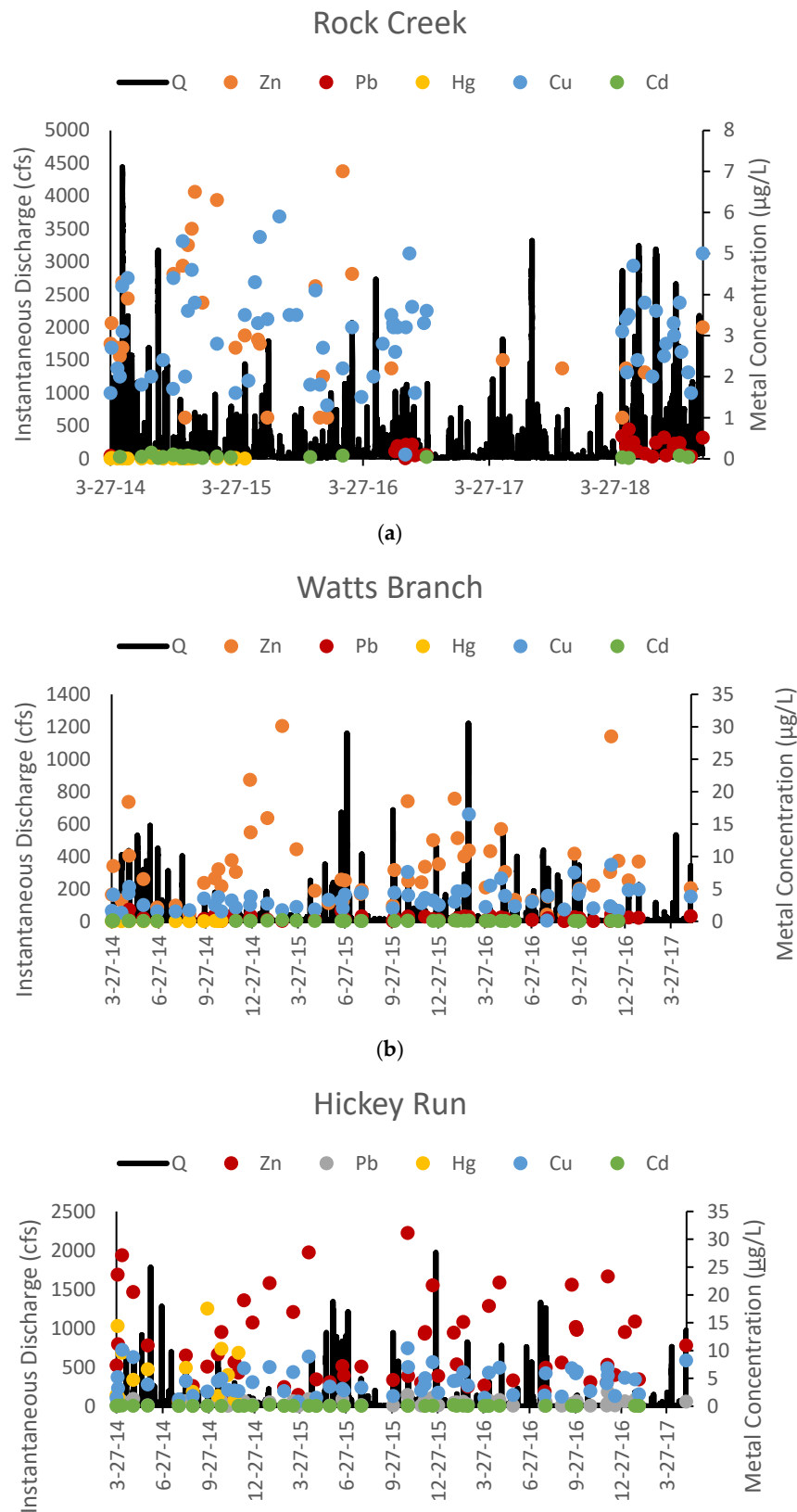


Supplementary Materials: The following are available online at www.mdpi.com/xxx/s1.

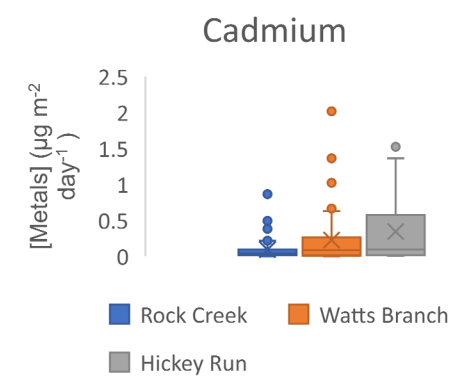


(c)

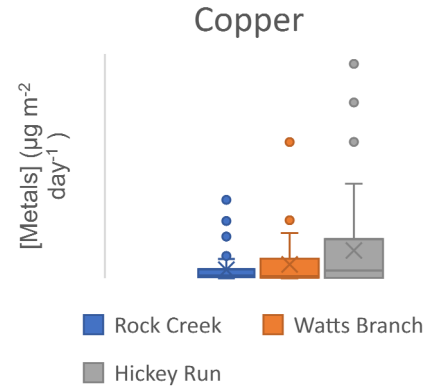
Figure S1. Sampling of metals over instantaneous discharge for the Rock Creek (a), Hickey Run (b), and Watts Branch (c) watersheds.

Table S1. Table of max, median, mean, standard error of the mean (SEM), min and quartiles for daily flux concentrations at the Rock Creek watershed.

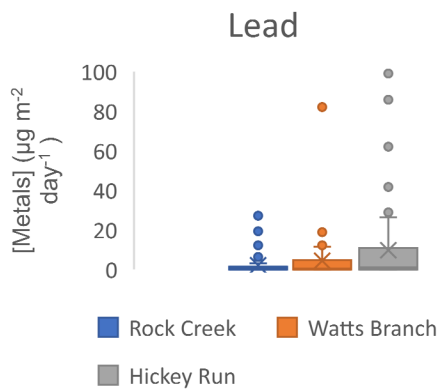
Rock Creek	Cu ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Cd ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Pb ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Zn ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Hg ($\text{ng m}^{-2} \text{ day}^{-1}$)
Max	140	0.865	27.2	124	0.682
median	4.89	0.040	0.254	2.74	0.002
mean	15.2	0.092	2.18	12.7	0.098
SEM	3.40	0.020	0.642	3.01	0.056
min	0.022	0.002	0.002	0.102	2.25E-04
first quartile	1.39	0.012	0.047	0.608	0.001
second quartile	4.89	0.040	0.254	2.74	0.002
third quartile	17.7	0.095	1.33	14.3	0.157



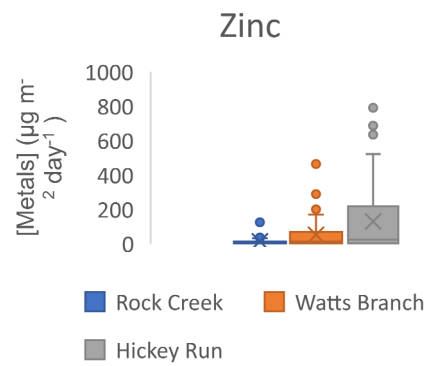
(a)



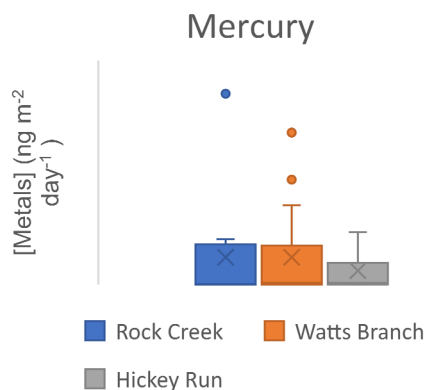
(b)



(c)



(d)



(e)

Figure S2. Daily fluxes of cadmium (a), copper (b), lead (c), zinc (d) and mercury (e) for the Rock Creek, Hickey Run, and Watts Branch watersheds.

Table S2. Table of max, median, mean, standard error of the mean (SEM), min and quartiles for flux concentrations at the Watts Branch watershed.

Watts Branch	Cu ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Cd ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Pb ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Zn ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Hg ($\text{ng m}^{-2} \text{ day}^{-1}$)
max	551	6.40	290	1140	0.543
median	3.88	0.101	0.445	12.7	0.008
mean	33.5	0.330	9.24	69.2	0.098
SEM	5.50	0.052	1.51	10.8	0.046
min	0.021	0.002	0.002	0.115	7.72E-05
first quartile	1.00	0.010	0.031	1.63	2.46E-04
second quartile	5.16	0.101	0.445	23.0	0.008
third quartile	37.7	0.262	5.86	83.7	0.284

Table S3. Table of max, median, mean, standard error of the mean (SEM), min and quartiles for flux concentrations at the Hickey Run watershed.

Hickey Run	Cu ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Cd ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Pb ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Zn ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Hg ($\text{ng m}^{-2} \text{ day}^{-1}$)
max	2930	14.2	1170	6820	0.187
median	14.7	0.105	1.41	30.3	0.006
mean	99.2	0.582	29.8	244	0.050
SEM	10.3	0.060	2.60	25.0	0.018
min	0.258	0.003	0.010	0.258	3.18E-04
first quartile	0.858	0.0121	0.043	2.22	7.56E-04
second quartile	13.7	0.095	0.989	23.1	0.005
third quartile	74.3	0.719	11.6	245	0.098

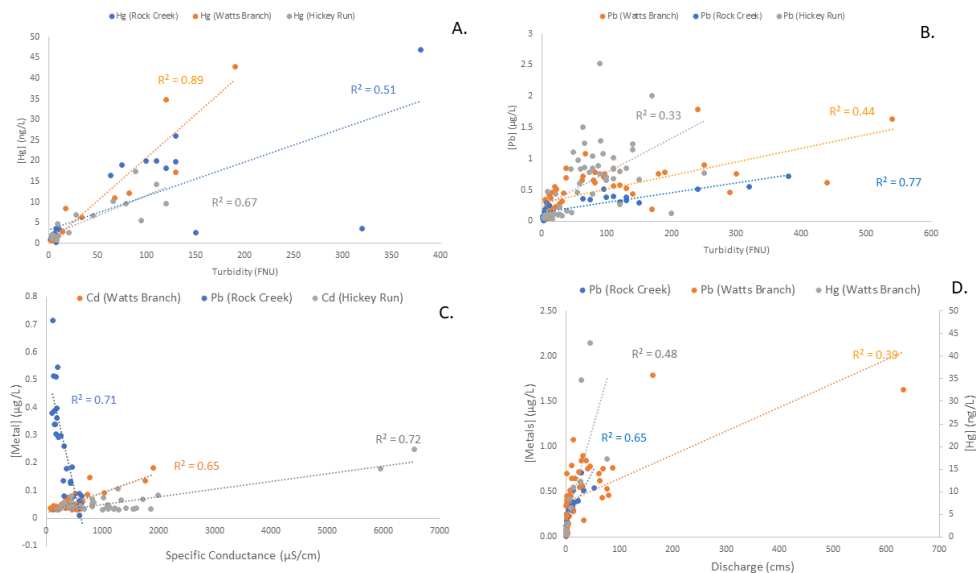


Figure S3. Simple Linear Regression Relationships for turbidity and Hg (a), turbidity and Pb (b), specific conductance (c) and discharge (d) across the Rock Creek, Hickey Run, and Watts Branch watersheds.

Relationship between instantaneous discharge and Cu flux at Rock Creek

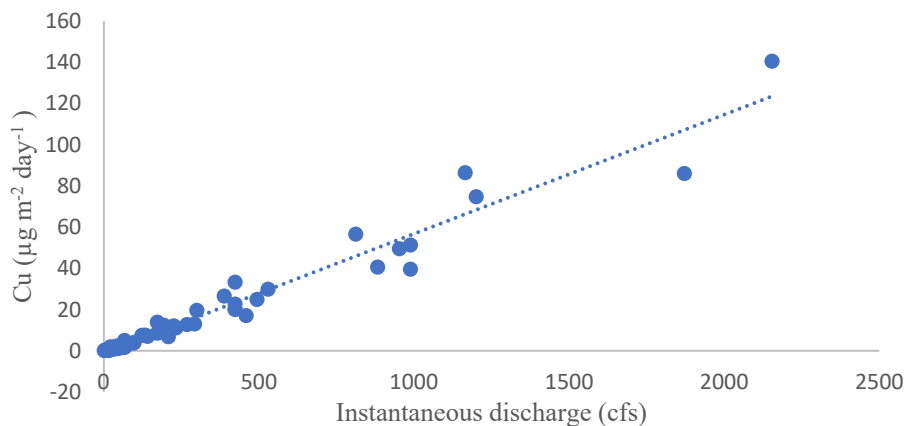


Figure S4. Linear regression model for instantaneous discharge and Cu flux at the Rock Creek watershed ($R^2 = 0.95$).

Table S4. Percent differences below 40% between predicted and actual Cu fluxes for the linear regression model displayed in Figure S4.

Cu Flux ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Predicted Cu Flux ($\mu\text{g m}^{-2} \text{ day}^{-1}$)	Percent Difference (%)
18.44	24.67	28.93
10.88	13.63	22.45
4.57	5.37	16.09
1.70	1.38	-21.05
5.75	6.23	8.13
8.82	9.12	3.34

1.99	1.78	-11.14
0.88	0.92	3.89
3.44	3.98	14.44

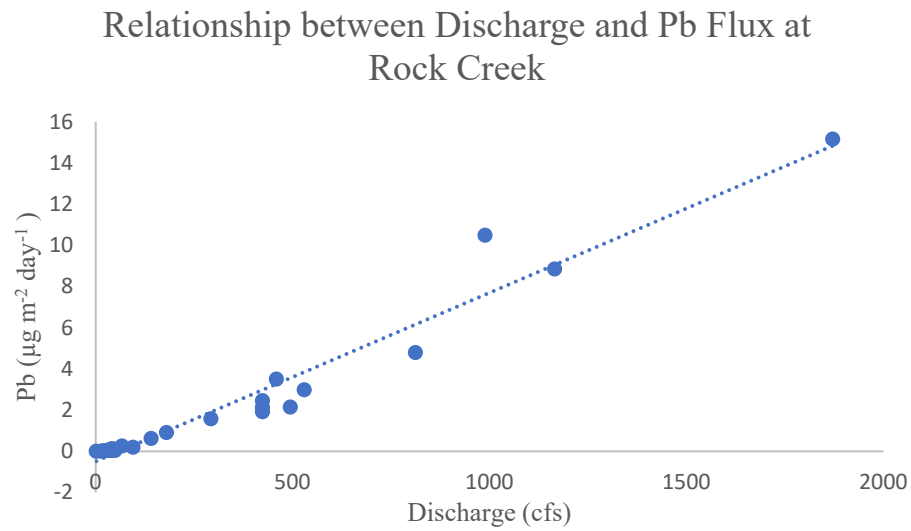


Figure S5. Linear Regression Model for discharge and Pb flux at the Rock Creek watershed ($R^2 = 0.95$).

Table S5. Percent differences below 40% between predicted and actual Pb fluxes for the linear regression model displayed in Figure S5.

Pb Flux Predicted	Pb Flux	Percent Difference
3.42	4.59	29.30
4.77	6.14	25.08
2.42	2.95	19.48
3.55	3.33	6.40
0.62	0.66	6.24
1.56	1.89	18.98
14.13	14.68	3.83
0.70	0.95	30.47
0.25	0.22	14.72

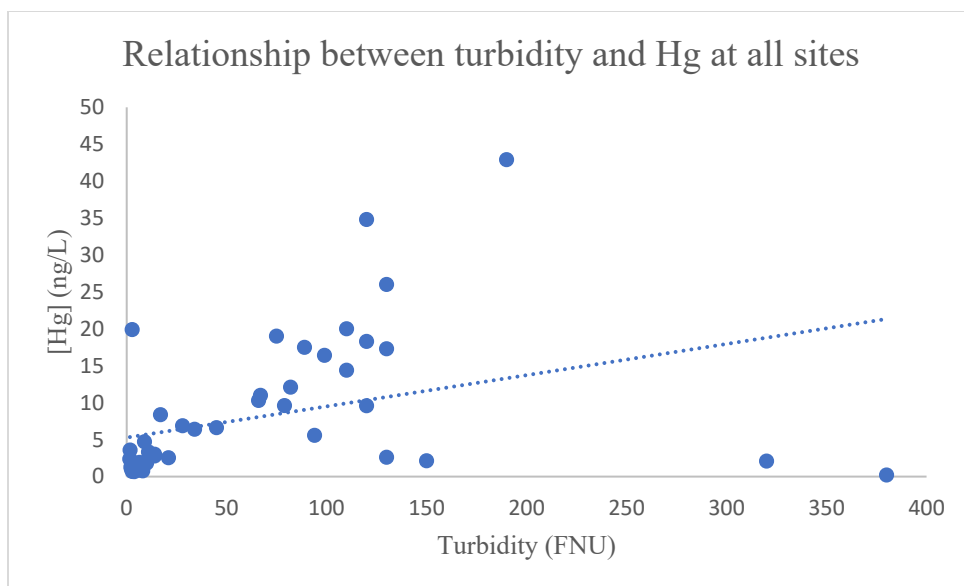


Figure S6. Linear regression model for turbidity and Hg at all sites. ($R^2 = 0.13$).

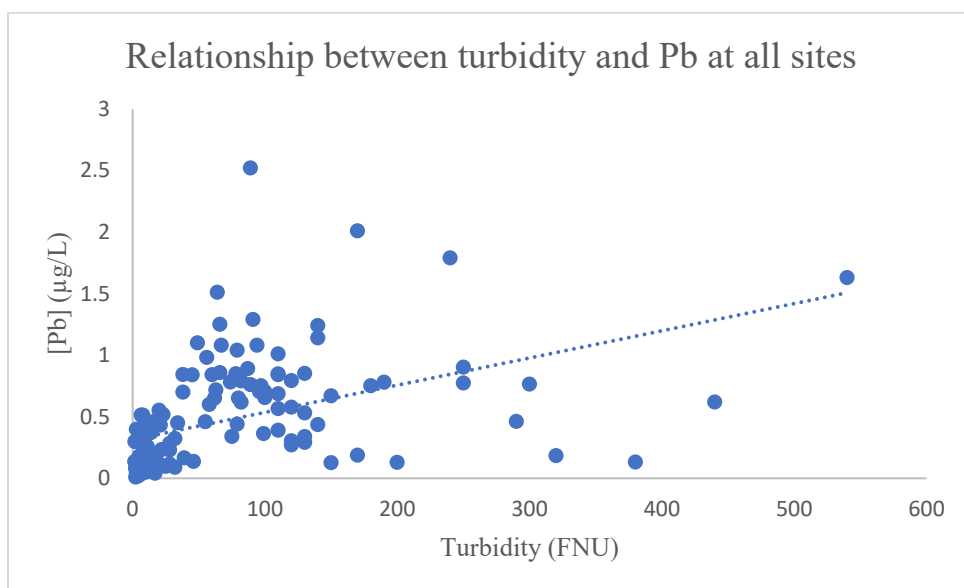


Figure S7. Linear regression model for turbidity and Pb at all sites ($R^2 = 0.20$).