

Mediterranean Marine Science

Vol 24, No 3 (2023)

VOL 24, No 3 (2023)



Social-ecological features of set nets small-scale fisheries in the context of Mediterranean marine protected areas

ANTONIO CALÒ, ANTONIO DI FRANCO, CHARALAMPOS DIMITRIADIS, LEA PIACENTINI, PATRICIA VENTURA, ALEXIS PEY, JOSÉ ANTONIO GARCÍA-CHARTON, ERIC CHARBONNEL, VICTOR DECUGIS, FRANCESCO DE FRANCO, IVONI FOURNARI-KONSTANTINIDOU, JOSIPA GRBIN, LUKA KASTELIC, LORENZO MEROTTO, ILARIA RINAUDO, MARIE-CATHERINE SANTONI, FRANCISCO SOBRADO-LLOMPART, MARIA TRUJILLO-ALARCON, FEDERICO QUATTROCCHI, MARCO MILAZZO, PAOLO GUIDETTI

doi: [10.12681/mms.33079](https://doi.org/10.12681/mms.33079)

To cite this article:

CALÒ, A., DI FRANCO, A., DIMITRIADIS, C., PIACENTINI, L., VENTURA, P., PEY, A., GARCÍA-CHARTON, J. A., CHARBONNEL, E., DECUGIS, V., DE FRANCO, F., FOURNARI-KONSTANTINIDOU, I., GRBIN, J., KASTELIC, L., MEROTTO, L., RINAUDO, I., MARIE-CATHERINE, M.-C., SOBRADO-LLOMPART, F., TRUJILLO-ALARCON, M., QUATTROCCHI, F., MILAZZO, M., & GUIDETTI, P. (2023). Social-ecological features of set nets small-scale fisheries in the context of Mediterranean marine protected areas. *Mediterranean Marine Science*, 24(3), 491–509. <https://doi.org/10.12681/mms.33079>

Social-ecological features of set nets small-scale fisheries in the context of Mediterranean marine protected areas

Antonio CALÒ, Antonio Di FRANCO, Charalampos DIMITRIADIS, Lea PIACENTINI, Patricia VENTURA, Alexis PEY, José Antonio GARCÍA-CHARTON, Eric CHARBONNEL, Victor DECUGIS, Francesco de FRANCO, Ivoni FOURNARI-KONSTANTINIDOU, Josipa GRBIN, Luka KASTELIC, Lorenzo MEROTTO, Ilaria RINAUDO, Marie-Catherine SANTONI, Francisco SOBRADO-LLOMPART, Maria TRUJILLO-ALARCON, Federico QUATTROCCHI, Marco MILAZZO and Paolo GUIDETTI

Mediterranean Marine Science, 24 (3) 2023

Table S1. Main details of the survey carried out with questionnaires administered to fishers.

ID	Location	Country	Number of fishers in each area	Number of fishers participating in the survey (% on community)	Number of fishing operations monitored
1 (SCO)	South Corsica	France	38	13 (34)	136
2 (CPM)	Cabo de Palos and adjacent Murcia coast	Spain	19	17 (89)	90
3 (CRO)	Cap Roux	France	30	14 (46)	82
4 (CBL)	Cote Bleue	France	27	17 (63)	96
5 (EAT)	Egadi archipelago and Trapani coast	Italy	40	21 (52)	148
6 (SIF)	Straits of Ibiza and Formentera	Spain	18	12 (66)	169
7 (POR)	Portofino promontory	Italy	22	15 (68)	83
8 (STR)	Strunjan	Slovenia	10	9 (90)	156
9 (DOI)	Dugi-Otok island	Croatia	15	7 (46)	37
10 (NBC)	North Brindisi coast	Italy	5	5 (100)	147
11 (ZAI)	Zakynthos island	Greece	35	19 (54)	148

Table S2. Distribution of the fishing operations over the year.

	Spring	Summer	Autumn	Winter	%
January	0	0	0	64	4.95
February	0	0	0	25	1.93
March	13	0	0	23	2.79
April	71	0	0	0	5.50
May	127	0	0	0	9.83
June	125	62	0	0	14.47
July	0	168	0	0	13.00
August	0	167	0	0	12.93
September	0	94	15	0	8.44
October	0	0	172	0	13.31
November	0	0	132	0	10.22
December	0	0	23	11	2.63
TOTAL	342	491	342	123	1292
%	26.01	38.00	26.47	9.52	

Table S3. Species identified in the catches monitored. Major Taxa: Elasmobranchii (CF), Osteichthyes (F), Cephalopoda Mollusca (M) and Crustacea (C). Vulnerability: Least concern (LC), Near-threatened (NT), Vulnerable (VU), Endangered (EN), Critically Endangered (CR). For the reference numbers of the locations investigated, see Table S1.

Species	Group	Major taxa	Vulnerability	Areas of occurrence
<i>Lophius piscatorius</i>	Anglerfishes (AN)	F	LC	4, 10, 2, 6, 3, 7, 5, 1
<i>Sphyraena sphyraena</i>	Barracudas (BA)	F	LC	4, 5, 10, 2, 9, 7, 8, 3
<i>Sphyraena viridensis</i>	Barracudas (BA)	F	LC	4, 5, 10, 11, 2, 6, 3, 7, 9
<i>Caranx rhonchus</i>	Carangids (CA)	F	LC	2
<i>Lichia amia</i>	Carangids (CA)	F		10, 9, 1, 8
<i>Pseudocaranx dentex</i>	Carangids (CA)	F		11
<i>Seriola dumerili</i>	Carangids (CA)	F	LC	8, 5, 10, 11, 2, 6, 1, 7, 9, 3
<i>Trachinotus ovatus</i>	Carangids (CA)	F	LC	4, 2
<i>Trachurus mediterraneus</i>	Carangids (CA)	F	LC	8, 4, 5, 10, 11, 2, 6, 3, 7, 9
<i>Trachurus trachurus</i>	Carangids (CA)	F	LC	4, 5, 10, 2, 6, 3, 7, 9
<i>Sardina pilchardus</i>	Clupeids (CA)	F	LC	6
<i>Sardinella aurita</i>	Clupeids (CA)	F	LC	11, 2, 6, 7, 9, 3
<i>Conger conger</i>	Conger eels (CE)	F	LC	4, 5, 10, 2, 6, 7, 11
<i>Arnoglossus thori</i>	Flatfishes (FF)	F	LC	4, 7
<i>Bothus podas</i>	Flatfishes (FF)	F	LC	4, 5, 11, 2, 6, 7, 9
<i>Citharus linguatula</i>	Flatfishes (FF)	F	LC	4, 11, 7
<i>Microchirus ocellatus</i>	Flatfishes (FF)	F	LC	4, 10
<i>Pegusa lascaris</i>	Flatfishes (FF)	F		4, 6
<i>Pegusa nasuta</i>	Flatfishes (FF)	F		6
<i>Psetta maxima</i>	Flatfishes (FF)	F	NT	8, 4, 7
<i>Scophthalmus rhombus</i>	Flatfishes (FF)	F	LC	8
<i>Solea solea</i>	Flatfishes (FF)	F	LC	8, 4, 5, 10, 2, 7, 3
<i>Synapturichthys kleinii</i>	Flatfishes (FF)	F		5, 10, 11, 2
Mugilidae	Gray Mulletts (GM)	F	LC	8, 4, 5, 10, 2, 6, 1, 7, 9, 11, 3

Continued

Species	Group	Major taxa	Vulnerability	Areas of occurrence
<i>Epinephelus caninus</i>	Groupers (GR)	F		2
<i>Epinephelus costae</i>	Groupers (GR)	F		5, 11, 2, 6
<i>Epinephelus marginatus</i>	Groupers (GR)	F	EN	4, 5, 2, 6, 3, 1, 7, 11
<i>Mycteroperca rubra</i>	Groupers (GR)	F	LC	11, 2
<i>Chelidonichthys cuculus</i>	Gurnards (GU)	F	LC	5
<i>Chelidonichthys lucerna</i>	Gurnards (GU)	F	LC	8, 4, 5, 10, 11, 6, 7, 3
<i>Trigla lyra</i>	Gurnards (GU)	F	LC	5, 3, 11, 9
<i>Trigloporus lastoviza</i>	Gurnards (GU)	F	LC	4, 5, 11, 2, 6, 9, 8
<i>Merluccius merluccius</i>	Hakes (HA)	F	VU	4, 10, 11, 2, 3, 7, 9, 6
<i>Trisopterus capelanus</i>	Hakes (HA)	F		4, 7
<i>Trisopterus luscus</i>	Hakes (HA)	F		4
<i>Scomber colias</i>	Mackerels (MA)	F	NT	4, 5, 11, 2, 3, 7, 9
<i>Scomber japonicus</i>	Mackerels (MA)	F		5, 10, 9, 4
<i>Scomber scombrus</i>	Mackerels (MA)	F	LC	4, 10, 7, 5, 1, 9, 3
<i>Aulopus filamentosus</i>	Others (OT)	F	LC	3
<i>Balistes caprisiscus</i>	Others (OT)	F		2, 6
<i>Belone belone</i>	Others (OT)	F	LC	5, 6
<i>Boops boops</i>	Others (OT)	F	LC	8, 4, 5, 10, 11, 2, 1, 7, 9
<i>Capros aper</i>	Others (OT)	F	LC	3
<i>Coryphaena hippurus</i>	Others (OT)	F	LC	9
<i>Dactylopterus volitans</i>	Others (OT)	F	LC	10, 11, 2, 6
<i>Gaidropsarus mediterraneus</i>	Others (OT)	F	LC	4
<i>Gobius cruentatus</i>	Others (OT)	F	LC	5
<i>Lagocephalus sceleratus</i>	Others (OT)	F		11
<i>Muraena helena</i>	Others (OT)	F	LC	4, 10, 11, 2, 6, 3, 7, 5, 1
<i>Pomatomus saltatrix</i>	Others (OT)	F	LC	4, 5, 10, 2
<i>Sciaena umbra</i>	Others (OT)	F	VU	8, 4, 5, 10, 11, 2, 6, 3, 1, 7, 9
<i>Serranus cabrilla</i>	Others (OT)	F	LC	4, 5, 10, 11, 2, 6, 7, 1, 9
<i>Serranus scriba</i>	Others (OT)	F	LC	4, 5, 10, 11, 2, 6, 3, 1, 7
<i>Siganus luridus</i>	Others (OT)	F		11
<i>Siganus rivulatus</i>	Others (OT)	F		11
<i>Sparisoma cretense</i>	Others (OT)	F	LC	11, 6
Syngnathidae	Others (OT)	F		2
<i>Synodus saurus</i>	Others (OT)	F	LC	4, 5, 11, 2, 6, 7, 10
<i>Umbrina cirrosa</i>	Others (OT)	F	VU	8, 2, 10
<i>Zeus faber</i>	Others (OT)	F	LC	4, 5, 11, 6, 3, 7, 9, 1, 2, 8
<i>Phycis phycis</i>	Others (OT)	F	LC	4, 5, 10, 11, 2, 6, 3, 1, 7, 9
<i>Spicara flexuosa</i>	Picarels (PI)	F		9
<i>Spicara maena</i>	Picarels (PI)	F	LC	4, 5, 10, 11, 2, 6, 3, 7, 1, 9
<i>Spicara smaris</i>	Picarels (PI)	F	LC	11, 2
<i>Dentex dentex</i>	Porgies (PO)	F	VU	8, 4, 5, 10, 11, 2, 6, 3, 1, 7, 9
<i>Diplodus annularis</i>	Porgies (PO)	F	LC	4, 5, 10, 11, 2, 6, 3, 1, 9, 7
<i>Diplodus cervinus</i>	Porgies (PO)	F		4, 2, 5
<i>Diplodus puntazzo</i>	Porgies (PO)	F	LC	8, 4, 5, 10, 11, 2, 6, 3, 7, 9, 1
<i>Diplodus sargus</i>	Porgies (PO)	F	LC	8, 4, 5, 10, 11, 2, 6, 1, 7, 9, 3
<i>Diplodus vulgaris</i>	Porgies (PO)	F	LC	4, 5, 10, 11, 2, 6, 3, 1, 7, 9, 8
<i>Lithognathus mormyrus</i>	Porgies (PO)	F	LC	8, 4, 5, 10, 11, 2, 7, 9, 1, 6, 3

Continued

Table S3 continued

Species	Group	Major taxa	Vulnerability	Areas of occurrence
<i>Oblada melanura</i>	Porgies (PO)	F	LC	4, 5, 10, 11, 2, 6, 3, 1, 7, 9
<i>Pagellus acarne</i>	Porgies (PO)	F	LC	4, 5, 10, 11, 2, 6, 7, 9
<i>Pagellus bogaraveo</i>	Porgies (PO)	F	LC	2, 6, 7
<i>Pagellus erythrinus</i>	Porgies (PO)	F	LC	8, 4, 5, 10, 11, 2, 6, 3, 1, 7, 9
<i>Pagrus pagrus</i>	Porgies (PO)	F	LC	4, 5, 10, 11, 2, 6, 3, 7, 1, 9
<i>Sarpa salpa</i>	Porgies (PO)	F	LC	8, 4, 5, 10, 2, 6, 3, 1, 7, 9, 11
<i>Sparus aurata</i>	Porgies (PO)	F	LC	8, 4, 5, 10, 2, 6, 3, 1, 7, 9
<i>Spondyliosoma cantharus</i>	Porgies (PO)	F	LC	5, 10, 11, 2, 6, 3, 1, 7, 9, 8
<i>Mullus barbatus</i>	Red Mulletts (RM)	F	LC	4, 10, 11, 2, 7, 9, 8, 3
<i>Mullus surmuletus</i>	Red Mulletts (RM)	F	LC	8, 4, 5, 10, 11, 2, 6, 3, 1, 7, 9
<i>Scorpaena elongata</i>	Scorpionfishes (SC)	F	LC	3, 6
<i>Scorpaena maderensis</i>	Scorpionfishes (SC)	F	LC	11
<i>Scorpaena notata</i>	Scorpionfishes (SC)	F	LC	4, 5, 10, 11, 2, 6, 1
<i>Scorpaena porcus</i>	Scorpionfishes (SC)	F	LC	8, 4, 5, 10, 11, 2, 6, 3, 7, 9, 1
<i>Scorpaena scrofa</i>	Scorpionfishes (SC)	F	LC	8, 4, 5, 10, 11, 2, 6, 3, 1, 7, 9
<i>Dicentrarchus labrax</i>	Seabasses (SB)	F	NT	8, 4, 10, 2, 9
<i>Dicentrarchus punctatus</i>	Seabasses (SB)	F	LC	7
<i>Auxis rochei</i>	Small tunas (ST)	F	LC	2, 6, 1, 7, 11, 3
<i>Euthynnus alletteratus</i>	Small tunas (ST)	F	LC	8, 4, 5, 2, 7, 11, 9, 3
<i>Sarda sarda</i>	Small tunas (ST)	F	LC	4, 5, 10, 2, 6, 7, 9, 11, 3
<i>Trachinus araneus</i>	Stargazers (SG)	F	LC	2, 11
<i>Trachinus draco</i>	Stargazers (SG)	F	LC	4, 5, 11, 2, 6, 1, 7, 9
<i>Trachinus radiatus</i>	Stargazers (SG)	F	LC	4, 5, 10, 11, 2, 6, 3
<i>Uranoscopus scaber</i>	Stargazers (SG)	F	LC	4, 5, 10, 11, 2, 6, 3, 7, 1, 9
<i>Coris julis</i>	Wrasses (WR)	F	LC	5, 10, 2
<i>Labrus merula</i>	Wrasses (WR)	F	LC	4, 5, 10, 11, 2, 6, 1, 7
<i>Labrus viridis</i>	Wrasses (WR)	F	VU	4, 5, 10, 11, 2, 6, 3, 7, 1
<i>Symphodus bailloni</i>	Wrasses (WR)	F		6
<i>Symphodus mediterraneus</i>	Wrasses (WR)	F	LC	4, 6, 11
<i>Symphodus melops</i>	Wrasses (WR)	F	LC	4, 6, 11
<i>Symphodus ocellatus</i>	Wrasses (WR)	F	LC	7
<i>Symphodus roissali</i>	Wrasses (WR)	F	LC	4
<i>Symphodus tinca</i>	Wrasses (WR)	F	LC	4, 5, 10, 11, 2, 6, 3, 1, 7, 9
<i>Thalassoma pavo</i>	Wrasses (WR)	F	LC	4
<i>Xyrichtys novacula</i>	Wrasses (WR)	F	LC	5, 11
<i>Torpedo marmorata</i>	Others (OT)	CF	LC	8, 5, 10, 2, 6
<i>Torpedo torpedo</i>	Others (OT)	CF	LC	1
<i>Dasyatis pastinaca</i>	Rays (RA)	CF	VU	10, 11, 6, 1
<i>Dasyatis tortonesei</i>	Rays (RA)	CF		10, 6, 9
<i>Dipturus batis</i>	Rays (RA)	CF	CR	1
<i>Dipturus oxyrinchus</i>	Rays (RA)	CF	NT	11
<i>Leucoraja fullonica</i>	Rays (RA)	CF	CR	6
<i>Leucoraja naevus</i>	Rays (RA)	CF	NT	6
<i>Myliobatis aquila</i>	Rays (RA)	CF	VU	2, 6, 1, 8
<i>Pteroplatytrygon violacea</i>	Rays (RA)	CF	LC	6, 1, 4
<i>Raja asterias</i>	Rays (RA)	CF	NT	8, 4, 10, 2, 6, 7

Continued

Table S3 continued

Species	Group	Major taxa	Vulnerability	Areas of occurrence
<i>Raja brachyura</i>	Rays (RA)	CF	NT	2, 6, 10
<i>Raja clavata</i>	Rays (RA)	CF	NT	6, 1
<i>Raja miraletus</i>	Rays (RA)	CF	LC	11, 6
<i>Raja montagui</i>	Rays (RA)	CF	LC	6, 11, 3
<i>Raja polystigma</i>	Rays (RA)	CF	LC	2, 6, 3, 4
<i>Raja radula</i>	Rays (RA)	CF	EN	5, 2, 6
<i>Raja undulata</i>	Rays (RA)	CF	NT	6
<i>Rostroraja alba</i>	Rays (RA)	CF	EN	6, 1
<i>Mustelus mustelus</i>	Sharks (SH)	CF	VU	5, 2, 6, 9, 8
<i>Mustelus punctulatus</i>	Sharks (SH)	CF	VU	8, 5
<i>Rhinobatos rhinobatos</i>	Sharks (SH)	CF	EN	2
<i>Scyliorhinus canicula</i>	Sharks (SH)	CF	LC	2, 6, 1, 9
<i>Scyliorhinus stellaris</i>	Sharks (SH)	CF	NT	6, 1, 3
<i>Maja squinado</i>	Crabs	C		5, 10, 11, 6, 1, 7, 9
<i>Homarus gammarus</i>	Lobsters (LO)	C	LC	4, 7, 5, 1
<i>Palinurus elephas</i>	Lobsters (LO)	C	VU	4, 5, 10, 11, 2, 6, 3, 1, 7, 9
<i>Palinurus mauritanicus</i>	Lobsters (LO)	C		3
<i>Scyllarides latus</i>	Lobsters (LO)	C		10, 11, 6
<i>Scyllarus arctus</i>	Lobsters (LO)	C	LC	4, 5
<i>Squilla mantis</i>	Lobsters (LO)	C		8, 4, 10, 11, 7
<i>Penaeus kerathurus</i>	Shrimps	C		8, 10
<i>Eledone moschata</i>	Cephalopods (CE)	M	LC	8, 11, 6
<i>Loligo vulgaris</i>	Cephalopods (CE)	M		8, 4, 10, 11, 2, 6, 3, 7, 9
<i>Octopus vulgaris</i>	Cephalopods (CE)	M	LC	8, 4, 5, 10, 11, 2, 6, 3, 7, 1
<i>Sepia officinalis</i>	Cephalopods (CE)	M	LC	4, 5, 10, 11, 2, 6, 3, 1, 7, 9, 8

Table S4. Relative frequency of occurrence (F %) of threatened species (i.e. belonging to the IUCN categories CR=red, EN=orange and VU=yellow) in the considered areas.

	SCO	CBM	CRO	CBL	EAT	SIF	POR	STR	DOI	NBC	ZAI
<i>Dasyatis pastinaca</i> (VU)	5.6	0	0	0	0	13.58	0	0	0	9.52	1.37
<i>Dentex dentex</i> (VU)	9.6	38.2	2.53	3.23	2.74	9.26	3.8	4.58	8.11	30.61	7.53
<i>Dipturus batis</i> (CR)	0.8	0	0	0	0	0	0	0	0	0	0
<i>Epinephelus marginatus</i> (EN)	1.6	4.49	5.06	2.15	3.42	6.17	3.8	0	0	0	1.37
<i>Labrus viridis</i> (VU)	2.4	6.74	2.53	3.23	11.64	23.46	2.53	0	0	2.04	3.42
<i>Leucoraja fullonica</i> (CR)	0	0	0	0	0	0.62	0	0	0	0	0
<i>Merluccius merluccius</i> (VU)	0	3.37	10.13	8.6	0	0.62	5.06	0	13.51	2.04	6.16
<i>Mustelus mustelus</i> (VU)	0	2.25	0	0	21.92	0.62	0	3.92	10.81	0	0
<i>Mustelus punctulatus</i> (VU)	0	0	0	0	0.68	0	0	3.92	0	0	0
<i>Myliobatis aquila</i> (VU)	4	1.12	0	0	0	6.17	0	0.65	0	0	0
<i>Palinurus elephas</i> (VU)	44	3.37	8.86	25.81	4.79	14.2	8.86	0	2.7	4.08	8.9
<i>Raja radula</i> (EN)	0	5.62	0	0	13.01	23.46	0	0	0	0	0
<i>Rhinobatos rhinobatos</i> (EN)	0	1.12	0	0	0	0	0	0	0	0	0
<i>Rostroraja alba</i> (EN)	0	0	0	0	0	7.41	0	0	0	0	0
<i>Sciaena umbra</i> (VU)	4.8	29.21	6.33	3.23	11.64	34.57	2.53	5.88	5.41	38.1	5.48
<i>Umbrina cirrosa</i> (VU)	0	5.62	0	0	0	0	0	2.61	0	0.68	0

Table S5. The 5 most frequently caught species in SSF catches for each area.

	1 st	2 nd	3 rd	4 th	5 th
South Corsica	<i>Scorpaena scrofa</i>	<i>Palinurus elephas</i>	<i>Phycis phycis</i>	<i>Pagellus erythrinus</i>	<i>Diplodus sargus</i>
Cabo de Palos - adjacent Murcia coast	<i>Scorpaena porcus</i>	<i>Dentex dentex</i>	<i>Diplodus vulgaris</i>	<i>Seriola dumerili</i>	<i>Euthynnus alletteratus</i>
Cap Roux	<i>Scorpaena scrofa</i>	<i>Mullus surmuletus</i>	<i>Scorpaena porcus</i>	<i>Zeus faber</i>	<i>Merluccius merluccius</i>
Cote Bleue	<i>Sparus aurata</i>	<i>Scorpaena porcus</i>	<i>Sarpa salpa</i>	<i>Mullus surmuletus</i>	<i>Diplodus sargus</i>
Egadi archipelago and Trapani coast	<i>Scorpaena scrofa</i>	<i>Scorpaena porcus</i>	<i>Sepia officinalis</i>	<i>Diplodus vulgaris</i>	<i>Uranoscopus scaber</i>
Straits of Ibiza and Formentera	<i>Scorpaena scrofa</i>	<i>Sepia officinalis</i>	<i>Scorpaena porcus</i>	<i>Uranoscopus scaber</i>	<i>Zeus faber</i>
Portofino promontory	<i>Mullus surmuletus</i>	<i>Scorpaena porcus</i>	<i>Scorpaena scrofa</i>	<i>Pagellus erythrinus</i>	<i>Symphodus tinca</i>
Strunjan	<i>Sparus aurata</i>	<i>Solea solea</i>	<i>Dicentrarchus labrax</i>	<i>Mugilidae</i>	<i>Squilla mantis</i>
Dugi-Otok island	<i>Sparus aurata</i>	<i>Diplodus vulgaris</i>	<i>Zeus faber</i>	<i>Pagellus erythrinus</i>	<i>Trachurus trachurus</i>
North Brindisi coast	<i>Mullus surmuletus</i>	<i>Scorpaena scrofa</i>	<i>Pagellus erythrinus</i>	<i>Diplodus vulgaris</i>	<i>Symphodus tinca</i>
Zakynthos island	<i>Scorpaena scrofa</i>	<i>Mullus surmuletus</i>	<i>Sparisoma cretense</i>	<i>Pagellus erythrinus</i>	<i>Serranus scriba</i>

Table S6. Results from the glm on the ration undersized/total individuals for 5 species with a MCRS.

Response	Degrees of Freedom	Chisq	p
<i>Mesh size</i>	1	45.278	1.71E-11
<i>Species</i>	4	40.086	4.15E-08
<i>Mesh size * Species</i>	4	29.386	6.52E-06



Fig. S1: Example of a picture displaying the photo-sample of a set net catch.

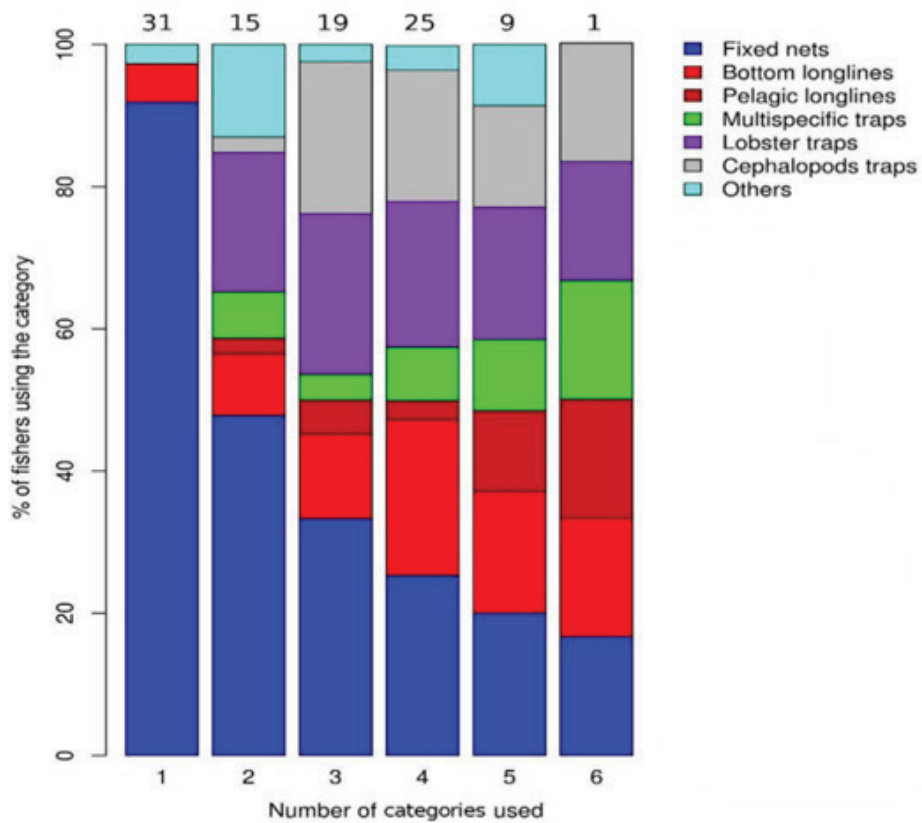


Fig. S2: Percentage of fishers using different categories of gear with increasing number categories. On top of each bar, the percentage of fishers using the relative number of gear categories is reported.

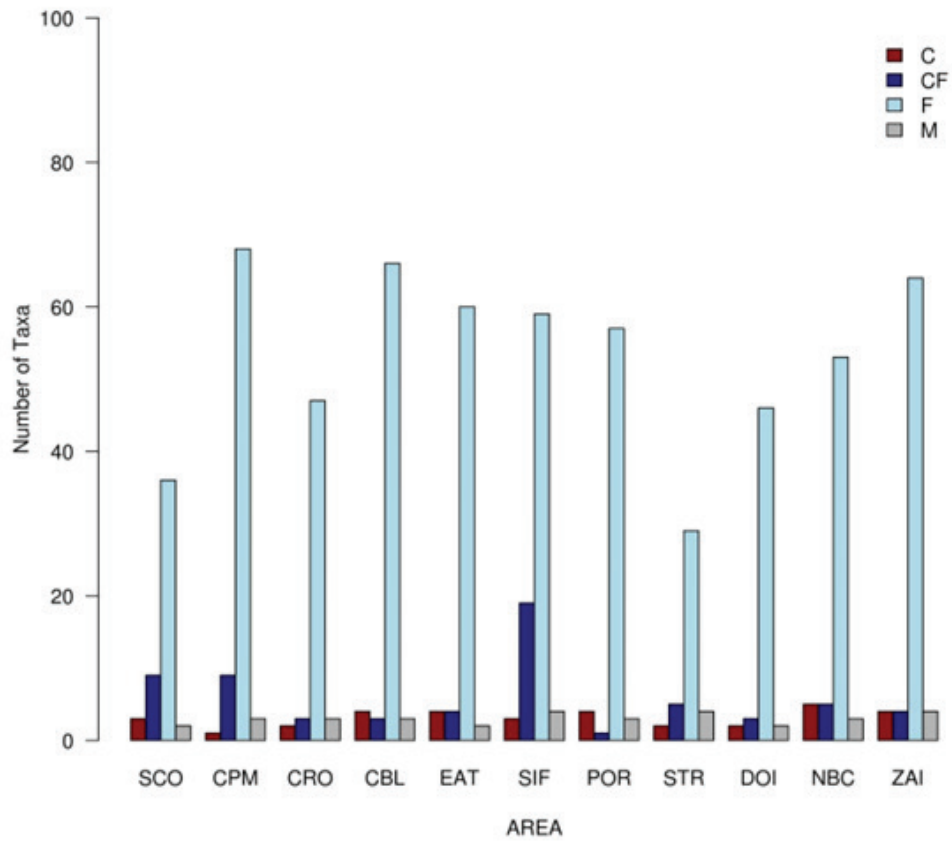


Fig. S3: Barplot of total number of species recorded in SSF catches in each area. Different colors represent different Taxa: C=Crustaceans, CF=Elasmobranchii, F=Osteichthyes, M=Cephalopos Mollusks. For the location codes, see Table S1.

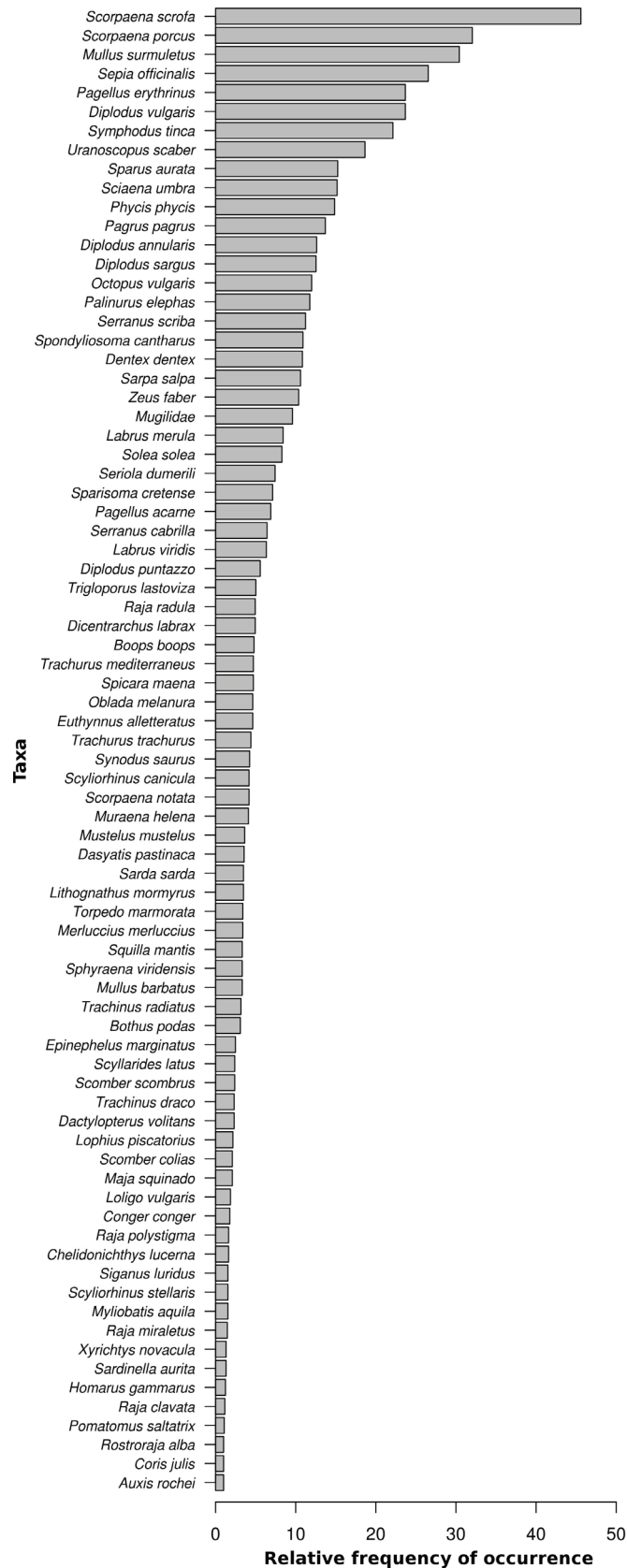


Fig. S4: Species relative frequency of occurrence for species present in at least 1% of catches.

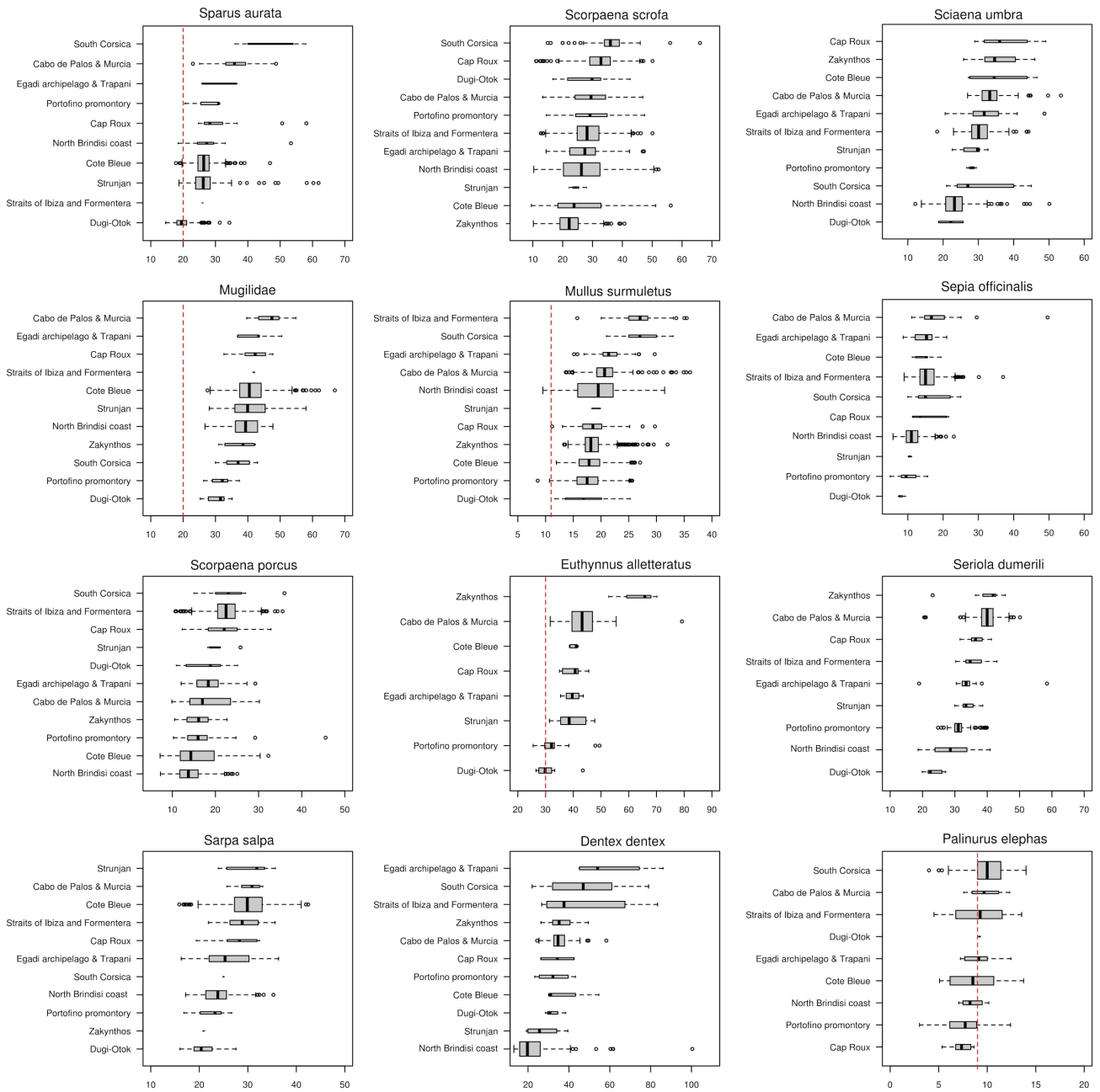


Fig. S5: Boxplots of size (cm) distribution for the 12 most abundant species in terms of biomass caught. Width of boxplots proportional to the number of specimens. For each species, boxplots are ordered from bottom to top on the basis of increasing median size in each area considered. Red dashed lines represent the species MCRSs, where present.

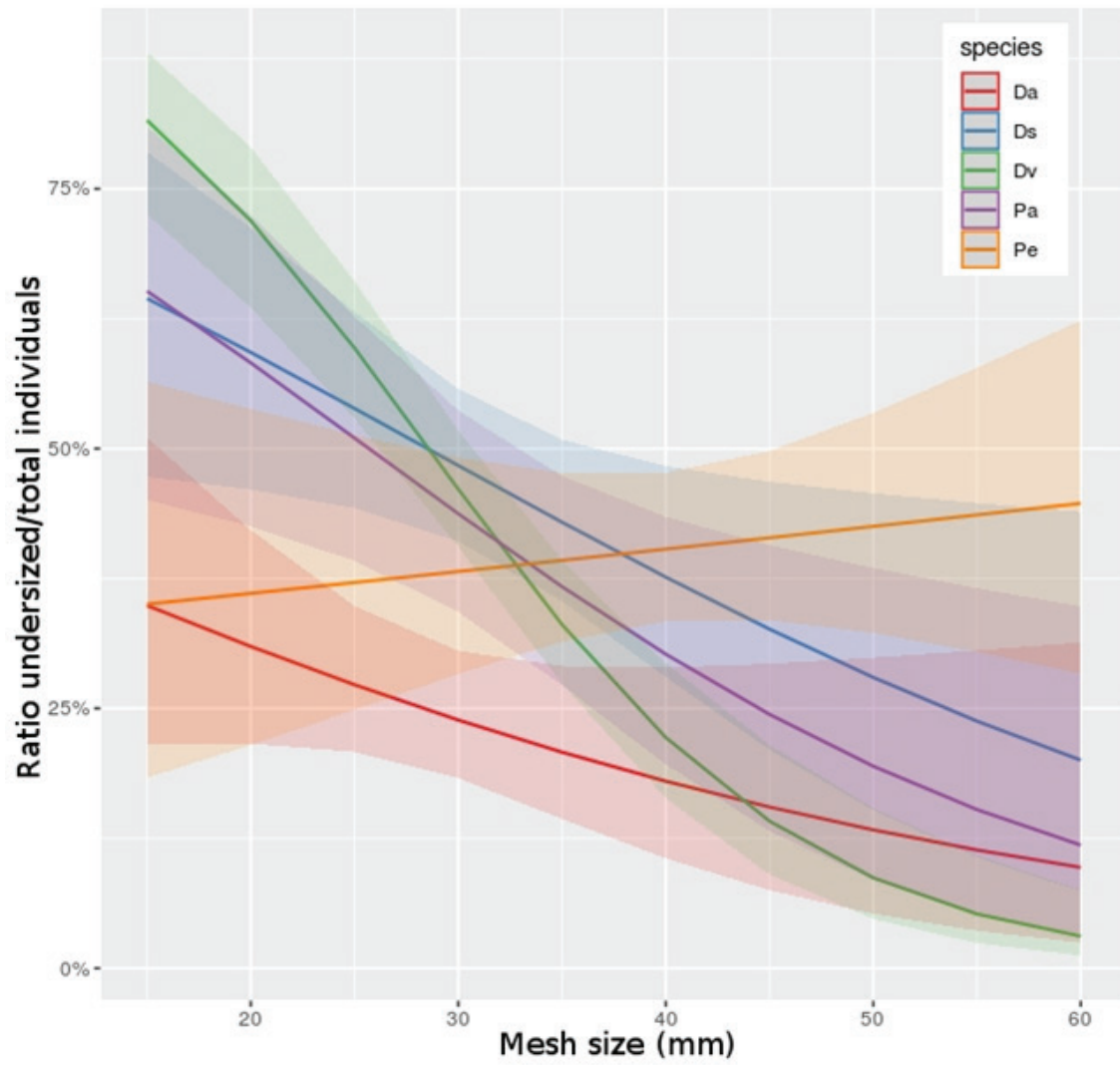


Fig. S6: Relationship between the relative frequency of occurrence of undersized (total length < MCRS) individuals (in relation to the total number of conspecific individuals present in the catch) and the mesh size, for 5 species with a MCRS (Dv= *Diplodus vulgaris*, Da= *Diplodus annularis*, Ds= *Diplodus sargus*, Pa= *Pagellus acarne*, Pe= *Palinurus elephas*).

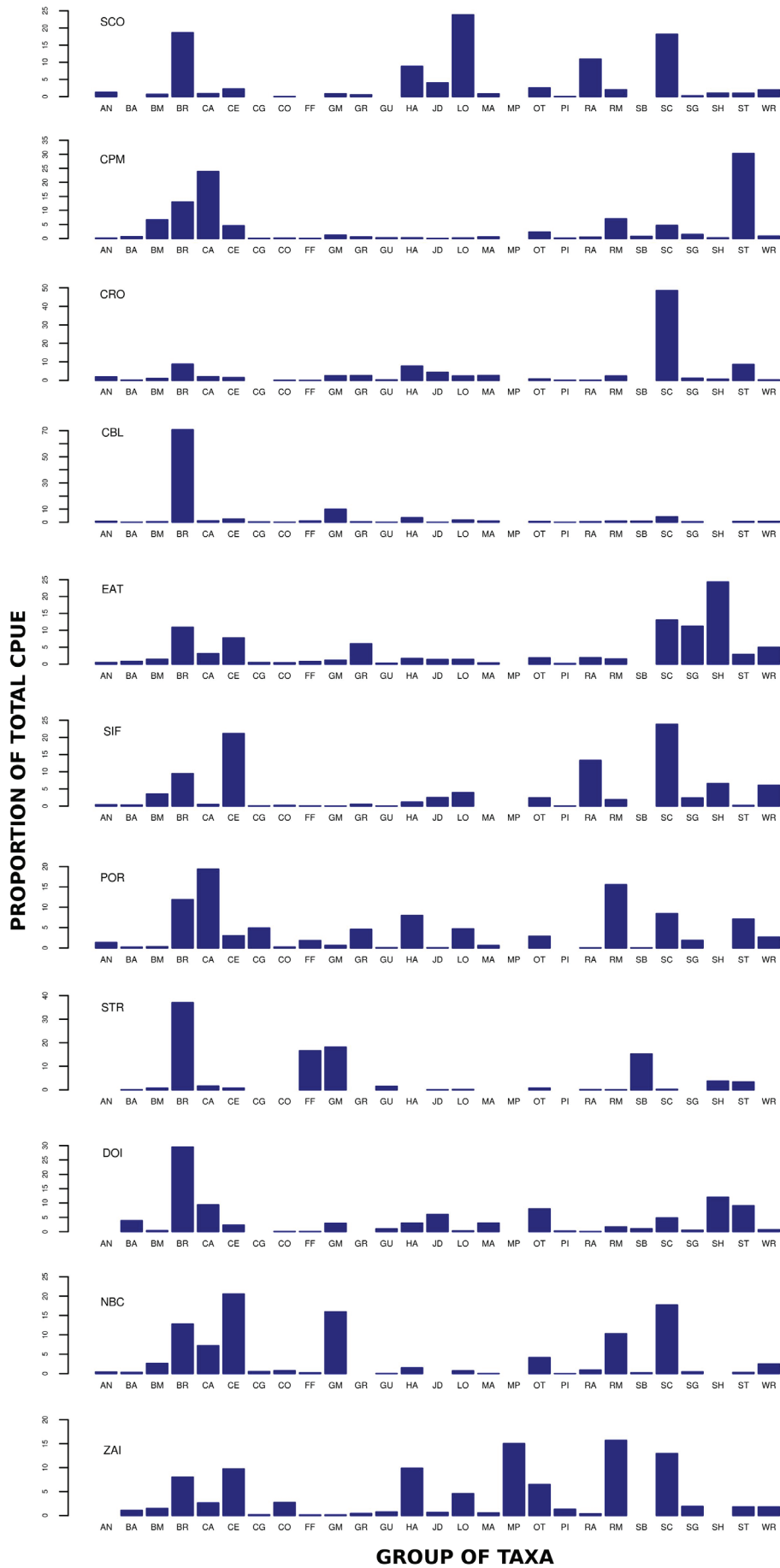


Fig. S7: Proportion of CPUE for each group of species in each area. Values for each area sum up to 100. The codes of the locations are shown in Table S1, those of the groups in Table S3.

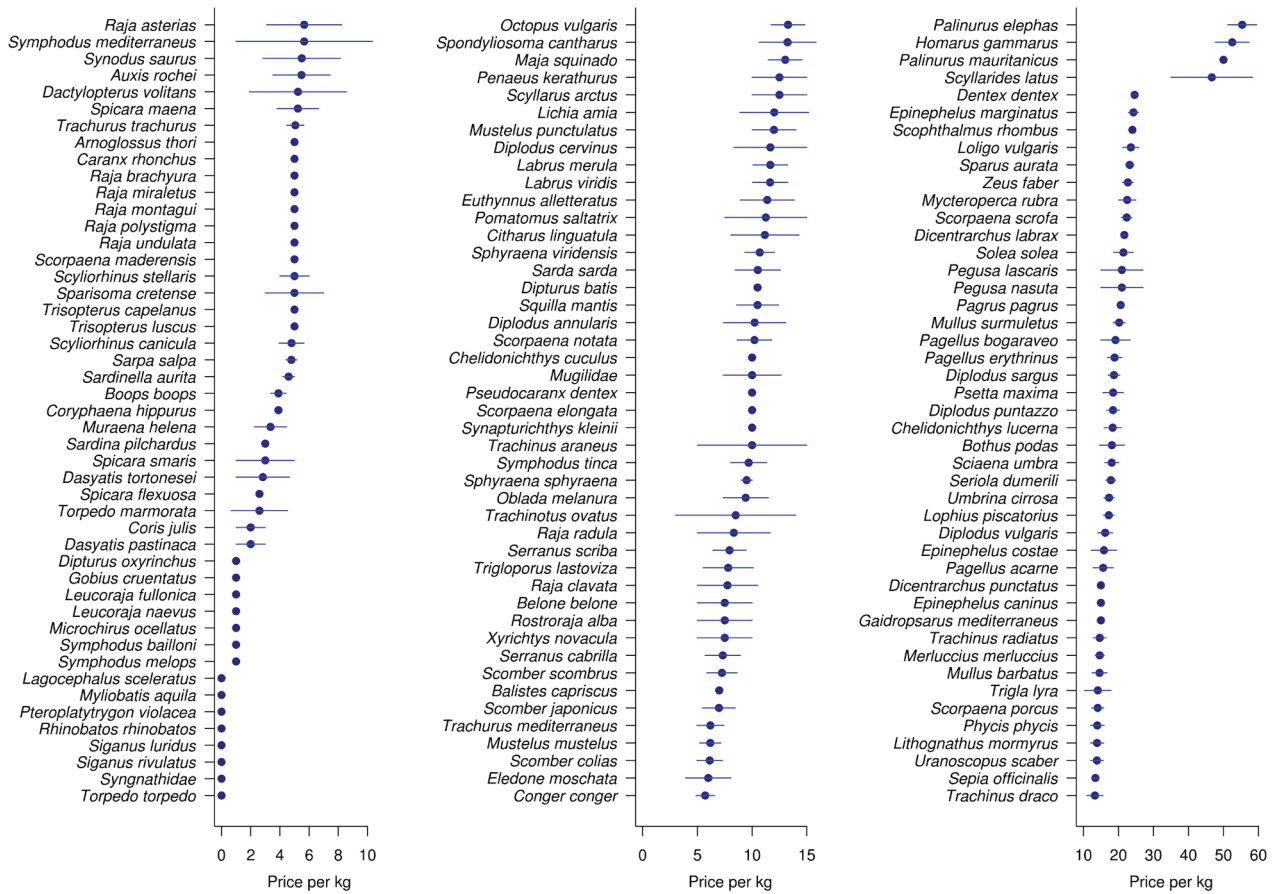


Fig. S8: Prices (euro per kg) at landing for the species assessed in SSF catches. Dots represent mean prices for all areas, segments represent standard errors.

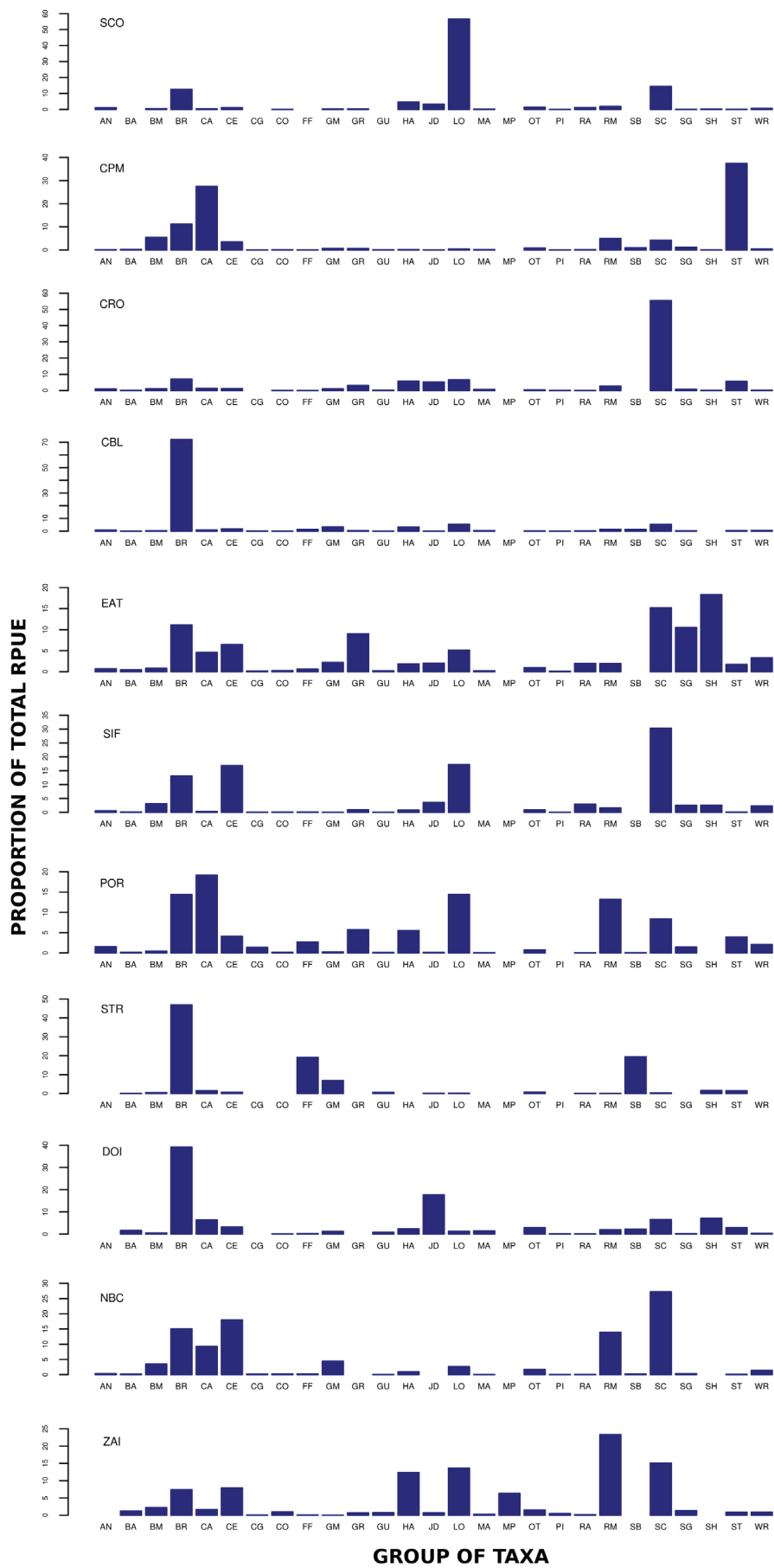


Fig. S9: Proportion of RPUE for each group of species in each area. The codes of the locations are shown in Table S1, those of the groups in Table S3.

TEST FOR ESTIMATING PHOTO-SAMPLING ACCURACY

In order to check the accuracy of the photo-sampling methodology coupled with the laboratory image analysis in providing reliable estimations of fish size (and consequently biomass), we compared the actual length measurements of the specimens in the field with that obtained using an image-analysis software (ImageJ). For this purpose, during the monitoring of one of the catches, we randomly measured the total length of a set of 27 specimens (belonging to 6 species) in the field and then, for the same individuals, we used the corresponding photo-samples to measure their length by means of ImageJ software. Differences in the body length between the actual and the software-estimated measurements ranged from 0 to 6% of total fish length (corresponding to differences ranging from 0 to 1.1 cm). The overall difference in percentage between the measured and the calculated lengths was $-0.68\% \pm 0.72$ (mean \pm se). These findings suggest a rather small deviation of the calculated lengths, which can be acceptable given that this methodology falls within the rationale of a rapid and cost-effective sampling technique massively implemented over an extensive geographical context.

QUESTIONNAIRE ADMINISTERED FOR FISHING FLEET CHARACTERIZATION

Interviewee's gender? (To be filled out directly by interviewer)

- Male Female

What is your age group?

- 20-30 years old 30-40 years old 40-50 years old
 50-60 years old 60+ years old

What is your highest level of education completed?

- None Elementary school Middle school
 High school University degree – Bachelors or higher

What types of gears do you use/types of fisheries do you engage in? Please check all categories that apply.

- Fixed nets (e.g. trammel, gillnet....) for multi-species fisheries
 Bottom Longlines Pelagic Longlines
 Traps for multi-species fisheries Lobster fisheries (by using e.g. nets, traps etc)
 Cephalopod fisheries (by using e.g. nets, traps etc.)
 Other: _____

How many boats do you own? List # _____

What is the size of your boat(s)? _____ length in meters (if more than one, list size for each one separately)

What is the power of your boat(s)? _____ length in meters (if more than one, list size for each one separately)