Table S1. Basic statistics of groundwater quality parameters in the study areas.

Parameters	Min			Max			Average			St.dev.		
	M	TG	V	M	TG	V	M	TG	V	M	TG	V
pH	6.8	6.9	5.9	8.0	8.3	7.9	7.51	7.52	6.81	0.39	0.36	0.55
EC (µS/cm)	250.0	544.0	245.0	769.0	10522.0	1187.0	386.17	1798.22	604.61	140.77	2160.54	176.13
HCO_3^- (mg/L)	140.0	262.0	78.1	268.0	2470.0	1011.1	192.67	577.84	343.65	44.07	384.12	248.74
Cl^- (mg/L)	3.0	8.7	2.9	21.1	3195.0	48.2	9.38	318.50	21.98	5.85	712.36	11.44
SO_4^- (mg/L)	9.0	4.8	1.4	135.0	546.0	87.5	28.39	70.88	19.80	34.61	118.46	20.63
c (mg/L)	ND	ND	ND	45.0	336.0	128.0	11.96	37.14	27.05	14.42	66.42	28.06
PO_4^{3-} (mg/L)	ND	ND	-	0.4	1.1	-	0.10	0.15	-	0.11	0.25	-
Na^+ (mg/L)	7.0	7.4	3.5	27.0	1365.0	31.1	16.35	176.18	18.33	6.15	289.76	8.05
K^+ (mg/L)	1.3	0.6	0.7	6.7	46.8	43.4	4.72	6.30	11.64	1.20	9.46	9.24
Ca^{2+} (mg/L)	30.0	17.0	21.1	97.0	382.0	288.7	43.17	105.38	91.72	17.95	83.83	68.21
Mg^{2+} (mg/L)	8.4	4.9	3.7	31.0	400.0	49.7	15.58	79.74	16.67	6.66	87.67	14.98
Sr (mg/L)	0.2	0.1	55.3	0.4	5.2	694.8	0.21	1.13	293.24	0.05	1.14	151.77
NH_4^+ (mg/L)	ND	ND	-	0.1	0.7	-	0.04	0.1	-	0.03	0.1	-
Cr (µg/L)	ND	ND	-	9.0	13.0	-	2.2	3.6	-	3.0	3.9	-
Fe (µg/L)	ND	ND	ND	218.0	491.0	79.8	117.8	124.5	7.2	75.0	120.9	17.2
Mn (µg/L)	10.0	10.0	ND	80.0	470.0	127.4	25.8	42.6	7.5	20.6	86.9	27.1
Mo (µg/L)	ND	ND	-	12.0	10.3	-	2.6	1.7	-	3.0	1.8	-
Zn (µg/L)	ND	ND	ND	550.0	595.0	810.4	110.2	71.0	71.5	185.1	148.5	180.8
SiO2 (mg/L)	15.8	14.0	-	35.0	41.5	-	23.0	26.6	-	6.7	7.5	-
B (mg/L)	ND	ND	4.8	0.3	3.6	797.9	0.1	0.8	91.6	0.1	1.0	169.4
As (µg/L)	ND	ND	ND	ND	554.0	4.2	ND	65.5	0.7	ND	157.0	1.2

*ND=Not detected, - = Non measured variables.

Table S2. Total Variance Explained in Mouriki basin (2021).

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.125	71.245	71.245	7.125	71.245	71.245	5.636	56.357	56.357
2	1.680	16.796	88.041	1.680	16.796	88.041	3.168	31.685	88.041
3	.649	6.492	94.533						
4	.455	4.551	99.084						
5	.067	.675	99.758						
6	.024	.242	100.000						
7	1.190E-16	1.190E-15	100.000						
8	-3.399E-17	-3.399E-16	100.000						
9	-9.246E-17	-9.246E-16	100.000						
10	-1.665E-16	-1.665E-15	100.000						

Table S3. Total Variance Explained in Mouriki basin (2022).

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.124	61.240	61.240	6.124	61.240	61.240	5.256	52.558	52.558
2	2.851	28.512	89.752	2.851	28.512	89.752	3.719	37.195	89.752
3	.720	7.201	96.954						
4	.305	3.046	100.000						
5	2.057E-16	2.057E-15	100.000						
6	7.109E-17	7.109E-16	100.000						
7	8.756E-18	8.756E-17	100.000						
8	-7.576E-17	-7.576E-16	100.000						
9	-2.160E-16	-2.160E-15	100.000						
10	-2.574E-16	-2.574E-15	100.000						

Table S4. Total Variance Explained in Thermaikos Gulf (2021).

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.485	74.845	74.845	7.485	74.845	74.845	7.450	74.500	74.500
2	1.870	18.697	93.543	1.870	18.697	93.543	1.904	19.043	93.543
3	.315	3.146	96.688						
4	.176	1.756	98.444						
5	.094	.936	99.380						
6	.032	.319	99.699						
7	.020	.202	99.901						
8	.009	.092	99.993						
9	.001	.006	99.999						
10	.000	.001	100.000						

Table S5. Total Variance Explained in Thermaikos Gulf (2022).

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.211	82.112	82.112	8.211	82.112	82.112	7.881	78.809	78.809
2	1.028	10.282	92.393	1.028	10.282	92.393	1.358	13.584	92.393
3	.490	4.899	97.292						
4	.122	1.217	98.510						
5	.079	.794	99.303						
6	.049	.486	99.789						
7	.012	.119	99.908						
8	.008	.076	99.984						
9	.002	.015	100.000						
10	4.164E-05	.000	100.000						

Table S6. Total Variance Explained in Upper Volturno basin (2021).

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.907	49.073	49.073	4.907	49.073	49.073	4.718	47.176	47.176
2	2.056	20.562	69.635	2.056	20.562	69.635	2.128	21.280	68.456
3	1.562	15.616	85.251	1.562	15.616	85.251	1.679	16.795	85.251
4	.712	7.123	92.373						
5	.377	3.765	96.139						
6	.222	2.217	98.356						
7	.101	1.012	99.368						
8	.062	.622	99.990						
9	.001	.009	99.999						
10	.000	.001	100.000						

Table S7. The results of KMO test.

Sampling period	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Values
2021	Mouriki basin	0.53
2022		0.52
2021	Thermaikos Gulf	0.69
2022		0.67
2021	Upper Volturno basin	0.52