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Biology and population dynamics of by-catch fish species of the bottom trawl fishery in the western Mediterranean

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Supplementary Data

Biology and population dynamics of by-catch fish species of the bottom trawl fishery in the western Mediterranean

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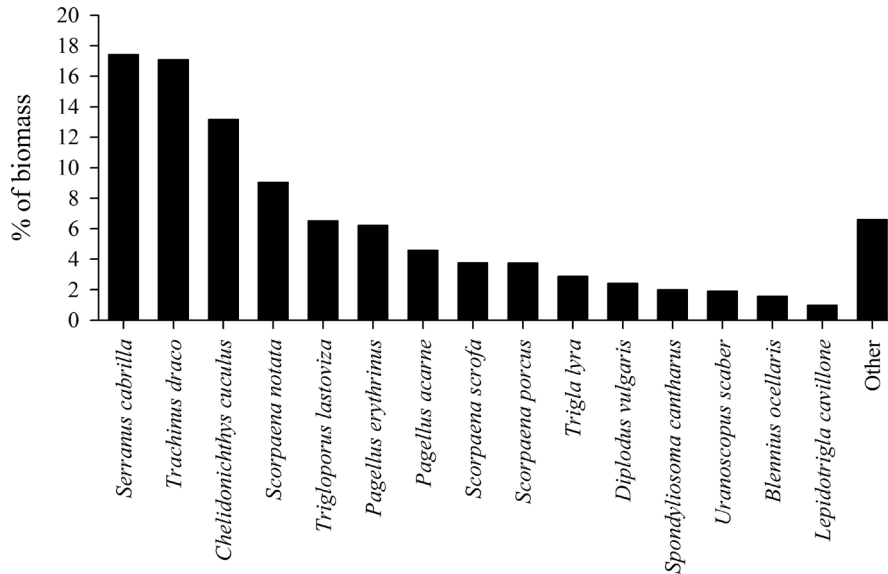


Fig. S1: Species composition (in % of landed biomass) of the mixed fish category (MFC). “Other” are species representing less than 1%: *Trisopterus minutus*, *Zeus faber*, *Diplodus annularis*, *Trachinus radiatus*, *Helicolenus dactylopterus*, *Lepidotrigla dieuzeidei*, *Anthias anthias*, *Microchirus variegatus*, *Citharus linguatula*, *Microchirus ocellatus*, *Peristedion cataphractum*, *Callanthias ruber*, *Scorpaena spp.*, *Scorpaena elongata*, *Sparidae*, *Cepola macrophthalma*, *Phycis blennoides*, *Microchirus spp.*, *Serranus hepatus*, *Lophius piscatorius*, *Phycis phycis*, *Scorpaena lophei*, *Thalassoma pavo*, *Diplodus spp.*, *Gaidropsarus biscayensis*, *Coris julis*, *Illex coindetii*, *Solea spp.*, *Serranus scriba*, *Ophidion barbatum*, *Arnoglossus thori*, *Pagellus spp.*, *Bothus podas*, *Lophius budegassa*, *Lepidorhombus boscii*, *Scomber scombrus*, *Spicara smaris*, *Arnoglossus rueppelii*, *Synchiropus phaeton*, *Centracanthus cirrus*, *Pagellus bogaraveo*, *Merluccius merluccius*, *Arnoglossus imperialis*, *Engraulis encrasicolus*, *Liocarcinus depurator*.

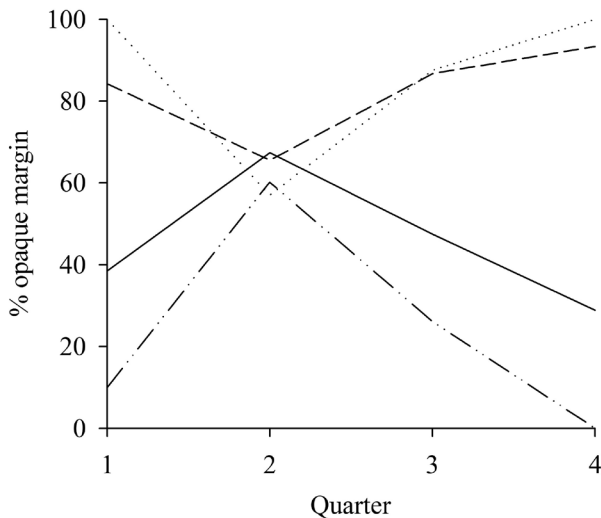


Fig. S2: Quarterly evolution of the % of presence of opaque rings in the margin of the otoliths of the studied species. *Chelidonichthys cuculus*: continuous lines; *Trigloporus lastoviza*: dashed lines; *Serranus cabrilla*: dotted lines; *Trachinus draco*: dash-dotted lines.

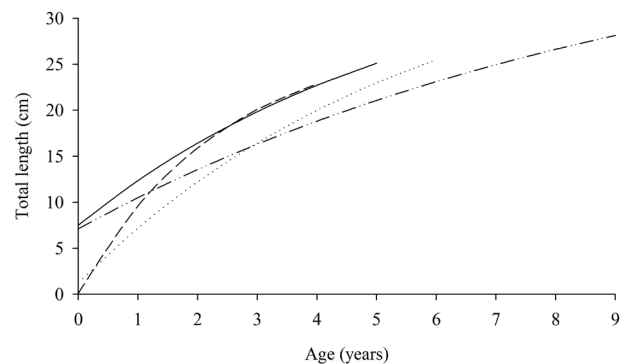


Fig. S3: Fitting of von Bertalanffy growth function to age-length data of the studied species. *Chelidonichthys cuculus*: continuous lines; *Trigloporus lastoviza*: dashed lines; *Serranus cabrilla*: dotted lines; *Trachinus draco*: dash-dotted lines.

Table S1. Summary of the main biological parameters for each species. MED: Mediterranean, AT: Atlantic; TL range: total length range of the individuals studied; Age range: age range of the individuals studied; M: males, F: females, and T: both sexes.

Species	Study Area	TL range (cm)	Age range (years)			L_{∞}			k			L_{50}			Reference
			T	F	M	T	F	M	T	F	M	T	F	M	
<i>C. cuculus</i>	Aegean Sea (MED)			28	20		0.22	0.51						Papaconstantinou, 1983	
	Mediterranean									19				Bauchot, 1987	
	Gulf of Lion (MED)	10-30	1-5	35		0.28								Campillo, 1992	
	Adriatic Sea (MED)	10-36	1-5	29	29		0.40	0.41						Marsan <i>et al.</i> , 1998	
	Tyrrhenian Sea (MED)	7-27	1-3	24	23		0.74	0.59		18				Colloca <i>et al.</i> , 2003	
	Adriatic Sea (MED)	10-26								17	15			Vallisneri <i>et al.</i> , 2012	
	Douarnenez Bay (AT)	14-45	1-21		42	37		0.46	0.52		28	27			Baron, 1985a; 1985b
	English Channel (AT)	9-43	1-4	36	41	36	0.24	0.23	0.25						Dorel, 1986; ICES, 2006
	Irish Sea (AT)	10-43	1-7	42	41	41	0.21	0.24	0.21	28	26				Marriott <i>et al.</i> , 2010
	Gulf of Lion (MED)										19 < L_{50} < 21				Kartas, 1971
<i>T. lastoviza</i>	Greek waters (MED)										14			Papaconstantinou, 1986	
	Egypt (MED)									14	15			Abdallah & Faltas, 1998	
	Gulf of Gabès (MED)									14	15			Boudaya, 2000	
	Gulf of Tunis (MED)	11-26								16	16			Ben Jrad <i>et al.</i> , 2010	
	Gulf of Gabès (MED)				33	30		0.13	0.13					Boudaya <i>et al.</i> , 2010	
	Douarnenez Bay (AT)										29			Baron, 1985	
	Tunis (MED)									10 (SL)				Bouain, 1981	
	Mediterranean									15 (SL)				Bauchot, 1987	
	Aegean Sea (MED)				26	30		0.30							Papaconstantinou <i>et al.</i> , 1994
	Greek waters (MED)		1-8	24		0.30									Politou & Papaconstantinou, 1995
<i>S. cabrilla</i>	Cretan Shelf (MED)	6-20	1-5	22		0.39								Tserpes & Tsimenides, 2001	
	Edremet Bay (MED)	9-22	1-4	34		0.11				15 (FL)				Torku-Koc <i>et al.</i> , 2004	
	Aegean Sea (MED)	7-23	1-6	24		0.30				13				İlhan <i>et al.</i> , 2010	
	Canary Islands (AT)									15 (SL)				García-Díaz <i>et al.</i> , 1997	
	Aegean Sea (MED)	15-37									16	15			Kınacıgil <i>et al.</i> , 2008
	Black Sea (MED)	9-26	1-6	29	33	29	0.28	0.18	0.17						Ak & Genç, 2013
<i>T. draco</i>	Kattagat (AT)	9-40	1-14	38	35		0.15	0.16						Bagge, 2004	

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