

Supplementary Materials

Table S1: Catchment-Scale MAR Potential.

Site	Approach 1		Approach 12	
	Mean	Max.	Mean	Max.
2	1.6	3.8	2	6
6	1.2	2.8	1.1	3.4
12	4.4	7.6	3.2	10
13	1.1	3.7	0.9	3
14	0.5	2.9	0	0
15	1	1.3	0.5	1.4
16	1.6	2.5	1.3	3.1
18	0.4	1.1	0.6	2.5
19	0.8	3.2	0.8	4.4
21	6.2	9	3.9	10.8
22	1.5	2.6	1.2	3.6
23	0.9	1.7	0.7	3
24	0.4	0.7	0.6	1.5
25	1.6	3.2	1.6	5.5
26	0.6	1.6	0.6	3
27	1.1	3.1	1.2	3.7
Sum	23	49.8	18.2	61.9

Note: Recharge volume units are expressed in million cubic metres (Mm³).

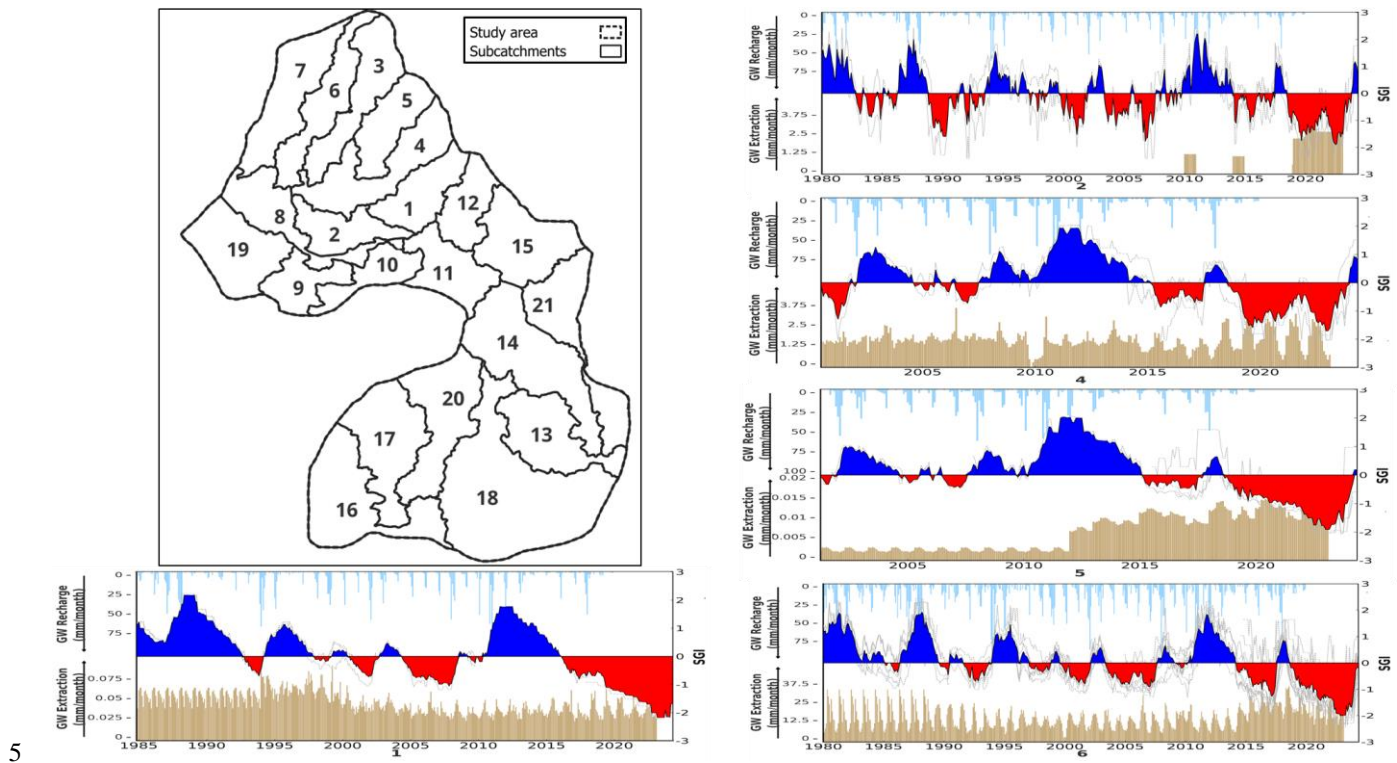


Figure S1. SGI time series of sub-catchments (1, 2, 4, 5, and 6).

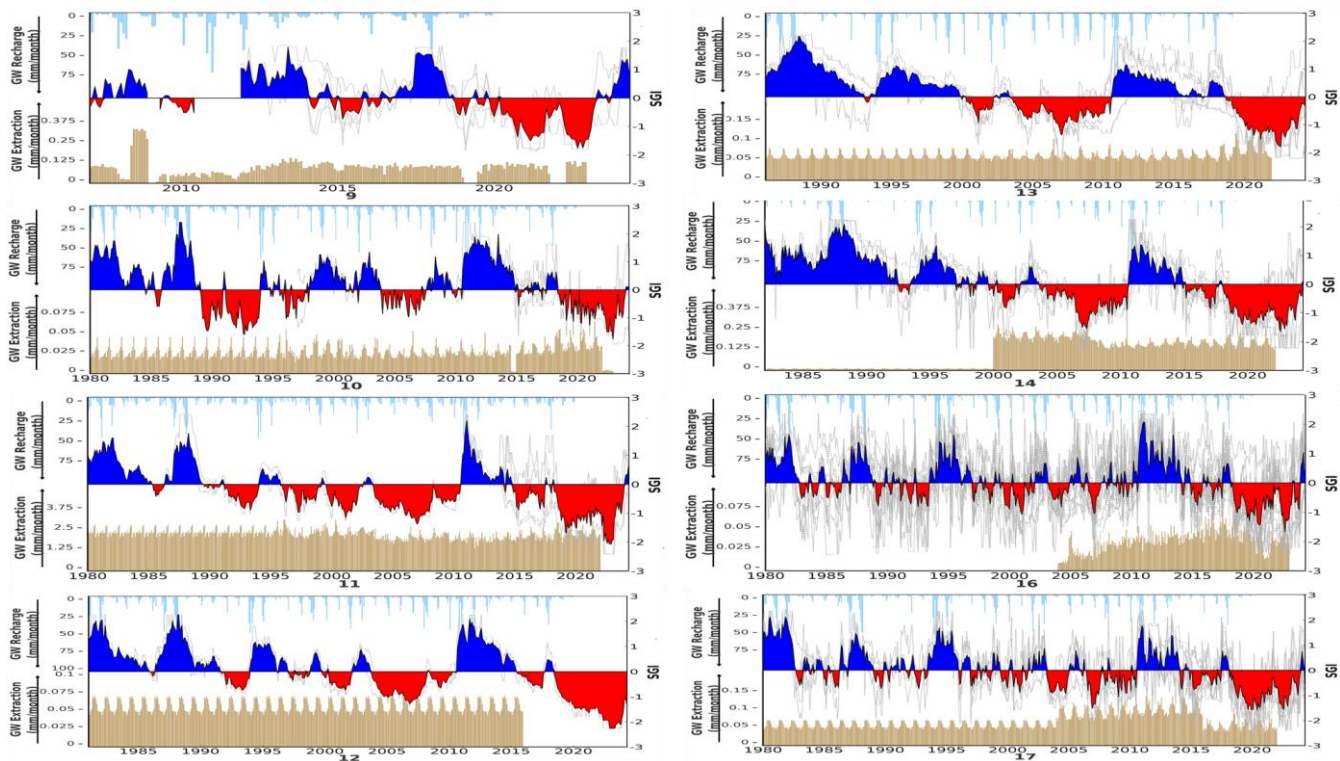


Figure S2. SGI time series of sub-catchments (9, 10, 11, 12, 13, 14, 16, and 17).

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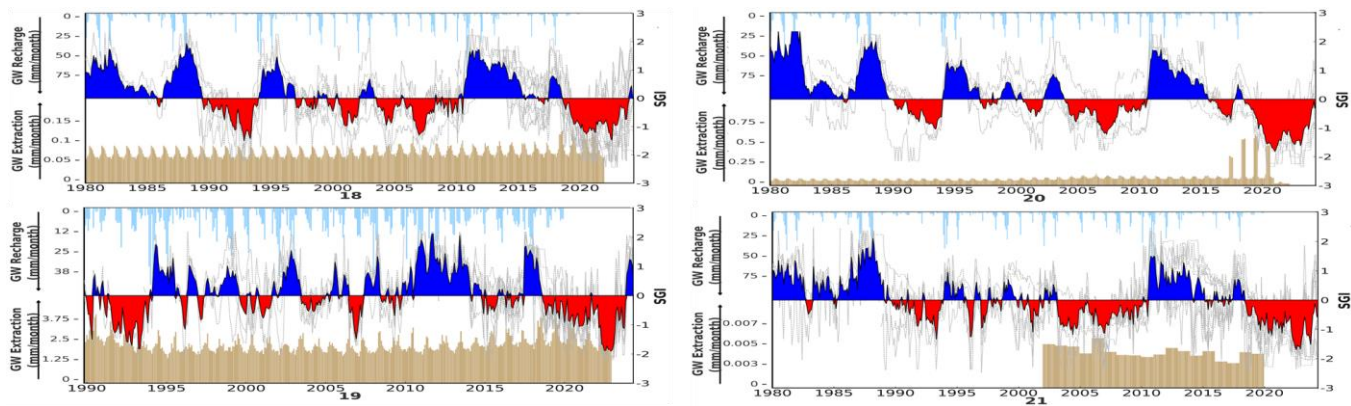
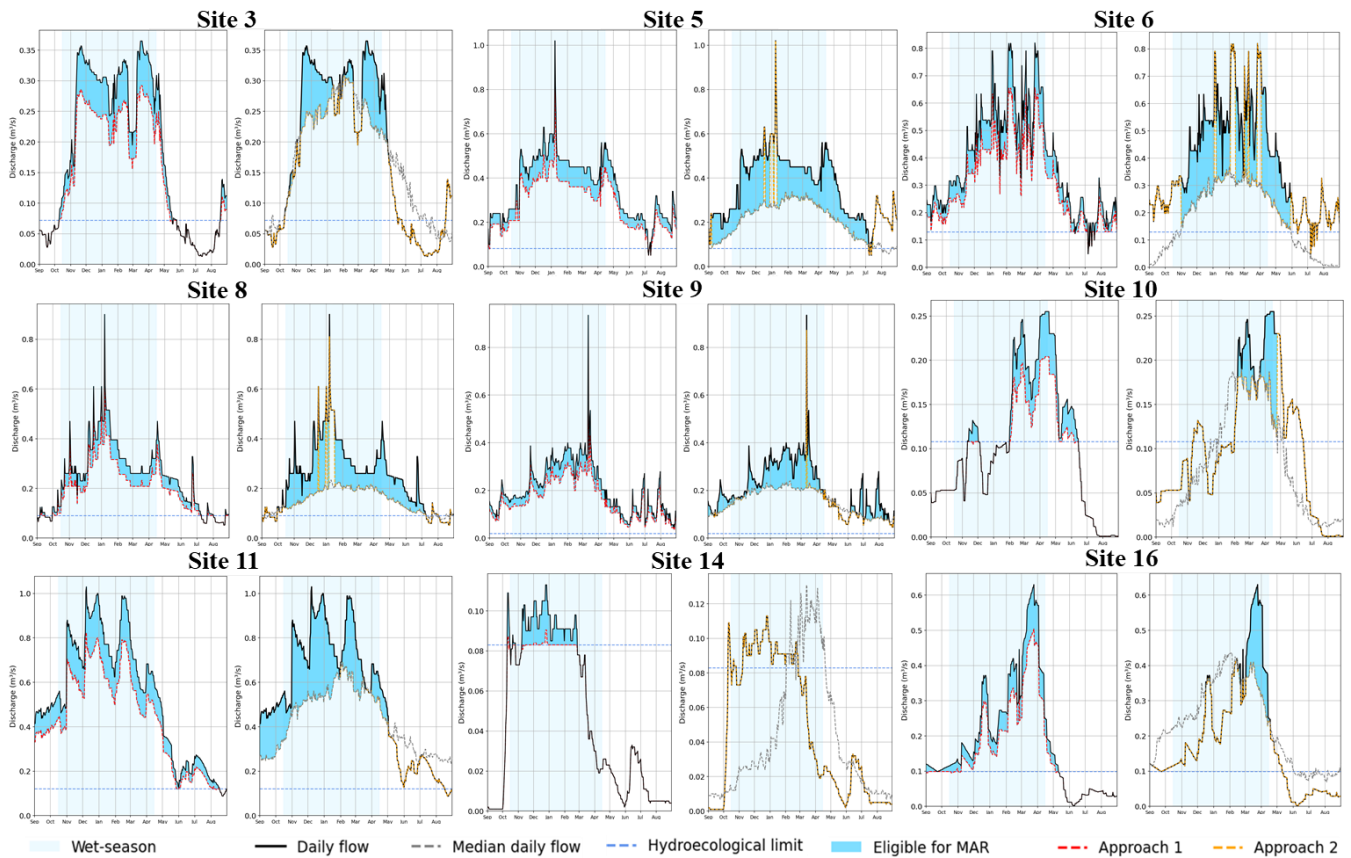


Figure S3. SGI time series of sub-catchments (18, 19, 20, and 21).



15 Figure S4. Hydrographs with daily flow, ecological thresholds, and MAR-eligible windows (blue shading) at Sites 3, 5, 6, 8, 9, 10, 11, 14, and 16; dashed red = Approach 1 (20% rule), dashed orange = Approach 2 (multi-threshold).

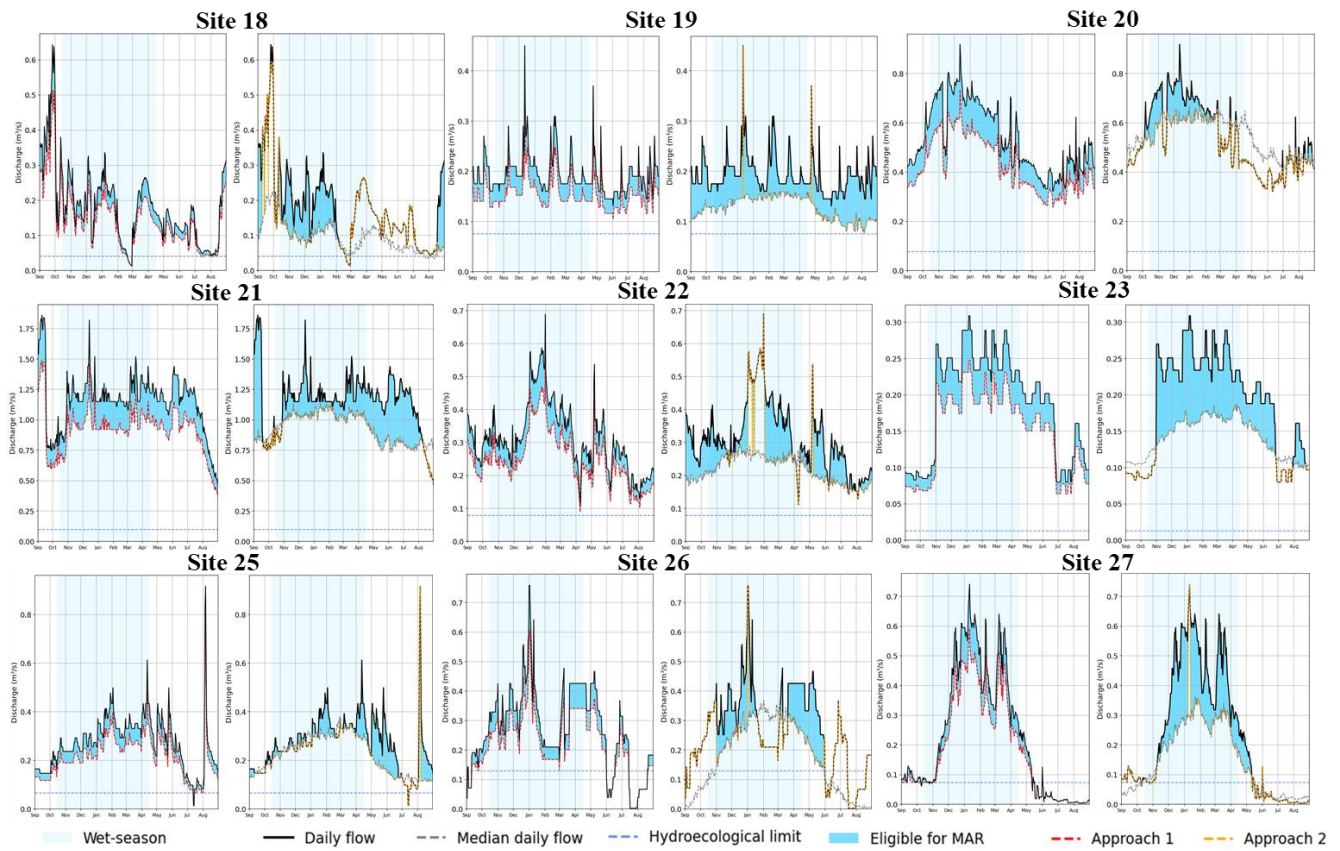


Figure S5. Hydrographs with daily flow, ecological thresholds, and MAR-eligible windows (blue shading) at Sites 18, 19, 20, 21, 22, 23, 25, 26, and 27; dashed red = Approach 1 (20% rule), dashed orange = Approach 2 (multi-threshold).

Approach 1

Approach 2

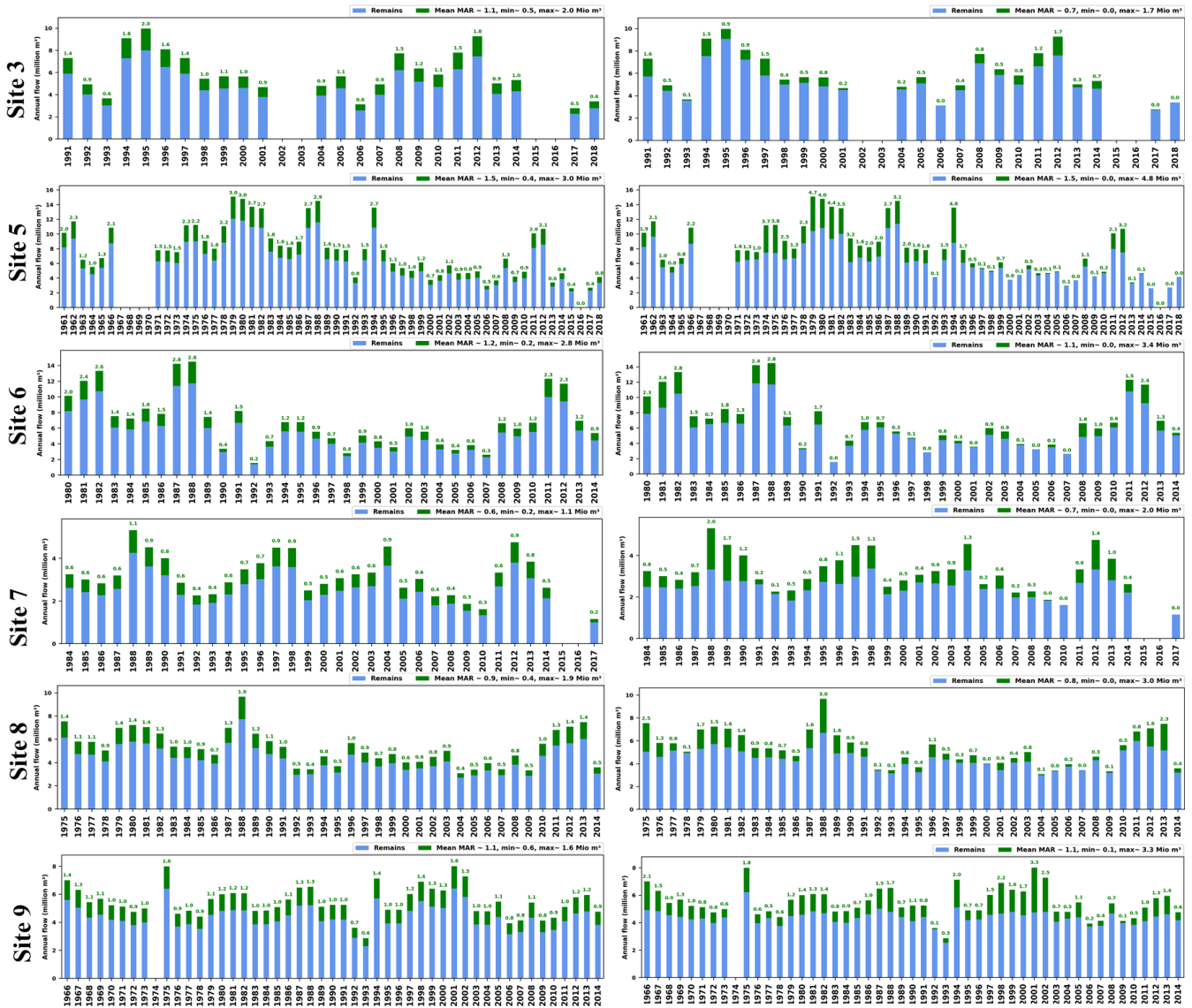
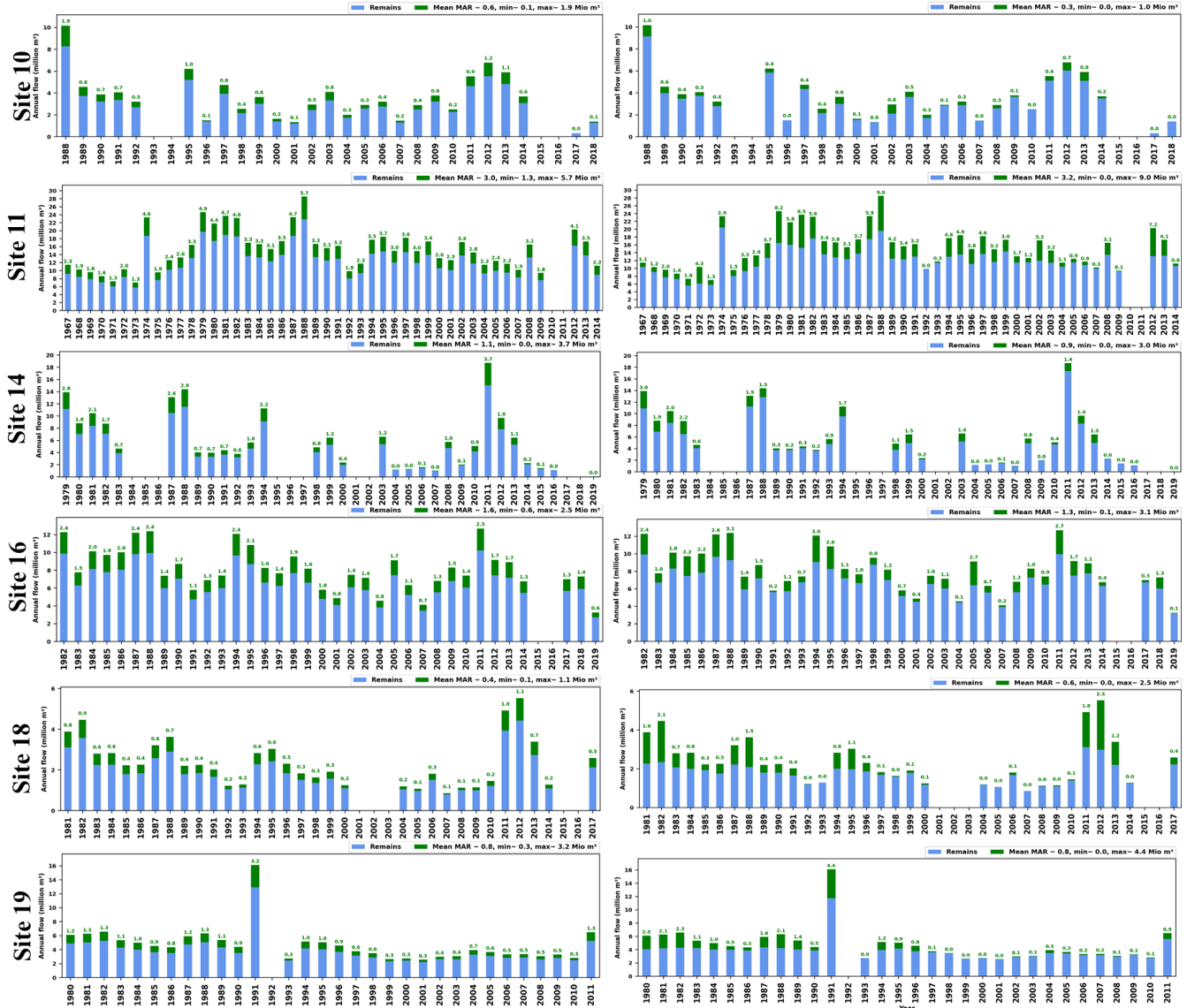


Figure S6. Seasonal discharge regimes and MAR eligibility for Sites 1, 2, 4, 12, 13, and 15 under both approaches, illustrating frequent eligibility under Approach 1 versus event-focused eligibility under Approach 2.

Approach 1

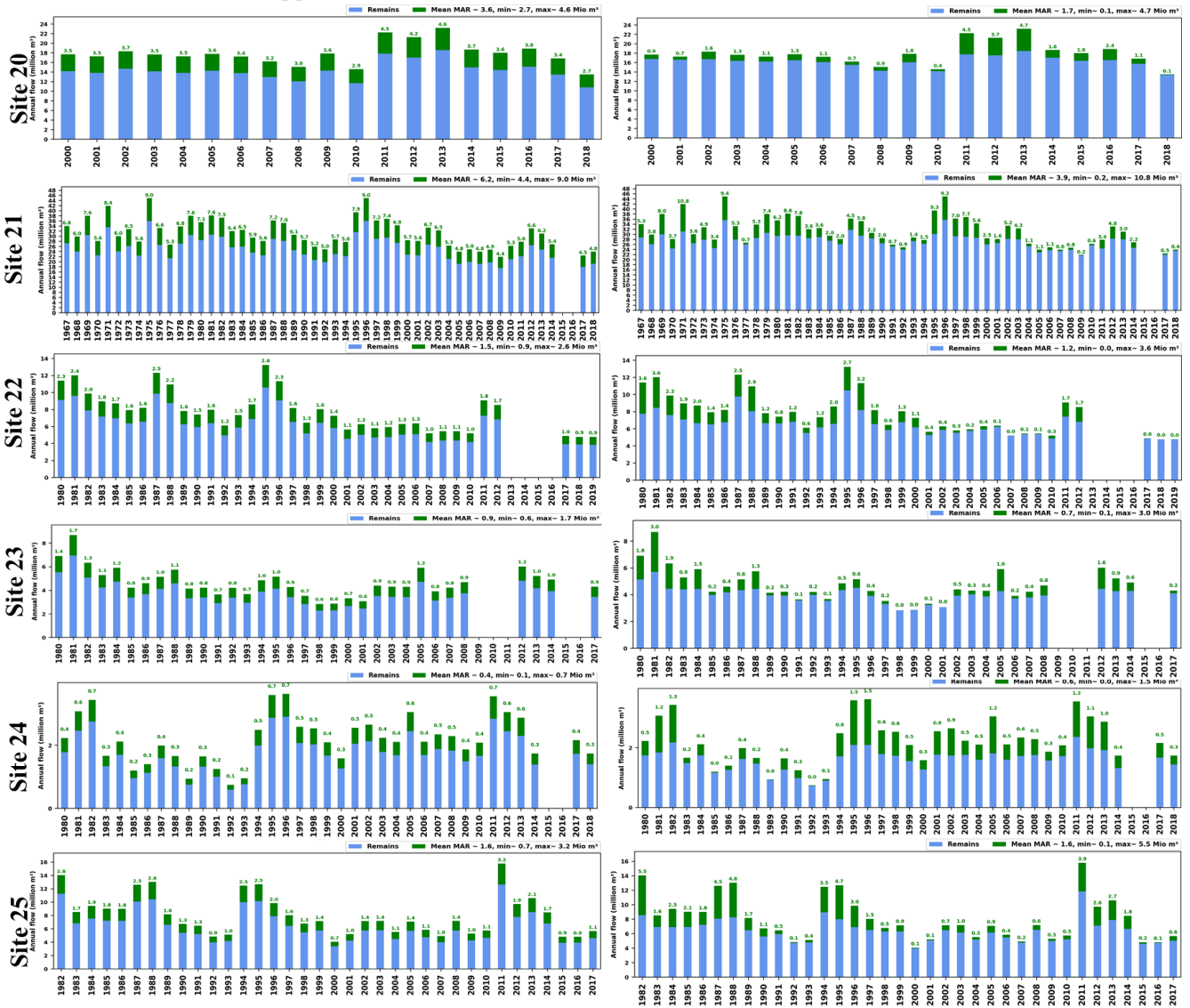
Approach 2



30 Figure S7. Seasonal discharge regimes and MAR eligibility for Sites 1, 2, 4, 12, 13, and 15 under both approaches, illustrating frequent eligibility under Approach 1 versus event-focused eligibility under Approach 2.

Approach 1

Approach 2



35 Figure S8. Seasonal discharge regimes and MAR eligibility for Sites 1, 2, 4, 12, 13, and 15 under both approaches, illustrating frequent eligibility under Approach 1 versus event-focused eligibility under Approach 2.