

The following supplement accompanies the article

Habitat connectivity and spatial complexity differentially affect mangrove and salt marsh fish assemblages

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Supplement. Additional data

Table S1. Population density (mean \pm SE) for (a) all 13 fish species sampled in the Essex salt marshes, UK (n = 72) and (b) the 20 most abundant fish species sampled in the Wakatobi mangroves, Indonesia (n = 80). In total, 64 fish species were sampled in the mangroves. The unit for both habitats is ind. 100 m⁻²

(a) Salt marsh			(b) Mangrove		
Species	Family	Mean \pm SE	Species	Family	Mean \pm SE
<i>Dicentrarchus labrax</i>	Moronidae	2.55 \pm 1.20	<i>Atherinomorus lacunosus</i>	Atherinidae	46.25 \pm 10.32
<i>Pomatoschistus microps</i>	Gobiidae	0.95 \pm 0.25	<i>Sphaeramia orbicularis</i>	Apogonidae	21.16 \pm 3.62
<i>Atherina presbyter</i>	Atherinidae	0.65 \pm 0.32	Unknown Engraulidae sp.	Engraulidae	13.86 \pm 5.46
<i>Chelon labrosus</i>	Mugilidae	0.58 \pm 0.31	<i>Apogon ceramensis</i>	Apogonidae	11.25 \pm 2.50
<i>Clupea harengus</i>	Clupeidae	0.12 \pm 0.05	<i>Lutjanus ehrenbergii</i>	Lutjanidae	1.71 \pm 0.23
<i>Pomatoschistus minutus</i>	Gobiidae	0.04 \pm 0.02	<i>Gerres oyena</i>	Gerreidae	1.58 \pm 0.63
<i>Gasterosteus aculeatus</i>	Gasterosteidae	0.02 \pm 0.01	<i>Scolopsis lineatus</i>	Nemipteridae	1.52 \pm 0.26
<i>Sprattus sprattus</i>	Clupeidae	0.01 \pm 0.01	<i>Scolopsis trilineatus</i>	Nemipteridae	1.14 \pm 0.28
<i>Anguilla anguilla</i>	Anguillidae	0.01 \pm 0.01	<i>Dischistodus fasciatus</i>	Pomacentridae	1.06 \pm 0.32
<i>Ammodytes tobianus</i>	Ammodytidae	0.01 \pm 0.01	<i>Zenarchopterus dispar</i>	Hemiramphidae	1.04 \pm 0.34
<i>Aphia minuta</i>	Gobiidae	<0.01 \pm <0.01	<i>Cheilodipterus quinquelineatus</i>	Apogonidae	1.03 \pm 0.25
<i>Entelurus aequoreus</i>	Syngnathidae	<0.01 \pm <0.01	<i>Apogon thermalis</i>	Apogonidae	0.55 \pm 0.26
<i>Pleuronectes platessa</i>	Pleuronectidae	<0.01 \pm <0.01	<i>Choerodon anchorago</i>	Labridae	0.50 \pm 0.12
			<i>Lethrinus harak</i>	Lethrinidae	0.31 \pm 0.07
			<i>Siganus guttatus</i>	Siganidae	0.30 \pm 0.14
			<i>Halichoeres trimaculatus</i>	Labridae	0.23 \pm 0.09
			<i>Pseudocheilinus evanidus</i>	Labridae	0.20 \pm 0.06
			<i>Parupeneus macronemua</i>	Mullidae	0.15 \pm 0.06
			<i>Liza vaigiensis</i>	Mugilidae	0.13 \pm 0.07
			<i>Parupeneus barberinus</i>	Mullidae	0.13 \pm 0.05

Table S2. Variable importance of the projection (VIP \pm 1SD) coefficient of correlation with the response variable (untransformed for salt marshes, models A1 and A2; log-transformed for mangroves, models B1 and B2), standardised coefficients (SC \pm 1SD) and regression coefficients (RC) for the PLS analysis of models A1 to B2. SE: seaward edge, w/n: within, TSS: total suspended solids. Variable codes refer to Table S1, as well as Table 1 and Fig. 3 in the main text

Code	Predictor Variable	VIP \pm SD	Correlation, <i>r</i>	SC \pm SD	RC
Model A1 – Salt marsh species richness					
R	Intertidal Area w/n 200 m	1.494 \pm 0.16	–0.559	–0.139 \pm 0.02	–0.446
E	Shape Index	1.307 \pm 0.22	–0.382	–0.122 \pm 0.02	–0.523
1	Creek Area	1.210 \pm 0.32	0.367	0.133 \pm 0.03	0.095
3	Creek P/A Ratio	1.113 \pm 0.26	–0.316	–0.104 \pm 0.03	–0.306
17	TSS	0.949 \pm 0.36	0.431	0.088 \pm 0.03	3.663
T	Estuary	0.960 \pm 0.26	–	–	–
5	Intertidal Area w/n 1 km	0.898 \pm 0.27	0.171	–0.084 \pm 0.02	–0.102
P	Distance to EM	0.862 \pm 0.31	–0.300	–0.080 \pm 0.03	–0.107
Model A2 – Salt marsh abundance					
S	Temperature	1.537 \pm 0.36	0.456	0.247 \pm 0.07	0.904
E	Shape Index	1.106 \pm 0.24	–0.299	–0.156 \pm 0.05	–1.191
C	Seaward Edge	1.068 \pm 0.04	–0.323	–0.097 \pm 0.02	–0.171
D	Patch Depth	1.023 \pm 0.09	–0.222	0.050 \pm 0.04	0.063
L	Salt marsh area w/n 1 km	0.998 \pm 0.04	–0.225	0.018 \pm 0.02	0.015
2	Patch Perimeter	0.974 \pm 0.03	–0.234	–0.035 \pm 0.02	–0.050
M	Seaward Edge w/n 500 m	0.972 \pm 0.03	–0.276	–0.015 \pm 0.02	–0.034
A	Patch Area	0.966 \pm 0.04	–0.175	0.011 \pm 0.03	0.010
5	Intertidal Area w/n 1 km	0.938 \pm 0.25	–0.237	–0.143 \pm 0.05	–0.312
K	Area w/n 500 m	0.936 \pm 0.05	–0.222	0.020 \pm 0.03	–0.039
Model B1 – Mangrove species richness					
J	Mangrove patches w/n 1 km	1.234 \pm 0.08	0.577	0.594 \pm 0.07	0.396
3	Total Basal Area	1.173 \pm 0.12	0.487	–0.541 \pm 0.15	–2.992
4	Prop Root Density	1.174 \pm 0.07	0.687	0.380 \pm 0.10	0.219
H	Patch Isolation	1.086 \pm 0.10	–0.530	–0.468 \pm 0.13	–0.212

E	Shape Index	1.006 ± 0.10	-0.549	-0.120 ± 0.11	-0.258
1	<i>Rhizophora</i> Cover	0.965 ± 0.03	0.576	-0.129 ± 0.14	-0.096
I	Mangroves patches w/n 500 m	0.931 ± 0.12	0.381	-0.646 ± 0.17	-0.645
G	Unvegetated Cover	0.740 ± 0.06	-0.398	-0.024 ± 0.15	-0.011
Model B2 – Mangrove abundance					
4	Prop Root Density	1.209 ± 0.06	0.598	0.179 ± 0.04	0.263
M	SE w/n 500 m	1.122 ± 0.14	-0.438	-0.321 ± 0.05	-0.483
1	<i>Rhizophora</i> Cover	1.116 ± 0.06	0.535	0.094 ± 0.04	0.178
E	Shape Index	1.102 ± 0.10	-0.543	-0.180 ± 0.06	-0.978
C	Seaward Edge	1.076 ± 0.17	-0.514	-0.163 ± 0.03	-0.199
H	Patch Isolation	0.991 ± 0.15	-0.450	-0.136 ± 0.05	-0.157
J	Mangrove patches w/n 1 km	0.972 ± 0.08	0.425	0.173 ± 0.04	0.292
B	Patch Perimeter	0.967 ± 0.145	-0.478	-0.123 ± 0.06	-0.175

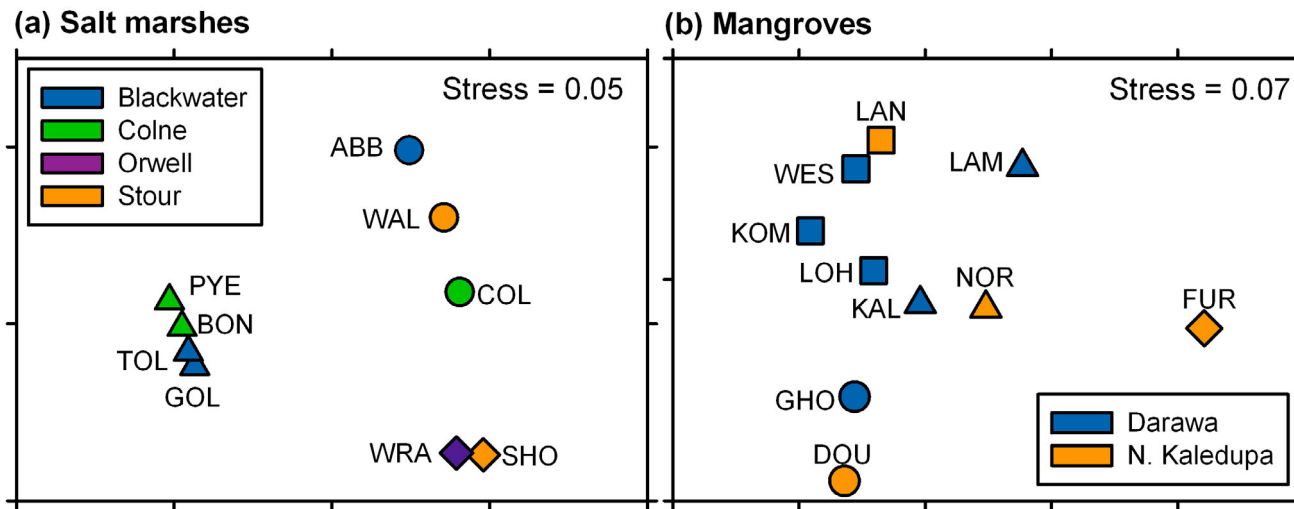


Fig. S1. MDS plots of the average Bray-Curtis similarities of the fish community structure sampled in (a) 9 salt marshes in Essex and Suffolk, UK, and (b) 10 mangroves in the Wakatobi Marine National Park, Indonesia. Symbol colour indicates (a) the different estuaries in which the salt marshes were located or (b) the different areas of the park where the mangroves were located. Symbol shape indicates the result of pairwise analysis of similarity tests; different shaped symbols have a significantly different fish community structure at $p < 0.05$. Symbol text indicates the first 3 letters of the salt marsh or mangrove name; these are detailed in Fig. 2 in the main text