

Supplementary Tab. 1. Mean environmental data with standard error for the 26 sampling sites from the Seybouse *wadi* and its tributaries (2008-2011). See Supplementary Tab. 2 for classes of pollution and filamentous algae, and Tab. 1 for site codes.

Site codes	Temperature (°C)	Conductivity ($\mu\text{S cm}^{-1}$)	Dissolved O ₂ (mg l^{-1} O ₂)	Turbidity (NTU)	pH	Current velocity (cm s^{-1})	Source distance (km)	Pollution class	Silt (%)	Sand (%)	Gravel (%)	Cobble (%)	Filamentous algae
BHD	10.4±0.28	880±173.94	9.85±1.62	10.75±0.36	6.70±1.07	0.075±0.007	81	3	40	40	0	20	4
BMA	14.1±6.54	1286.57±503.42	9.11±2.58	71.15±10.93	7.55±0.81	0.32±0.13	18	3	40	40	0	20	4
BMK	12.41±5.31	1357.5±320.42	2.93±0.39	5.73±2.89	7.49±0.35	0.94±0.65	1	1	0	0	0	100	1
BMR	23.92±2.38	1588.25±650.33	5.57±1.81	26.68±12.15	7.31±0.73	0.2±0.26	90	3	0	0	0	100	4
BSD	15.08±7.17	367.67±117.87	3.59±0.94	14.38±8.12	6.31±0.48	1.84±1.17	1	2	100	0	0	0	5
CKS	13.46±7.28	1634.6±163.06	6.75±8.55	59.95±33.25	7.45±0.69	11.76±9.97	2	2	100	0	0	0	5
CMA	13.27±6.44	812.71±644.68	7.35±5.73	116.76±16.08	7.52±1.09	20.27±25.03	9	2	40	40	0	20	2
CMK	13.28±8.28	2071.17±897.37	10.83±6.51	168.11±93.33	7.63±0.47	6.56±12.61	5	4	0	0	0	100	4
OAR	10.93±2.56	678.67±320.27	4.6±1.55	5.62±2.64	7.87±0.20	18.91±4.82	1	1	0	0	0	100	1
OBM	13.45±0.49	627.5±342.94	6.5±1.83	42.5±5.93	7.63±0.26	17.89±11.44	2	1	50	50	0	0	1
OBR	9.9±5.89	771.67±23.45	7.5±3.06	83.17±45.90	7.67±0.28	0.57±0.21	3	3	0	50	50	0	4
OCH	13.52±6.12	660.91±175.73	5.24±3.23	27.33±26.38	7.41±0.69	11.08±13.7	5	1	0	0	0	100	3
ODB	19.53±8.88	608.25±226.25	3.64±1.09	3.85±2.31	7.67±0.52	18.08±13.97	2	4	70	0	0	30	3
OHL	15.96±8.20	1191.6±271.23	9.84±5.31	510.2±401.01	7.51±0.54	0.43±0.37	81	3	0	0	0	100	4
OKR	12.56±3.70	441.67±78.38	3.84±3.04	28.35±41.36	7.55±0.37	14.78±10.48	1	1	100	0	0	0	1
OML	11.08±6.74	417.00±231.27	5.53±0.92	20.66±14.63	7.57±0.13	16.29±10.93	1	2	50	50	0	0	1
ONL	14.1±1.8	294.00±139.67	4.13±0.92	8.14±4.65	7.43±0.47	23.90±5.11	1	1	0	0	60	40	1
OZM	12.1±5.23	923.50±316.03	8.87±3.27	35.82±19.30	7.77±0.43	0.21±0.11	5	3	70	30	0	0	4
SBD	10.13±4.27	2248.67±874.52	16.03±8.35	199.53±79.70	7.95±1.00	0.55±0.36	130	3	40	40	0	20	4
SCH	14.77±5.03	1787.67±557.69	10.32±4.85	279.72±153.18	7.65±0.79	0.44±0.15	146	3	40	40	20	0	4
SDR	12.34±5.74	1615.86±567.33	10.55±4.89	382.10±213.31	7.68±0.88	0.58±0.36	154	3	40	40	0	20	4
SFJ	14.92±6.78	1285.35±407.31	10.25±3.46	162.37±86.99	7.41±0.81	0.55±0.28	87	3	0	0	0	100	4
CHS	16.78±7.21	763.17±174.12	4.22±1.52	22.88±8.17	7.4±0.44	13.41±5.03	81	2	40	40	0	20	2
CPS	14.68±7.87	642.44±112.68	2.55±1.65	22.04±14.83	7.03±0.72	19.19±8.00	21	5	100	0	0	0	5
SSS	13.75±7.04	1412.88±417.45	12.03±5.72	281.61±124.47	7.83±0.72	0.42±0.15	81	3	0	0	0	100	4
SZM	16.37±6.87	1383.33±315.62	6.50±2.10	155.54±49.10	7.16±0.73	0.41±0.07	110	5	70	30	0	0	5

Supplementary Tab. 2. Classes of the environmental factors.

Environmental factors	Classes	Intervals
Seasons	Class 1	Autumn
	Class 2	Summer
	Class 3	Spring
	Class 4	Winter
Granulometry (particle size distribution)	Class 1	<25%
	Class 2	25<32.5%
	Class 3	32.5<37.5%
	Class 4	37<45%
	Class 5	45<47.5%
	Class 6	47.5<50%
	Class 7	50<62.5%
	Class 8	62.5<85%
	Class 9	85<100%
Water conductivity	Class 1	<400 $\mu\text{s cm}^{-1}$
	Class 2	400<700 $\mu\text{s cm}^{-1}$
	Class 3	700<900 $\mu\text{s cm}^{-1}$
	Class 4	900<1500 $\mu\text{s cm}^{-1}$
	Class 5	>1500 $\mu\text{s cm}^{-1}$
Water temperature	Class 1	<6°C
	Class 2	6<9°C
	Class 3	9<14°C
	Class 4	14<19°C
	Class 5	>19°C
Pollution	Class 1	Unpolluted
	Class 2	Slightly polluted
	Class 3	Moderately polluted
	Class 4	Very polluted
	Class 5	Heavily polluted
Dissolved O ₂	Class 1	<3 mg L ⁻¹
	Class 2	3<5 mg L ⁻¹
	Class 3	5<8 mg L ⁻¹
	Class 4	8<13 mg L ⁻¹
	Class 5	>13 mg L ⁻¹
Current velocity	Class 1	<0.3 cm s ⁻¹
	Class 2	0.3<0.5 cm s ⁻¹
	Class 3	0.5<3 cm s ⁻¹
	Class 4	3<20 cm s ⁻¹
	Class 5	>20 cm s ⁻¹
Source distance	Class 1	<1 km
	Class 2	1<2 km
	Class 3	3<9 km
	Class 4	9<90 km
	Class 5	>90 km
Filamentous algae	Class 1	Little or no growth observed
	Class 2	Thin layer present
	Class 3	Crusts or coatings of diatoms
	Class 4	Abundant floating algae
	Class 5	Carpets or blankets of algae

Higher values of particle size distribution meaning higher percentage of large sized particles.

Supplementary Tab. 3. Correlation matrix of the environmental factors.

	Temp.	Cond.	O ₂ dis.	Turb.	pH	Current vel.	Source dist.	Pollution	Silt	Sand	Gravel	Cobble	Fil. algae
Temp.	1	-0.134	-0.438	-0.086	-0.120	-0.130	0.017*	0.122	0.036*	-0.102	-0.048*	0.027*	0.074
Cond.	-0.134	1	0.642	0.079	0.160	-0.458	0.448	0.176	-0.382	0.044*	-0.065	0.309	0.057
O ₂ dis.	-0.438	0.642	1	0.315	0.233	-0.438	0.428	0.102	-0.326	0.165	-0.002*	0.195	0.094
Turb.	-0.086	0.079	0.315	1	0.316	-0.265	0.448	0.148	-0.188	0.087	0.013*	0.113	0.162
pH	-0.120	0.160	0.233	0.316	1	-0.116	0.098	-0.074	-0.181	0.068	0.034*	0.110	-0.157
Current vel.	-0.130	-0.458	-0.438	-0.265	-0.116	1	-0.445	-0.115	0.217	-0.112	0.038*	-0.138	-0.262
Source dist.	0.017*	0.448	0.428	0.448	0.098	-0.445	1	0.367	-0.137	0.443	0.019*	-0.085	0.346
Pollution	0.122	0.176	0.102	0.148	-0.074	-0.115	0.367	1	0.305	0.056	-0.110	-0.247	0.689
Silt	0.036*	-0.382	-0.326	-0.188	-0.181	0.217	-0.137	0.305	1	0.160	-0.178	-0.843	0.347
Sand	-0.102	0.044*	0.165	0.087	0.068	-0.112	0.443	0.056	0.160	1	0.187	-0.612	-0.072
Gravel	-0.048*	-0.065	-0.002*	0.013*	0.034	0.038*	0.019*	-0.110	-0.178	0.187	1	-0.184	-0.115
Cobble	0.027*	0.309	0.195	0.113	0.110	-0.138	-0.085	-0.247	-0.843	-0.612	-0.184	1	-0.223
Fil. algae	0.074	0.057	0.094	0.162	-0.157	-0.262	0.346	0.689	0.347	-0.072	-0.115	-0.223	1

Temp., water temperature; *Cond.*, water conductivity; *O₂ dis.*, dissolved oxygen; *Turb.*, water turbidity; *Current vel.*, current velocity; *Source dist.*, source distance; *Fil. algae*, filamentous algae.
* $P < 0.05$.