

Supplementary material

Table S1. PERMANOVA results of the pairwise comparisons against the factor “zones” for the matrix of fish assemblages using Bray-Curtis similarity for the resemblance matrix.

Zones	t	P(perm)	Unique perms
Tidal Channel, Lagoon	0.72	0.91	56
Tidal Channel, Surf zone	1.97	0.00	922
Lagoon, Surf zone	1.65	0.00	407

Table S2. Marginal test of the distance-based in a linear model (DistLM) showing the relationship of the different environmental factors with the fish assemblages. * Indicates statistically significant results.

Variable	SS(Trace)	Pseudo-F	p	Prop.
Temperature	5492.9	1.6224	0.09	8.27E-02
Salinity	3869.1	1.1132	0.338	5.82E-02
Total matter suspended	4278.2	1.239	0.262	6.44E-02
Mangrove height*	13551	4.6129	0.001	0.20
Mangrove area*	9588	3.0362	0.003	0.14

Table S3. Results of SIMPER analysis accord to period Before-During COVID-19 pandemic.

Species	Before COVID-19	During COVID-19	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Caranx caninus</i>	1.66	0.47	13.16	1.28	16.5	16.5
<i>Hyporhamphus rosae</i>	0.13	0.82	9.51	0.79	11.92	28.42
<i>Lutjanus colorado</i>	0.81	0.14	9.15	0.8	11.47	39.89
<i>Mugil curema</i>	0.69	1	5.46	0.91	6.84	46.73
<i>Polydactylus approximans</i>	0.57	0.1	4.49	1	5.62	52.36
<i>Pliosteostoma lutipinnis</i>	0	0.35	3.3	0.45	4.13	56.49
<i>Trachinotus paitensis</i>	0.43	0.12	3.16	1.24	3.96	60.45
<i>Opisthonema libertate</i>	0.32	0	3.12	0.55	3.91	64.36
<i>Menticirrhus elongatus</i>	0.36	0.05	2.85	0.92	3.57	67.93
<i>Gerres simillimus</i>	0.54	0.02	2.72	0.45	3.41	71.34
<i>Umbrina xanti</i>	0.13	0.16	2.69	0.73	3.37	74.71
<i>Eucinostomus entomelas</i>	0.55	0.15	2.49	0.45	3.12	77.84
<i>Lile stolifera</i>	0.09	1.31	2.35	0.34	2.95	80.78
<i>Anchoa walkeri</i>	0.25	0	2.08	0.48	2.61	83.39
<i>Tylosurus pacificus</i>	0	0.15	1.81	0.33	2.26	85.65
<i>Eucinostomus currani</i>	0	0.34	1.65	0.64	2.06	87.72
<i>Elops affinis</i>	0	0.29	1.27	0.45	1.59	89.31
<i>Opisthopterus dovii</i>	0.11	0	1.08	0.72	1.35	90.66
<i>Leuresthes sardina</i>	0	0.07	1.02	0.5	1.27	91.93
<i>Trachinotus kennedyi</i>	0.06	0.02	0.93	0.55	1.17	93.1
<i>Harengula thrissina</i>	0	0.07	0.73	0.33	0.92	94.02
<i>Oligoplites refulgens</i>	0.08	0.02	0.72	0.54	0.9	94.92
<i>Diapterus peruvianus</i>	0.06	0	0.54	0.48	0.67	95.6

Table S4. Results of GAM accord to the biomass with deviance explained= 58.3%, and Adjust R²= 0.465
* indicates statistically significant results.

Parametric coefficients:	Estimate	Std. Error	z value	Pr(> z)
(Intercept)*	2.6694	0.4048	6.595	4.27e-11
During COVID-19	-0.8667	0.4762	-1.820	0.06873
Mangrove area*	1.0377	0.3588	2.892	0.00383
Smooth terms	edf	Ref. df	Chi. sq	p-value
S(Temperature)*	2.779	3.417	15.54	0.00235

Table S5. Results of GAM accord to hill ⁰D with deviance explained= 61.1%, Adjust R²= 0.447 * indicates statistically significant results.

Parametric coefficients:	Estimate	Std. Error	z value	Pr(> z)
(Intercept)*	8.3475	0.8605	9.700	1.7e-07
Season DW*	-2.6728	1.0411	-2.567	0.0227
Season DC	-0.5082	1.6090	-0.316	0.7569
Zone Surf	-1.2413	0.9542	-1.301	0.2148
Smooth terms	edf	Ref. df	Chi. sq	p-value
S(Salinity)*	2.358	2.894	3.787	0.0398

Table S6. Results of GAM accord to hill ¹D with deviance explained = 52.4%, Adjust R²=0.424. * Indicates statistically significant results.

Parametric coefficients:	Estimate	Std. Error	z value	Pr(> z)
(Intercept)*	1.2320	0.1960	6.286	3.27e-10
Season DW	-0.3936	0.3881	-1.014	0.311
Season DC	-0.1297	0.6619	-0.196	0.845
Smooth terms	edf	Ref. df	Chi. sq	p-value
S(Total matter suspended)	1.629	2.047	4.441	0.097

Table S7. Results of GAM accord to hill ²D with deviance explained = 49.5% and Adjust R²= 0.386. * indicates statistically significant results.

Parametric coefficients:	Estimate	Std. Error	z value	Pr(> z)
(Intercept)*	0.9848	0.1951	5.048	4.46e-07
Season DW	-0.2894	0.3681	-0.786	0.432
Season DC	-0.1429	0.6651	-0.215	0.830
Smooth terms	edf	Ref. df	Chi. sq	p-value
S(Total matter suspended)*	1.246	1.455	5.193	0.0756

Figure S1. Results of GAM accord to Biomass with deviance explained = 58.3% and Adjust R²= 0.465.

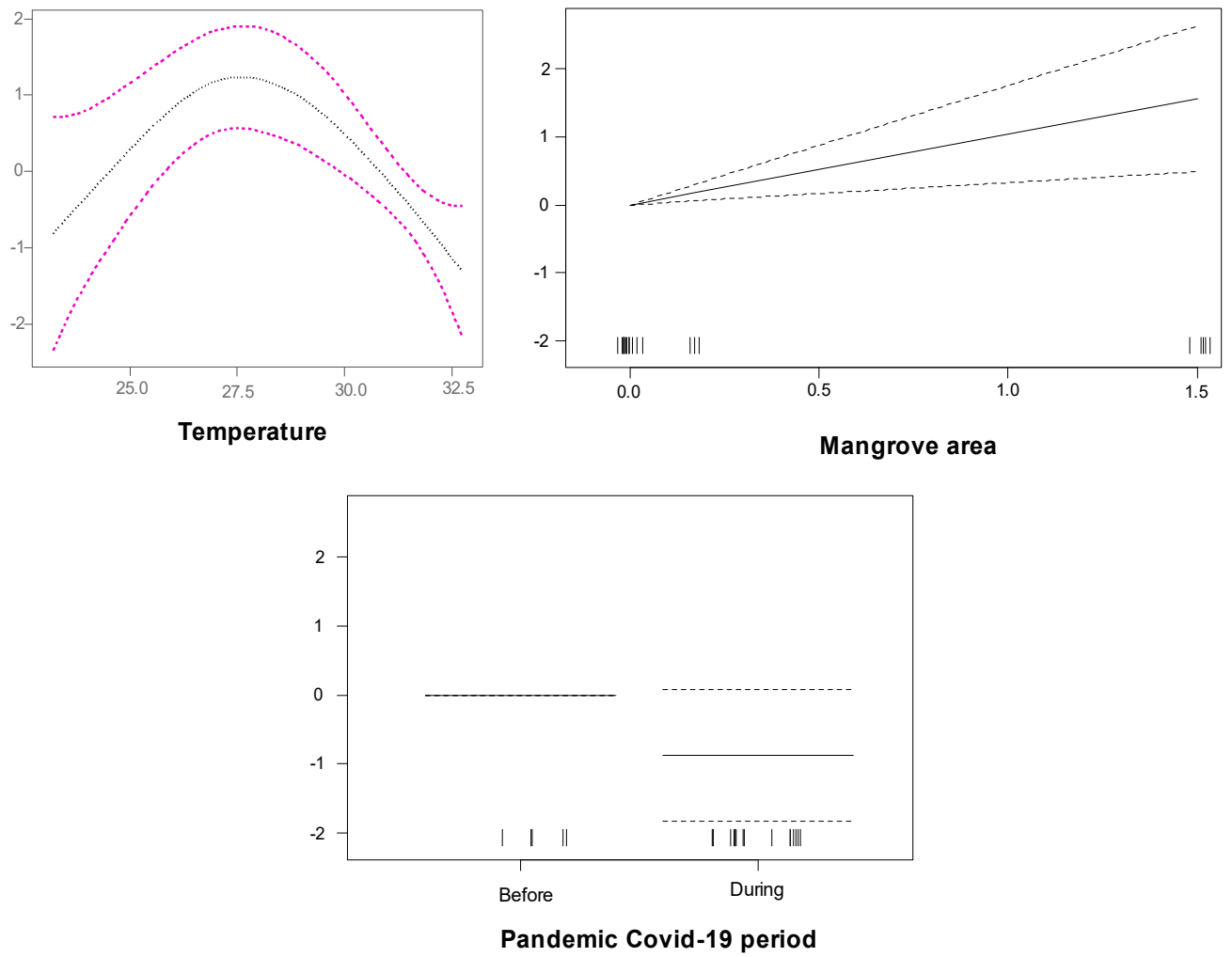


Figure S2. Results of GAM accord to hill °D with deviance explained= 61.1%, Adjust R^2 = 0.447

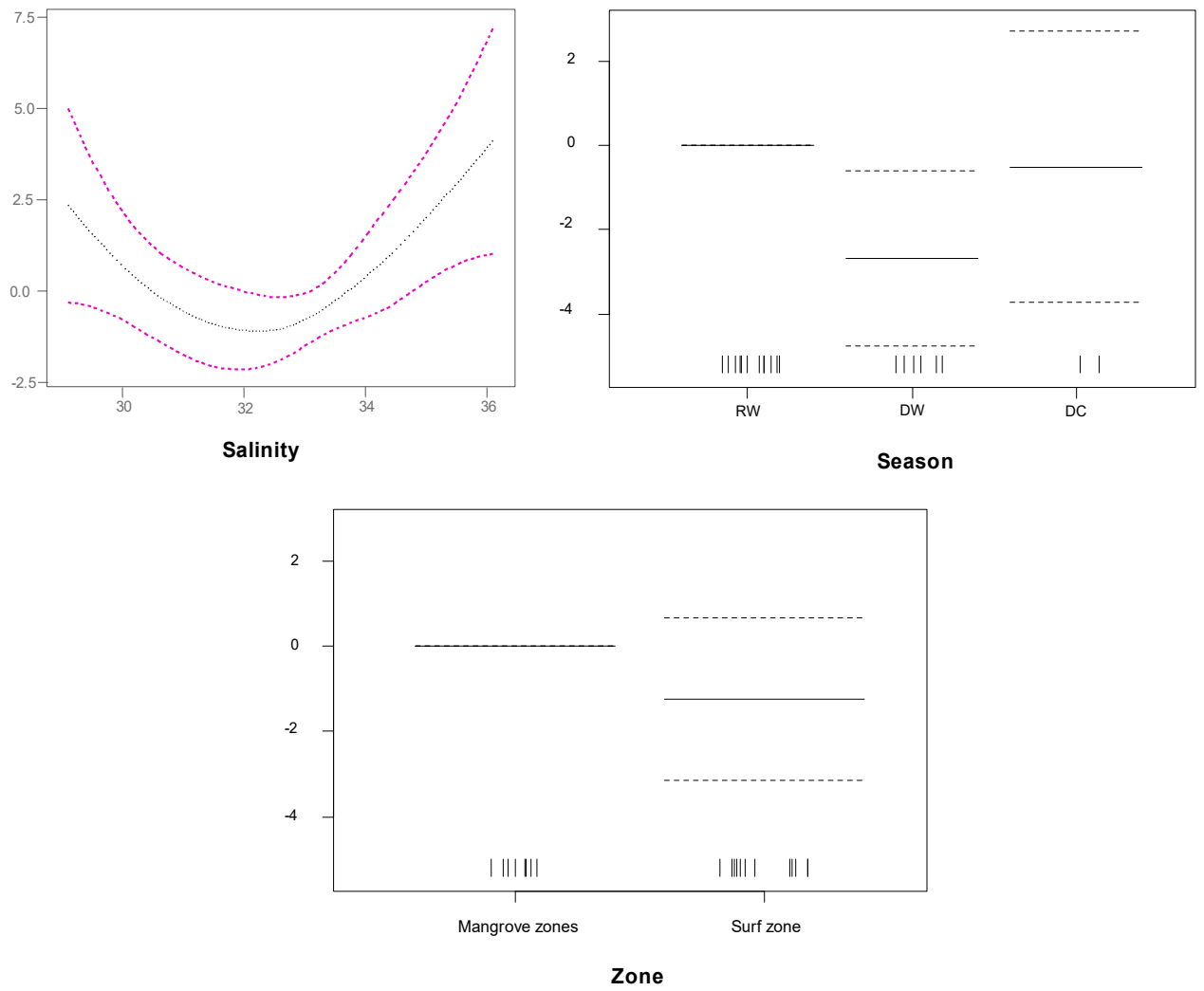


Figure S3. Results of GAM accord to hill 1D with deviance explained = 52.4%, Adjust $R^2=0.424$.

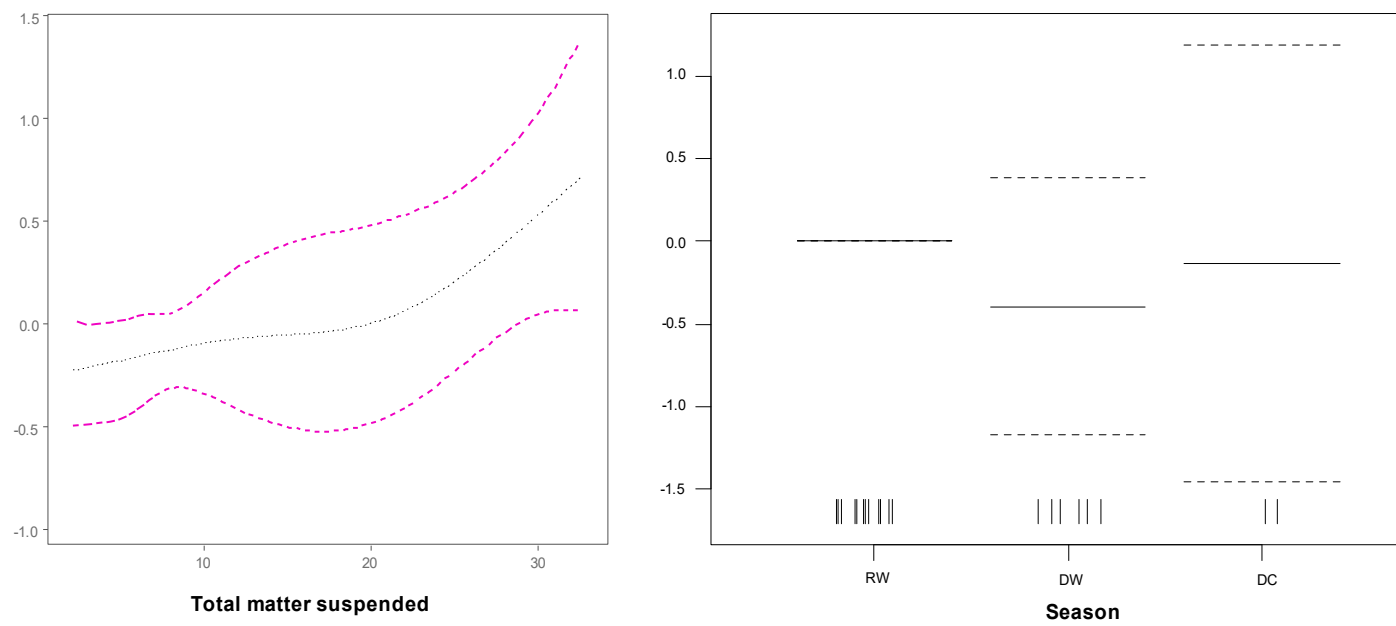


Figure S4. Results of GAM accord to hill 2D with deviance explained = 49.5% and Adjust $R^2=0.386$

