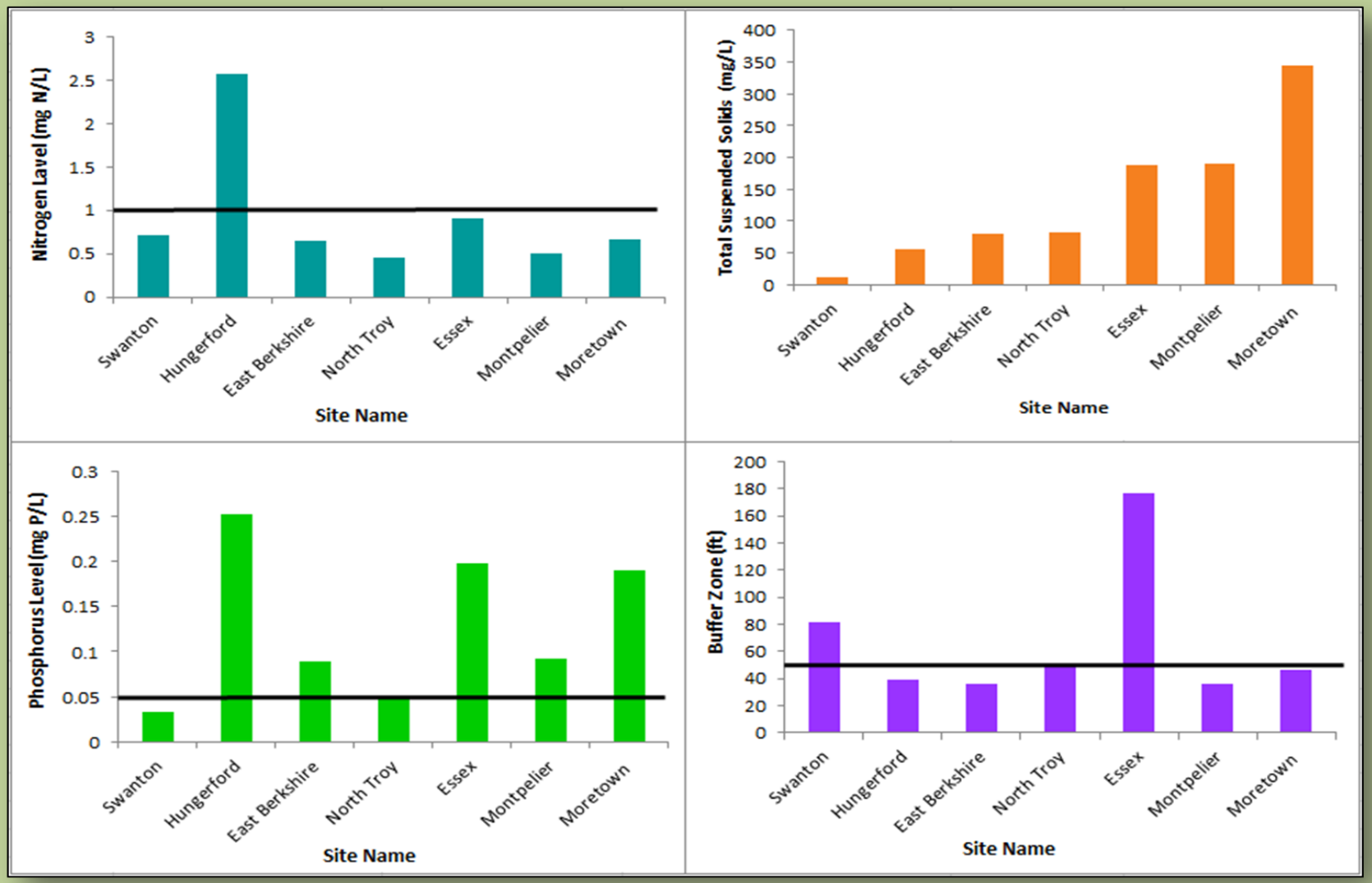



**Figure 1**. Comparison of Nitrogen, Phosphorus, Total Suspended Solids (TSS) and Buffer Zone width in 2013 for various sites throughout the Missisquoi and Winooski watersheds. The black line on phosphorus and nitrogen graphs represent the maximum recommended amount of that nutrient, and the black line on the buffer zone graph represents the minimum effective buffer width.

# Results 2014

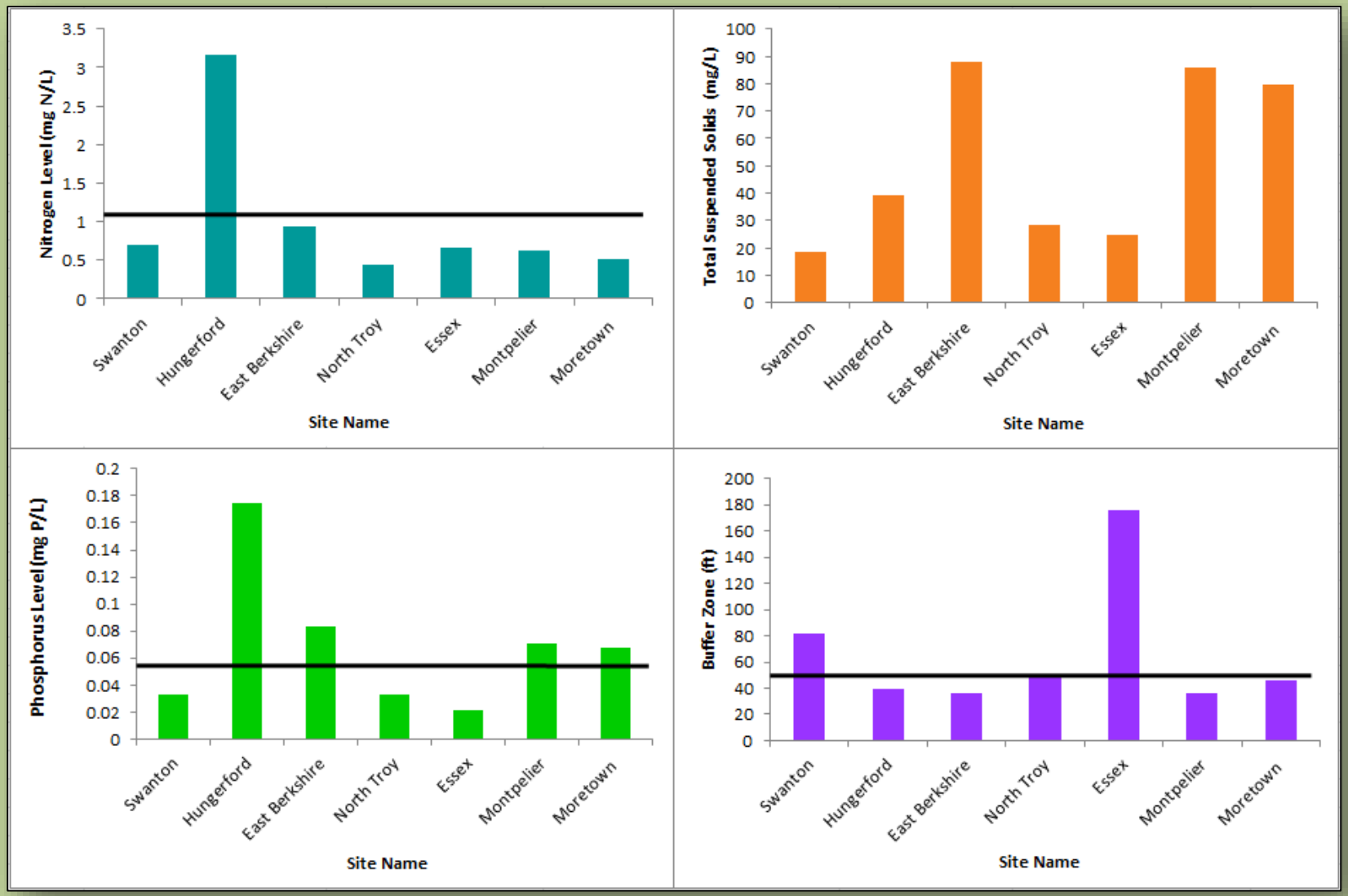



**Figure 2**. Comparison of Nitrogen, Phosphorus, Total Suspended Solids (TSS) and Buffer Zone width in 2014 for various sites throughout the Missisquoi and Winooski watersheds. The black line on phosphorus and nitrogen graphs represent the maximum recommended amount of that nutrient, and the black line on the buffer zone graph represents the minimum effective buffer width.

# Results 2015

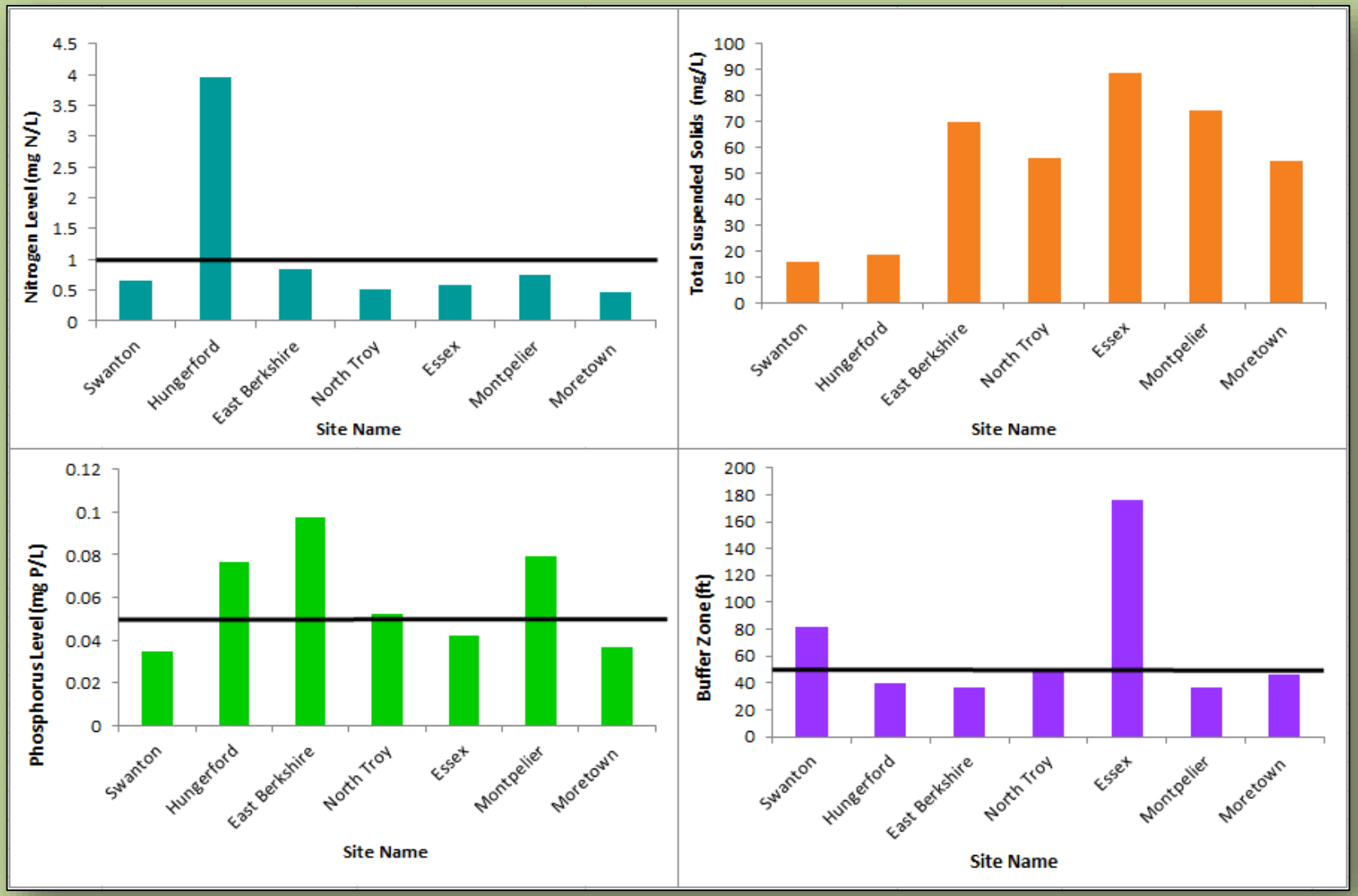



**Figure 3**. Comparison of Nitrogen, Phosphorus, Total Suspended Solids (TSS) and Buffer Zone width in 2015 for various sites throughout the Missisquoi and Winooski watersheds. The black line on phosphorus and nitrogen graphs represent the maximum recommended amount of that nutrient, and the black line on the buffer zone graph represents the minimum effective buffer width.

# Discussion

- Hypothesis supported
- Decreased riparian diversity was not beneficial to water quality
- Wide, mixed-composition riparian buffer zones and reduced fertilizer application are good ways to reduce the amount of nutrient runoff

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# Questions?