Table S1. Dataset of physical, biological, chemical parameters, and Total Suspended Matter (TSM) at the Arzilla River in July-September 2019.

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	Salinity	Temperature (°C)	Chl-*a* (μg l^{-1})	N-NH$_4$ (μM)	N-NO$_3$ (μM)	N-NO$_2$ (μM)	TN (μM)	TP (μM)	TSM (mg l^{-1})
No. Data	23	23	23	23	23	23	15	15	23
Mean±SE	0.42±0.02	21.49±0.72	11.89±2.07	12.35±4.11	131.5±10.11	4.03±0.68	205.04±11.22	4.08±0.43	242.66±36.27
Minimum	0.32	16.05	1.28	1.46	60.99	0.47	122.97	1	74
Maximum	0.51	28.85	36.99	70.4	265.45	10.63	311.3	8.36	515

Table S2. Dataset of physical, biological, chemical parameters, and Total Suspended Matter (TSM) along the three transects at the sea in July-September 2019.

	Salinity	Temperature (°C)	Redox (mV)	pH	Conductivity (mS cm^{-1})	D.O. (mg l^{-1})	Chl a (µg l^{-1})	N-NH$_4$ (µM)	N-NO$_3$ (µM)	N-NO$_2$ (µM)	TSM (mg l^{-1})
No. Data	24	24	24	24	24	24	24	24	24	24	24
Mean±SE	29.72±0.57	26.40±0.29	302.65±12,24	8.08±0,01	47.20±0.79	6.22±0.09	4.23±1.18	2.01±13.55	14.49±2.04	0.40±0.05	63.67±13.55
Minimum	20.17	24.06	197.41	7.99	32.04	5.45	0.63	6.25	1.48	0.19	6.25
Maximum	33.03	31.59	427.84	8.17	52.01	7.18	24.1	285.71	34.88	1.29	285.71

Table S3. Dataset of physical, biological, chemical parameters, Total Suspended Matter (TSM) and Particulate Organic Matter (POM) at the Arzilla River in July, August and September 2020.

	Salinity	Temperature (°C)	Chl a (μg l^{-1})	N-NH$_4$ (μM)	N-NO$_3$ (μM)	N-NO$_2$ (μM)	TN (μM)	P-PO$_4$ (μM)	TP (μM)	TSM (mg l^{-1})	POM (mg l^{-1})
No. Data	36	36	36	36	36	36	36	36	36	36	36
Mean±SE	8.39±1.31	22.55±0.30	14.27±2.24	32.87±4.08	176.91±15.70	9.84± 0.66	292.65±15.43	0.90± 0.13	5.30 ± 0.72	100.55±26.29	12.52±1.76
Minimum	0.64	19.41	0.20	2	38.85	3.61	161.49	0.10	0.22	15.33	2.6
Maximum	23.48	25.66	53.67	88.45	379.71	17.88	481.77	3.23	22.07	353.73	60

Table S4. Dataset of physical, biological, chemical parameters, and Total Suspended Matter (TSM) and Particulate Organic Matter (POM) along the three transects at the sea in July, August, and September 2020.

	Salinity	Temperature (°C)	Redox (mV)	pH	Conductivity (mS cm^{-1})	D.O. (mg l^{-1})	Chl a (µg l^{-1})	N-NH$_4$ (µM)	N-NO$_3$ (µM)	N-NO$_2$ (µM)	TN (µM)	P-PO$_4$ (µM)	TP (µM)	TSM (mg l^{-1})	POM (mg l^{-1})
No. Data	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Mean±SE	32.5±0.59	25.26±0.27	183.94±7.7	8.13±0.01	50.02±0.85	6.36±0.08	4.12±1.22	2.69±0.53	11.1±1.95	0.51±0.06	40.53±3.94	0.12±0.02	1.44±0.27	50.14±8.23	9.12±1.33
Minimum	25.37	23.27	111.8	8.02	40.44	5.5	0.2	0.52	2.27	0.04	16.27	0.01	0.31	9.5	2
Maximum	36.59	27.19	255.1	8.26	54.95	6.89	33.26	10.89	33.35	1.34	82.97	0.51	6.68	186.92	34

Table S5. Meteorological-marine conditions during the five events (2019-2020).

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Sampling data (day/month/year)	Wind speed (m/s)	Wind gust (m/s)	Wind direction	Sea tide (mm)
11/07/2019	na	na	na	100
03/09/2019	0.81	1.37	North-East	120
05/09/2019	1.27	1.6	North-East	130
06/09/2019	0.76	1.16	North	190
17/07/2020	2.73	3.58	North	5
18/07/2020	3.57	3.89	North	4
04/08/2020	1.78	2.59	West	22
06/08/2020	4.51	5.19	North-West	12
01/07/2020	1.61	2.55	West	11
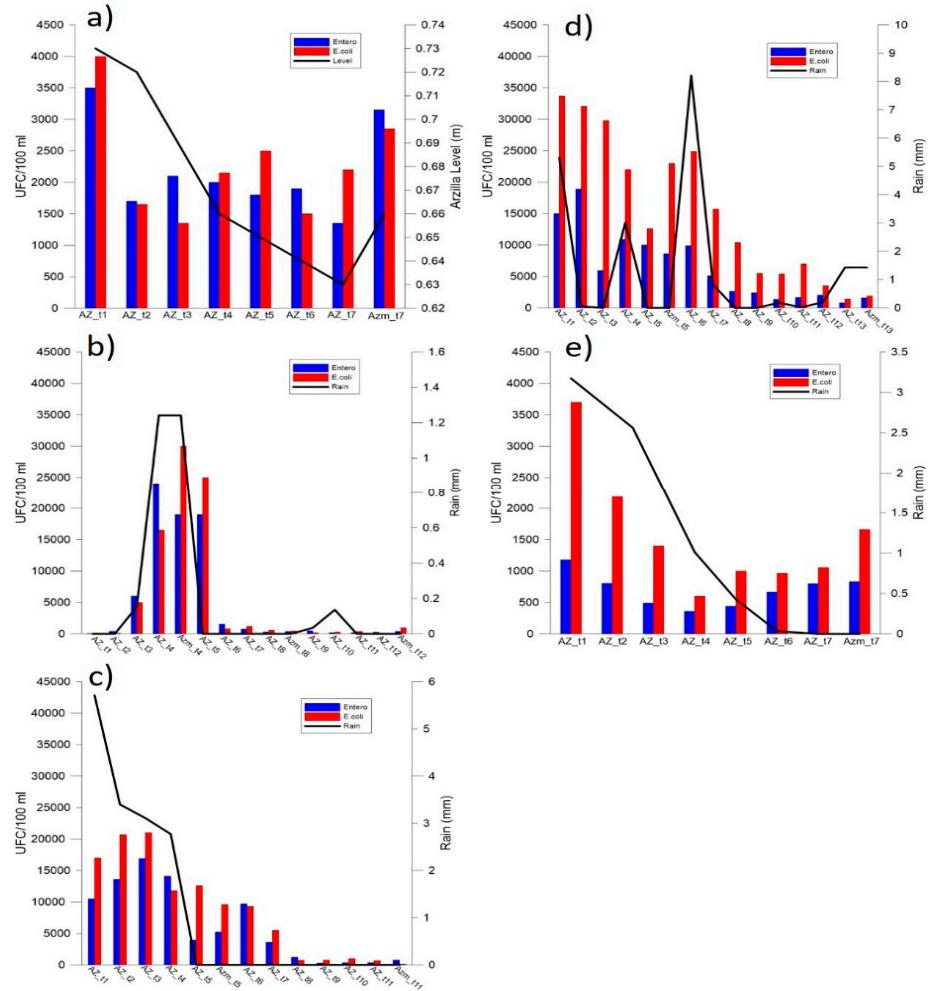
Figure S1. Temporal trends (from *t1* to *tn*) of microbial faecal distribution (*E.coli* and enterococci) and rainfall in the site of Arzilla River (AZ) and in Arzilla mouth (AZm) after the 5 sampling events: 10-11 July 2019 (a); 3-5-6 September 2019 (b); 17-18 July 2020 (c); 4-6 August 2020 (d); 1 September 2020 (e); mm of rainfall in Fig. (b),(c),(d),(e) and Arzilla level in metres in Fig (a). www.mdpi.com/Figure/s1
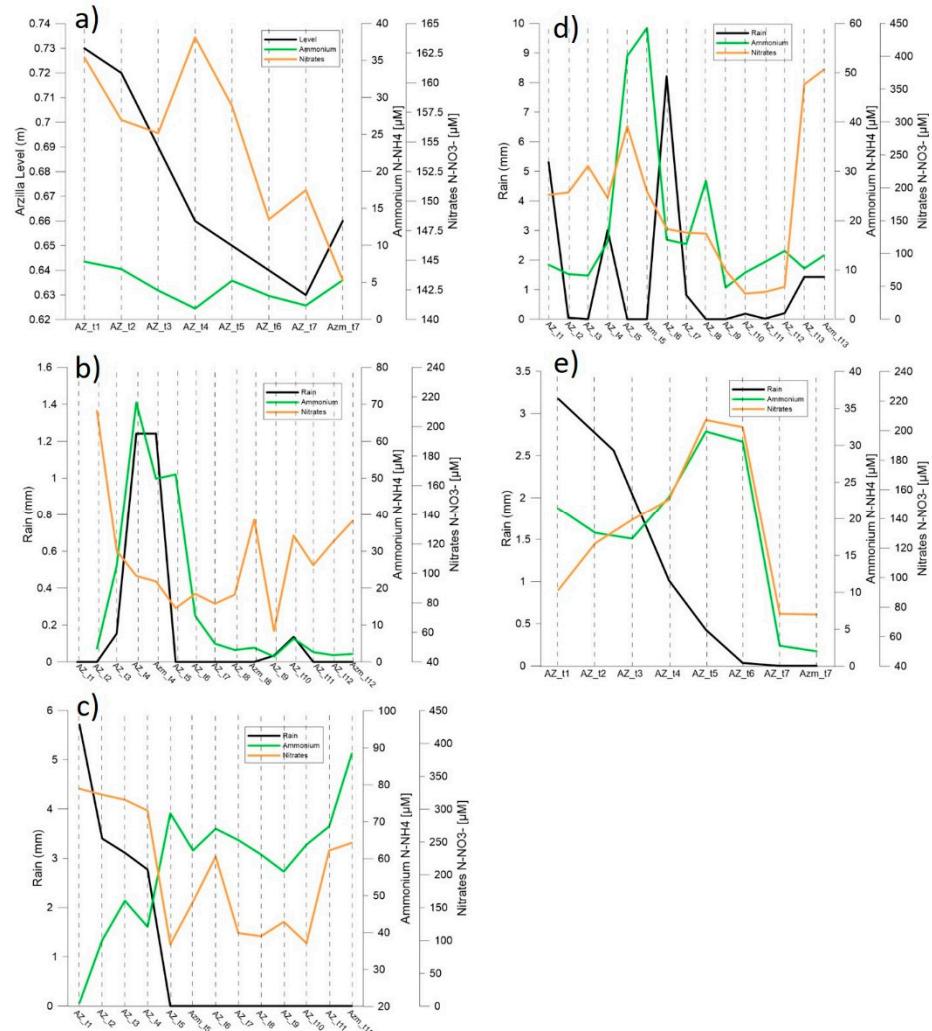
Figure S2. Temporal trends (from *t1* to *tn*) of nutrient distribution (ammonium and nitrates) and rainfall in the site of Arzilla River (AZ) and in Arzilla mouth (AZm) after the 5 sampling events: 10-11 July 2019 (a); 3-5-6 September 2019 (b); 17-18 July 2020 (c); 4-6 August 2020 (d); 1 September 2020 (e); mm of rainfall in Fig. (b),(c),(d),(e) and Arzilla level in metres in Fig (a). www.mdpi.com/Figure/s2
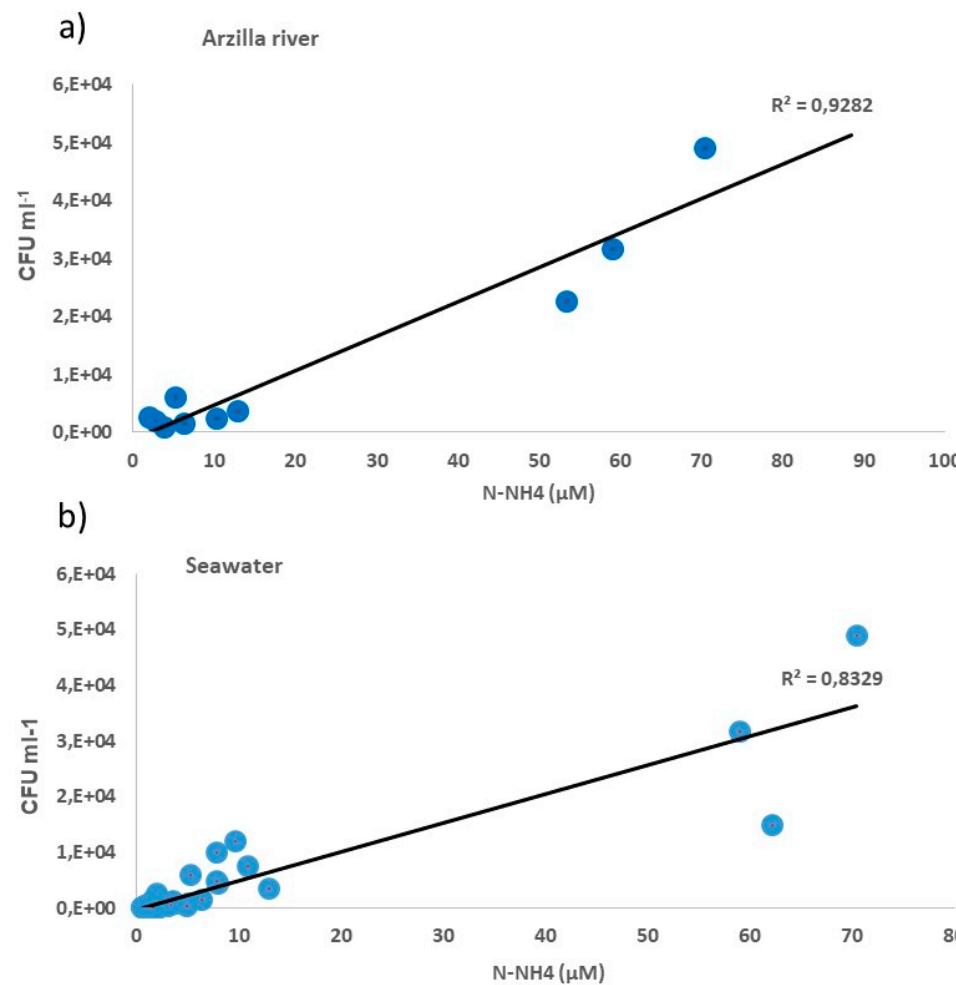
Figure S3. Relationship between total faecal bacteria (*E.coli* + enterococci) and ammonium (N-NH4) in Arzilla River (a) and seawater (b). Slopes of the linear regression are also given. www.mdpi.com/Figure/s3