

SUPPLEMENTARY MATERIAL

Table S1

Stream length in each micro-basin by stream order

Microbasin Code	Stream Order (u)					Total Length (km)
	1st order	2nd order	3rd order	4th order	5th order	
MC-1	111.07	29.04	20.44	22.49	2.54	185.59
MC-2	83.57	19.76	28.21	0.00	0.00	131.54
MC-3	32.74	20.68	17.33	0.00	0.00	70.75
MC-4	53.91	35.61	25.65	22.56	0.00	137.73
MC-5	54.14	33.50	27.16	0.00	0.00	114.80
MC-6	99.42	35.91	62.27	0.00	0.00	197.60
MC-7	19.17	14.90	13.90	0.00	0.00	47.97
MC-8	21.15	5.08	12.10	0.00	0.00	38.32
MC-9	35.30	13.43	18.23	0.00	0.00	66.96
MC-10	104.98	46.51	26.86	0.00	0.00	178.35
MC-11	61.09	40.76	14.66	0.00	0.00	116.51
MC-12	48.08	23.36	2.99	0.00	0.00	74.43
MC-13	102.83	84.32	0.03	0.00	0.00	187.18
MC-14	48.15	19.57	16.18	0.00	0.00	83.90
MC-15	42.59	29.12	0.00	0.00	0.00	71.71

Table S2

Preliminary priority rankings obtained using WSA

Microbasin Code	Dd	Fs	Cr	Tr	As	R	Rh	Er	Ff	Sf	Cc	Lg
MC-1	13	6	1	4	3	5	9	1	1	15	1	13
MC-2	12	9	3	3	1	6	5	4	4	12	3	12
MC-3	15	13	6	13	2	3	1	9	9	7	6	15
MC-4	14	15	5	7	4	2	4	3	3	13	5	14
MC-5	10	14	7	14	5	4	2	7	7	9	7	10
MC-6	11	12	14	12	6	1	3	2	2	14	14	11
MC-7	6	8	10	15	7	10	6	14	14	2	10	6
MC-8	5	1	9	10	10	11	8	15	15	1	9	5
MC-9	7	5	12	9	9	8	7	12	12	4	12	7
MC-10	3	10	15	11	11	7	10	5	5	11	15	3
MC-11	8	11	4	8	8	9	11	8	8	8	4	8
MC-12	9	3	13	6	13	12	12	10	10	6	13	9
MC-13	1	7	8	1	15	13	14	6	6	10	8	1
MC-14	2	2	11	5	12	14	13	11	11	5	11	2
MC-15	4	4	2	2	14	15	15	13	13	3	2	4

Table S3

Pearson cross-correlation matrix of different morphometric parameters of all micro basin using WSA

	Dd	Fs	Cr	Tr	As	R	Rh	Er	Ff	Sf	Cc	Lg	Gt
Dd	1	0.58	-0.38	0.24	-0.87	-0.81	-0.74	-0.49	-0.49	0.49	-0.38	1.00	
Fs	0.58	1	-0.14	0.43	-0.61	-0.80	-0.69	-0.58	-0.58	0.58	-0.14	0.58	
Cr	-0.38	-0.14	1	0.44	0.40	0.05	-0.01	0.18	0.18	-0.18	1.00	-0.38	
Tr	0.24	0.43	0.44	1	-0.35	-0.48	-0.69	0.18	0.18	-0.18	0.44	0.24	
As	-0.87	-0.61	0.40	-0.35	1	0.83	0.83	0.48	0.48	-0.48	0.40	-0.87	
R	-0.81	-0.80	0.05	-0.48	0.83	1	0.87	0.67	0.67	-0.67	0.05	-0.81	
Rh	-0.74	-0.69	-0.01	-0.69	0.83	0.87	1	0.28	0.28	-0.28	-0.01	-0.74	
Er	-0.49	-0.58	0.18	0.18	0.48	0.67	0.28	1	1.00	-1.00	0.18	-0.49	
Ff	-0.49	-0.58	0.18	0.18	0.48	0.67	0.28	1.00	1	-1.00	0.18	-0.49	
Sf	0.49	0.58	-0.18	-0.18	-0.48	-0.67	-0.28	-1.00	-1.00	1	-0.18	0.49	
Cc	-0.38	-0.14	1.00	0.44	0.40	0.05	-0.01	0.18	0.18	-0.18	1	-0.38	
Lg	1.00	0.58	-0.38	0.24	-0.87	-0.81	-0.74	-0.49	-0.49	0.49	-0.38	1	6.94
Sum	-0.85	-0.37	2.15	1.44	1.23	0.56	0.10	1.39	1.39	-1.39	2.15	-0.85	
Weight (w)	-0.12	-0.05	0.31	0.21	0.18	0.08	0.01	0.20	0.20	-0.20	0.31	-0.12	

Note: Sum: sum of correlation coefficient; GT: grand total of correlations in bold value; W: weight value of each parameter.

Table S4

WSAcp values in each micro-basin

Microbasin Code	Dd	Fs	Cr	Tr	As	R	Rh	Er	Ff	Sf	Cc	Lg
MC-1	-1.59	-0.32	0.31	0.83	0.53	0.40	0.13	0.20	0.20	-3.00	0.31	-1.59
MC-2	-1.47	-0.48	0.93	0.62	0.18	0.48	0.07	0.80	0.80	-2.40	0.93	-1.47
MC-3	-1.84	-0.70	1.86	2.70	0.35	0.24	0.01	1.80	1.80	-1.40	1.86	-1.84
MC-4	-1.72	-0.80	1.55	1.45	0.71	0.16	0.06	0.60	0.60	-2.60	1.55	-1.72
MC-5	-1.23	-0.75	2.17	2.91	0.89	0.32	0.03	1.40	1.40	-1.80	2.17	-1.23
MC-6	-1.35	-0.64	4.33	2.49	1.06	0.08	0.04	0.40	0.40	-2.80	4.33	-1.35
MC-7	-0.74	-0.43	3.09	3.11	1.24	0.80	0.09	2.80	2.80	-0.40	3.09	-0.74
MC-8	-0.61	-0.05	2.79	2.08	1.77	0.88	0.12	3.00	3.00	-0.20	2.79	-0.61
MC-9	-0.86	-0.27	3.71	1.87	1.59	0.64	0.10	2.40	2.40	-0.80	3.71	-0.86
MC-10	-0.37	-0.54	4.64	2.28	1.95	0.56	0.14	1.00	1.00	-2.20	4.64	-0.37
MC-11	-0.98	-0.59	1.24	1.66	1.42	0.72	0.16	1.60	1.60	-1.60	1.24	-0.98
MC-12	-1.10	-0.16	4.02	1.25	2.30	0.96	0.17	2.00	2.00	-1.20	4.02	-1.10
MC-13	-0.12	-0.37	2.48	0.21	2.66	1.04	0.20	1.20	1.20	-2.00	2.48	-0.12
MC-14	-0.25	-0.11	3.40	1.04	2.13	1.12	0.19	2.20	2.20	-1.00	3.40	-0.25
MC-15	-0.49	-0.21	0.62	0.42	2.48	1.20	0.22	2.60	2.60	-0.60	0.62	-0.49

Table S5

Total variance explained for the selection of principal components (PCA) of the morphometric variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	6.81	56.72	56.72	6.81	56.72	56.72	4.38	36.51	36.51
2	2.55	21.22	77.93	2.55	21.22	77.93	4.19	34.93	71.43
3	1.82	15.17	93.10	1.82	15.17	93.10	2.60	21.67	93.10
4	0.38	3.18	96.28						
5	0.22	1.80	98.08						
6	0.16	1.34	99.42						
7	0.03	0.22	99.63						
8	0.02	0.18	100.00						
9	0.02	0.13	100.00						
10	0.01	0.05	100.00						
11	0.00	0.01	100.00						
12	0.00	0.00	100.00						

Table S6

Un-rotated and rotated factor loading matrix of morphometric variables

Morphometric Parameters	Extracted Principal Components			Calculated Principal Components		
	PC1	PC2	PC3	PC1	PC2	PC3
Dd	-0.890	0.041	-0.339	-0.836	-0.364	-0.277
Fs	-0.802	0.231	0.234	-0.520	-0.678	0.140
Cr	0.365	0.823	0.339	0.109	0.145	0.945
Tr	-0.091	0.887	-0.318	-0.619	0.308	0.647
As	0.923	0.022	0.348	0.838	0.391	0.344
R	0.940	-0.265	0.009	0.772	0.596	-0.045
Rh	0.715	-0.537	0.387	0.948	0.129	-0.182
Er	-0.838	-0.152	0.519	-0.220	-0.968	-0.096
Ff	-0.834	-0.155	0.525	-0.213	-0.970	-0.095
Sf	0.844	0.161	-0.499	0.233	0.960	0.113
Cc	-0.256	-0.771	-0.515	-0.157	0.063	-0.947
Lg	0.899	0.028	0.321	0.803	0.394	0.333