

**Supplemental Materials: Stormwater Alters the Resistome of Urban Surface Water, an
Impact that can be Mitigated by Green Stormwater Infrastructure**

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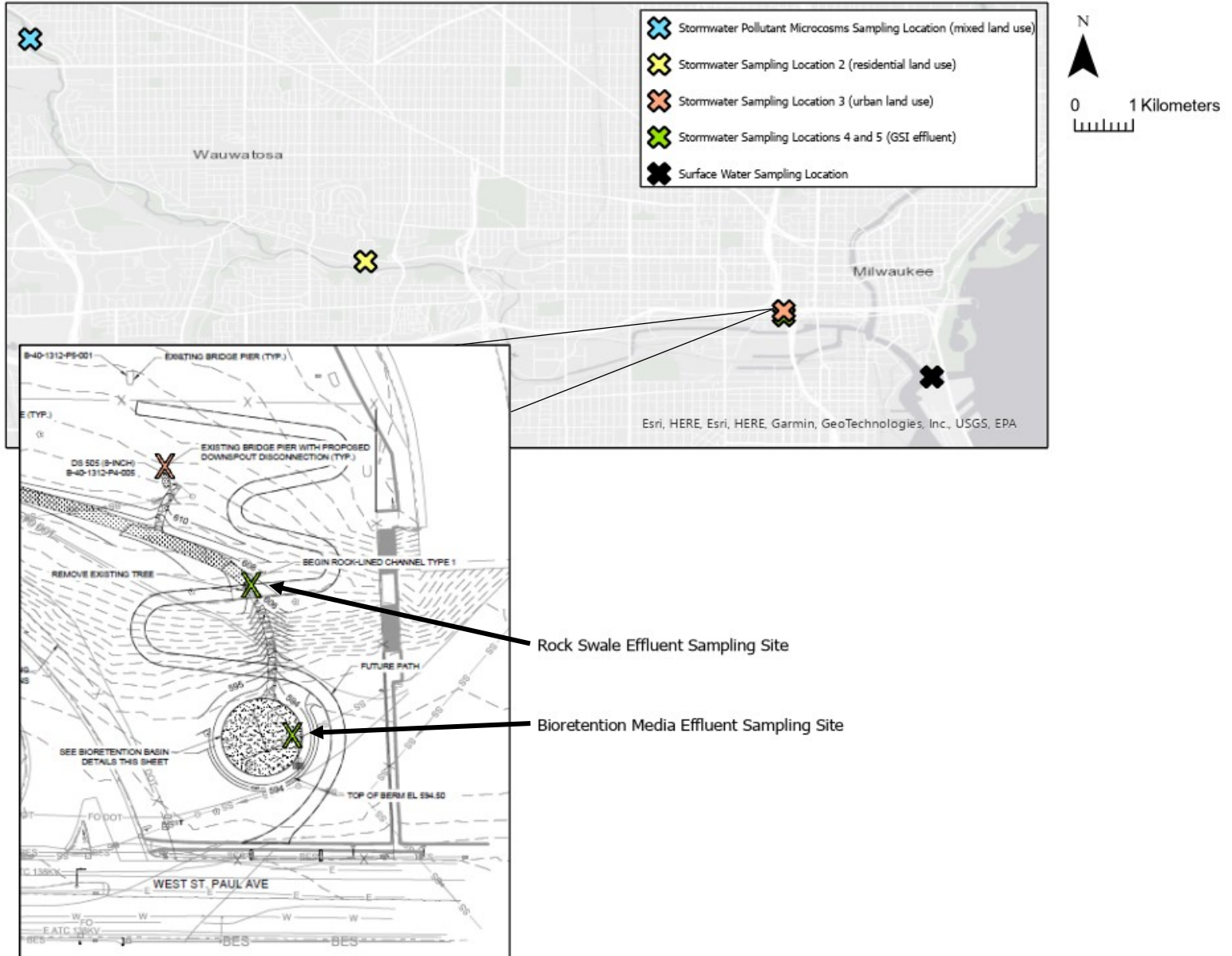


Figure S1 The five stormwater and one surface water sample collection locations across Milwaukee County in Wisconsin, USA. The bioretention system plan was provided by Milwaukee Metropolitan Sewerage District.

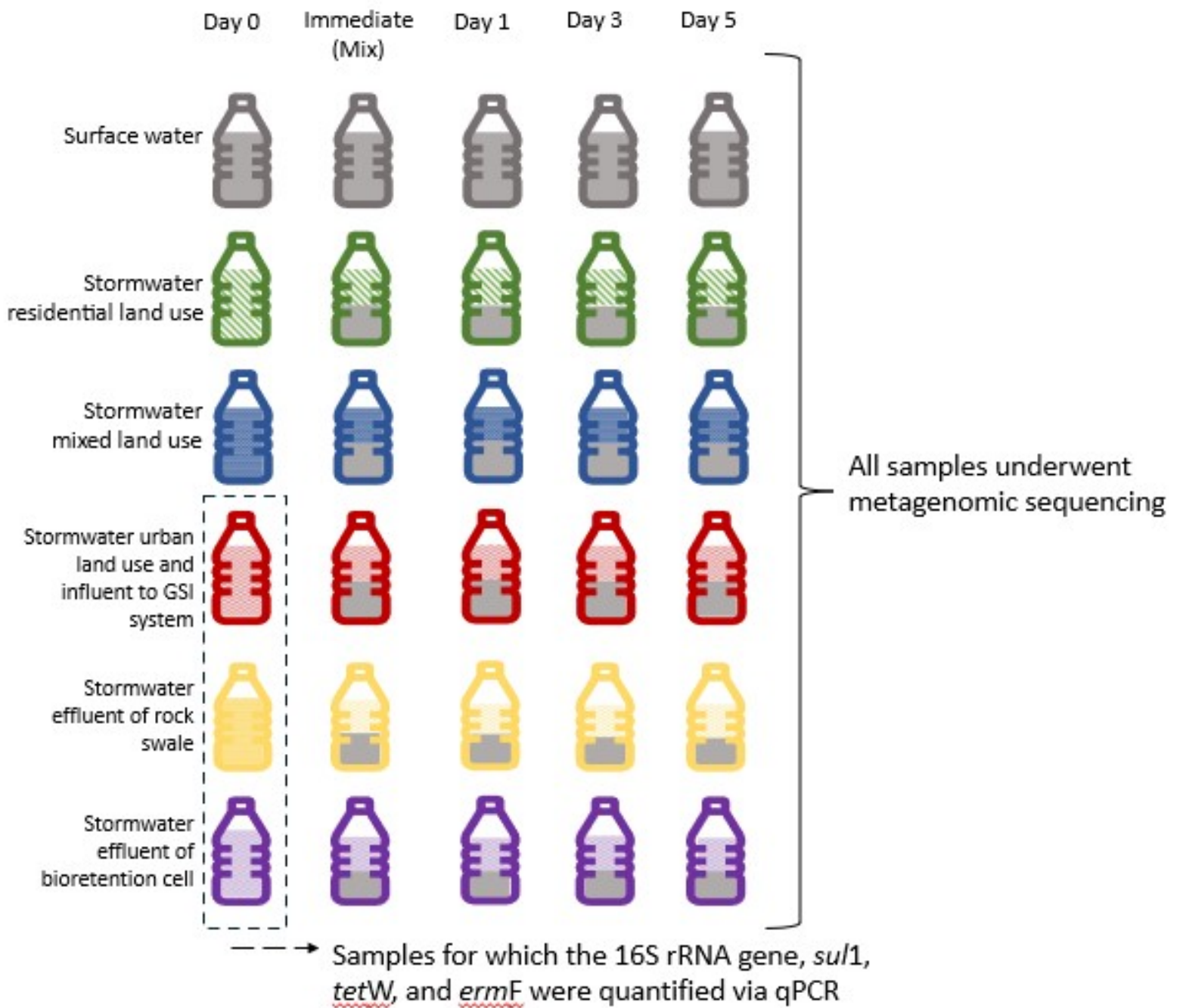


Figure S2 Methods Layout for the Microcosm Experiment



Figure S3 Venn diagram illustrating the unique and overlapping ARG counts among day 0 surface water, mixed land use stormwater, residential land use stormwater, and urban land use stormwater samples. Each section of the diagram represents the number of unique ARGs found in each respective sample, while the overlapping areas indicate the ARGs shared between multiple samples. This visualization highlights both the diversity and commonality of ARGs across the different aquatic samples.

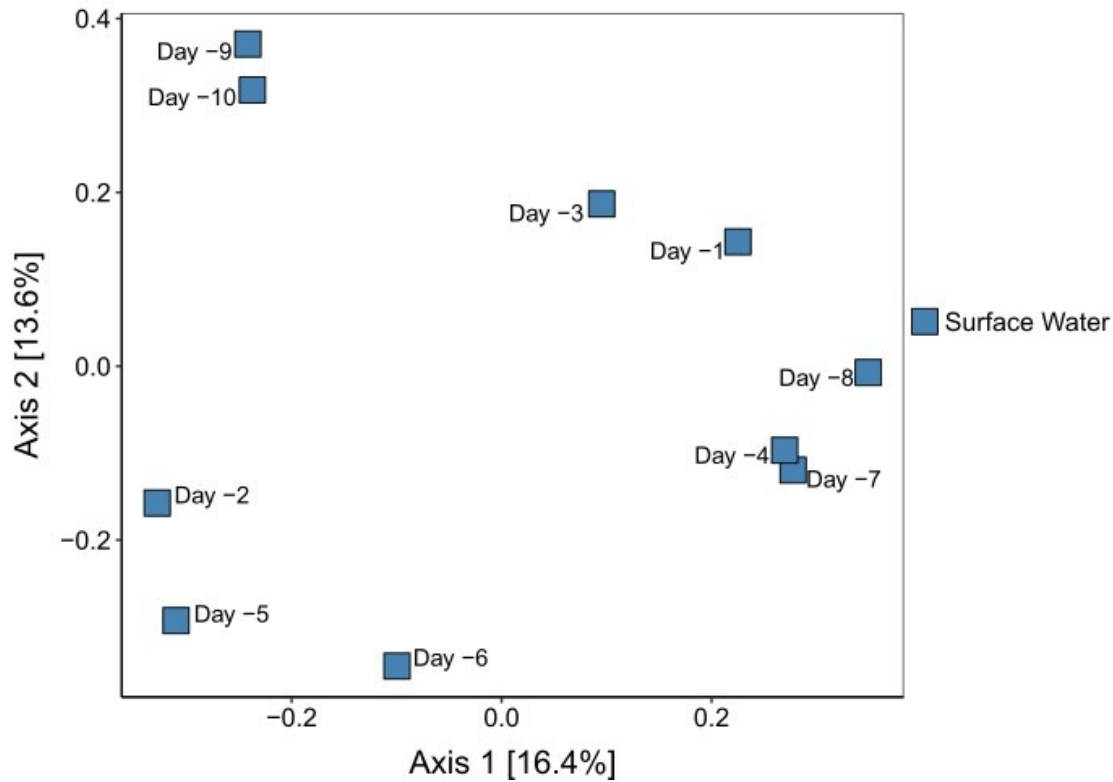


Figure S4 Beta diversity of surface water sample collection at a single location for 10 consecutive days of dry weather.

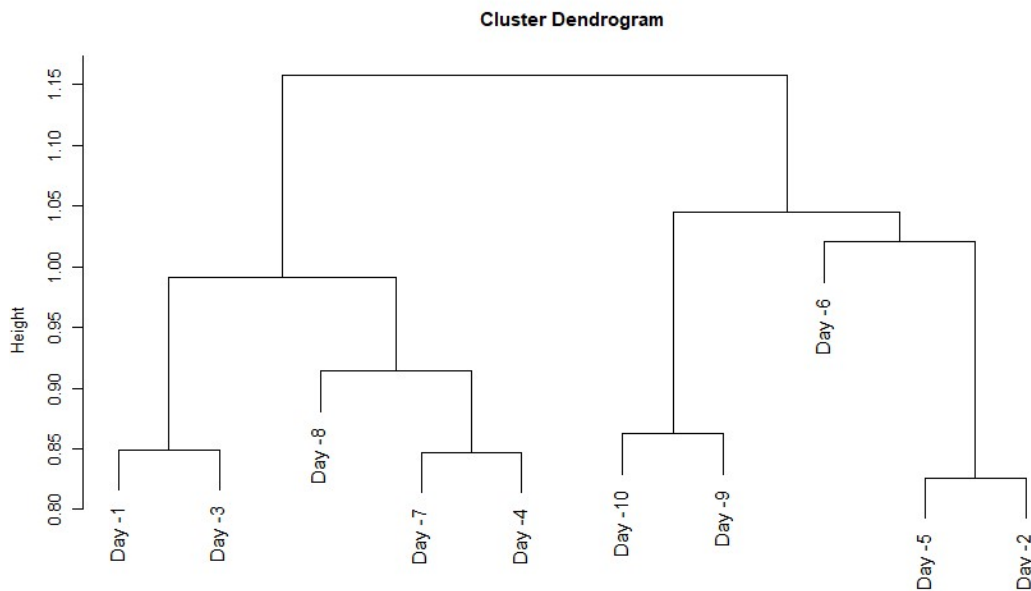


Figure S5 Hierarchical clustering analysis of the surface water samples collected at a single location for 10 consecutive days of dry weather. Clustering analysis was based on the results of Bray Curtis beta diversity analysis.

Table S1 Concentration of various stormwater quality properties through a GSI system at three sampling points: influent, effluent of a rock swale, and effluent of the bioretention cell. The overall percent removal in the property from influent from effluent of the bioretention is also shown.

Pollutant	Influent	Effluent of Rock Swale	Effluent of Bioretention	Overall Change
pH	7.31	7.38 (+0.95%)	7.10 (-3.98%)	-2.91%
Phosphorus (mg/L)	0.05	0.03 (-66.67%)	0.21 (+85.71%)	+76.19%
Ammonium (mg/L)	0.393	0.122 (-221.72%)	0.050 (-159.57%)	-735.11%
Nitrate (mg/L)	0.138	0.250 (+45.0%)	0.360 (+31.03%)	+62.07%
TOC (mg/L)	13.233	13.293 (+0.45%)	10.783 (-23.28%)	-22.72%
Chromium (µg/L)	5.69	5.46 (-4.10%)	5.98 (+8.70%)	+4.96%
Iron (µg/L)	19.67	20.43 (+3.68%)	32.79 (+37.71%)	+40.01%
Copper (µg/L)	6.36	7.03 (+9.61%)	12.23 (+42.52%)	+48.04%
Zinc (µg/L)	110.15	78.48 (-40.35%)	6.03 (-1200%)	-1725%
Cadmium (µg/L)	0.02	0.03 (+27.19%)	0.05 (+45.82%)	+60.55%
Nickel (µg/L)	1.16	1.14 (-2.09%)	1.09 (-3.91%)	-6.08%
Sodium (mg/L)	11.70	20.95 (+44.13%)	23.87 (+12.23%)	+50.96%
Magnesium (mg/L)	0.75	1.09 (+30.64%)	2.17 (+49.96)	+65.30%

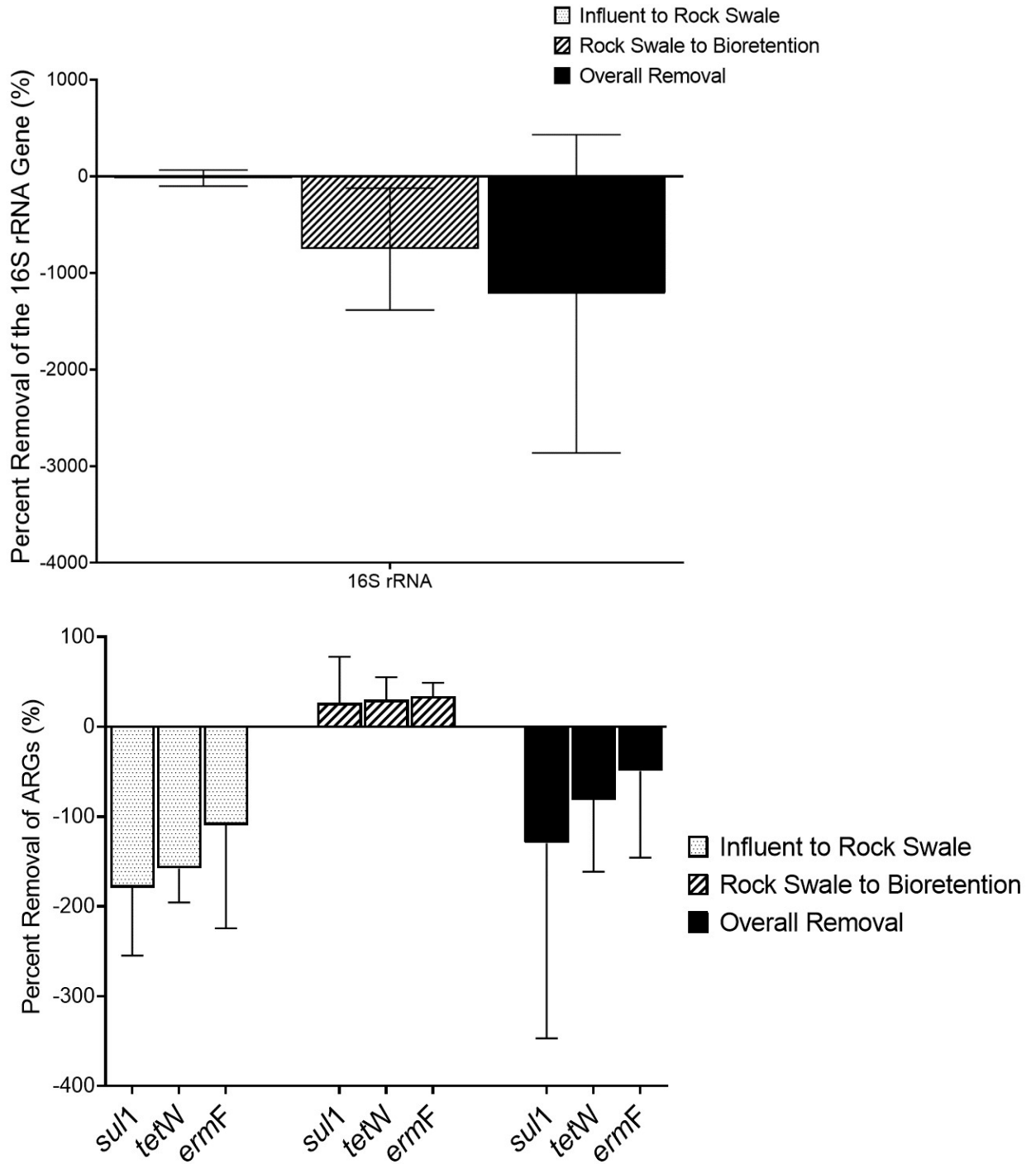


Figure S6 Percent removal of bacterial biomass (16S rRNA) [top] and the ARGs *sul1*, *tetW*, and *ermF* [bottom] through two processes in a GSI system: a rock swale and a bioretention system. The net removal through the whole process is also reported.

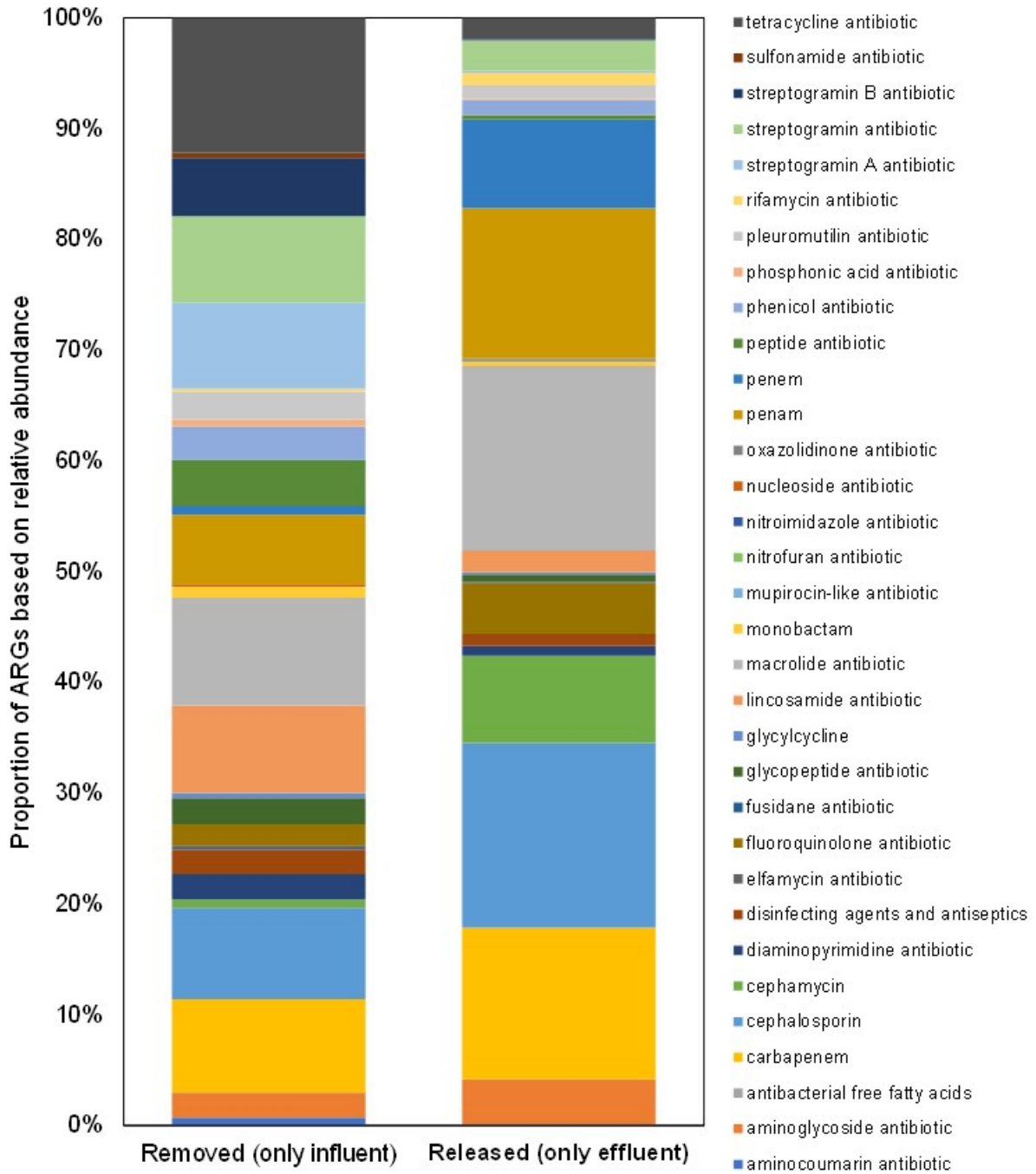


Figure S7 Proportion of ARGs only identified in the GSI influent or effluent samples organized by class of antibiotic they confer resistance to.

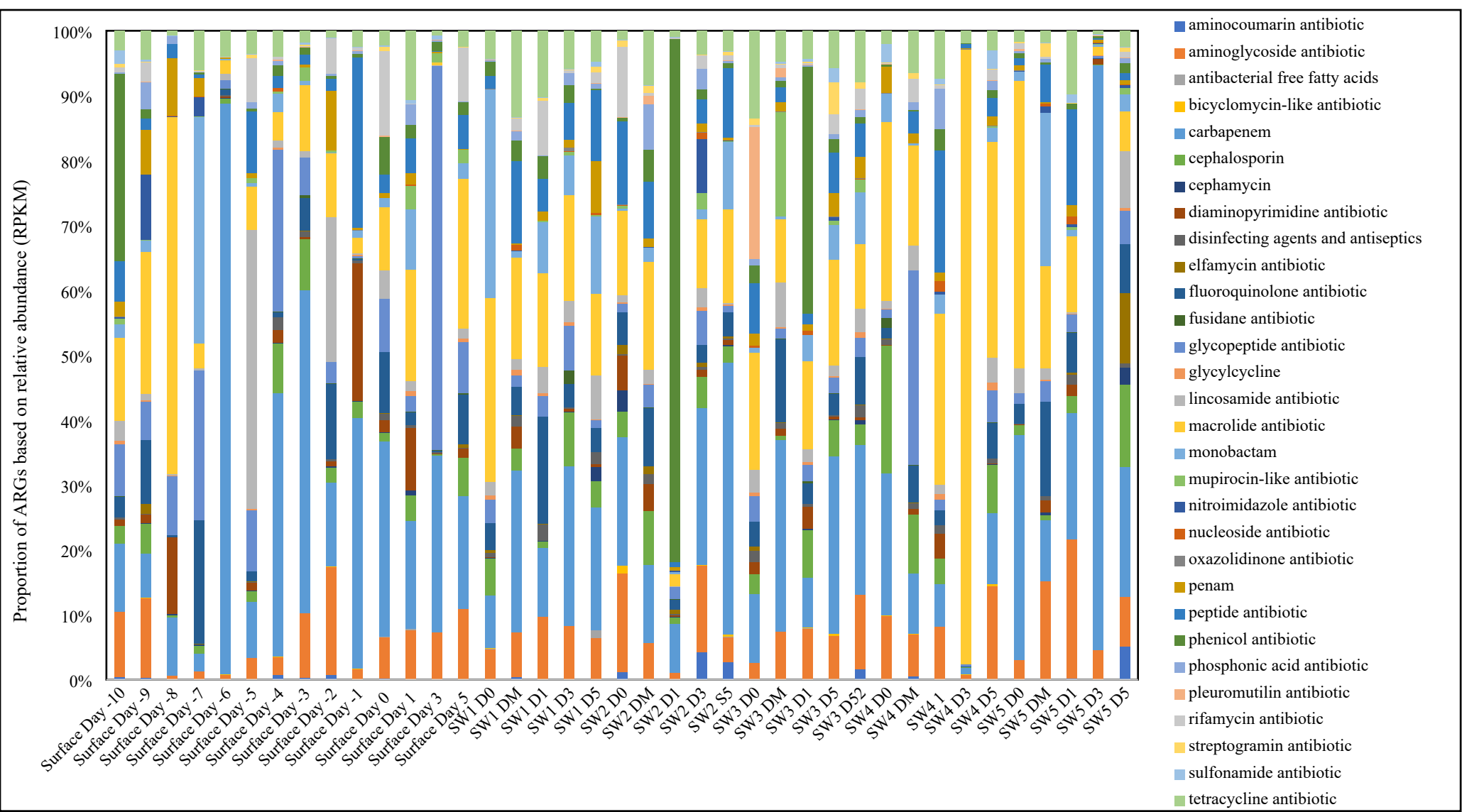


Figure S8 Proportion for ARGs identified in all samples organized by class of antibiotic they confer resistance to.

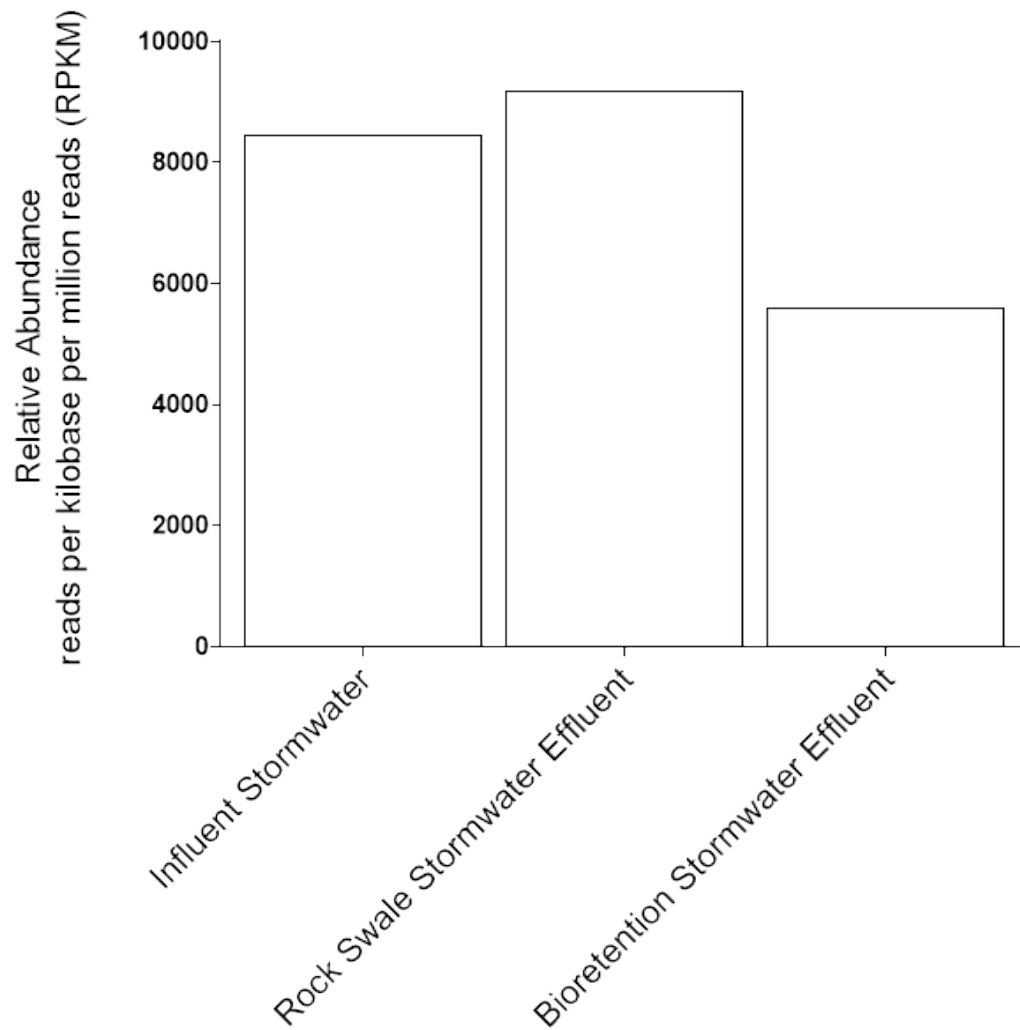


Figure S9 Relative abundance of ARGs, quantified as reads per kilobase per million reads (RPKM) through a GSI system: a rock swale and a bioretention system