

Supplemental Material

Title: Influence of Stormwater Control Measures on Water Quality at Nested Sites in a Small Suburban Watershed

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Number of Pages: 6

Number of Figures: 4

Number of Tables: 2

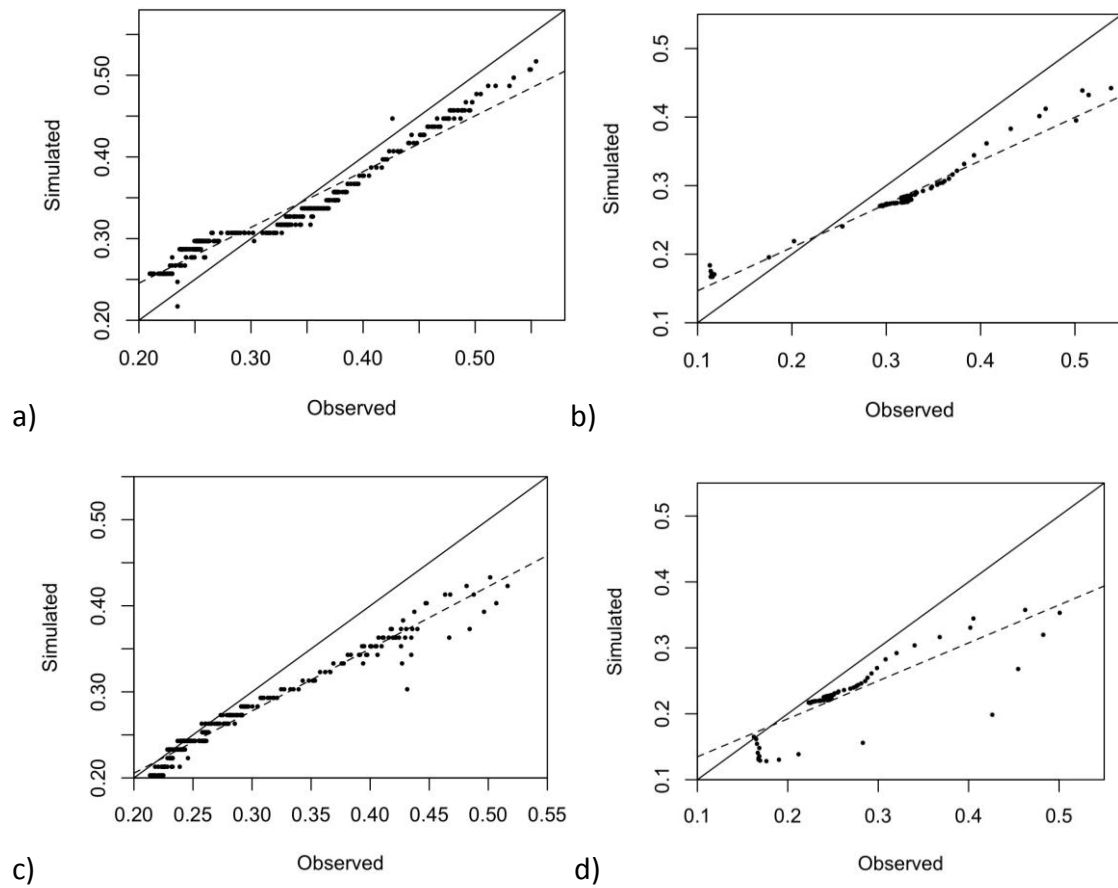


Figure S1. Simulated vs. observed stage at a) SP-2 during a storm in April, b) SP-2 during a storm in September, c) SP-3 during a storm in April, and d) SP-3 during a storm in September.

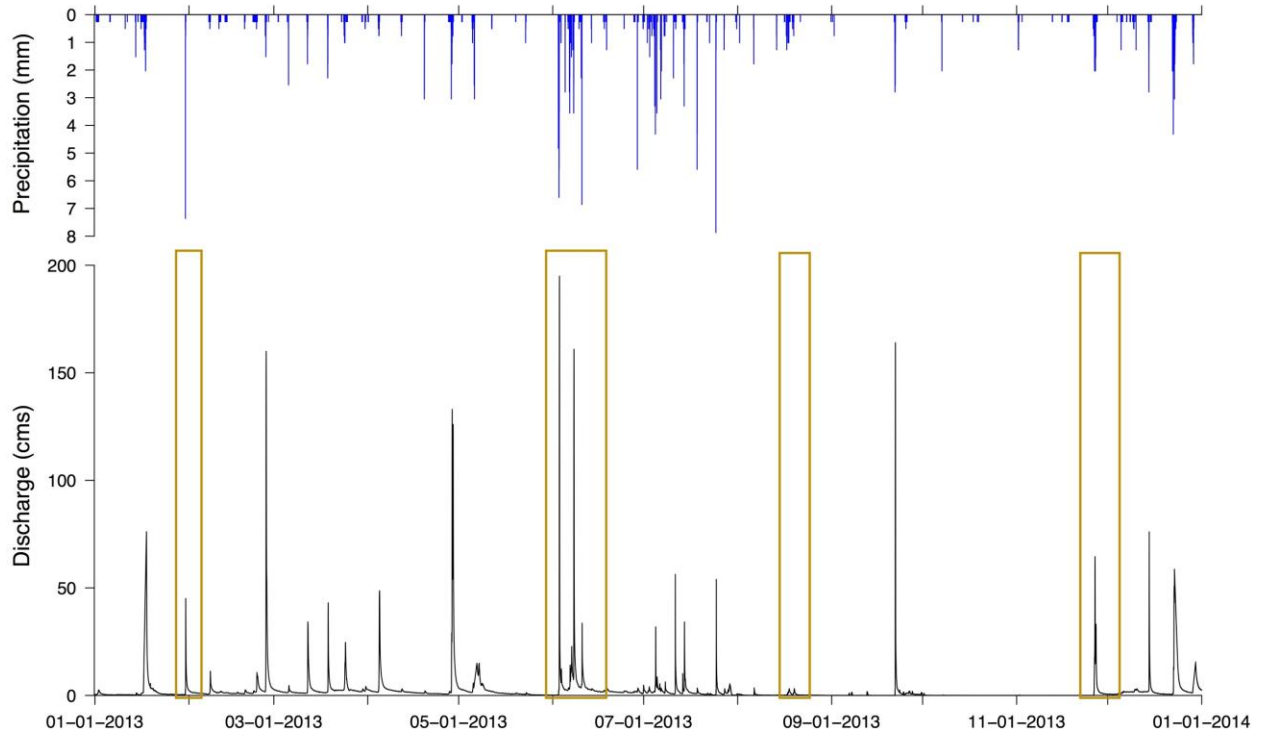


Figure S2. Hydrograph at the USGS gauge (#0214297160) on Beaverdam Creek and hyetograph at the CRN-21 rain gauge for 2013. The four seasonal storm periods that we sampled are highlighted in yellow. Within the 4 sampling periods we sampled 8 individual storms.

Table S1. Mean percent change in concentration of temporally matched storm samples at SP-US and DS locations– SP-1, SP-2 and SP-3– along the longitudinal gradient. Values indicate mean percent change (%) \pm standard deviation, and number of samples (n). Positive values indicate an increase in concentration relative to SP-US, and negative values indicate a decrease in concentration.

Solute	Site						
	SP-1	n	SP-2	n	SP-3	n	
	NO ₃ ⁻ -N	17.58 \pm 37.28	65	8.23 \pm 29.57	44	19.71 \pm 56.42	51
	NH ₄ ⁺ -N	53.44 \pm 106.16	56	3.57 \pm 128.68	35	-42.53 \pm 77.69	40
<i>Reactive</i>	SRP	38.18 \pm 74.48	65	52.64 \pm 75.07	43	24.34 \pm 71.67	51
<i>Solutes</i>	DOC	8.45 \pm 70.45	67	-6.16 \pm 46.63	44	-8.87 \pm 49.16	51
	DON	23.44 \pm 34.16	67	11.12 \pm 31.81	44	8.14 \pm 39.93	51
	K ⁺	8.88 \pm 20.64	56	12.42 \pm 26.97	35	8.02 \pm 24.06	40
<i>Less</i>	Mg ²⁺	-1.45 \pm 8.86	56	3.32 \pm 14.6	35	27.65 \pm 21.87	40
<i>Reactive</i>	SO ₄ ²⁻	-5.42 \pm 10.42	56	7.08 \pm 23.76	35	85.42 \pm 100.65	40
<i>Solutes</i>	Ca ²⁺	-1.28 \pm 9.97	56	4.05 \pm 15.55	35	24.68 \pm 23.54	40

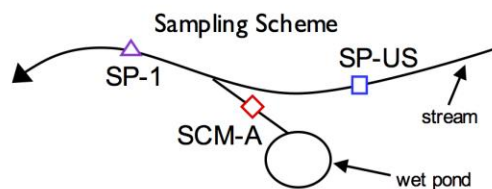
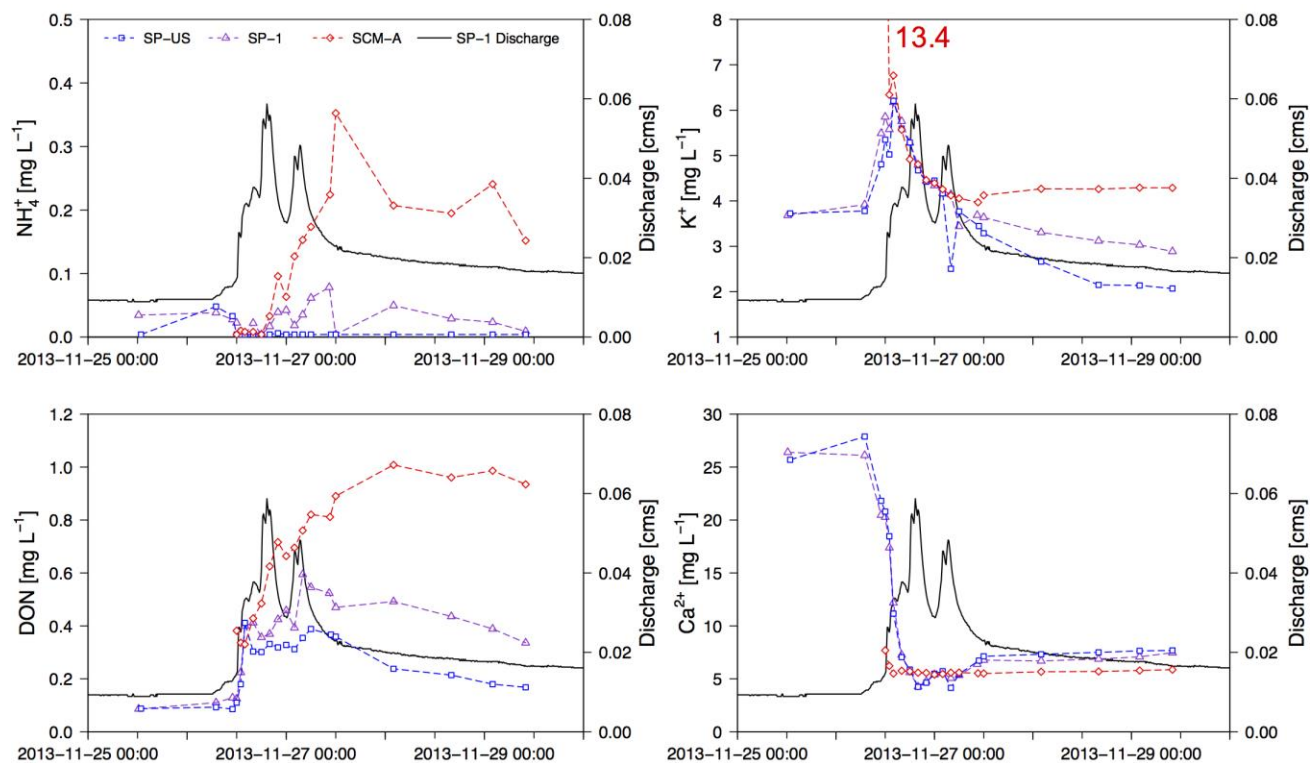


Figure S3. Concentrations at SP-US, SP-1, and SCM-A during the November storms. SP-1 represents the confluence of SCM-A outflow and instream flow at SP-US. Concentrations that are higher than the maximum value of the graph space are noted within the figure and color coded by site.

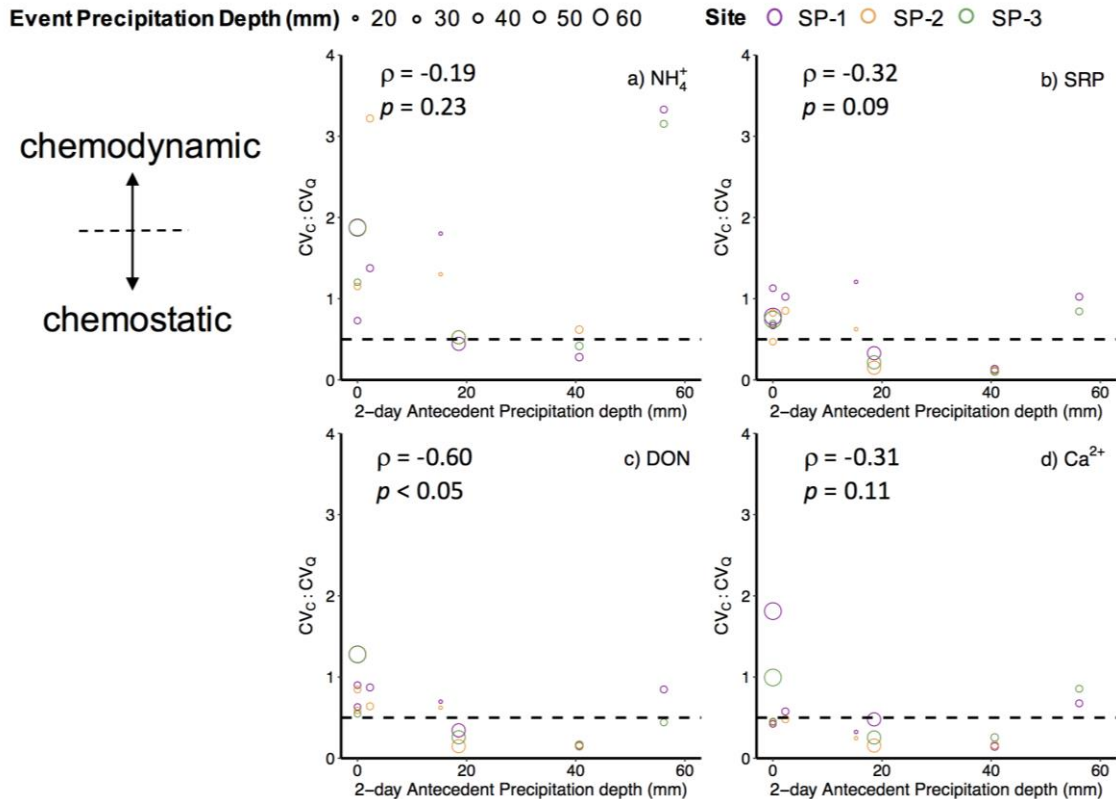


Figure S4. $\text{CV}_c:\text{CV}_Q$ vs. 2-day antecedent precipitation depth, coded by size to indicate event precipitation depth and by color to indicate site. Sites included SP-1, SP-2, and SP-3, and all sites are aggregated to a single plot. $\text{CV}_c:\text{CV}_Q$ values below 0.5 are considered chemostatic, and values above 0.5 are considered chemodynamic.

Table S2. Mean concentration (mg/L) \pm 95% confidence interval on the recession of the second November storm ($n=9$; $n=8$ for SO_4^{2-}).

Solute	Site			
	SP-US	SCM-A	SP-1	
<i>Reactive Solutes</i>	NO_3^- -N	0.173 ± 0.035	0.392 ± 0.05	0.261 ± 0.025
	NH_4^+ -N	0.004 ± 0.00	0.196 ± 0.051	0.037 ± 0.016
	SRP	0.135 ± 0.057	0.505 ± 0.039	0.257 ± 0.036
	DOC	4.798 ± 0.891	6.849 ± 0.252	5.402 ± 0.643
	DON	0.289 ± 0.057	0.871 ± 0.075	0.472 ± 0.052
	K^+	2.942 ± 0.548	4.196 ± 0.089	3.51 ± 0.323
<i>Less Reactive Solutes</i>	Mg^{2+}	2.299 ± 0.35	1.844 ± 0.06	2.19 ± 0.248
	SO_4^{2-}	5.275 ± 0.618	2.799 ± 0.078	4.568 ± 0.287
	Ca^{2+}	6.566 ± 0.814	5.625 ± 0.095	6.342 ± 0.562