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### Commercial catches and discards composition in the central Tyrrhenian Sea: a multispecies quantitative and qualitative analysis from shallow and deep bottom trawling

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## Commercial catches and discards composition in the central Tyrrhenian Sea: a multispecies quantitative and qualitative analysis from shallow and deep bottom trawling

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**Table S1.** List of species found in landings and discards during the whole survey period.

SPECIES	FISHING GROUND	TARGET	BYCATCH	DISCARD
<b>Elasmobranchii</b>				
<i>Etmopterus spinax</i>	DEEP			X
<i>Galeus melastomus</i>	DEEP		X	X
<i>Hexanchus griseus</i>	DEEP			X
<i>Mustelus mustelus</i>	BOTH		X	
<i>Raja asterias</i>	BOTH		X	
<i>Raja clavata</i>	BOTH		X	
<i>Scyliorhinus canicula</i>	BOTH		X	X
<i>Scyliorhinus stellaris</i>	BOTH		X	
<i>Torpedo marmorata</i>	SHALLOW			X
<i>Torpedo torpedo</i>	SHALLOW			X
<b>Osteichthyes</b>				
<i>Alosa fallax</i>	SHALLOW		X	
<i>Anthias anthias</i>	SHALLOW			X
<i>Apterichthys caecus</i>	SHALLOW			X
<i>Argentina sphyraena</i>	BOTH		X	X
<i>Argyropelecus hemigymnus</i>	DEEP			X
<i>Ariosoma balearicum</i>	DEEP			X
<i>Arnoglossus laterna</i>	DEEP		X	X
<i>Arnoglossus thori</i>	SHALLOW		X	X
<i>Blennius ocellaris</i>	SHALLOW			X
<i>Boops boops</i>	SHALLOW		X	X
<i>Callanthias ruber</i>	SHALLOW			X
<i>Callionymus maculatus</i>	SHALLOW			X
<i>Capros aper</i>	DEEP			X
<i>Carapus acus</i>	SHALLOW			X
<i>Centrolophus niger</i>	SHALLOW		X	
<i>Cepola macrophthalmalma</i>	SHALLOW			X
<i>Chauliodus sloani</i>	DEEP			X
<i>Chelidonichthys cuculus</i>	SHALLOW		X	
<i>Chelidonichthys lucerna</i>	SHALLOW		X	
<i>Chelidonichthys obscurus</i>	SHALLOW		X	
<i>Chlorophthalmus agassizi</i>	DEEP		X	X
<i>Citharus linguatula</i>	SHALLOW		X	X
<i>Coelorinchus caelorhincus</i>	DEEP			X

Continued

Table continued

SPECIES	FISHING GROUND	TARGET	BYCATCH	DISCARD
<i>Conger conger</i>	BOTH		X	X
<i>Dalophis imberbis</i>	SHALLOW			X
<i>Deltentosteus colonianus</i>	SHALLOW			X
<i>Deltentosteus quadrimaculatus</i>	SHALLOW			X
<i>Dentex dentex</i>	SHALLOW		X	
<i>Diaphus rafinesquii</i>	DEEP			X
<i>Diplodus annularis</i>	SHALLOW			X
<i>Echelus myrus</i>	SHALLOW			X
<i>Echiodon dentatus</i>	BOTH			X
<i>Engraulis encrasicolus</i>	BOTH		X	X
<i>Epigonus spp.</i>	DEEP			X
<i>Gadiculus argenteus</i>	DEEP			X
<i>Gaidropsarus vulgaris</i>	SHALLOW			X
<i>Glossanodon leioglossus</i>	DEEP		X	X
<i>Gnathophis mystax</i>	SHALLOW			X
<i>Gobius niger</i>	SHALLOW		X	X
<i>Helicolenus dactylopterus</i>	DEEP		X	X
<i>Hippocampus hippocampus</i>	SHALLOW			X
<i>Hoplostethus mediterraneus</i>	DEEP			X
<i>Hygophum spp.</i>	DEEP			X
<i>Hymenocephalus italicus</i>	DEEP			X
<i>Lampanyctus crocodilus</i>	DEEP			X
<i>Lepidopus caudatus</i>	BOTH	X		X
<i>Lepidorhombus boscii</i>	BOTH		X	X
<i>Lepidorhombus whiffiagonis</i>	BOTH		X	X
<i>Lepidotrigla cavillone</i>	SHALLOW			X
<i>Lepidotrigla dieuzeidei</i>	SHALLOW			X
<i>Lestidiops sphyrenoides</i>	SHALLOW			X
<i>Lesueurigobius friesii</i>	SHALLOW			X
<i>Lesueurigobius sueri</i>	SHALLOW			X
<i>Chelon ramada</i>	SHALLOW		X	
<i>Lophius budegassa</i>	BOTH	X		
<i>Lophius piscatorius</i>	BOTH	X		
<i>Macroramphosus scolopax</i>	BOTH			X
<i>Maurolicus muelleri</i>	DEEP			X
<i>Merlangius merlangus</i>	BOTH		X	X
<i>Merluccius merluccius</i>	BOTH	X		X
<i>Microchirus variegatus</i>	SHALLOW			X
<i>Molva macrophthalma</i>	DEEP		X	
<i>Mullus barbatus</i>	BOTH	X		X
<i>Mullus surmuletus</i>	SHALLOW	X		X
<i>Muraena helena</i>	SHALLOW			X
<i>Nettastoma melanurum</i>	DEEP			X
<i>Nezumia sclerorhynchus</i>	DEEP			X
<i>Notacanthus bonaparte</i>	DEEP			X

Continued

Table continued

SPECIES	FISHING GROUND	TARGET	BYCATCH	DISCARD
<i>Ophichthus rufus</i>	SHALLOW			X
<i>Ophidion barbatum</i>	SHALLOW			X
<i>Ophisurus serpens</i>	BOTH			X
<i>Pagellus acarne</i>	SHALLOW		X	X
<i>Pagellus bogaraveo</i>	BOTH		X	X
<i>Pagellus erythrinus</i>	BOTH		X	X
<i>Pagrus pagrus</i>	SHALLOW		X	
<i>Paralepis spp.</i>	SHALLOW			X
<i>Peristedion cataphractum</i>	BOTH			X
<i>Phycis blennoides</i>	BOTH		X	X
<i>Pomatomus saltatrix</i>	SHALLOW		X	
<i>Pomatoschistus marmoratus</i>	SHALLOW			X
<i>Psetta maxima</i>	SHALLOW		X	
<i>Sarda sarda</i>	SHALLOW		X	
<i>Sardina pilchardus</i>	BOTH		X	X
<i>Sardinella aurita</i>	SHALLOW		X	X
<i>Sarpa salpa</i>	SHALLOW		X	X
<i>Scomber scombrus</i>	BOTH		X	X
<i>Scophthalmus rhombus</i>	SHALLOW		X	
<i>Scorpaena scrofa</i>	SHALLOW		X	X
<i>Seriola dumerili</i>	SHALLOW		X	
<i>Serranus cabrilla</i>	SHALLOW		X	X
<i>Serranus hepatus</i>	SHALLOW		X	X
<i>Solea solea</i>	SHALLOW		X	
<i>Sparus aurata</i>	SHALLOW		X	
<i>Spicara maena</i>	SHALLOW		X	X
<i>Spicara smaris</i>	SHALLOW		X	X
<i>Spondylisoma cantharus</i>	SHALLOW		X	X
<i>Stomias boa boa</i>	DEEP			X
<i>Symbolophorus veranyi</i>	DEEP			X
<i>Symphurus nigrescens</i>	BOTH			X
<i>Synchiropus phaeton</i>	DEEP			X
<i>Synodus saurus</i>	SHALLOW			X
<i>Trachinus draco</i>	SHALLOW		X	X
<i>Trachipterus trachipterus</i>	DEEP			X
<i>Trachurus trachurus</i>	BOTH		X	X
<i>Trigla lyra</i>	BOTH		X	X
<i>Trigloporus lastoviza</i>	SHALLOW		X	
<i>Trisopterus minutus</i>	BOTH		X	X
<i>Uranoscopus scaber</i>	SHALLOW		X	X
<i>Xiphias gladius</i>	DEEP		X	
<i>Zeus faber</i>	BOTH		X	X
<b>Crustacea</b>				
<i>Aegaeon cataphractus</i>	SHALLOW			X
<i>Aegaeon lacazei</i>	SHALLOW			X

Continued

Table continued

SPECIES	FISHING GROUND	TARGET	BYCATCH	DISCARD
<i>Alpheus glaber</i>	SHALLOW			X
<i>Aristaeomorpha foliacea</i>	DEEP		X	X
<i>Aristeus antennatus</i>	DEEP		X	X
<i>Bathynectes maravigna</i>	DEEP			X
<i>Chlorotocus crassicornis</i>	BOTH			X
<i>Dardanus arrosor</i>	SHALLOW			X
<i>Dardanus calidus</i>	SHALLOW			X
<i>Goneplax rhomboides</i>	BOTH			X
<i>Homarus gammarus</i>	SHALLOW		X	
<i>Jaxea nocturna</i>	SHALLOW			X
<i>Leptochela pugnax</i>	SHALLOW			X
<i>Liocarcinus depurator</i>	SHALLOW			X
<i>Lophogaster typicus</i>	BOTH			X
<i>Macropipus tuberculatus</i>	BOTH			X
<i>Macropodia tenuirostris</i>	SHALLOW			X
<i>Medorippe lanata</i>	SHALLOW			X
<i>Meganictyphanes norvegica</i>	BOTH			X
<i>Monodaeus couchii</i>	SHALLOW			X
<i>Munida rugosa</i>	SHALLOW			X
<i>Munida rutilanti</i>	DEEP			X
<i>Nephrops norvegicus</i>	DEEP	X		X
<i>Pagurus excavatus</i>	SHALLOW			X
<i>Pagurus prideaux</i>	SHALLOW			X
<i>Palinurus elephas</i>	SHALLOW		X	
<i>Palinurus mauritanicus</i>	DEEP		X	
<i>Parapenaeus longirostris</i>	BOTH	X		X
<i>Paromola cuvieri</i>	DEEP			X
<i>Pasiphaea multidentata</i>	BOTH		X	X
<i>Pasiphaea sivado</i>	BOTH		X	X
<i>Penaeus kerathurus</i>	SHALLOW		X	
<i>Plesionika edwardsii</i>	DEEP		X	X
<i>Plesionika heterocarpus</i>	DEEP		X	X
<i>Polycheles typhlops</i>	DEEP			X
<i>Pontophilus spinosus</i>	SHALLOW			X
<i>Processa spp.</i>	SHALLOW			X
<i>Rissoides pallidus</i>	DEEP			X
<i>Scalpellum scalpellum</i>	BOTH			X
<i>Eusergestes arcticus</i>	DEEP			X
<i>Robustosergia robusta</i>	DEEP			X
<i>Solenocera membranacea</i>	BOTH			X
<i>Squilla mantis</i>	SHALLOW	X	X	X
<b>Mollusca</b>				
<i>Acanthocardia echinata</i>	SHALLOW			X
<i>Alloteuthis media</i>	BOTH		X	X
<i>Aplysia parvula</i>	SHALLOW			X

Continued

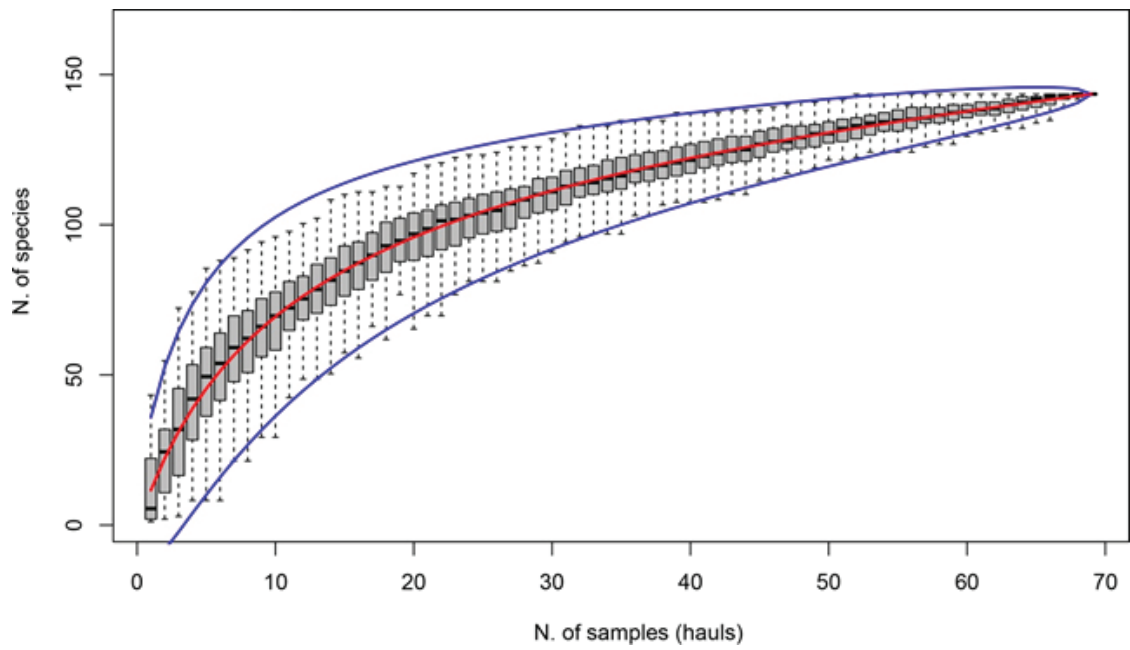
Table continued

SPECIES	FISHING GROUND	TARGET	BYCATCH	DISCARD
<i>Armina tigrina</i>	SHALLOW			X
<i>Atrina fragilis</i>	SHALLOW			X
<i>Bolinus brandaris</i>	SHALLOW			X
<i>Calliostoma spp.</i>	BOTH			X
<i>Callistoctopus macropus</i>	SHALLOW		X	
<i>Chromodoris luterosa</i>	SHALLOW			X
<i>Cymbulia peronii</i>	BOTH			X
<i>Eledone cirrhosa</i>	BOTH	X		
<i>Eledone moschata</i>	BOTH	X		
<i>Galeodea echinophora</i>	SHALLOW			X
<i>Glossus humanus</i>	BOTH			X
<i>Histioteuthis spp.</i>	DEEP			X
<i>Illex coindetii</i>	BOTH		X	X
<i>Loligo vulgaris</i>	BOTH	X	X	
<i>Naticarius stercusmuscarum</i>	SHALLOW			X
<i>Octopus defilippi</i>	SHALLOW		X	
<i>Octopus vulgaris</i>	SHALLOW		X	
<i>Ommastrephes bartramii</i>	DEEP		X	
<i>Philine spp.</i>	SHALLOW			X
<i>Pleurobranchia meckeli</i>	SHALLOW			X
<i>Pteria hirundo</i>	SHALLOW			X
<i>Rossia macrosoma</i>	DEEP		X	X
<i>Semicassis granulata</i>	SHALLOW			X
<i>Sepia elegans</i>	BOTH		X	X
<i>Sepia officinalis</i>	SHALLOW		X	
<i>Sepia orbignyana</i>	BOTH		X	X
<i>Sepiola sp.</i>	BOTH		X	X
<i>Tethys fimbria</i>	SHALLOW			X
<i>Todarodes sagittatus</i>	BOTH		X	
<i>Todaropsis eblanae</i>	BOTH		X	X
<i>Turritella spp.</i>	BOTH			X
<b>Echinodermata</b>				
<i>Amphipholis squamata</i>	BOTH			X
<i>Antedon mediterranea</i>	SHALLOW			X
<i>Astropecten aranciacus</i>	SHALLOW			X
<i>Astropecten bispinosus</i>	SHALLOW			X
<i>Astropecten irregularis</i>	BOTH			X
<i>Astrospartus mediterraneus</i>	SHALLOW			X
<i>Brissopsis atlantica mediterranea</i>	DEEP			X
<i>Echinaster sepositus</i>	SHALLOW			X
<i>Echinus melo</i>	SHALLOW			X
<i>Gracilechinus acutus</i>	SHALLOW			X
<i>Holoturia tubulosa</i>	SHALLOW			X
<i>Leptopentacta elongata</i>	BOTH			X
<i>Leptopentacta tergistina</i>	BOTH			X

Continued

Table continued

SPECIES	FISHING GROUND	TARGET	BYCATCH	DISCARD
<i>Luidia ciliaris</i>	SHALLOW			X
<i>Martasteria glacialis</i>	SHALLOW			X
<i>Ocnus planci</i>	SHALLOW			X
<i>Ocnus syracusanus</i>	SHALLOW			X
<i>Ophiotrix fragilis</i>	SHALLOW			X
<i>Ophiura albida</i>	SHALLOW			X
<i>Ophiura ophiura</i>	SHALLOW			X
<i>Parastichopus regalis</i>	BOTH			X
<i>Tethyaster subinermis</i>	SHALLOW			X
<i>Thyone fusus</i>	BOTH			X
<b>Cnidaria</b>				
<i>Adamsia palliata</i>	BOTH			X
<i>Alcyonium palmatum</i>	BOTH			X
<i>Aurelia aurita</i>	SHALLOW			X
<i>Rhizostoma pulmo</i>	SHALLOW			X
<i>Calliactis parasitica</i>	SHALLOW			X
<i>Funiculina quadrangularis</i>	BOTH			X
<i>Pennatula phosphorea</i>	SHALLOW			X
<i>Pennatula rubra</i>	SHALLOW			X
<i>Pteroeides spinosum</i>	SHALLOW			X
<b>Anellida</b>				
<i>Chloeia venusta</i>	SHALLOW			X
<i>Aphrodita alta</i>	BOTH			X
<i>Labioleanira yhleni</i>	SHALLOW			X
<i>Laetmonice hystrix</i>	SHALLOW			X
<i>Lepidasthenia brunnea</i>	SHALLOW			X
<i>Lumbrinereis latreilli</i>	SHALLOW			X
<i>Marphysa bellii</i>	SHALLOW			X
<i>Orbinia spp.</i>	SHALLOW			X
<i>Phyllodoce madeirensis</i>	SHALLOW			X
<i>Sabella pavonina</i>	SHALLOW			X
<i>Sternaspis scutata</i>	BOTH			X
<i>Pontobdella muricata</i>	BOTH			X
<b>Brachiopoda</b>				
<i>Gryphus vitreus</i>	DEEP			X
<b>Nemertea</b>				
<i>Lineus sp.</i>	SHALLOW			X
<b>Tunicata</b>				
<i>Phallusia mammillata</i>	BOTH			X
<i>Pyrosoma atlanticum</i>	BOTH			X
<i>Salpa maxima</i>	BOTH			X



**Fig. S1:** Species accumulation curve by number of hauls. Blue line represents 95% confidence intervals from standard deviation (standard error of the estimate).