

Table S1. Analyses of variance for the linear model fitting the data on habitat complexity variables and resources for both *temporal* and *spatial* sampling. Values in bold highlight statistical significance ($p < 0.05$).

Source of variation	Shoot density				Z. biomass		LAI ^a		Epiphyte load ^a		
<i>Temporal sampling</i>											
<i>Fixed effects</i>	Residual	df	df	F-value	<i>p</i> -value	F-value	<i>p</i> -value	F-value	<i>p</i> -value	F-value	<i>p</i> -value
Position		38	1	11.5	0.001	15.662	<0.001	16.4	<0.001	0.9	0.330
Season		2	1	1.0	0.431	29.009	0.035	0.9	0.445	0.0	0.975
Position x Season		38	1	0.9	0.362	0.183	0.671	0.1	0.737	1.5	0.226
<i>Random effects</i>		df		Variance	Std. Dev	Variance	Std. Dev	Variance	Std. Dev	Variance	Std. Dev
Date (Season)		2		3610	60.09	0.000	0.000	0.0	0.138	0.2	0.398
Residuals		32		7483	86.51	0.317	0.563	0.7	0.830	0.2	0.484
<i>Spatial sampling</i>											
<i>Fixed effects</i>	Residual	df	df	F-value	<i>p</i> -value	F-value	<i>p</i> -value	F-value	<i>p</i> -value	F-value	<i>p</i> -value
Position		26	1	31.8	<0.001	16.801	<0.001	22.9	<0.001	10.7	0.003
<i>Random effects</i>		df		Variance	Std. Dev	Variance	Std. Dev	Variance	Std. Dev	Variance	Std. Dev
Site		2		0.1	0.241	12.66	3.558	0.0	0.000	0.0	0.000
Residuals		26		0.1	0.329	701.13	26.479	0.4	0.652	0.1	0.375

^a data were log-transformed for spatial sampling analyses

Table S2. Results of model comparisons using AICc for effects of position (edge vs inner part), season and sampling date or sampling sites, epiphyte biomass and habitat complexity (LAI and shoot density) on epifaunal abundance and taxa richness for *temporal* and *spatial* samplings. The model fitting is ranged from the best-fitting, according to AIC weight values.

Model	Total abundance				Taxa richness		
	df	logLik	AIC _c	AIC _{weight}	logLik	AIC _c	AIC _{weight}
<i>Temporal sampling</i>							
~Position x Season	6	-48.7	114.7	0.939	-35.1	87.4	0.956
~Position + Season	5	-54.2	122.0	0.025	-40.6	94.7	0.024
Null Model	3	-62.4	132.0	<0.001	-44.1	95.4	0.018
~Position x Season + Position x LAI	8	-36.6	99.4	0.002	-45.5	129.3	<0.001
<i>Spatial sampling</i>							
Position + 1 Site	4	-40.2	91.6	0.979	-87.8	186.6	0.671
~Position x LAI +1 Site	6	-40.0	99.6	0.018	-84.3	188.2	0.311
Null Model	3	-47.8	103.4	0.003	-97.5	202.6	<0.001
~Position x Epiphyte biomass +1 Site	6	-43.3	106.2	<0.001	-87.2	194.0	0.017

Table S3. Results of model comparisons using AIC values for the full and reduced models used to fit the multivariate data of epifauna assemblages for *temporal and spatial* sampling. The model selected is the one with the lowest AIC.

Model	AIC
<i>Temporal sampling</i>	
Epiphytes + LAI + Position + Sampling date + LAI x Position + Epiphytes x Position + Sampling date x Position	5497.7
Epiphytes + LAI + Position + Sampling date + Sampling date x Position	5097.6
LAI + Position + Sampling date + Position x Sampling date	5059.1
<i>Spatial sampling</i>	
Epiphytes + LAI + Position + Site + LAI x Position + Epiphytes x Position + Site x Position	2151.9
Epiphytes + LAI + Position + Site	1930.1
LAI + Position + Site	1911.8
Position + Site	1888.5

Table S4. List of macrofauna taxa at stations sampled during *temporal* (T) and *spatial* (S) sampling and ASUs experiments in the Thau Lagoon.

Phylum	Taxa	AlphaID	Sampling
Arthropoda	<i>Elasmopus</i> sp	101671	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Ericthonius punctatus</i>	102408	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Ampithoe ramondi</i>	102000	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Corophium</i> sp	101489	S; T; ASU _{Autumn} ; ASU _{Spring}
	Aoridae	101368	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Grandidierella</i> sp	205825	T
	<i>Nototropis massiliensis</i>	488959	T; ASU _{Autumn} ; ASU _{Spring}
	<i>Bathyporeia</i> sp	101742	T
	<i>Gammarus insensibilis</i>	102280	S; ASU _{Autumn} ; ASU _{Spring}
	<i>Gammarus</i> sp	101537	T
	Haustoriidae	101384	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Iphimedia vicina</i>	102352	T; ASU _{Autumn} ; ASU _{Spring}
	<i>Lysianassa</i> sp	101620	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Phtisica marina</i>	101864	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Dynamene bidentata</i>	256988	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Lekanesphaera hookeri</i>	118953	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Sphaeroma serratum</i>	118973	T
	<i>Arcturinella</i> sp	118442	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Idotea balthica</i>	119039	S; T; ASU _{Autumn}
	<i>Idotea chelipes</i>	119042	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Janira</i> sp	118365	T; ASU _{Autumn}
	<i>Paragnathia formica</i>	119001	S
	<i>Tanais dulongii</i>	136546	S; T; ASU _{Autumn} ; ASU _{Spring}
Pycnogonida	1302	T; ASU _{Autumn} ; ASU _{Spring}	
Ostracoda	1078		
Annelida	<i>Syllides</i> sp	129679	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Platynereis dumerilii</i>	130417	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Neanthes acuminata</i>	157496	T; ASU _{Autumn}
	<i>Oxydromus pallidus</i>	340203	S; T
	Hesionidae	946	T
	<i>Glycera</i> sp	129296	S; T
	<i>Eteone longa</i>	130616	T
	<i>Nereiphylla rubiginosa</i>	130659	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Harmothoe</i> sp	129491	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Perinereis</i> sp	129380	ASU _{Spring}
	<i>Lumbrineris</i> sp	129337	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Branchiomma</i> sp	129524	T
	Serpulidae	988	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Paraonides</i> sp	129434	T
Mollusca	<i>Pusillina lineolata</i>	141335	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Haminoea navicula</i>	140075	S; T; ASU _{Spring}
	<i>Gibberula miliaria</i>	139508	T; ASU _{Spring}
	<i>Tritia corniculum</i>	876831	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Hexaplex trunculus</i>	140396	T; ASU _{Autumn} ; ASU _{Spring}

Mollusca	<i>Doris verrucosa</i>	139623	ASU _{Spring}
	<i>Bittium reticulatum</i>	139054	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Cerithium vulgatum</i>	139066	T
	<i>Aeolidiella alderi</i>	138710	T; ASU _{Autumn} ; ASU _{Spring}
	<i>Jujubinus striatus</i>	141815	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Steromphala pennanti</i>	1039846	T
	<i>Steromphala umbilicalis</i>	1039850	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Tricolia tenuis</i>	141703	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Arcuatula senhousia</i>	505946	S; ASU _{Autumn} ; ASU _{Spring}
	<i>Mytilus edulis</i>	140480	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Abra alba</i>	141433	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Parvicardium exiguum</i>	139008	S; T; ASU _{Autumn} ; ASU _{Spring}
	Pectinidae	213	ASU _{Spring}
	<i>Polititapes aureus</i>	246150	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Acanthochitona crinita</i>	138675	ASU _{Spring}
Echinodermata	<i>Asterina gibbosa</i>	123987	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Amphipholis squamata</i>	125064	S; T; ASU _{Autumn} ; ASU _{Spring}
	<i>Amphiura chiajei</i>	125073	T; ASU _{Autumn}
	Ophiuridae	123200	T
	<i>Paracentrotus lividus</i>	124316	ASU _{Autumn} ; ASU _{Spring}
Platyhelminthes	Platyhelminthes	793	T; ASU _{Autumn} ; ASU _{Spring}

Table S5. Results of the p-values from MGL-M analyses for the most abundant species (70%) of the assemblage for *temporal* and *spatial* sampling as well as *Autumn* and *Spring ASU* experiments. The symbol “–” indicate that these taxa were not analyzed in the given experiment or sampling. The number of asterisks indicate the p-value: p-value < 0.05 (*), p-value < 0.01 (**), p-value < 0.001 (***).

Source of variation	<i>Corophium</i> sp.	<i>Gammarus</i> <i>insensibilis</i>	<i>Bittium</i> <i>reticulatum</i>	<i>Tanais</i> <i>dulongii</i>	<i>Ampithoe</i> <i>ramondi</i>	<i>Erichthonius</i> <i>punctatus</i>	<i>Pusillina</i> <i>lineolata</i>	Aoridae	<i>Lekanesphaera</i> <i>hookeri</i>	<i>Tricolia</i> <i>tenuis</i>	<i>Jujubinus</i> <i>striatus</i>
<i>Temporal sampling</i>											
Position (P)	ns	*	*	***	*	ns	–	ns	ns	ns	ns
Date (D)	**	**	ns	*	ns	***	–	***	**	ns	*
LAI	ns	ns	ns	**	ns	***	–	ns	ns	ns	ns
P x D	***	**	**	*	ns	ns	–	ns	ns	ns	ns
<i>Spatial sampling</i>											
P	**	*	**	**	–	ns	*	–	–	–	ns
Site	**	ns	**	ns	–	***	ns	–	–	–	*
<i>Autumn experiment</i>											
P	–	–	–	–	ns	ns	–	ns	ns	***	ns
Shoot density (S)	–	–	–	–	**	*	–	***	*	ns	***
D	–	–	–	–	ns	ns	–	*	ns	ns	*
P x S	–	–	–	–	ns	ns	–	ns	ns	ns	ns
P x D	–	–	–	–	ns	ns	–	ns	ns	ns	ns
S x D	–	–	–	–	ns	ns	–	ns	ns	ns	ns
P x S x D	–	–	–	–	ns	ns	–	ns	ns	ns	ns
<i>Spring experiment</i>											
P	ns	–	–	ns	**	ns	–	ns	–	ns	ns
S	ns	–	–	ns	ns	ns	–	*	–	ns	ns
P x S	ns	–	–	ns	ns	ns	–	ns	–	ns	*