

Supplementary Material

Small-Scale Coastal Fishing Shapes the Structure of Shallow Rocky Reef Fish in the Aegean Sea

Sini M^{1*}, Vatikiotis K¹, Thanopoulou Z^{2,3}, Katsoupi C¹, Maina I⁴, Kavadas S⁴, Karachle PK⁴, Katsanevakis S¹

¹Department of Marine Sciences, University of the Aegean, University Hill, Mytilene, Greece

²Department of Environment, University of the Aegean, University Hill, Mytilene, Greece

³Department of Biology, University of Miami, Miami, Florida, United States

⁴Institute of Marine Biological Resources and Inland Waters, Hellenic Centre for Marine Research, Attika, Greece

Correspondence

Dr Maria Sini

mariasini@marine.aegean.gr

Supplementary material: The following information is provided (a) methodological details regarding the estimation of low and high fishing pressure sites for small-scale fisheries, (b) site codes, geographic coordinates, and geographic location (Table S1), (c) density and biomass values of the different fish species recorded per fishing pressure and depth zone (Tables S2, S3), (d) results of the SIMPER analysis (Tables, S4, S5, S6), (e) charts of the cluster analyses (Figure S1, S2), (f) charts illustrating the size structure of commercial fish species per level of fishing pressure (Figure S3).

Details on the method used to estimate cold (low) and hot (high) spots of small-scale fishing pressure.

Based on methods for analyzing spatial patterns and mapping clusters (Fortin and Dale, 2005; Maina et al., 2018), hot and cold spots of small-scale fishing pressure (i.e. areas of high and low FP) were estimated. In particular, the Ripley's K function was used to explore the overall scale of clustering (Ripley, 1975), and the Global Moran's I statistic for a series of increasing distances was used to measure the intensity of spatial clustering for each distance (Moran, 1950). Moreover, the Getis-Ord Gi* statistic (Getis and Ord, 1992) was applied to the layers of small-scale FP of the study area, in order to identify statistically significant hot and cold spots. The analysis was performed using the ESRI's ArcGIS v10.4 spatial statistics tools (ESRI, 2015). The Ripley's K function indicated that the spatial clustering was statistically significant at distances <816 km, while the most appropriate scale to be used in Getis-Ord Gi* statistic, estimated by Global Moran's I, was 26 km. Finally, the Getis-Ord Gi* statistic showed whether features with high or low FP values tend to be clustered in the study area (Fig. 1).

References

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Table S1. Site code and geographic coordinates of the sites sampled in the Aegean Sea. Station code numbers indicate pairs of sampling sites; L stands for low fishing pressure sites; H stands for high fishing pressure sites.

a/a	Area name	Station code	Geographic locality	y	x
1	Lesvos - Ag. Fokas	1-L	North Aegean	39.005	26.168
2	Lesvos - Akr. Fteli	1-H	North Aegean	38.998	26.543
3	Lesvos - <u>Pochi</u>	2-L	North Aegean	39.294	25.910
4	Lesvos - Akr. Korakas	2-H	North Aegean	39.391	26.342
5	Chios - Moula rocks	3-L	North Aegean	38.215	25.887
6	Chios - Glaroi	3-H	North Aegean	38.444	26.146
7	Chios - Pachi isl	4-L	North Aegean	38.248	25.863
8	Chios - Pelagonissos	4-H	North Aegean	38.320	25.940
9	Chalkidiki - Peristeronisi	5-L	North Aegean	39.962	23.900
10	Chalkidiki - Astakoi	5-H	North Aegean	40.308	23.944
11	Chalkidiki - Kalogria	6-L	North Aegean	40.176	23.714
12	Chalkidiki - Drenia	6-H	North Aegean	40.307	23.960
13	N Sporades isles - Mikros Mourtias	7-L	North Aegean	39.139	23.837
14	Pelio - Nero	7-H	North Aegean	39.087	23.116
15	N Sporades isles - Aderfia South	8-L	North Aegean	39.104	23.979
16	Pelio - Bora	8-H	North Aegean	39.129	23.068
17	N Sporades isles - Akr. Papas	9-L	North Aegean	39.152	23.830
18	Pelio - Faros	9-H	North Aegean	39.098	23.051
19	Gyaros - Glaronissi	10-L	South Aegean	37.582	24.752
20	Syros - North	10-H	South Aegean	37.508	24.894
21	Antikeri - Spilia	11-L	South Aegean	36.841	25.686
22	Kalymnos - Pothi	11-H	South Aegean	36.925	26.986
23	Amorgos - Katapola	12-L	South Aegean	36.835	25.841
24	Kalymnos - Vathi	12-H	South Aegean	36.973	27.036
25	Iralkleia	13-L	South Aegean	36.838	25.480
26	Antiparos - Santa Maria Cape	13-H	South Aegean	37.142	25.295
27	Ophioussa	14-L	South Aegean	36.832	25.523
28	Antiparos — Ovriokastro SE	14-H	South Aegean	37.149	25.296
29	Gyaros - 2	15-L	South Aegean	37.593	24.708
30	Syros - Azolemnos	15-H	South Aegean	37.415	24.965

Table S2. Mean density values and the 5% confidence intervals (CI) of fish species (ind. 1000 m⁻²) recorded in low and high fishing pressure sites of the Aegean Sea, as well as the difference of fish density between low and high fishing pressure sites. Tabulations are presented per depth zone. Blue highlights significant differences.

	Low fishing pressure			High fishing pressure			Difference (Low-High)		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
Species density at 5m									
<i>A. imberbis</i>	5.5	0.7	13.2	0.5	0.0	1.4	5.0	0.2	12.8
<i>Atherina spp.</i>	35.6	0.0	106.7	53.3	0.0	160.0	-17.8	-141.8	106.7
<i>B. boops</i>	9.8	0.0	29.3	11.7	0.0	29.8	-2.0	-24.5	24.0
<i>C. labrosus</i>	3.0	0.0	6.8	0.7	0.0	1.6	2.3	-0.7	6.0
<i>C. chromis</i>	504.9	321.9	720.0	329.2	192.9	506.3	175.6	-77.3	439.4
<i>C. julis</i>	41.8	19.2	70.4	47.3	29.9	66.7	-5.5	-35.6	27.4
<i>D. annularis</i>	10.5	1.6	22.9	11.6	3.7	20.1	-1.1	-13.9	14.2
<i>D. puntazzo</i>	3.4	1.4	5.7	2.1	0.5	4.1	1.2	-1.4	4.1
<i>D. sargus</i>	9.4	5.5	13.9	4.6	1.8	8.0	4.8	-0.5	10.3
<i>D. vulgaris</i>	51.4	30.4	72.7	47.1	26.3	74.7	4.3	-29.5	35.4
<i>E. costae</i>	2.0	0.2	4.6	0.5	0.0	1.4	1.4	-0.5	4.1
<i>E. marginatus</i>	0.4	0.0	0.9	0.2	0.0	0.5	0.2	-0.4	0.7
<i>M. surmuletus</i>	1.8	0.5	3.0	3.6	1.2	6.4	-1.8	-4.8	0.7
<i>O. melanura</i>	17.2	6.0	30.0	48.9	13.5	91.2	-31.6	-77.9	7.1
<i>S. salpa</i>	59.7	35.0	83.4	55.5	30.8	84.8	4.3	-31.8	37.3
<i>S. notata</i>	0.2	0.0	0.5	0.5	0.0	1.6	-0.4	-1.6	0.5
<i>S. scrofa</i>	0.0	0.0	0.0	0.2	0.0	0.5	-0.2	-0.5	0.0
<i>S. dumerili</i>	0.5	0.0	1.4	0.0	0.0	0.0	0.5	0.0	1.4
<i>S. cabrilla</i>	5.7	2.8	9.1	1.2	0.4	2.5	4.4	1.6	8.2
<i>S. scriba</i>	13.2	5.5	24.4	20.3	10.0	31.1	-7.1	-20.8	8.0
<i>S. luridus</i>	25.1	10.7	39.8	29.0	9.6	51.2	-3.9	-28.8	20.6
<i>S. rivulatus</i>	0.7	0.0	1.6	5.5	0.0	12.4	-4.8	-11.7	0.5
<i>S. cretense</i>	35.2	18.1	54.4	11.9	4.6	19.4	23.3	4.8	45.0
<i>S. smaris</i>	0.0	0.0	0.0	7.1	0.0	21.3	-7.1	-21.3	0.0
<i>S. cantharus</i>	0.4	0.0	0.9	0.2	0.0	0.5	0.2	-0.4	0.7
<i>S. cinereus</i>	0.5	0.0	1.4	2.0	0.4	4.4	-1.4	-4.1	0.4
<i>S. doderleini</i>	0.5	0.0	1.4	2.0	0.4	4.3	-1.4	-3.9	0.4
<i>S. mediterraneus</i>	3.7	0.9	7.6	4.4	2.1	6.9	-0.7	-4.6	3.7
<i>C. melanocercus</i>	0.2	0.0	0.5	0.4	0.0	0.9	-0.2	-0.7	0.4
<i>S. ocellatus</i>	3.7	0.0	9.2	0.9	0.0	2.1	2.8	-1.4	8.5
<i>S. rostratus</i>	1.1	0.0	2.7	0.5	0.0	1.6	0.5	-1.1	2.3
<i>S. tinca</i>	16.4	7.1	26.0	25.2	14.4	38.4	-8.9	-24.4	5.0
<i>T. pavo</i>	123.4	96.4	150.2	51.9	27.6	83.6	71.5	30.8	112.2
Species density at 15m									
<i>A. anthias</i>	4.4	0.0	12.2	0.0	0.0	0.0	4.4	0.0	12.2
<i>A. imberbis</i>	24.0	12.6	36.2	18.3	9.9	27.6	5.7	-9.3	20.6
<i>Atherina spp.</i>	0.0	0.0	0.0	28.6	0.0	85.7	-28.6	-85.7	0.0
<i>B. boops</i>	293.7	76.2	601.1	94.1	0.0	202.3	199.6	-43.4	515.7
<i>C. chromis</i>	1180.0	797.2	1670.5	620.0	443.8	813.3	560.0	128.6	1088.5
<i>C. julis</i>	84.6	54.1	114.9	84.6	64.6	108.8	0.0	-39.2	42.3
<i>D. dentex</i>	0.6	0.0	1.3	0.0	0.0	0.0	0.6	0.0	1.3
<i>D. annularis</i>	8.6	0.4	19.4	6.1	2.7	10.3	2.5	-6.7	13.7
<i>D. puntazzo</i>	2.9	1.1	5.0	2.9	1.1	4.8	0.0	-2.7	2.7
<i>D. sargus</i>	11.2	6.9	16.8	5.5	2.5	9.3	5.7	-0.2	12.6
<i>D. vulgaris</i>	91.6	58.7	124.2	41.1	28.8	57.1	50.5	13.1	85.5
<i>E. costae</i>	3.8	0.2	7.6	1.0	0.0	2.1	2.9	-0.8	6.7
<i>E. marginatus</i>	1.7	0.2	4.2	0.0	0.0	0.0	1.7	0.2	4.2
<i>L. merula</i>	0.6	0.0	1.5	0.2	0.0	0.6	0.4	-0.4	1.3
<i>L. mixtus</i>	0.4	0.0	1.0	0.0	0.0	0.0	0.4	0.0	1.0
<i>L. viridis</i>	0.2	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.6
<i>M. surmuletus</i>	5.0	1.7	9.0	8.0	3.2	13.9	-3.0	-10.3	3.0
<i>M. helena</i>	0.4	0.0	1.1	0.0	0.0	0.0	0.4	0.0	1.1
<i>O. melanura</i>	51.0	9.0	103.8	8.4	1.0	18.8	42.7	1.2	95.0
<i>S. sarda</i>	0.2	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.6
<i>S. salpa</i>	21.1	0.6	44.4	21.0	6.7	36.6	0.2	-24.9	27.8
<i>S. notata</i>	0.8	0.0	2.1	0.2	0.0	0.6	0.6	-0.4	1.9
<i>S. dumerili</i>	2.5	0.2	6.1	0.8	0.0	2.3	1.7	-1.3	5.7
<i>S. cabrilla</i>	15.8	7.8	24.8	3.8	1.7	5.9	12.0	3.8	21.1
<i>S. scriba</i>	20.6	10.5	33.7	13.5	9.3	17.7	7.0	-4.0	20.4
<i>S. luridus</i>	44.2	14.3	81.3	14.7	3.8	30.5	29.5	-6.1	67.8
<i>S. rivulatus</i>	6.3	0.0	18.9	4.6	0.0	10.5	1.7	-8.6	16.8
<i>S. cretense</i>	41.0	21.5	60.2	11.0	4.8	17.7	29.9	10.7	50.9
<i>S. aurata</i>	0.2	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.6
<i>S. maena</i>	61.0	15.3	123.0	85.9	11.2	220.7	-25.0	-176.9	82.6
<i>S. smaris</i>	229.0	57.7	438.3	28.8	0.0	76.2	200.2	29.0	409.7
<i>S. cantharus</i>	9.7	0.0	27.2	6.5	0.8	15.6	3.2	-12.0	23.2
<i>S. cinereus</i>	1.7	0.0	4.8	0.0	0.0	0.0	1.7	0.0	4.8
<i>S. doderleini</i>	2.5	0.4	5.5	5.9	1.7	10.5	-3.4	-8.9	1.9
<i>S. mediterraneus</i>	6.3	1.5	12.8	13.0	8.0	18.3	-6.7	-14.1	1.5
<i>C. melanocercus</i>	3.8	1.0	7.4	1.3	0.2	2.9	2.5	-0.8	6.3
<i>S. ocellatus</i>	0.4	0.0	1.1	1.7	0.0	4.4	-1.3	-4.2	0.6

	Low fishing pressure			High fishing pressure			Difference (Low-High)		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
<i>S. roissali</i>	0.0	0.0	0.0	0.4	0.0	1.1	-0.4	-1.1	0.0
<i>S. rostratus</i>	1.9	0.0	4.0	1.9	0.4	3.8	0.0	-2.7	2.7
<i>S. tinca</i>	19.0	8.2	34.3	12.8	7.4	18.9	6.3	-6.1	22.8
<i>T. pavo</i>	108.6	76.0	144.6	36.0	13.3	60.0	72.6	32.2	115.8

Table S3. Biomass values and the 95% confidence intervals (CI) of fish species (kg 1000 m⁻²) recorded in low and high fishing pressure sites of the Aegean Sea, as well as the difference of fish biomass between low and high fishing pressure sites. Tabulations are presented per depth zone. Blue highlights significant differences.

	Low fishing pressure			High fishing pressure			Difference (Low-High)		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
Species biomass (5 m)									
<i>A. imberbis</i>	0.036	0.003	0.094	0.003	0.000	0.009	0.033	-0.001	0.091
<i>Atherina spp.</i>	0.062	0.000	0.187	0.319	0.000	0.957	-0.257	-0.957	0.125
<i>B. boops</i>	0.193	0.000	0.579	0.257	0.000	0.722	-0.064	-0.623	0.480
<i>C. labrosus</i>	0.104	0.000	0.270	0.044	0.000	0.096	0.060	-0.056	0.231
<i>C. chromis</i>	2.914	1.616	4.168	1.802	0.925	2.883	1.112	-0.578	2.664
<i>C. julis</i>	0.550	0.278	0.865	0.702	0.454	0.947	-0.152	-0.521	0.248
<i>D. annularis</i>	0.188	0.018	0.422	0.156	0.054	0.306	0.032	-0.201	0.298
<i>D. puntazzo</i>	0.019	0.007	0.037	0.004	0.002	0.008	0.015	0.002	0.032
<i>D. sargus</i>	0.389	0.201	0.647	0.116	0.035	0.215	0.273	0.060	0.544
<i>D. vulgaris</i>	1.228	0.614	1.874	0.764	0.313	1.421	0.464	-0.417	1.256
<i>E. costae</i>	0.027	0.005	0.054	0.017	0.000	0.043	0.010	-0.025	0.045
<i>E. marginatus</i>	0.012	0.000	0.032	0.006	0.000	0.019	0.006	-0.012	0.029
<i>M. surmuletus</i>	0.023	0.007	0.046	0.066	0.022	0.130	-0.043	-0.106	0.007
<i>O. melanura</i>	0.400	0.065	0.994	0.544	0.131	1.123	-0.144	-0.838	0.564
<i>S. salpa</i>	2.089	1.255	2.998	1.438	0.793	2.222	0.650	-0.550	1.808
<i>S. notata</i>	0.001	0.000	0.003	0.010	0.000	0.030	-0.009	-0.030	0.003
<i>S. scrofa</i>	0.000	0.000	0.000	0.024	0.000	0.072	-0.024	-0.072	0.000
<i>S. dumerili</i>	0.065	0.000	0.196	0.000	0.000	0.000	0.065	0.000	0.196
<i>S. cabrilla</i>	0.157	0.077	0.235	0.020	0.006	0.036	0.137	0.054	0.216
<i>S. scriba</i>	0.280	0.115	0.477	0.330	0.147	0.513	-0.050	-0.305	0.205
<i>S. luridus</i>	1.120	0.524	1.853	1.162	0.393	2.085	-0.042	-1.180	1.077
<i>L. rivulatus</i>	0.026	0.000	0.062	0.185	0.000	0.426	-0.158	-0.405	0.014
<i>S. cretense</i>	1.760	0.899	2.661	0.414	0.158	0.717	1.346	0.464	2.318
<i>S. smaris</i>	0.000	0.000	0.000	0.017	0.000	0.050	-0.017	-0.050	0.000
<i>S. cantharus</i>	0.044	0.000	0.106	0.001	0.000	0.002	0.044	-0.001	0.106
<i>S. cinereus</i>	0.002	0.000	0.004	0.002	0.000	0.004	0.000	-0.003	0.003
<i>S. doderleini</i>	0.005	0.000	0.015	0.010	0.002	0.021	-0.004	-0.017	0.009
<i>S. mediterraneus</i>	0.055	0.011	0.112	0.050	0.024	0.077	0.004	-0.045	0.064
<i>S. melanocercus</i>	0.001	0.000	0.003	0.005	0.000	0.013	-0.004	-0.012	0.002
<i>S. ocellatus</i>	0.029	0.000	0.069	0.006	0.000	0.015	0.023	-0.009	0.066
<i>S. rostratus</i>	0.010	0.000	0.027	0.001	0.000	0.004	0.009	-0.002	0.026
<i>S. tinca</i>	0.364	0.182	0.549	0.519	0.293	0.783	-0.155	-0.466	0.149
<i>T. pavo</i>	1.842	1.343	2.303	0.833	0.452	1.276	1.009	0.364	1.640
Species biomass (15 m)									
<i>A. anthias</i>	0.016	0.000	0.043	0.000	0.000	0.000	0.016	0.000	0.043
<i>A. imberbis</i>	0.124	0.051	0.210	0.091	0.049	0.133	0.034	-0.048	0.135
<i>Atherina spp.</i>	0.000	0.000	0.000	0.120	0.000	0.359	-0.120	-0.359	0.000
<i>B. boops</i>	7.426	1.254	15.481	1.685	0.000	4.032	5.741	-1.018	14.120
<i>C. chromis</i>	6.243	3.668	9.391	3.865	2.631	5.246	2.378	-0.476	5.793
<i>C. julis</i>	1.227	0.787	1.752	1.128	0.884	1.433	0.099	-0.405	0.645
<i>D. dentex</i>	0.079	0.000	0.214	0.000	0.000	0.000	0.079	0.000	0.214
<i>D. annularis</i>	0.202	0.006	0.457	0.135	0.045	0.255	0.067	-0.187	0.334
<i>D. puntazzo</i>	0.018	0.005	0.035	0.012	0.004	0.020	0.006	-0.009	0.024
<i>D. sargus</i>	0.651	0.318	1.096	0.223	0.082	0.397	0.428	0.071	0.913
<i>D. vulgaris</i>	2.955	1.875	4.045	0.845	0.523	1.230	2.111	0.975	3.289
<i>E. costae</i>	0.975	0.027	2.213	0.036	0.000	0.079	0.939	-0.005	2.154
<i>E. marginatus</i>	2.419	0.064	6.175	0.000	0.000	0.000	2.419	0.064	6.175
<i>L. merula</i>	0.072	0.000	0.177	0.017	0.000	0.052	0.055	-0.029	0.160
<i>L. mixtus</i>	0.004	0.000	0.012	0.000	0.000	0.000	0.004	0.000	0.012
<i>L. viridis</i>	0.060	0.000	0.180	0.000	0.000	0.000	0.060	0.000	0.180
<i>M. surmuletus</i>	0.070	0.025	0.124	0.120	0.054	0.194	-0.050	-0.134	0.034
<i>M. helena</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>O. melanura</i>	1.163	0.270	2.482	0.178	0.013	0.407	0.985	0.066	2.324

	Low fishing pressure			High fishing pressure			Difference (Low-High)		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
<i>S. sarda</i>	0.057	0.000	0.170	0.000	0.000	0.000	0.057	0.000	0.170
<i>S. salpa</i>	0.777	0.043	1.933	0.615	0.167	1.252	0.163	-0.827	1.423
<i>S. notata</i>	0.007	0.000	0.019	0.002	0.000	0.005	0.005	-0.004	0.017
<i>S. dumerili</i>	1.665	0.028	4.744	0.129	0.000	0.387	1.536	-0.193	4.616
<i>S. cabrilla</i>	0.370	0.161	0.602	0.066	0.028	0.108	0.304	0.091	0.534
<i>S. scriba</i>	0.494	0.240	0.807	0.259	0.197	0.322	0.235	-0.024	0.537
<i>S. luridus</i>	1.930	0.540	3.764	0.607	0.169	1.141	1.323	-0.118	3.237
<i>L. rivulatus</i>	0.245	0.000	0.736	0.175	0.000	0.422	0.071	-0.337	0.670
<i>S. cretense</i>	2.454	1.294	3.724	0.370	0.155	0.611	2.083	0.928	3.367
<i>S. aurata</i>	0.028	0.000	0.083	0.000	0.000	0.000	0.028	0.000	0.083
<i>S. maena</i>	1.596	0.388	3.358	1.226	0.236	2.953	0.370	-1.969	2.535
<i>S. smarís</i>	2.044	0.515	4.102	0.253	0.003	0.580	1.791	0.241	3.819
<i>S. cantharus</i>	0.282	0.000	0.795	0.090	0.006	0.195	0.191	-0.137	0.748
<i>S. cinereus</i>	0.002	0.000	0.006	0.000	0.000	0.000	0.002	0.000	0.006
<i>S. doderleini</i>	0.011	0.002	0.025	0.024	0.009	0.040	-0.012	-0.033	0.009
<i>S. mediterraneus</i>	0.065	0.019	0.123	0.166	0.089	0.248	-0.101	-0.202	-0.009
<i>S. melanocercus</i>	0.026	0.007	0.052	0.013	0.002	0.028	0.014	-0.010	0.040
<i>S. ocellatus</i>	0.006	0.000	0.017	0.017	0.000	0.040	-0.011	-0.035	0.010
<i>S. roissali</i>	0.000	0.000	0.000	0.002	0.000	0.007	-0.002	-0.007	0.000
<i>S. rostratus</i>	0.012	0.000	0.026	0.018	0.003	0.041	-0.006	-0.032	0.016
<i>S. tinca</i>	0.389	0.228	0.555	0.348	0.197	0.525	0.041	-0.208	0.268
<i>T. pavo</i>	1.594	1.029	2.214	0.579	0.240	0.991	1.015	0.346	1.710

Table S4. Summary of percentage similarity analysis (SIMPER) of sites located at the North and South Aegean Sea based on fish biomass values (in grams, square root transformation of original data), and tabulated per fish species. Av. Biomass: average biomass, Av. Diss: average dissimilarity, Diss/SD: Dissimilarity to standard deviation ratio, Contrib. %: percent contribution, Cum. %: Cumulative percent contribution, C: commercial, C-sp: commercial small pelagic, NC: non-commercial, LC: non-commercial or sold in some areas but at low value.

Commercial status	Trophic group	Species	Average dissimilarity = 58%					
			N. Aegean Av. Biomass	S. Aegean Av. Biomass	Av. Diss	Diss/SD	Contrib. %	Cum. %
LC	G	<i>S. luridus</i>	4.17	29.18	5.99	2.04	10.34	10.34
LC	G	<i>S. cretense</i>	10.75	24.03	4.21	1.41	7.26	17.6
NC	O	<i>C. chromis</i>	36.86	26.27	4.18	1.33	7.21	24.81
C	G	<i>S. salpa</i>	18.07	11	3.78	1.23	6.53	31.34
NC	O	<i>T. pavo</i>	13.56	25.7	3.47	1.26	5.99	37.33
CP	O	<i>B. boops</i>	14.22	7.87	3.28	0.67	5.65	42.99
C	O	<i>D. vulgaris</i>	20.68	17.82	3.02	1.39	5.21	48.2
LC	O	<i>S. tinca</i>	14.41	3.29	2.61	1.72	4.5	52.7
CP	O	<i>S. maena</i>	8.48	7.51	2.51	0.83	4.34	57.04
C	O	<i>O. melanura</i>	8.34	7.75	2.44	0.94	4.21	61.25
NC	O	<i>C. julis</i>	18.27	13.34	2.22	1.3	3.84	65.09
LC	C	<i>S. scribea</i>	11.95	4.9	1.92	1.33	3.32	68.4
CP	O	<i>S. smaris</i>	3.02	8.68	1.84	0.59	3.17	71.57
C	O	<i>D. sargus</i>	8.38	9.08	1.78	1.23	3.08	74.65
LC	G	<i>S. rivulatus</i>	0	7.27	1.65	0.74	2.85	77.5
LC	C	<i>S. cabrilla</i>	3.53	7.44	1.5	1.32	2.58	80.09
LC	O	<i>D. annularis</i>	6.49	1.3	1.41	0.96	2.44	82.53
LC	O	<i>S. mediterraneus</i>	5.22	1.77	1.1	1.31	1.89	84.42
C	C	<i>E. costae</i>	2.6	4.11	1.1	0.61	1.89	86.31
C	C	<i>E. marginatus</i>	3.44	3.57	0.99	0.41	1.71	88.03
C	O	<i>M. surmuletus</i>	4.29	1.86	0.95	1.11	1.64	89.67
NC	C	<i>A. imberbis</i>	3.57	2.08	0.82	1.02	1.41	91.08
C	C	<i>S. dumerili</i>	5.31	0	0.82	0.4	1.41	92.49
C	O	<i>S. cantharus</i>	3.3	0	0.63	0.53	1.09	93.58
CP	O	<i>Atherina spp.</i>	2.39	0	0.56	0.28	0.96	94.54
C	O	<i>C. labrosus</i>	1.55	0.45	0.47	0.42	0.82	95.36
C	O	<i>D. puntazzo</i>	1.94	0.62	0.41	1.1	0.72	96.07
NC	O	<i>S. doderleini</i>	1.45	0.56	0.38	0.77	0.66	96.74
NC	O	<i>C. melanocercus</i>	1.45	0	0.29	0.67	0.5	97.24
NC	O	<i>S. rostratus</i>	1.33	0	0.29	0.63	0.49	97.73
NC	O	<i>S. ocellatus</i>	1.28	0	0.28	0.47	0.49	98.22
LC	O	<i>L. merula</i>	1.03	0	0.2	0.3	0.34	98.57
C	C	<i>D. dentex</i>	0.74	0	0.13	0.23	0.23	98.8
C	C	<i>S. sarda</i>	0	0.78	0.13	0.22	0.23	99.02
LC	C	<i>S. notata</i>	0.59	0	0.12	0.33	0.21	99.23
NC	O	<i>S. cinereus</i>	0.3	0.12	0.09	0.47	0.16	99.39
LC	O	<i>L. viridis</i>	0.49	0	0.08	0.17	0.14	99.53
C	C	<i>S. scrofa</i>	0.32	0	0.08	0.17	0.14	99.67
NC	O	<i>A. anthias</i>	0.1	0.38	0.07	0.26	0.12	99.8
C	O	<i>S. aurata</i>	0.33	0	0.07	0.17	0.12	99.92
LC	C	<i>L. mixtus</i>	0.18	0	0.02	0.24	0.04	99.96
NC	O	<i>S. roisali</i>	0.1	0	0.02	0.17	0.04	100

Table S5. Summary of percentage similarity analysis (SIMPER) of sites located at low versus high fishing pressure (FP) based on fish biomass values (square root transformation of original data), and tabulated per fish species. Av. Biomass: average biomass, Av. Diss: average dissimilarity, Diss/SD: Dissimilarity to standard deviation ratio, Contrib. %: percent contribution, Cum. %: Cumulative percent contribution, C: commercial, C-sp: commercial small pelagic, NC: non-commercial, LC: non-commercial or sold in some areas but at low value.

Commercial status	Trophic group	Species	Average dissimilarity = 54.4%					
			Low (FP) Av. Biomass	High (FP) Av. Biomass	Av. Diss	Diss/SD	Contrib. %	Cum. %
LC	G	<i>S. cretense</i>	23.01	8.56	4.15	1.37	7.62	7.62
NC	O	<i>C. chromis</i>	36.64	29.05	4.13	1.33	7.58	15.21
LC	G	<i>S. luridus</i>	15.87	11.45	3.78	1.09	6.94	22.14
C	G	<i>S. salpa</i>	16.54	14.24	3.76	1.23	6.9	29.05
CP	O	<i>B. boops</i>	16.46	7.16	3.5	0.67	6.43	35.48
NC	O	<i>T. pavo</i>	23.74	12.59	3.35	1.28	6.16	41.64
C	O	<i>D. vulgaris</i>	23.99	15.2	3.18	1.46	5.85	47.49
CP	O	<i>S. maena</i>	9.14	7.09	2.56	0.79	4.7	52.19
C	O	<i>O. melanura</i>	9.82	6.42	2.45	0.94	4.49	56.68
NC	O	<i>C. julis</i>	15.49	17.3	2.07	1.31	3.8	60.49
C	O	<i>D. sargus</i>	11.94	5.35	2	1.26	3.68	64.16
LC	O	<i>S. tinca</i>	9.66	10.73	1.78	1.22	3.27	67.44
CP	O	<i>S. smarvis</i>	7.92	2.41	1.66	0.56	3.05	70.49
LC	C	<i>S. scriba</i>	9.44	9.11	1.62	1.25	2.98	73.47
LC	C	<i>S. cabrilla</i>	7.55	2.47	1.48	1.15	2.71	76.18
LC	O	<i>D. annularis</i>	4.1	4.94	1.41	0.99	2.59	78.78
LC	G	<i>S. rivulatus</i>	1.94	3.57	1.09	0.58	2	80.77
C	C	<i>E. marginatus</i>	6.77	0.2	1.01	0.4	1.86	82.63
C	C	<i>E. costae</i>	5.07	1.27	1.01	0.55	1.86	84.49
C	C	<i>S. dumerili</i>	5.7	0.9	0.99	0.45	1.82	86.31
LC	O	<i>S. mediterraneus</i>	2.93	4.89	0.99	1.25	1.82	88.14
C	O	<i>M. surmuletus</i>	2.58	4.15	0.91	1.12	1.67	89.81
NC	C	<i>A. imberbis</i>	3.44	2.56	0.83	1.02	1.53	91.34
C	O	<i>S. cantharus</i>	2.65	1.45	0.69	0.57	1.27	92.6
CP	O	<i>Atherina spp.</i>	0.65	2.33	0.63	0.31	1.16	93.76
C	O	<i>C. labrosus</i>	1.34	0.93	0.52	0.44	0.95	94.71
C	O	<i>D. puntazzo</i>	1.77	1.12	0.4	1.04	0.73	95.45
NC	O	<i>S. doderleini</i>	0.75	1.49	0.39	0.82	0.72	96.17
NC	O	<i>S. ocellatus</i>	0.8	0.8	0.31	0.49	0.58	96.74
NC	O	<i>C. melanocercus</i>	1.01	0.79	0.3	0.68	0.55	97.3
NC	O	<i>S. rostratus</i>	0.88	0.78	0.3	0.66	0.55	97.84
LC	O	<i>L. merula</i>	0.95	0.33	0.24	0.33	0.44	98.28
C	C	<i>D. dentex</i>	0.92	0	0.18	0.26	0.32	98.6
LC	C	<i>S. notata</i>	0.37	0.36	0.14	0.38	0.25	98.86
LC	O	<i>L. viridis</i>	0.61	0	0.11	0.19	0.2	99.05
C	C	<i>S. sarda</i>	0.6	0	0.11	0.19	0.2	99.25
NC	O	<i>S. cinereus</i>	0.3	0.16	0.1	0.49	0.19	99.44
C	O	<i>S. aurata</i>	0.41	0	0.09	0.19	0.17	99.61
C	C	<i>S. scrofa</i>	0	0.4	0.09	0.18	0.16	99.77
NC	O	<i>A. anthias</i>	0.41	0	0.07	0.25	0.12	99.9
LC	C	<i>L. mixtus</i>	0.23	0	0.03	0.27	0.06	99.95
NC	O	<i>S. roisali</i>	0	0.12	0.03	0.19	0.05	100

Table S6. Summary of percentage similarity analysis (SIMPER) of stations located at 5 and 15 m depth based on fish biomass values (square root transformation of original data), and tabulated per fish species (. Av. Biomass: average biomass, Av. Diss: average dissimilarity, Diss/SD: Dissimilarity to standard deviation ratio, Contrib. %: percent contribution, Cum. %: Cumulative percent contribution, C: commercial, C-sp: commercial small pelagic, NC: non-commercial, LC: non-commercial or sold in some areas but at low value.

Average dissimilarity = 54.9%								
Commercial status	Trophic group	Species	5 m Av. Biomass	15 m Av. Biomass	Av. Diss	Diss/SD	Contrib. %	Cum. %
NC	Omnivore	<i>C. chromis</i>	26.2	39.96	4.43	1.38	8.07	8.07
C	Grazer	<i>S. salpa</i>	21.53	8.81	4.1	1.38	7.47	15.54
C-sp	Omnivore	<i>B. boops</i>	2.79	21.47	3.91	0.71	7.12	22.66
LC	Grazer	<i>S. luridus</i>	13.96	13.34	3.7	1.09	6.74	29.4
LC	Grazer	<i>S. cretense</i>	14.22	17.46	3.53	1.3	6.44	35.84
C	Omnivore	<i>D. vulgaris</i>	15.91	23.54	3.04	1.37	5.54	41.38
NC	Omnivore	<i>T. pavo</i>	19.75	16.46	2.98	1.2	5.42	46.81
LC	Omnivore	<i>S. maena</i>	2.99	13.6	2.9	0.85	5.29	52.09
C	Omnivore	<i>O. melanura</i>	7.77	8.49	2.4	0.94	4.37	56.46
NC	Omnivore	<i>C. julis</i>	13.02	20.02	2.12	1.34	3.86	60.32
C-sp	Omnivore	<i>S. smaris</i>	0.32	10.36	1.89	0.6	3.44	63.76
C	Omnivore	<i>D. sargus</i>	7.51	9.87	1.82	1.21	3.31	67.06
LC	Omnivore	<i>S. tinca</i>	10.46	9.91	1.75	1.27	3.19	70.25
LC	Carnivore	<i>S. scriba</i>	8.15	10.49	1.62	1.38	2.95	73.21
LC	Omnivore	<i>D. annularis</i>	4.54	4.5	1.36	0.97	2.47	75.68
LC	Carnivore	<i>S. cabrilla</i>	3.72	6.4	1.3	1.12	2.37	78.05
LC	Grazer	<i>S. rivulatus</i>	2.5	3.04	1.1	0.56	2	80.05
LC	Carnivore	<i>A. imberbis</i>	1.08	5.07	1.05	1.23	1.91	81.96
C	Carnivore	<i>E. costae</i>	1.25	5.23	1.04	0.56	1.9	83.86
C	Carnivore	<i>S. dumerili</i>	0.87	5.9	1.02	0.45	1.86	85.72
C	Carnivore	<i>E. marginatus</i>	0.57	6.61	1.02	0.39	1.85	87.58
LC	Omnivore	<i>S. mediterraneus</i>	2.94	4.95	1.01	1.19	1.83	89.41
C	Omnivore	<i>M. surmuletus</i>	2.54	4.25	0.95	1.1	1.73	91.14
C	Omnivore	<i>S. cantharus</i>	0.79	3.4	0.75	0.58	1.37	92.51
C-sp	Omnivore	<i>Atherina</i> spp.	2.04	0.9	0.63	0.31	1.14	93.65
C	Omnivore	<i>C. labrosus</i>	2.19	0	0.49	0.45	0.9	94.55
NC	Omnivore	<i>S. doderleini</i>	0.75	1.51	0.41	0.79	0.75	95.31
C	Omnivore	<i>D. puntazzo</i>	1.29	1.6	0.39	1.06	0.72	96.02
NC	Omnivore	<i>S. melanocercus</i>	0.33	1.52	0.34	0.72	0.61	96.63
NC	Omnivore	<i>S. rostratus</i>	0.49	1.19	0.32	0.67	0.58	97.21
NC	Omnivore	<i>S. ocellatus</i>	0.86	0.73	0.31	0.51	0.56	97.78
LC	Omnivore	<i>L. merula</i>	0	1.32	0.27	0.34	0.49	98.27
C	Carnivore	<i>D. dentex</i>	0	0.95	0.18	0.26	0.33	98.6
LC	Carnivore	<i>S. notata</i>	0.33	0.4	0.14	0.38	0.25	98.85
LC	Omnivore	<i>L. viridis</i>	0	0.63	0.11	0.19	0.2	99.05
C	Carnivore	<i>S. sarda</i>	0	0.62	0.11	0.19	0.2	99.25
C	Omnivore	<i>S. aurata</i>	0	0.43	0.1	0.19	0.18	99.43
LC	Omnivore	<i>S. cinereus</i>	0.3	0.16	0.1	0.49	0.17	99.6
C	Carnivore	<i>S. scrofa</i>	0.39	0	0.09	0.18	0.16	99.76
NC	Omnivore	<i>A. anthias</i>	0	0.43	0.07	0.25	0.13	99.88
NC	Omnivore	<i>S. roissali</i>	0	0.13	0.03	0.19	0.06	99.94
LC	Carnivore	<i>L. mixtus</i>	0	0.23	0.03	0.28	0.06	100

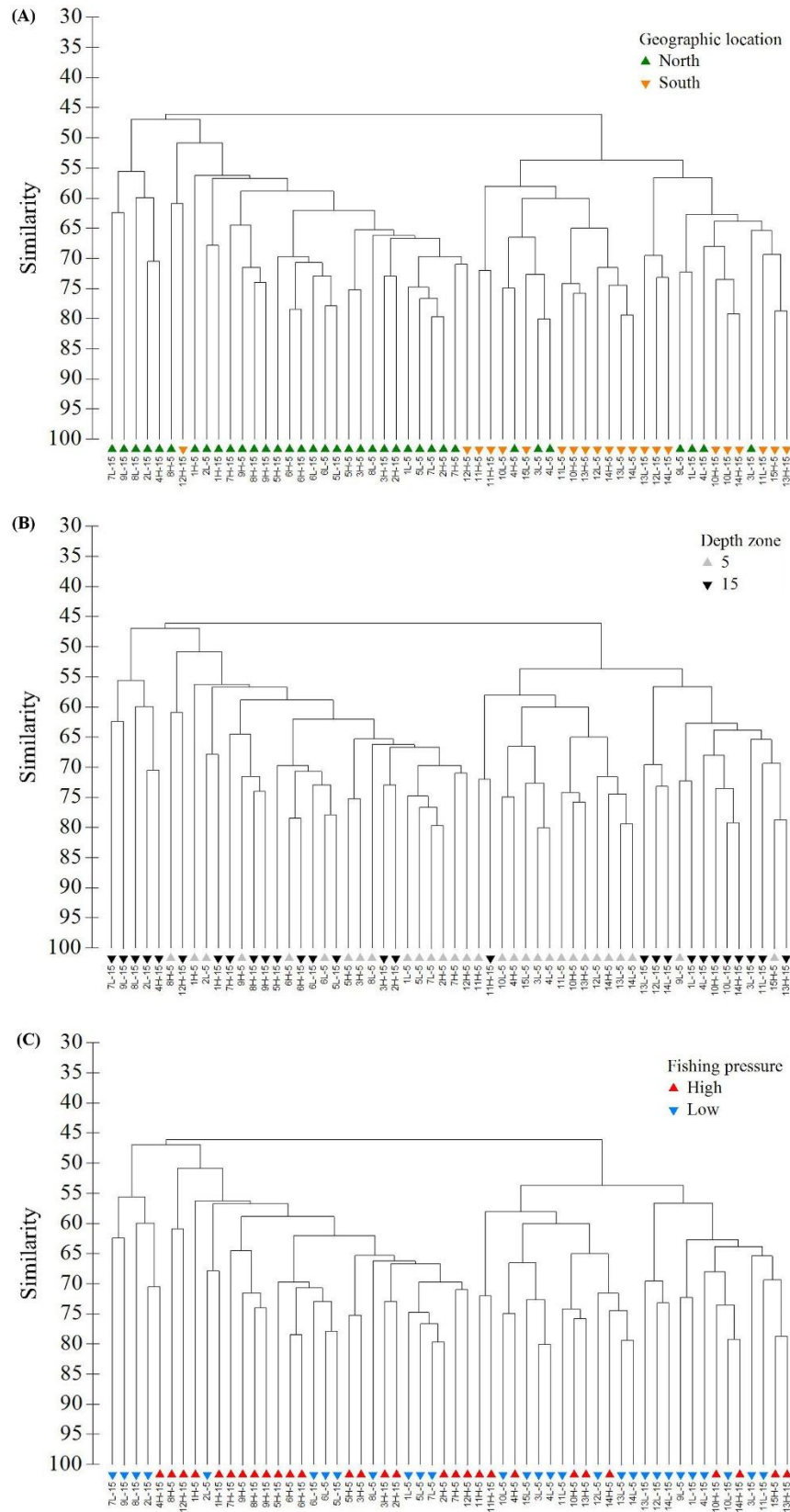


Figure S1. Cluster analysis based on square root transformed data of fish density.

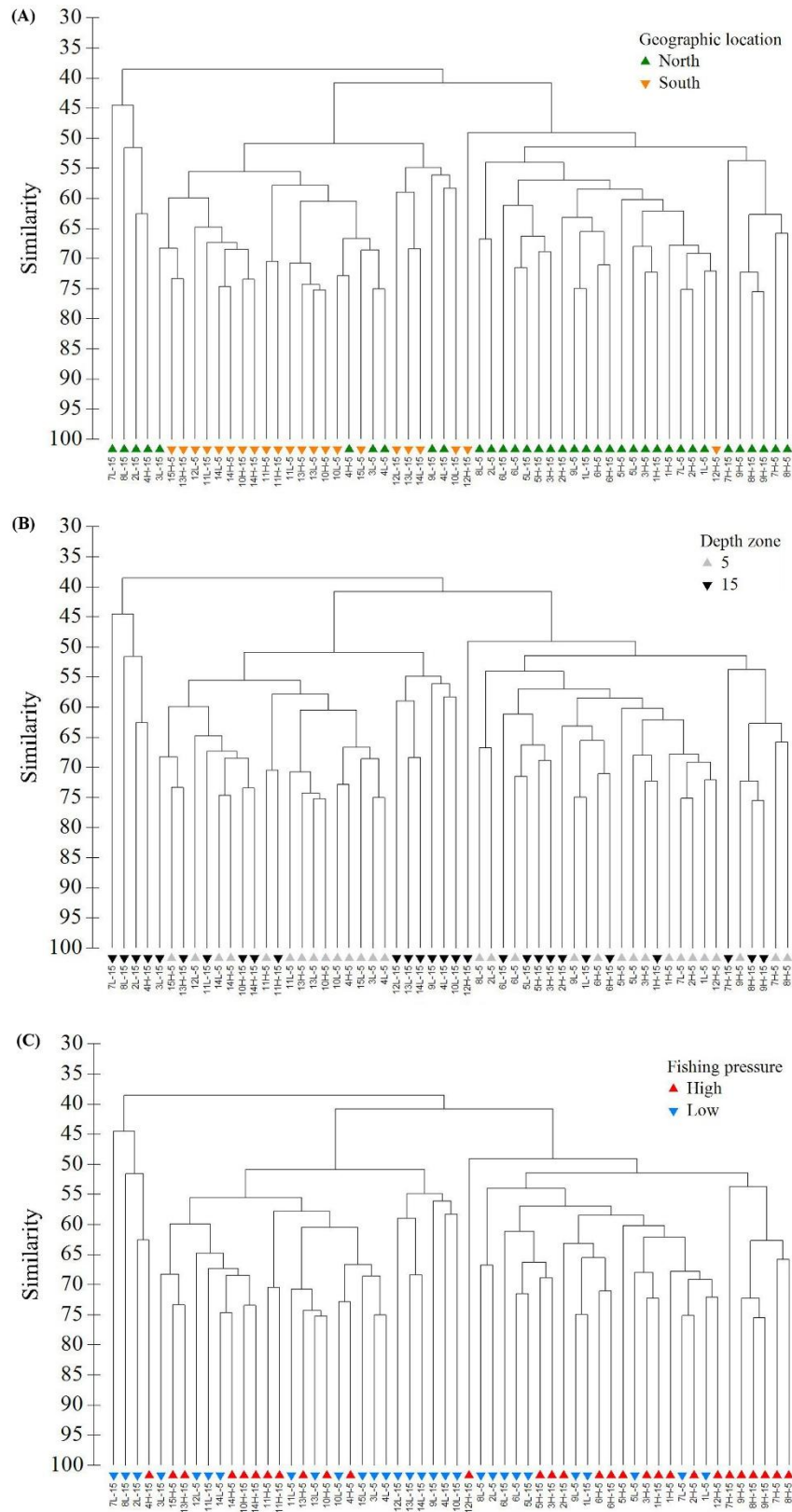
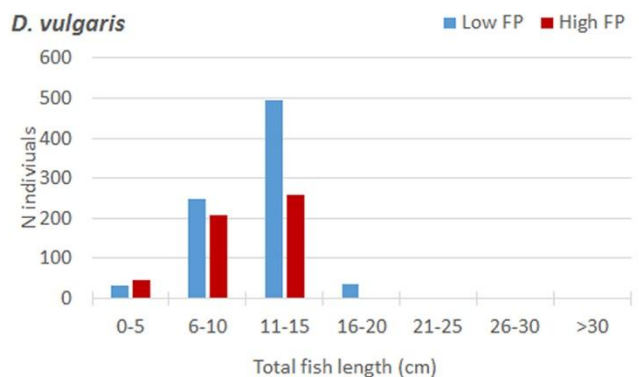
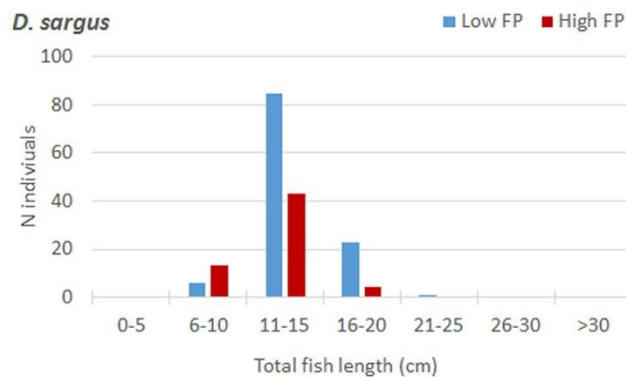
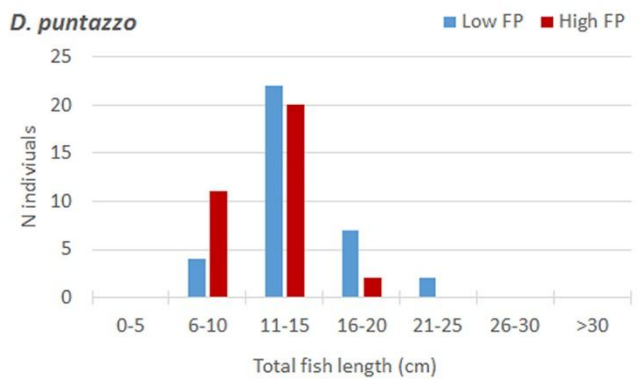
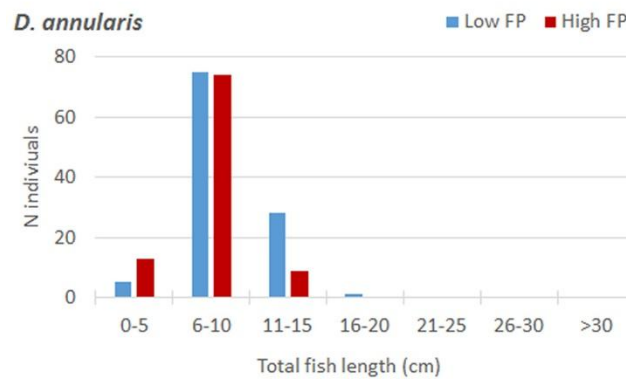
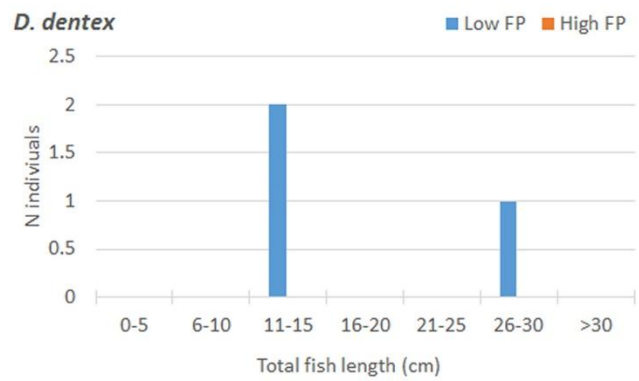
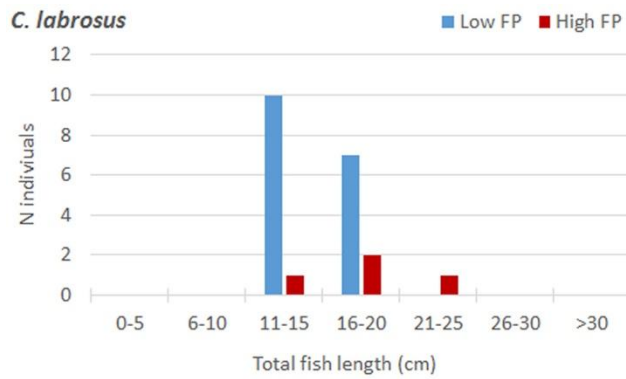


Figure S2. Cluster analysis based on square root transformed data of fish biomass.



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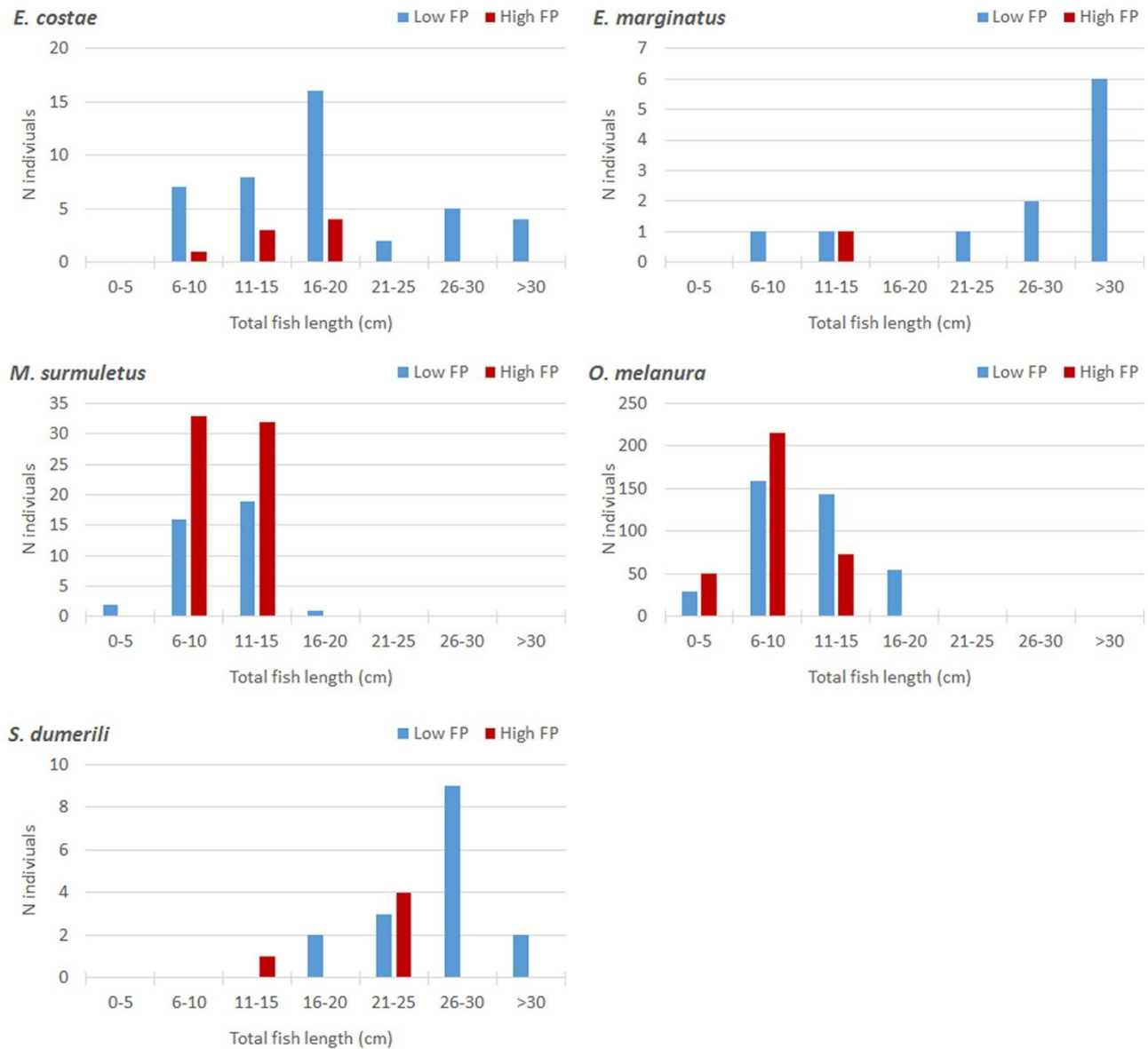


Figure S3. Size structure of commercial fish recorded in low and high fishing pressure (FP) sites of the Aegean Sea (5 and 15 m stations pooled). Only reef-associated fish with an abundance >1 are considered.