

Supplementary Tables :

Supplementary Table S1: Summary of the information regarding samples and methods used in each PVC-dedicated study

Study	Site	PVC matrix	Immersion conditions (depth)	DNA extraction method (quantity of plastic used for DNA extraction)	Volume of seawater (control)
Pollet et al. 2018 [29]	Toulon	panels (5 x 5 cm)	subsurface (50cm-1m depth)	PowerBiofilm DNA isolation Kits (3 panels / time point)	Not sampled
Catao et al. 2021 [45]	Toulon Banyuls-sur-Mer Lorient Le Port	panels (5 x 5 cm)	subsurface (50cm-1m depth)	Power Soil DNA isolation kit (3 panels / time point)	2L
Lemonnier et al. 2020 [46]	Brest	pellets (Ø 4 mm)	subtidal or intertidal (water column or water-sediment interface)	phenol chloroform extraction (3 x 10 pellets / time point)	2L (not analyzed in this study)

Table S2 : Number of reads before and after processing, number of ASVs, and alpha diversity index values for each sample for the ITS2 dataset (natural settings)

Localisation	Environment	Samples	Incubation time (days)	Reads before processing	Reads after processing	ASV	Chao1	Shannon	InvSimpson	Pielou
Brest	PVC	BES_78_1	T7	200316	155453	22	22	1.74	4.99	0.56
		BES_78_2		132024	87190	32	32	2.13	7.36	0.61
		BES_186_1		69243	48273	72	72	3.51	22.07	0.82
		BES_186_2		183422	111725	128	128	3.29	14.25	0.68
		BES_186_3		66525	49751	85	85	3.27	16.13	0.74
		BES_81_3	T35	144692	102169	201	201	3.15	9.09	0.59
		BES_69_3	T42	155292	147013	7	7	0.07	1.02	0.04
		BES_72_3		137551	126513	18	18	0.89	1.80	0.31
		BES_135_1	T63	101554	69318	256	256	3.74	11.26	0.67

		BES_135_2		210322	127453	203	203	3.38	11.39	0.64
		BES_135_3		153089	117748	98	98	2.54	5.06	0.55
		BES_138_1		235780	129096	132	132	3.48	18.73	0.71
		BES_138_2		17711	11600	106	106	3.94	27.19	0.84
		BES_138_3		589225	151357	373	373	3.90	13.95	0.66
		BES_123_1	T70	77764	56897	80	80	3.30	19.46	0.75
		BES_123_2		143432	82321	156	156	3.16	13.94	0.63
		BES_123_3		135830	76063	86	86	2.99	9.25	0.67
		BES_126_1		95802	65406	82	82	3.13	10.27	0.71
		BES_126_2		171387	69227	146	146	3.64	24.75	0.73
		BES_126_3		71741	41607	249	249	3.80	15.43	0.69
		BES_192_1	T91	176643	91750	62	62	3.03	13.04	0.73
		BES_192_2		85195	52430	206	206	3.85	18.34	0.72
		BES_192_3		143001	93321	100	100	2.87	9.54	0.62
		BES_177_1	T98	162692	116231	49	49	2.78	12.98	0.72
		BES_177_2		129695	76749	38	38	2.62	10.06	0.72
		BES_177_3		219251	165504	86	86	2.83	11.30	0.64
		BES_180_1		115684	73404	98	98	3.42	12.45	0.75
		BES_180_2		222314	102015	126	126	3.01	7.48	0.62
		BES_180_3		120692	65941	79	79	3.45	18.98	0.79
		BES_222_1	T140	253990	99403	97	97	2.56	9.36	0.56
		BES_222_2		251710	163140	63	63	2.78	10.26	0.67
		BES_222_3		229332	146992	35	35	2.72	11.14	0.77
		BES_207_1	T147	64310	36863	50	50	2.83	9.24	0.72
		BES_207_2		246746	149854	148	148	3.42	10.83	0.68

		BES_207_3		209604	119174	50	50	3.04	10.40	0.78
		BES_210_1		169482	98596	151	151	3.85	26.58	0.77
		BES_210_2		208557	109374	119	119	3.12	10.01	0.65
		BES_210_3		136848	78339	181	181	3.65	16.45	0.70
Toulon	PVC	TLN_T1_1	T1	143040	79557	78	78	2.66	6.36	0.61
		TLN_T1_2		201550	122459	63	63	2.90	9.64	0.70
		TLN_T1_3		167204	98279	48	48	2.94	11.02	0.76
		TLN_T4_1	T4	193168	120382	162	162	3.67	17.02	0.72
		TLN_T4_2		152167	94211	78	78	3.42	19.09	0.78
		TLN_T4_3		199805	121734	73	73	3.54	23.13	0.83
		TLN_T8_1	T8	109357	62969	91	91	3.02	11.62	0.67
		TLN_T8_2		88462	54996	149	149	3.54	13.83	0.71
		TLN_T8_3		144780	93558	84	84	2.82	7.43	0.64
		TLN_T12_1	T12	201165	112588	70	70	3.07	11.93	0.72
		TLN_T12_2		216428	135835	80	80	2.93	8.36	0.67
		TLN_T12_3		151597	92392	103	103	3.35	13.62	0.72
		TLN_T20_1	T20	207736	135394	111	111	2.75	5.78	0.58
		TLN_T20_2		175009	91797	110	110	3.23	11.19	0.69
		TLN_T20_3		157513	87980	110	110	2.92	5.46	0.62
		TLN_T28_1	T28	158450	108063	50	50	2.21	4.21	0.56
		TLN_T28_2		146507	98462	59	59	2.41	4.51	0.59
		TLN_T28_3		201929	141508	58	58	2.35	4.84	0.58
		TLN_BIOP_1	T30	200787	126870	50	50	2.35	6.51	0.60
		TLN_BIOP_2		159262	94051	39	39	2.61	7.37	0.71
		TLN_BIOP_3		199219	122106	87	87	3.33	15.52	0.75

		TLN_T75_1	T75	168737	97947	173	173	4.29	34.59	0.83
		TLN_T75_2		167161	93658	231	231	3.65	8.98	0.67
		TLN_T75_3		192518	111284	248	248	4.08	14.11	0.74
		TLN_T365_1	T365	183257	122827	406	406	5.11	71.12	0.85
		TLN_T365_2		143293	86913	347	347	4.46	24.94	0.76
		TLN_T365_3		168497	110819	225	225	4.84	76.90	0.89
	Seawater	TLN_T0	T0	77967	41104	28	28	1.21	2.21	0.36
		TLN_T1	T10	81393	65974	16	16	0.93	2.19	0.33
		TLN_T2	T20	91315	49482	24	24	0.88	2.06	0.28
		TLN_T3	T30	100622	69350	22	22	1.18	2.97	0.38
Lorient	PVC	LRN_BIOP_1	T30	141546	52311	30	30	1.66	4.09	0.49
		LRN_BIOP_2		146319	75361	21	21	1.58	3.67	0.52
		LRN_BIOP_3		92272	50187	33	33	1.99	4.93	0.57
	Seawater	LRN_T0	T0	97228	76635	13	13	1.66	4.33	0.65
		LRN_T1	T10	91724	67355	17	17	2.15	5.43	0.76
		LRN_T2	T20	91992	59010	3	3	0.67	1.67	0.61
		LRN_T3	T30	87505	74035	16	16	0.27	1.09	0.10
Le Port	PVC	REU_BIOP_1	T30	107876	61521	18	18	2.01	6.42	0.69
		REU_BIOP_2		78571	39842	16	16	1.87	6.02	0.68
		REU_BIOP_3		77863	46923	29	29	1.82	4.78	0.54
	Seawater	REU_T0	T0	69252	47039	11	11	1.01	2.14	0.42
		REU_T1	T10	83449	67345	12	12	1.17	2.72	0.47
		REU_2	T20	85036	66438	16	16	0.76	2.04	0.27
		REU_T3	T30	86115	62812	5	5	0.17	1.08	0.11
	PVC	BSM_T75_1	T75	189003	107733	212	212	4.39	43.87	0.82

Banyuls-Sur- Mer		BSM_T75_2		128121	74570	132	132	3.98	29.38	0.81
		BSM_T75_3		196977	119803	155	155	4.11	30.76	0.81

Table S3 : Number of reads before and after processing, number of ASVs, and alpha diversity index values for each sample for the 18S dataset (natural settings)

Localisation	Environment	Samples	Incubation time (days)	Reads before processing	Reads after processing	ASV	Chao1	Shannon	InvSimpson	Pielou
Brest	PVC	BES_78_1	T7	52117	37518	26	26	2,31	7,10	0,71
		BES_78_2		107345	64324	12	12	1,05	2,50	0,42
		BES_78_3		45999	35446	35	35	2,50	7,83	0,70
		BES_186_1		93043	61686	16	16	1,35	2,08	0,49
		BES_186_2		97597	64010	35	35	1,87	2,98	0,53
		BES_186_3		85616	54205	17	17	2,11	5,01	0,74
		BES_81_1	T35	163890	101377	19	19	2,06	5,55	0,70
		BES_81_2		59051	45948	28	28	2,13	5,65	0,64
		BES_81_3		63755	51330	32	32	2,44	6,95	0,70
		BES_69_1	T42	48415	41031	2	2	0,67	1,92	0,97
		BES_69_2		52180	37590	1	1	0,00	1,00	NA
		BES_69_3		58107	52689	1	1	0,00	1,00	NA
		BES_72_1		65663	52755	15	15	2,18	6,82	0,80
		BES_72_2		37286	32172	30	30	2,69	9,20	0,79
		BES_72_3		51531	43486	30	30	2,74	10,26	0,81
		BES_135_1	T63	80229	42443	28	28	2,64	9,12	0,79
		BES_135_2		180185	129093	32	32	3,06	16,42	0,88
		BES_135_3		142154	83882	16	16	2,17	6,77	0,78
		BES_138_1		191129	128715	26	26	2,68	9,99	0,82

		BES_138_2		141682	79712	31	31	2,61	8,82	0,76
		BES_123_1	T70	117004	70513	23	23	2,37	8,31	0,76
		BES_123_2		66388	50479	30	30	2,69	10,18	0,79
		BES_123_3		63325	41740	39	39	3,12	15,50	0,85
		BES_126_1		129134	80625	22	22	2,26	6,39	0,73
		BES_126_2		95771	58636	25	25	1,89	3,75	0,59
		BES_126_3		149330	87682	33	33	2,15	4,20	0,61
		BES_192_1	T91	122135	65180	7	7	1,78	5,72	0,91
		BES_192_2		145190	87249	21	21	1,85	4,44	0,61
		BES_192_3		122371	78407	20	20	2,41	8,98	0,81
		BES_177_1	T98	47651	29569	13	13	1,56	2,94	0,61
		BES_177_2		85248	49891	11	11	2,06	7,26	0,86
		BES_177_3		81771	51856	8	8	1,74	4,74	0,84
		BES_180_1		96309	58190	23	23	2,24	5,24	0,72
		BES_180_2		109233	71510	24	24	1,96	3,56	0,62
		BES_180_3		91251	58699	21	21	2,11	4,20	0,69
		BES_222_1	T140	126467	76056	17	17	2,10	6,05	0,74
		BES_222_2		154936	101944	11	11	1,27	2,28	0,53
		BES_222_3		114890	75281	7	7	1,07	2,07	0,55
		BES_207_1	T147	87096	50484	7	7	1,14	2,17	0,58
		BES_207_2		112400	70220	8	8	0,45	1,23	0,21
		BES_207_3		114806	70037	9	9	1,09	1,85	0,49
		BES_210_1		89237	53171	40	40	2,81	10,42	0,76
		BES_210_2		107606	69039	20	20	1,55	2,39	0,52
		BES_210_3		145620	89600	25	25	1,16	1,80	0,36

Toulon	PVC	TLN_T1_1	T1	122336	79288	39	39	2,14	3,49	0,58
		TLN_T1_2		131120	90689	38	38	1,60	2,15	0,44
		TLN_T1_3		93798	62638	43	43	2,35	3,96	0,62
		TLN_T4_1	T4	91189	55655	77	80	2,71	4,60	0,62
		TLN_T4_2		103676	64550	54	54	2,81	8,78	0,71
		TLN_T4_3		91124	59791	45	45	2,90	10,40	0,76
		TLN_T8_1	T8	127417	90676	51	51	2,81	6,77	0,71
		TLN_T8_2		121242	81847	37	37	2,69	7,99	0,74
		TLN_T8_3		112391	73711	48	48	2,76	8,54	0,71
		TLN_T12_1	T12	309799	154995	37	37	2,52	5,95	0,70
		TLN_T12_2		102591	69456	42	42	2,94	11,65	0,79
		TLN_T12_3		116231	75915	65	66	3,09	10,21	0,74
		TLN_T20_1	T20	82674	58816	65	65	3,35	15,91	0,80
		TLN_T20_2		106595	68623	51	51	2,83	7,60	0,72
		TLN_T20_3		86081	55113	66	66	3,07	9,32	0,73
		TLN_T28_1	T28	112026	71163	48	48.33	3,10	14,18	0,80
		TLN_T28_2		99802	66936	46	46	2,97	11,62	0,78
		TLN_T28_3		85176	56948	42	42	2,69	8,08	0,72
		TLN_BIOP_1	T30	104042	68402	18	18	2,33	6,55	0,81
		TLN_BIOP_2		68220	47146	35	35	2,82	10,11	0,79
		TLN_BIOP_3		648640	379158	47	47	2,97	11,24	0,77
		TLN_T75_1	T75	107195	61007	96	96	3,65	22,26	0,80
		TLN_T75_2		106717	71004	110	110	3,42	14,19	0,73
		TLN_T75_3		103211	58070	114	114	3,65	21,56	0,77
		TLN_T365_1	T365	93240	67616	147	147.6	4,06	26,48	0,81

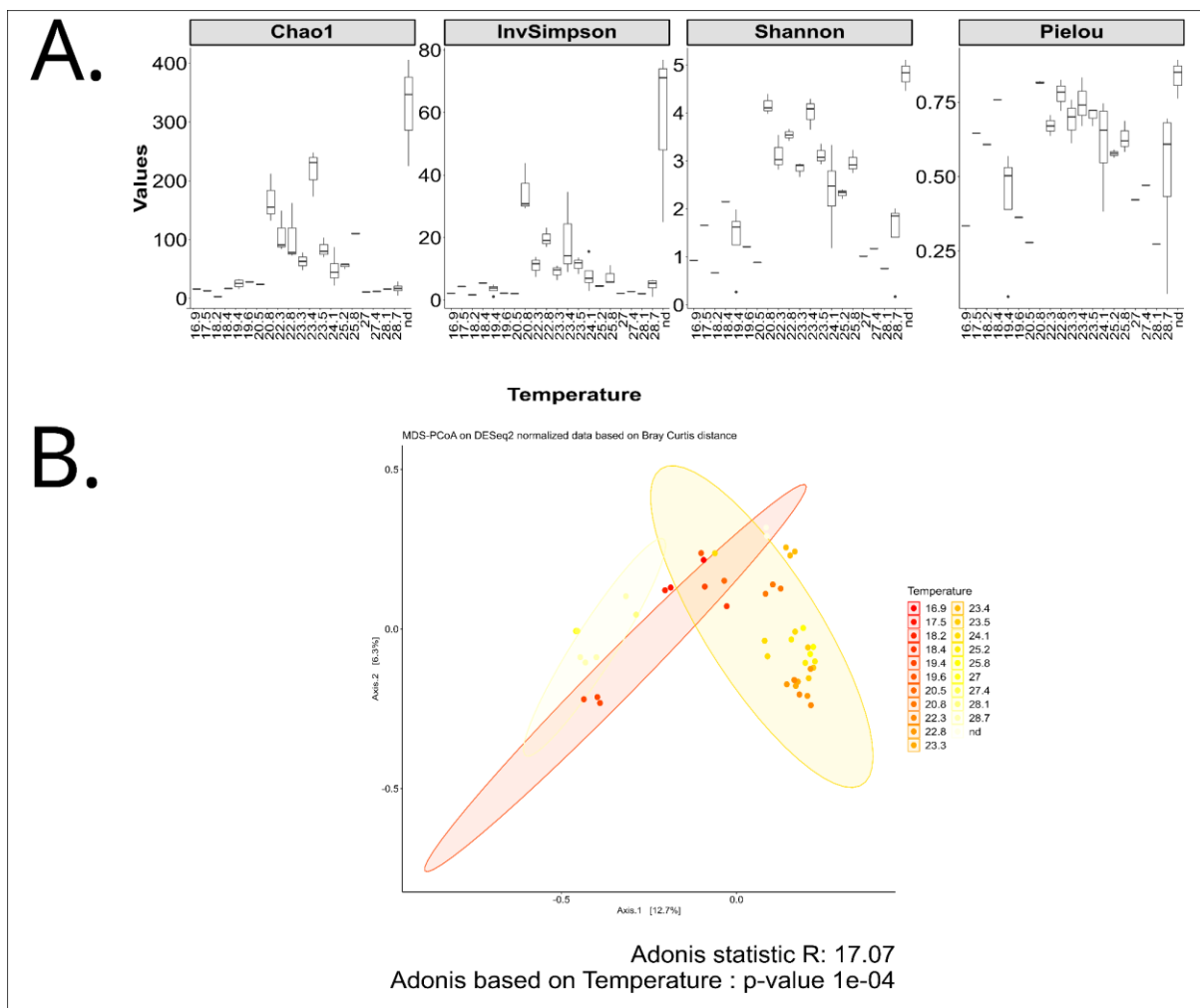
		TLN_T365_2		92818	55096	134	144	3,86	23,82	0,79
		TLN_T365_3		141068	90068	119	119	4,01	29,82	0,84
	Seawater	TLN_T0	T0	116525	87328	NA	NA	NA	NA	NA
		TLN_T1	T10	102631	79387	NA	NA	NA	NA	NA
		TLN_T2	T20	106545	83494	NA	NA	NA	NA	NA
		TLN_T3	T30	118170	82399	3	3	0,65	1,58	0,59
Lorient	PVC	LRN_BIOP_1	T30	118157	83120	7	7	1,20	2,56	0,62
		LRN_BIOP_2		96121	63207	11	11	1,66	4,06	0,69
		LRN_BIOP_3		103101	67343	5	5	1,36	3,45	0,85
	Seawater	LRN_T0	T0	81825	59922	NA	NA	NA	NA	NA
		LRN_T1	T10	98374	73757	2	2	0,41	1,32	0,59
		LRN_T2	T20	102562	87275	5	5	1,20	2,87	0,75
		LRN_T3	T30	75181	51413	NA	NA	NA	NA	NA
Le Port	PVC	REU_BIOP_1	T30	165835	149532	9	9	1,67	3,87	0,76
		REU_BIOP_2		106499	98487	10	10	2,15	7,51	0,93
		REU_BIOP_3		127327	116340	6	6	1,71	5,15	0,95
	Seawater	REU_T0	T0	94914	79756	1	1	0,00	1,00	NA
		REU_T1	T10	118265	92241	2	2	0,33	1,22	0,47
		REU_2	T20	80458	62184	3	3	0,40	1,26	0,36
		REU_T3	T30	113116	93244	4	5	0,53	1,38	0,38
Banyuls-Sur- Mer	PVC	BSM_T75_1	T75	86450	51671	75	75	3,26	12,42	0,76
		BSM_T75_2		93422	57648	75	75	3,25	11,29	0,75
		BSM_T75_3		94721	68121	79	79.5	3,25	10,76	0,74

Table S4: Number of reads before and after processing, number of ASVs, and alpha diversity index values for each sample for the ITS dataset (controlled conditions)

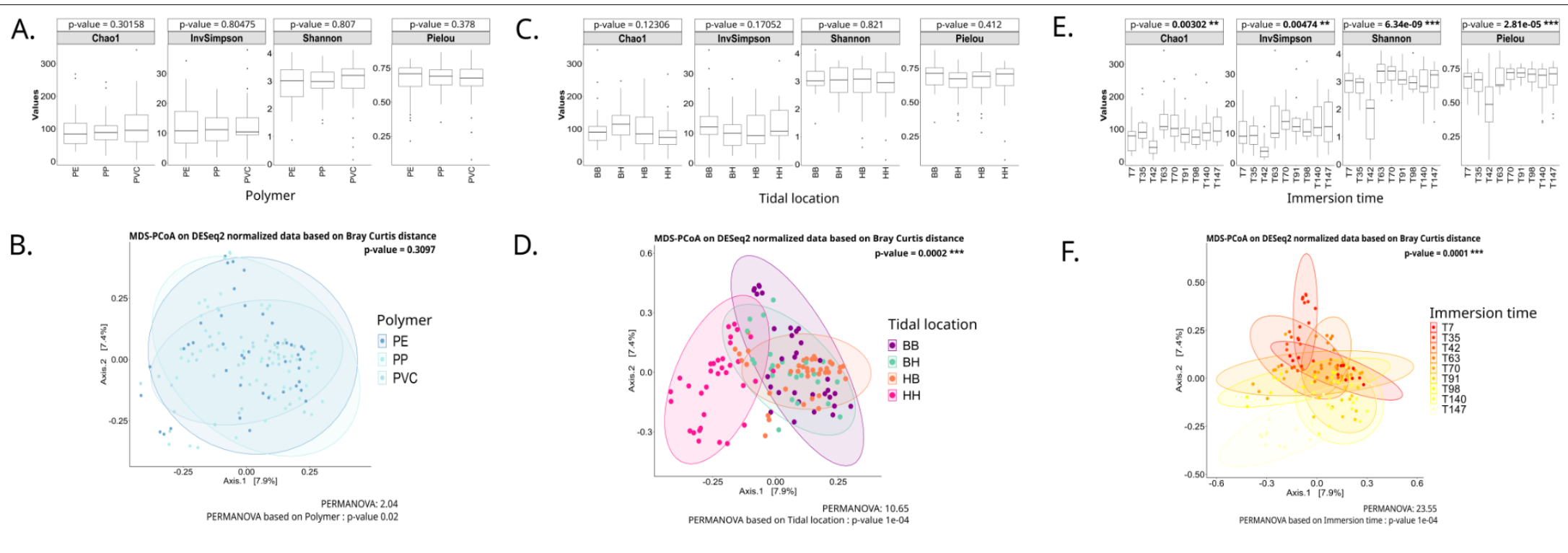
Samples		Incubation time (days)	Reads before processing	Reads after processing	ASV	Chao1	Shannon	Simpson	Pielou
Conventional polymers	PEO	3	17701	4747	9	9	1.35	2.86	0.62
		10	12220	4302	8	8	1.77	4.87	0.85
		31	17665	7787	9	9	1.54	3.12	0.70
		74	13949	5741	4	4	0.76	1.59	0.55
		116	50381	20520	14	14	1.06	1.67	0.40
		206	17271	8026	7	7	1.23	2.63	0.63
	PE-OXO	3	32170	11639	5	5	1.09	2.44	0.68
		10	40073	15809	5	5	0.68	1.57	0.43
		31	36633	12699	8	8	1.58	3.88	0.76
		74	19429	8295	18	18	1.47	2.81	0.51
		116	13355	8909	10	10	1.55	3.40	0.67
		206	208610	1383	5	5	0.60	1.36	0.38
Biodegradable polymers	PCL	3	77772	38166	9	9	0.93	1.98	0.42
		10	36928	18004	8	8	0.60	1.30	0.29
		31	26335	13137	5	5	1.22	2.57	0.76
		74	NA	NA	NA	NA	NA	NA	NA
		116	50838	15500	5	5	0.57	1.39	0.35
		206	26636	17306	1	1	0	1	NA
	PHBV	3	46223	22825	9	9	1.53	3.64	0.69

		10	35127	28275	2	2	0.30	1.20	0.44
		31	33155	15496	6	6	0.88	2.16	0.49
		74	NA	NA	NA	NA	NA	NA	NA
		116	33194	13852	9	9	1.54	3.97	0.70
		206	NA	NA	NA	NA	NA	NA	NA
Control	Sea water	3	18156	9313	25	25	2.10	4.94	0.65
		10	16875	5699	14	14	2.18	6.92	0.83
		31	179093	69	5	5	2.10	4.94	0.65

Supplementary figures :

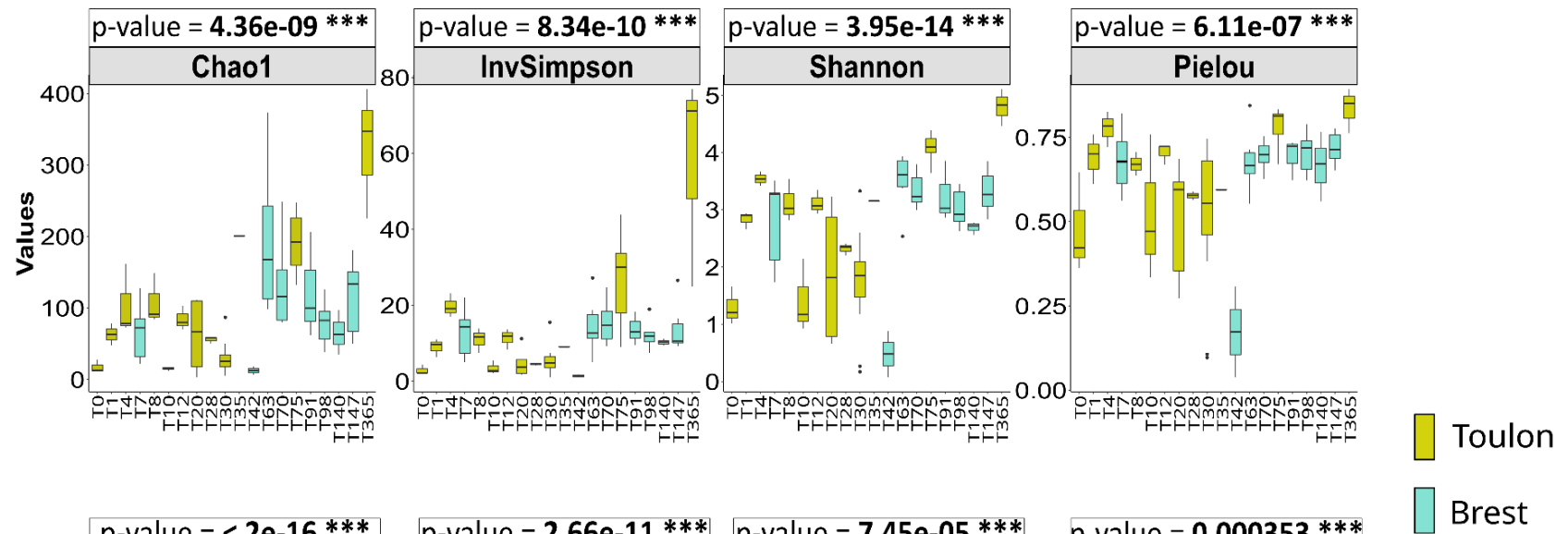


Supp. Figure S1: Significance of alpha diversity indices for the variable (A) "Temperature". (B) PCoA demonstrating the relationship between fungal community composition similarity and the variable "Temperature" based on the ITS dataset in Toulon (temperature range between 16.9 and 25.2°C), Banyuls-sur-mer (temperature of 20.8°C), Lorient (temperature range between 17.5 and 19.4°C) and Le Port (temperature range between 27.0 and 28.7°C).

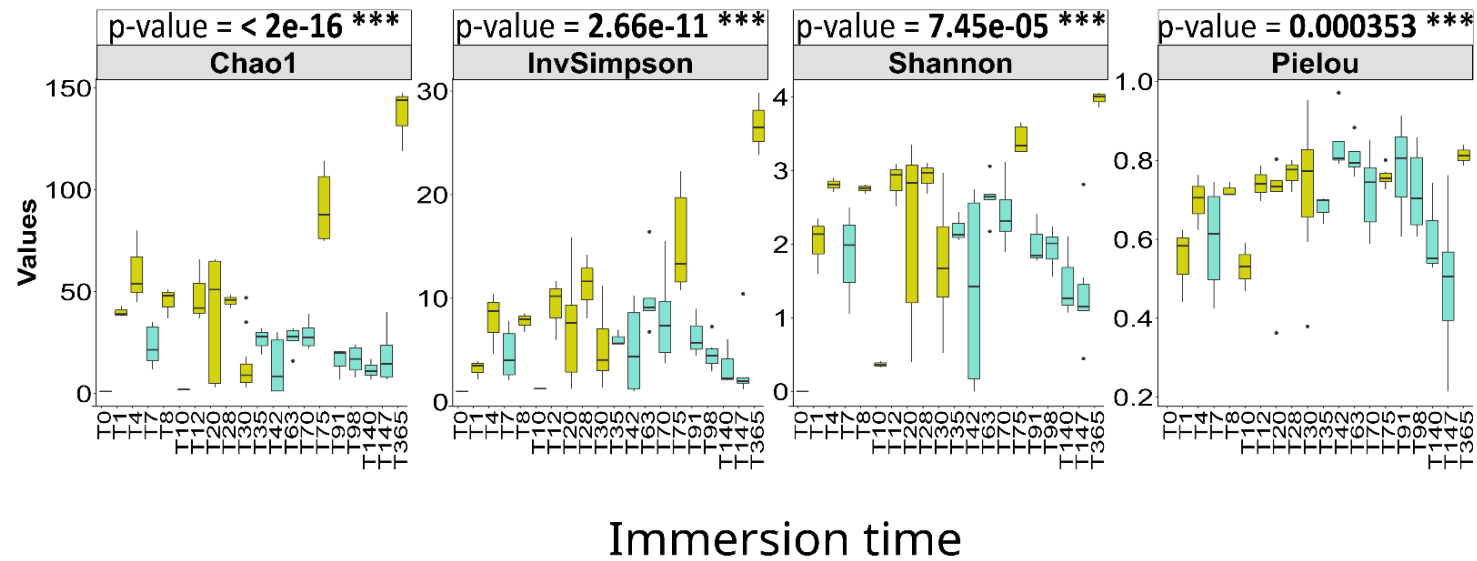


Supp. Figure S2: Significance of alpha diversity indices for the variables (A) "Polymers", (C) "Tidal location", and (E) "Immersion time". PCoA demonstrating the relationship between fungal community composition similarity and the variables (B) "Polymers", (D) "Tidal location", and (F) "Immersion time" (days) based on the ITS dataset in Brest. **Meaning of tidal location acronyms:** BB (Subtidal water-sediment interface), BH (Subtidal water surface), HB (Intertidal water-sediment interface) and HH (Intertidal water column).

A.



B.



Supp. Figure S3 : Alpha diversity indices and their associated significance, based on the ITS2 (A) and the V4 hypervariable region of the 18S rRNA gene (B) datasets for the variable “Immersion time” (days).