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Spatial and temporal variation in river corridor exchange across a 5th-order mountain stream network

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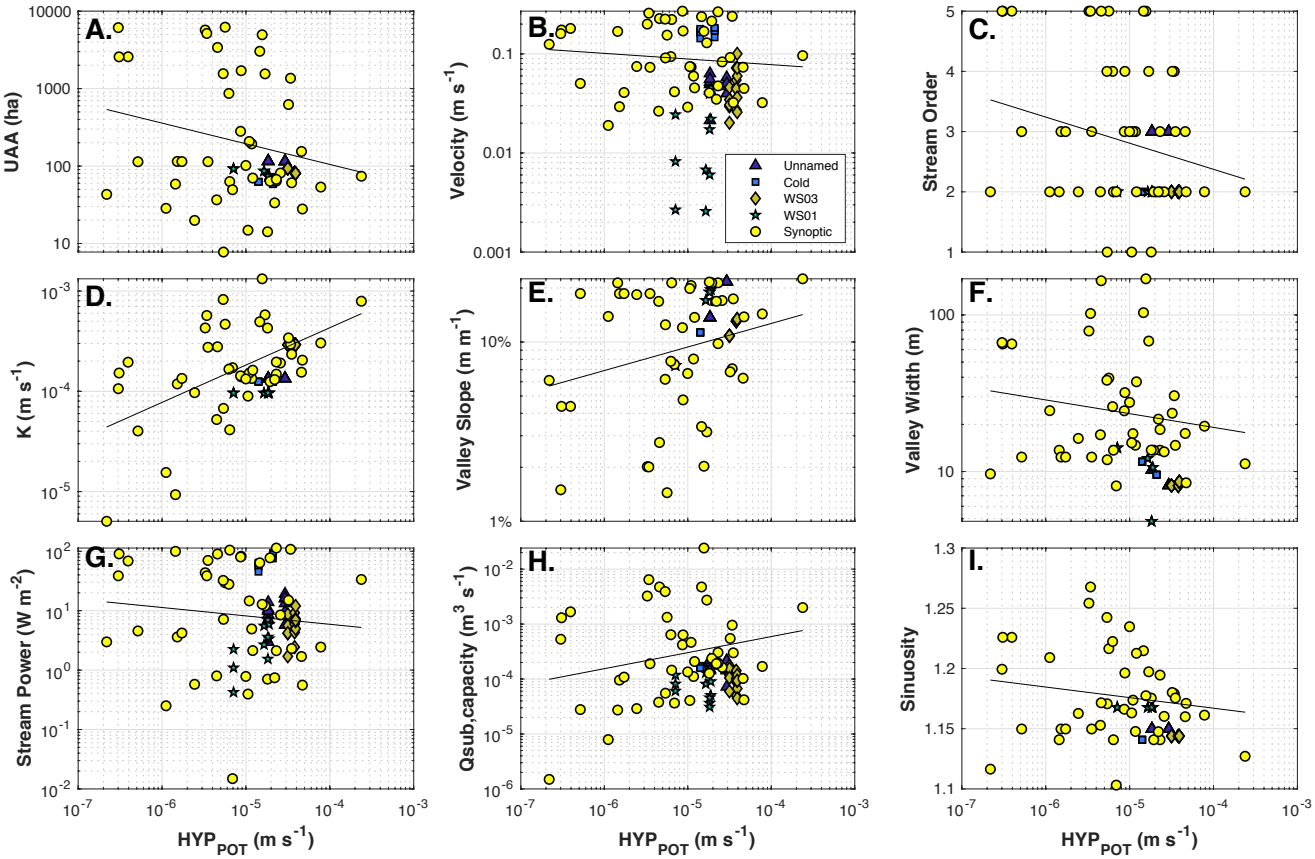

Figure S1. For synoptic data (yellow circles), hyporheic potential (HYP_{POT}) exhibits a significant, monotonic trend with all other site variables considered (Mann-Kendall test; $p < 0.05$). Pairwise MK test results for all site characteristic pairs (i.e., all y-axis variables presented above) exhibit significant trends for all combinations ($p < 0.05$). The solid black line shows the best-fit power law regression for each panel. Data from unnamed creek (triangles, Cold creek (squares), WS03 (diamonds), and WS01 (stars) show the repeated injections through baseflow recession each headwater catchment.

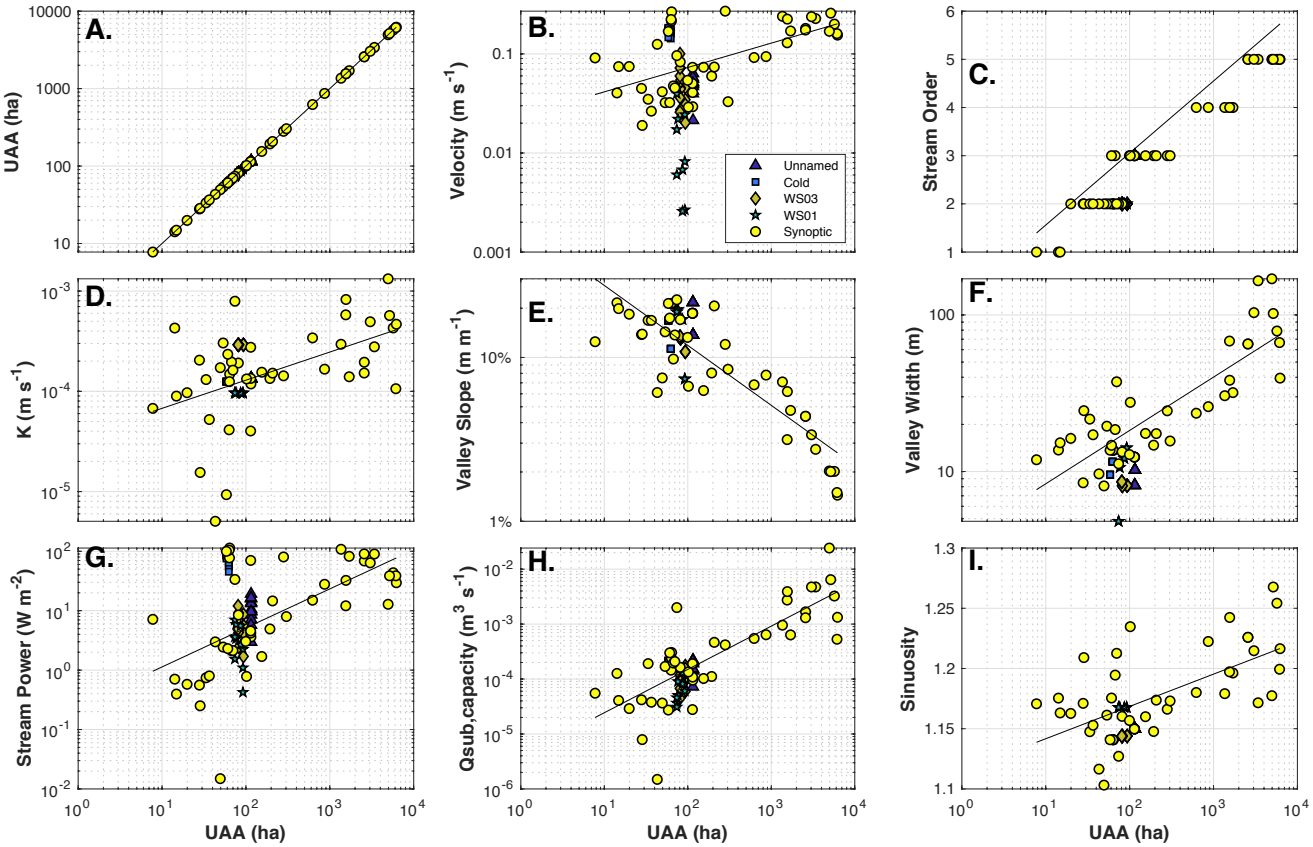

Figure S2. For synoptic data (yellow circles), upslope accumulated area (*UAA*) exhibits a significant, monotonic trend with all other site variables considered (Mann-Kendall test; $p < 0.05$). Pairwise MK test results for all site characteristic pairs (i.e., all y-axis variables presented above) exhibit significant trends for all combinations ($p < 0.05$). The solid black line shows the best-fit power law regression for each panel. Data from unnamed creek (triangles, Cold creek (squares), WS03 (diamonds), and WS01 (stars) show the repeated injections through baseflow recession each headwater catchment.

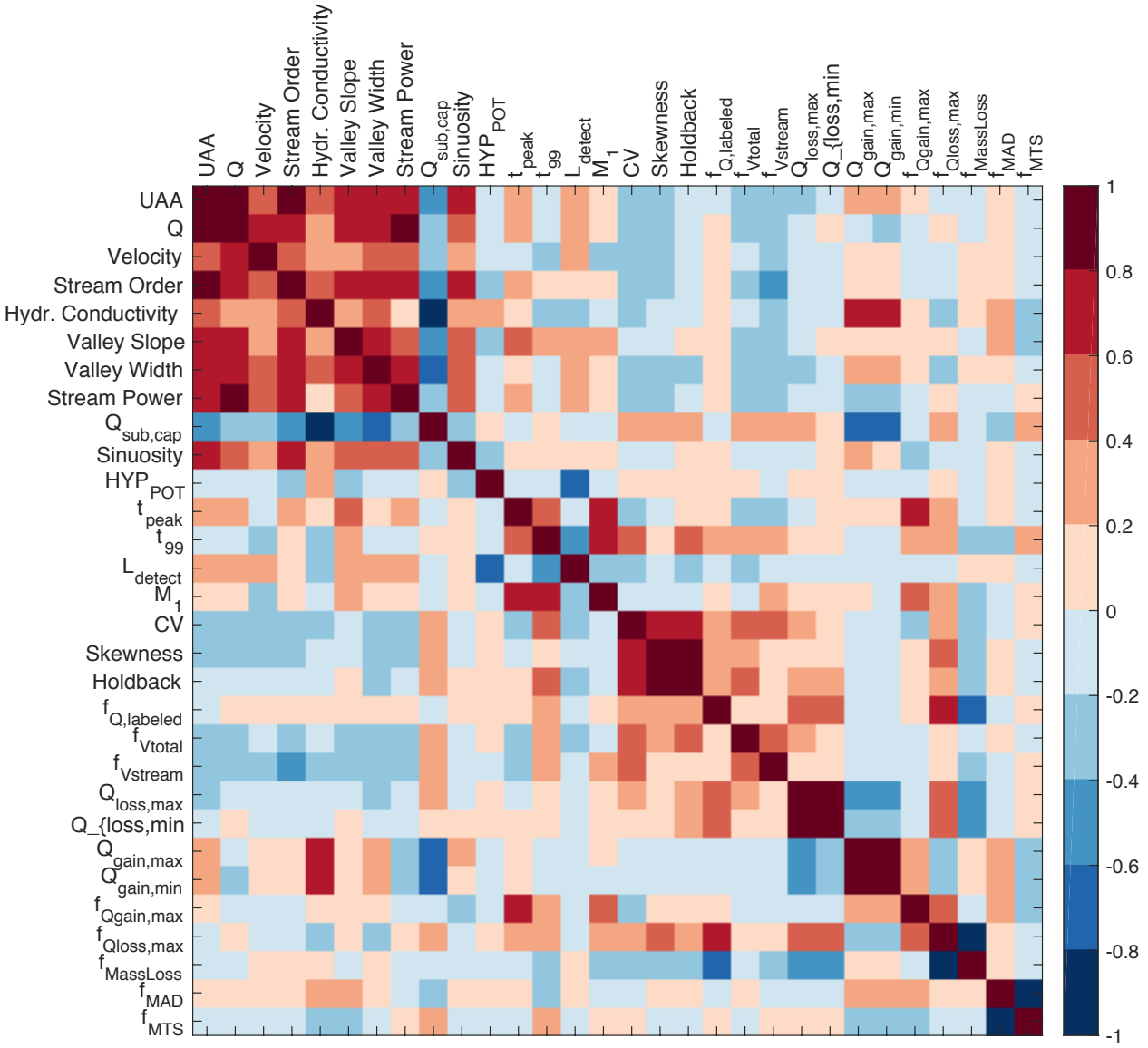

Fig. S3. Pairwise Pearson correlation coefficient between all site description and solute transport metrics considered in the study. Numerical values are tabulated in supplemental table S1.

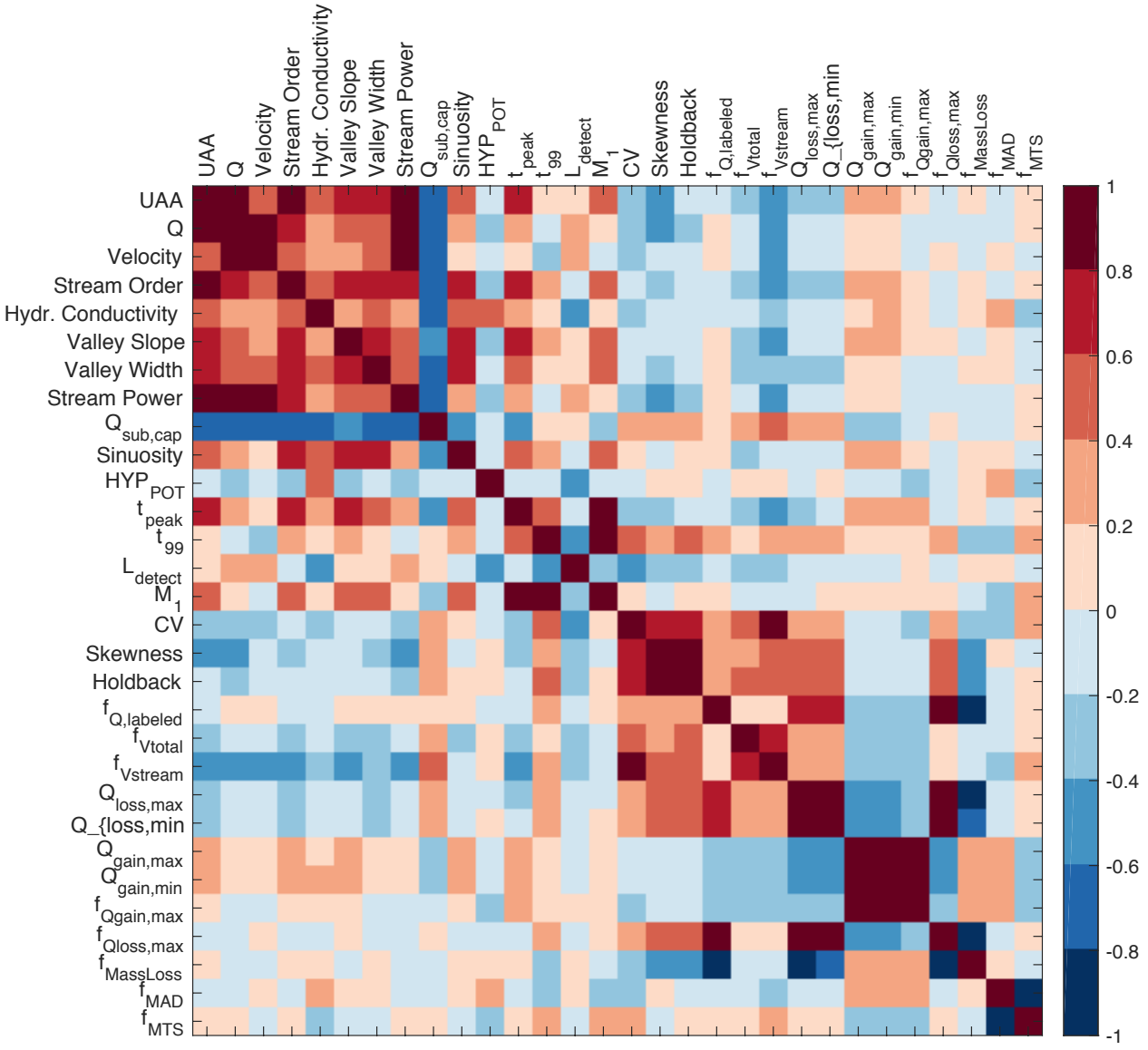

Fig. S4. Pairwise Spearman Rank correlation coefficient between all site description and solute transport metrics considered in the study. Numerical values are tabulated in supplemental table S2.

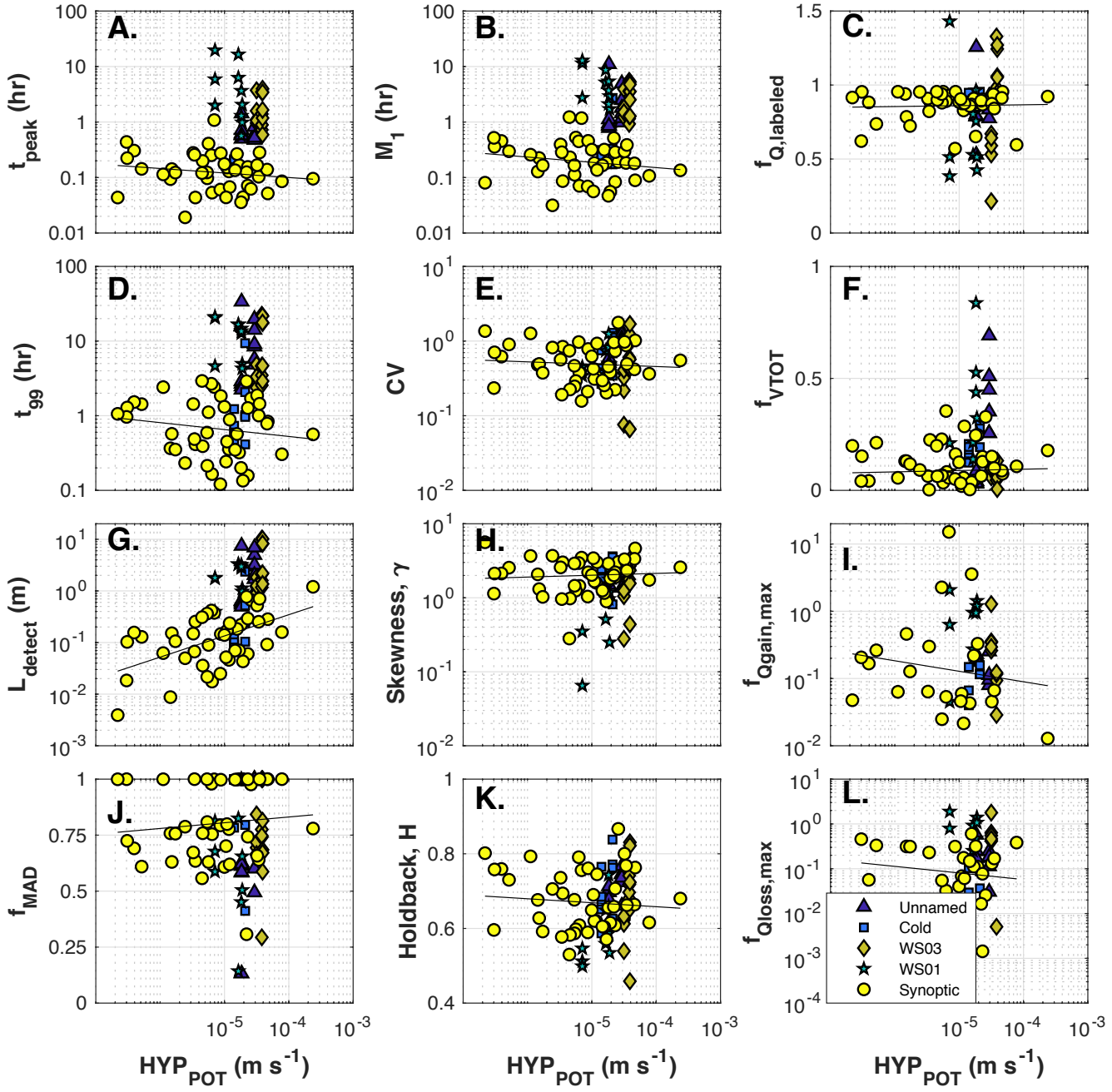

Fig. S5. Fixed reach and synoptic data as a function of hyporheic potential (HYP_{POT}). Data from unnamed creek (triangles, Cold creek (squares), WS03 (diamonds), and WS01 (stars) show the repeated injections through baseflow recession each headwater catchment.

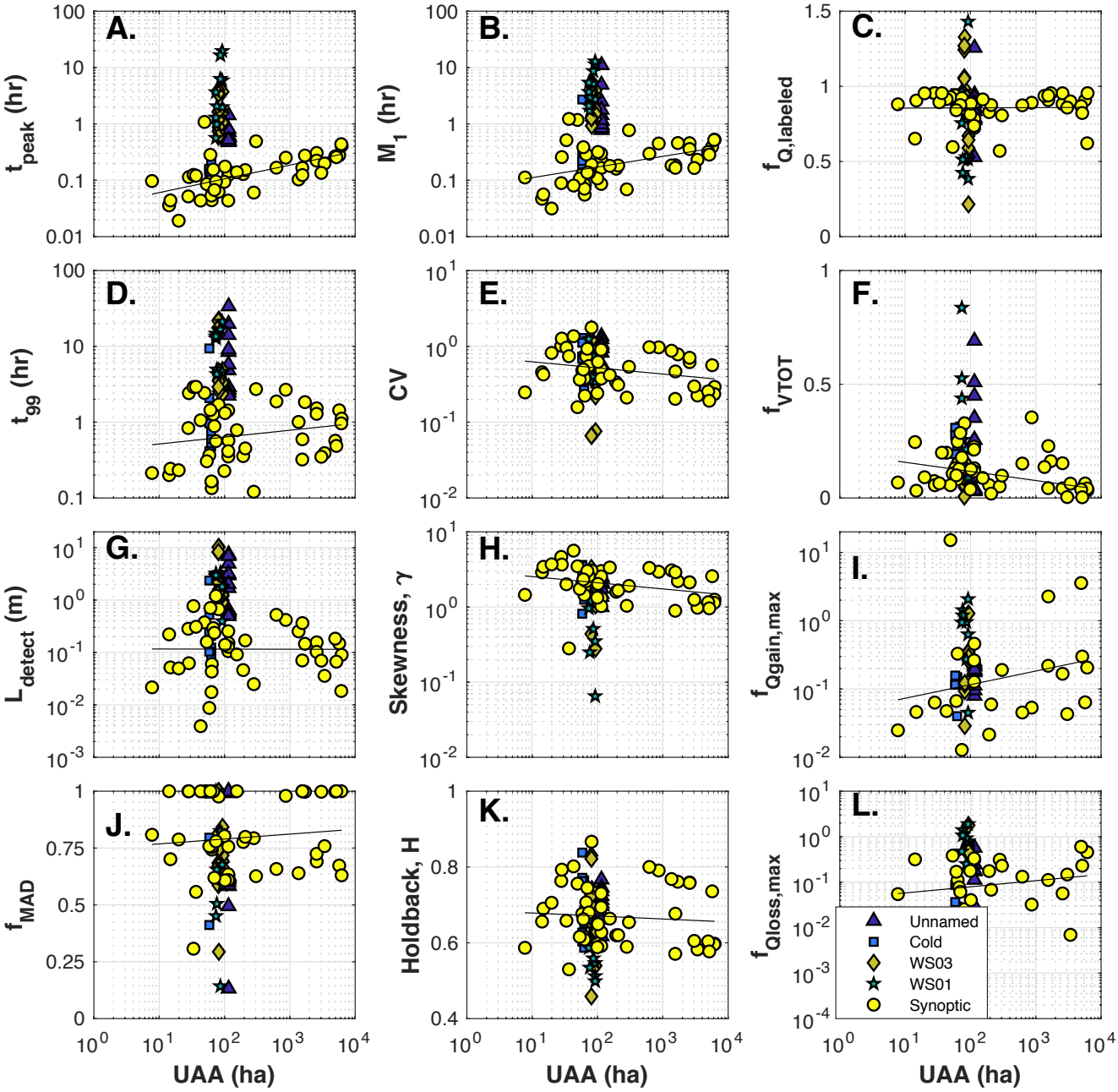

Fig. S6. Fixed reach and synoptic data as a function of upslope accumulated area (*UAA*). The coefficient of determination for power law best-fits to synoptic data (black lines) are reported in Table 3. Data from unnamed creek (triangles, Cold creek (squares), WS03 (diamonds), and WS01 (stars) show the repeated injections through baseflow recession each headwater catchment.

Table S1. Pairwise Pearson correlation coefficient between all site description and solute transport metrics considered in the study. Data are are visualized in supplemental figure S5.

(table on next page)

		Site Characterization											Experimetnal Design			Short-term Storage				StorAge Selection			Long-term Storage							AD vs. TS	
		UAA	Q	V	Stream Order	Hydraulic Conductivity	Valley Slope	Valley Width	Stream Power	Qsubcap	Sinuosity	HYP_{POT}	t_{peak}	t_{99}	L_{detect}	M_1	CV	Skewness	Holdback	$frac_{Qlabeled}$	$frac_{Vtot}$	$frac_{Vstr}$	$Q_{lossmax}$	$Q_{lossmin}$	$Q_{gainmax}$	$Q_{gainmin}$	$frac_{Qgainmax}$	$frac_{Qlossmax}$	$frac_{Mloss}$	$frac_{MAD}$	$frac_{MTS}$
Site Characterization	UAA	1.00	0.85	0.53	0.82	0.49	0.72	0.75	0.79	-0.54	0.60	-0.18	0.35	-0.03	0.22	0.20	-0.31	-0.34	-0.19	-0.01	-0.37	-0.30	-0.24	-0.08	0.29	0.21	0.01	-0.14	0.00	0.09	-0.09
	Q	0.85	1.00	0.69	0.78	0.21	0.63	0.70	0.96	-0.26	0.52	-0.19	0.25	-0.07	0.28	0.11	-0.26	-0.33	-0.12	0.05	-0.30	-0.31	-0.08	0.02	-0.13	-0.21	-0.10	0.01	-0.09	0.01	-0.01
	V	0.53	0.69	1.00	0.50	0.28	0.34	0.50	0.54	-0.32	0.29	-0.12	-0.05	-0.36	0.32	-0.22	-0.32	-0.25	-0.17	0.07	-0.16	-0.39	-0.10	-0.06	0.11	0.09	-0.08	-0.04	0.01	0.13	-0.13
	Stream Order	0.82	0.78	0.50	1.00	0.44	0.79	0.72	0.70	-0.47	0.64	-0.20	0.32	0.07	0.15	0.19	-0.22	-0.35	-0.07	0.02	-0.28	-0.40	-0.13	-0.02	0.18	0.12	-0.04	-0.17	0.05	0.05	-0.05
	Hydraulic Conductivity	0.49	0.21	0.28	0.44	1.00	0.35	0.59	0.13	-0.81	0.30	0.34	0.10	-0.20	-0.28	-0.05	-0.28	-0.19	-0.19	0.03	-0.12	-0.21	-0.11	-0.02	0.65	0.63	0.16	-0.22	0.10	0.25	-0.25
	Valley Slope	0.72	0.63	0.34	0.79	0.35	1.00	0.64	0.59	-0.40	0.60	-0.25	0.45	0.21	0.24	0.30	-0.13	-0.10	0.05	0.10	-0.32	-0.31	-0.09	0.01	0.19	0.13	0.16	0.05	-0.06	0.21	-0.21
	Valley Width	0.75	0.70	0.50	0.72	0.59	0.64	1.00	0.70	-0.78	0.47	-0.16	0.16	-0.12	0.21	0.05	-0.30	-0.38	-0.24	0.03	-0.35	-0.26	-0.31	-0.18	0.31	0.25	0.03	-0.26	0.09	0.14	-0.14
	Stream Power	0.79	0.96	0.54	0.70	0.13	0.59	0.70	1.00	-0.20	0.44	-0.17	0.25	-0.05	0.26	0.13	-0.25	-0.31	-0.14	0.02	-0.30	-0.25	-0.11	-0.02	-0.25	-0.31	-0.10	0.01	-0.06	-0.01	0.01
	Qsubcap	-0.54	-0.26	-0.32	-0.47	-0.81	-0.40	-0.78	-0.20	1.00	-0.23	0.00	-0.12	0.14	-0.03	-0.02	0.26	0.27	0.22	-0.04	0.25	0.20	0.25	0.10	-0.72	-0.67	-0.18	0.33	-0.09	-0.21	0.21
	Sinuosity	0.60	0.52	0.29	0.64	0.30	0.60	0.47	0.44	-0.23	1.00	-0.25	0.05	0.12	0.15	0.03	-0.02	-0.15	0.06	0.07	-0.10	-0.19	-0.04	0.00	0.20	0.18	-0.24	-0.07	-0.05	0.09	-0.09
	HYP_{POT}	-0.18	-0.19	-0.12	-0.20	0.34	-0.25	-0.16	-0.17	0.00	-0.25	1.00	-0.13	-0.10	-0.68	-0.16	0.01	0.11	0.03	0.00	0.10	-0.05	0.03	0.01	-0.02	-0.01	-0.06	0.01	-0.01	0.07	-0.07
Experimetnal Design	t_{peak}	0.35	0.25	-0.05	0.32	0.10	0.45	0.16	0.25	-0.12	0.05	-0.13	1.00	0.46	-0.07	0.75	-0.28	-0.07	0.07	0.04	-0.26	-0.26	-0.05	0.02	0.09	0.04	0.78	0.32	-0.02	0.11	-0.11
	t_{99}	-0.03	-0.07	-0.36	0.07	-0.20	0.21	-0.12	-0.05	0.14	0.12	-0.10	0.46	1.00	-0.42	0.78	0.50	0.18	0.45	0.26	0.21	0.37	0.16	0.17	-0.06	-0.07	0.21	0.33	-0.34	-0.22	0.22
	L_{detect}	0.22	0.28	0.32	0.15	-0.28	0.24	0.21	0.26	-0.03	0.15	-0.68	-0.07	-0.42	1.00	-0.21	-0.34	-0.19	-0.30	-0.15	-0.33	-0.17	-0.09	-0.06	-0.04	-0.07	-0.09	-0.13	0.08	0.11	-0.11
Short-term Storage	M_1	0.20	0.11	-0.22	0.19	-0.05	0.30	0.05	0.13	-0.02	0.03	-0.16	0.75	0.78	-0.21	1.00	-0.02	-0.19	0.00	0.15	-0.06	0.31	0.03	0.08	0.03	0.00	0.49	0.33	-0.29	-0.18	0.18
	CV	-0.31	-0.26	-0.32	-0.22	-0.28	-0.13	-0.30	-0.25	0.26	-0.02	0.01	-0.28	0.50	-0.34	-0.02	1.00	0.64	0.80	0.31	0.57	0.43	0.21	0.18	-0.15	-0.13	-0.24	0.23	-0.33	-0.09	0.09
	Skewness	-0.34	-0.33	-0.25	-0.35	-0.19	-0.10	-0.38	-0.31	0.27	-0.15	0.11	-0.07	0.18	-0.19	-0.19	0.64	1.00	0.80	0.33	0.34	0.13	0.19	0.13	-0.07	-0.04	0.15	0.44	-0.27	0.18	-0.18
	Holdback	-0.19	-0.12	-0.17	-0.07	-0.19	0.05	-0.24	-0.14	0.22	0.06	0.03	0.07	0.45	-0.30	0.00	0.80	0.80	1.00	0.34	0.46	0.04	0.26	0.24	-0.11	-0.11	0.12	0.40	-0.27	0.08	-0.08
StorAge Selection	$frac_{Qlabeled}$	-0.01	0.05	0.07	0.02	0.03	0.10	0.03	0.02	-0.04	0.07	0.00	0.04	0.26	-0.15	0.15	0.31	0.33	0.34	1.00	0.06	0.05	0.48	0.48	-0.08	-0.08	0.10	0.69	-0.78	-0.11	0.11
	$frac_{Vtot}$	-0.37	-0.30	-0.16	-0.28	-0.12	-0.32	-0.35	-0.30	0.25	-0.10	0.10	-0.26	0.21	-0.33	-0.06	0.57	0.34	0.46	0.06	1.00	0.41	0.22	0.17	-0.09	-0.06	-0.13	0.04	-0.07	0.02	-0.02
	$frac_{Vstr}$	-0.30	-0.31	-0.39	-0.40	-0.21	-0.31	-0.26	-0.25	0.20	-0.19	-0.05	-0.26	0.37	-0.17	0.31	0.43	0.13	0.04	0.05	0.41	1.00	0.07	0.03	-0.09	-0.07	-0.18	0.07	-0.29	-0.20	0.20
Long-term Storage	$Q_{lossmax}$	-0.24	-0.08	-0.10	-0.13	-0.11	-0.09	-0.31	-0.11	0.25	-0.04	0.03	-0.05	0.16	-0.09	0.03	0.21	0.19	0.26	0.48	0.22	0.07	1.00	0.97	-0.40	-0.40	-0.05	0.54	-0.56	-0.19	0.19
	$Q_{lossmin}$	-0.08	0.02	-0.06	-0.02	-0.02	0.01	-0.18	-0.02	0.10	0.00	0.01	0.02	0.17	-0.06	0.08	0.18	0.13	0.24	0.48	0.17	0.03	0.97	1.00	-0.29	-0.33	-0.03	0.50	-0.60	-0.14	0.14
	$Q_{gainmax}$	0.29	-0.13	0.11	0.18	0.65	0.19	0.31	-0.25	-0.72	0.20	-0.02	0.09	-0.06	-0.04	0.03	-0.15	-0.07	-0.11	-0.08	-0.09	-0.09	-0.40	-0.29	1.00	0.99	0.24	-0.31	0.17	0.30	-0.30
	$Q_{gainmin}$	0.21	-0.21	0.09	0.12	0.63	0.13	0.25	-0.31	-0.67	0.18	-0.01	0.04	-0.07	-0.07	0.00	-0.13	-0.04	-0.11	-0.08	-0.06	-0.07	-0.40	-0.33	0.99	1.00	0.24	-0.30	0.20	0.28	-0.28
	$frac_{Qgainmax}$	0.01	-0.10	-0.08	-0.04	0.16	0.16	0.03	-0.10	-0.18	-0.24	-0.06	0.78	0.21	-0.09	0.49	-0.24	0.15	0.12	0.10	-0.13	-0.18	-0.05	-0.03	0.24	0.24	1.00	0.41	-0.01	0.24	-0.24
	$frac_{Qlossmax}$	-0.14	0.01	-0.04	-0.17	-0.22	0.05	-0.26	0.01	0.33	-0.07	0.01	0.32	0.33	-0.13	0.33	0.23	0.44	0.40	0.69	0.04	0.07	0.54	0.50	-0.31	-0.30	0.41	1.00	-0.81	0.05	-0.05
	$frac_{Mloss}$	0.00	-0.09	0.01	0.05	0.10	-0.06	0.09	-0.06	-0.09	-0.05	-0.01	-0.02	-0.34	0.08	-0.29	-0.33	-0.27	-0.27	-0.78	-0.07	-0.29	-0.56	-0.60	0.17	0.20	-0.01	-0.81	1.00	0.04	-0.04
AD vs. TS	$frac_{MAD}$	0.09	0.01	0.13	0.05	0.25	0.21	0.14	-0.01	-0.21	0.09	0.07	0.11	-0.22	0.11	-0.18	-0.09	0.18	0.08	-0.11	0.02	-0.20	-0.19	-0.14	0.30	0.28	0.24	0.05	0.04	1.00	-1.00
	$frac_{MTS}$	-0.09	-0.01	-0.13	-0.05	-0.25	-0.21	-0.14	0.01	0.21	-0.09	-0.07	-0.11	0.22	-0.11	0.18	0.09	-0.18	-0.08	0.11	-0.02	0.20	0.19	0.14	-0.30	-0.28	-0.24	-0.05	-0.04	-1.00	1.00

Table S2. Pairwise Spearman Rank correlation coefficient between all site description and solute transport metrics considered in the study. Data are visualized in supplemental figure S6.

(table on next page)

		Site Characterization											Experimetnal Design			Short-term Storage				StorAge Selection			Long-term Storage							AD vs. TS	
		UAA	Q	V	Stream Order	Hydraulic Conductivity	Valley Slope	Valley Width	Stream Power	Qsubcap	Sinuosity	HYP_{POT}	t_{peak}	t_{99}	L_{detect}	M_1	CV	Skewness	Holdback	$frac_{Qlabeled}$	$frac_{Vtot}$	$frac_{Vstr}$	$Q_{lossmax}$	$Q_{lossmin}$	$Q_{gainmax}$	$Q_{gainmin}$	$frac_{Qgainmax}$	$frac_{Qlossmax}$	$frac_{Mloss}$	$frac_{MAD}$	$frac_{MTS}$
Site Characterization	UAA	1.00	0.83	0.54	0.95	0.51	0.72	0.70	0.83	-0.80	0.57	-0.19	0.66	0.16	0.04	0.47	-0.27	-0.40	-0.16	-0.12	-0.26	-0.53	-0.29	-0.29	0.24	0.23	0.16	-0.20	0.16	-0.08	0.08
	Q	0.83	1.00	0.84	0.74	0.36	0.55	0.57	1.00	-0.76	0.38	-0.22	0.38	-0.10	0.29	0.19	-0.32	-0.42	-0.21	0.03	-0.17	-0.58	-0.15	-0.17	0.04	0.04	-0.02	-0.04	0.00	-0.03	0.03
	V	0.54	0.84	1.00	0.45	0.27	0.35	0.42	0.84	-0.63	0.20	-0.11	0.04	-0.34	0.39	-0.16	-0.33	-0.20	-0.12	0.15	-0.15	-0.57	-0.06	-0.08	0.03	0.03	0.00	0.12	-0.14	0.12	-0.12
	Stream Order	0.95	0.74	0.45	1.00	0.49	0.77	0.73	0.74	-0.75	0.64	-0.24	0.71	0.24	-0.01	0.53	-0.20	-0.36	-0.11	-0.09	-0.31	-0.48	-0.29	-0.29	0.25	0.24	0.17	-0.18	0.13	-0.04	0.04
	Hydraulic Conductivity	0.51	0.36	0.27	0.49	1.00	0.39	0.44	0.36	-0.76	0.45	0.45	0.31	0.00	-0.49	0.15	-0.22	-0.07	-0.06	-0.09	-0.12	-0.33	-0.15	-0.17	0.20	0.20	0.06	-0.12	0.14	0.25	-0.25
	Valley Slope	0.72	0.55	0.35	0.77	0.39	1.00	0.72	0.55	-0.54	0.65	-0.22	0.65	0.33	0.10	0.53	-0.18	-0.19	-0.05	0.10	-0.39	-0.43	-0.16	-0.15	0.22	0.21	0.12	0.02	-0.05	0.11	-0.11
	Valley Width	0.70	0.57	0.42	0.73	0.44	0.72	1.00	0.57	-0.73	0.79	-0.10	0.50	0.16	0.07	0.41	-0.16	-0.32	-0.16	0.03	-0.34	-0.33	-0.21	-0.20	0.14	0.14	-0.01	-0.10	0.02	0.01	-0.01
	Stream Power	0.83	1.00	0.84	0.74	0.36	0.55	0.57	1.00	-0.76	0.38	-0.22	0.38	-0.10	0.29	0.19	-0.32	-0.42	-0.21	0.03	-0.17	-0.58	-0.15	-0.17	0.04	0.04	-0.02	-0.04	0.00	-0.03	0.03
	Qsubcap	-0.80	-0.76	-0.63	-0.75	-0.76	-0.54	-0.73	-0.76	1.00	-0.58	-0.17	-0.49	0.01	0.18	-0.30	0.32	0.39	0.22	0.10	0.22	0.53	0.26	0.27	-0.22	-0.21	-0.06	0.18	-0.14	-0.08	0.08
	Sinuosity	0.57	0.38	0.20	0.64	0.45	0.65	0.79	0.38	-0.58	1.00	-0.13	0.50	0.28	-0.12	0.40	0.05	-0.06	0.08	0.02	-0.21	-0.15	-0.11	-0.09	0.25	0.24	0.11	-0.05	0.00	0.08	-0.08
	HYP_{POT}	-0.19	-0.22	-0.11	-0.24	0.45	-0.22	-0.10	-0.22	-0.17	-0.13	1.00	-0.17	-0.12	-0.47	-0.19	-0.01	0.15	0.02	-0.09	0.09	0.05	-0.02	0.00	-0.15	-0.15	-0.23	-0.09	0.09	0.26	-0.26
Experimetnal Design	t_{peak}	0.66	0.38	0.04	0.71	0.31	0.65	0.50	0.38	-0.49	0.50	-0.17	1.00	0.57	-0.19	0.88	-0.22	-0.28	-0.07	-0.05	-0.34	-0.43	-0.22	-0.18	0.33	0.32	0.34	-0.11	0.09	-0.06	0.06
	t_{99}	0.16	-0.10	-0.34	0.24	0.00	0.33	0.16	-0.10	0.01	0.28	-0.12	0.57	1.00	-0.57	0.83	0.58	0.31	0.53	0.29	0.19	0.36	0.20	0.23	0.08	0.07	0.04	0.27	-0.30	-0.28	0.28
	L_{detect}	0.04	0.29	0.39	-0.01	-0.49	0.10	0.07	0.29	0.18	-0.12	-0.47	-0.19	-0.57	1.00	-0.39	-0.42	-0.31	-0.39	-0.05	-0.35	-0.35	-0.12	-0.12	-0.06	-0.06	0.05	-0.07	0.06	0.09	-0.09
Short-term Storage	M_1	0.47	0.19	-0.16	0.53	0.15	0.53	0.41	0.19	-0.30	0.40	-0.19	0.88	0.83	-0.39	1.00	0.10	-0.17	0.08	0.12	-0.13	-0.09	-0.04	0.00	0.17	0.16	0.14	0.05	-0.09	-0.25	0.25
	CV	-0.27	-0.32	-0.33	-0.20	-0.22	-0.18	-0.16	-0.32	0.32	0.05	-0.01	-0.22	0.58	-0.42	0.10	1.00	0.67	0.79	0.33	0.59	0.86	0.39	0.38	-0.15	-0.15	-0.22	0.32	-0.37	-0.29	0.29
	Skewness	-0.40	-0.42	-0.20	-0.36	-0.07	-0.19	-0.32	-0.42	0.39	-0.06	0.15	-0.28	0.31	-0.31	-0.17	0.67	1.00	0.89	0.39	0.40	0.55	0.48	0.46	-0.07	-0.06	-0.02	0.48	-0.44	0.07	-0.07
	Holdback	-0.16	-0.21	-0.12	-0.11	-0.06	-0.05	-0.16	-0.21	0.22	0.08	0.02	-0.07	0.53	-0.39	0.08	0.79	0.89	1.00	0.36	0.45	0.55	0.42	0.41	-0.05	-0.05	-0.01	0.42	-0.41	-0.06	0.06
StorAge Selection	$frac_{Qlabeled}$	-0.12	0.03	0.15	-0.09	-0.09	0.10	0.03	0.03	0.10	0.02	-0.09	-0.05	0.29	-0.05	0.12	0.33	0.39	0.36	1.00	0.12	0.12	0.79	0.78	-0.35	-0.36	-0.27	0.96	-0.98	-0.13	0.13
	$frac_{Vtot}$	-0.26	-0.17	-0.15	-0.31	-0.12	-0.39	-0.34	-0.17	0.22	-0.21	0.09	-0.34	0.19	-0.35	-0.13	0.59	0.40	0.45	0.12	1.00	0.63	0.31	0.30	-0.21	-0.20	-0.22	0.16	-0.15	-0.12	0.12
	$frac_{Vstr}$	-0.53	-0.58	-0.57	-0.48	-0.33	-0.43	-0.33	-0.58	0.53	-0.15	0.05	-0.43	0.36	-0.35	-0.09	0.86	0.55	0.55	0.12	0.63	1.00	0.31	0.30	-0.23	-0.22	-0.32	0.14	-0.17	-0.23	0.23
Long-term Storage	$Q_{lossmax}$	-0.29	-0.15	-0.06	-0.29	-0.15	-0.16	-0.21	-0.15	0.26	-0.11	-0.02	-0.22	0.20	-0.12	-0.04	0.39	0.48	0.42	0.79	0.31	0.31	1.00	0.98	-0.51	-0.52	-0.38	0.84	-0.82	-0.20	0.20
	$Q_{lossmin}$	-0.29	-0.17	-0.08	-0.29	-0.17	-0.15	-0.20	-0.17	0.27	-0.09	0.00	-0.18	0.23	-0.12	0.00	0.38	0.46	0.41	0.78	0.30	0.30	0.98	1.00	-0.46	-0.47	-0.32	0.80	-0.80	-0.19	0.19
	$Q_{gainmax}$	0.24	0.04	0.03	0.25	0.20	0.22	0.14	0.04	-0.22	0.25	-0.15	0.33	0.08	-0.06	0.17	-0.15	-0.07	-0.05	-0.35	-0.21	-0.23	-0.51	-0.46	1.00	1.00	0.90	-0.41	0.38	0.28	-0.28
	$Q_{gainmin}$	0.23	0.04	0.03	0.24	0.20	0.21	0.14	0.04	-0.21	0.24	-0.15	0.32	0.07	-0.06	0.16	-0.15	-0.06	-0.05	-0.36	-0.20	-0.22	-0.52	-0.47	1.00	1.00	0.90	-0.42	0.40	0.29	-0.29
	$frac_{Qgainmax}$	0.16	-0.02	0.00	0.17	0.06	0.12	-0.01	-0.02	-0.06	0.11	-0.23	0.34	0.04	0.05	0.14	-0.22	-0.02	-0.01	-0.27	-0.22	-0.32	-0.38	-0.32	0.90	0.90	1.00	-0.31	0.31	0.29	-0.29
	$frac_{Qlossmax}$	-0.20	-0.04	0.12	-0.18	-0.12	0.02	-0.10	-0.04	0.18	-0.05	-0.09	-0.11	0.27	-0.07	0.05	0.32	0.48	0.42	0.96	0.16	0.14	0.84	0.80	-0.41	-0.42	-0.31	1.00	-0.97	-0.12	0.12
	$frac_{Mloss}$	0.16	0.00	-0.14	0.13	0.14	-0.05	0.02	0.00	-0.14	0.00	0.09	0.09	-0.30	0.06	-0.09	-0.37	-0.44	-0.41	-0.98	-0.15	-0.17	-0.82	-0.80	0.38	0.40	0.31	-0.97	1.00	0.14	-0.14
AD vs. TS	$frac_{MAD}$	-0.08	-0.03	0.12	-0.04	0.25	0.11	0.01	-0.03	-0.08	0.08	0.26	-0.06	-0.28	0.09	-0.25	-0.29	0.07	-0.06	-0.13	-0.12	-0.23	-0.20	-0.19	0.28	0.29	0.29	-0.12	0.14	1.00	-1.00
	$frac_{MTS}$	0.08	0.03	-0.12	0.04	-0.25	-0.11	-0.01	0.03	0.08	-0.08	-0.26	0.06	0.28	-0.09	0.25	0.29	-0.07	0.06	0.13	0.12	0.23	0.20	0.19	-0.28	-0.29	-0.29	0.12	-0.14	-1.00	1.00

Table S3. Slope and r2 for each metric of river corridor exchange based on (a) first-order, univariate, polynomial fit to log of drainage area; (b) first-order, univariate, polynomial fit to log of hyporheic potential; and (c) first-order planar fit using both *UAA* and HYP_{POT}. Bold type for slope indicates that the 95% confidence interval for slope did not contain zero (interpreted here as confidence in the direction of the relationship).

		(a) Univariate: UAA		(b) Univariate: HYP_{POT}		(c) Multivariate: UAA & HYP_{POT}		
Category	**Variable**	**Slope**	**r^2**	**Slope**	**r^2**	**Slope: UAA**	**Slope: HYP_{POT}**	**r^2**
Experimental Design	t_{99}	2.1E-02	0.001	**-1.4E-01**	0.014	-1.7E-03	-1.4E-01	0.014
	t_{peak}	**6.7E-02**	0.110	**-4.0E-02**	0.025	**6.3E-02**	-2.4E-02	0.118
	L_{detect}	**1.2E-05**	0.023	**-5.1E-05**	0.266	3.7E-06	**-5.0E-05**	0.268
AD vs. TS	f_{MAD}	1.7E-02	0.007	3.3E-02	0.016	2.3E-02	3.9E-02	0.028
Short-term Storage	M_1	5.1E-02	0.031	**-6.2E-02**	0.028	4.3E-02	-5.0E-02	0.049
	CV	-1.1E-01	0.069	**-5.0E-02**	0.009	-1.2E-01	-8.2E-02	0.092
	γ	-4.7E-01	0.136	**2.6E-03**	0.000	**-4.9E-01**	-1.3E-01	0.142
	H	-8.3E-03	0.008	-1.2E-02	0.009	-1.1E-02	-1.4E-02	0.022
SAS	$f_{Q,labeled}$	1.2E-03	0.000	5.4E-03	0.001	2.2E-03	6.0E-03	0.002
	f_{VSTR}	-2.5E-02	0.062	**7.1E-03**	0.003	-2.5E-02	3.3E-04	0.062
	f_{VTOT}	-3.5E+00	0.177	**-5.5E-01**	0.003	**-3.7E+00**	-1.5E+00	0.198
Long-term Storage	$f_{QGAIN,MAX}$	**-5.9E-02**	<0.001	**-1.6E-03**	<0.001	-6.2E-02	-1.8E-02	<0.001
	$f_{QLOSS,MAX}$	**-4.7E-02**	0.022	**2.2E-02**	0.003	-4.5E-02	1.0E-02	0.023