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**Towards Ecosystem Conservation and Sustainable
Artisanal Fisheries in the Mediterranean basin**

***WP5: Asses artisanal fisheries pressures on benthic
communities***

**Checklist of benthic species
potentially impacted by artisanal
fishing gears**

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INTRODUCTION

One of the main objectives of the onboard fishing surveys carried out in the WP5 “Assess artisanal fisheries pressures on benthic communities” is to evaluate the impact of the three selected métier on the benthic communities of the six study areas. Depending on the métier, the number of involved benthic species may vary, due to various factors, such as season, intensity of the contact between sea bottom and gear, characteristics of the gears, morphology and density of the species. In order to facilitate the identification of these organisms potentially impacted by fishing gears, a list of benthic species has been created to use both during onboard and ROV surveys comprehensive of 113 species. Despite being overall quite comprehensive, this list is to be considered a first attempt to delineate the taxa potentially involved in the demersal fishing operations and future versions, including new findings and considering also new taxonomic tools to easily identify the species, shall be compiled in order to have a complete guide.

This list reflects the prior knowledge about the occurrence (x) or not (n.a.) of the species in the three partner countries. All the species are sorted in alphabetic order; also we have evaluated some interesting characteristics that could be useful both during the onboard surveys and the oceanographic surveys.

List of characteristics evaluated for each species:

- Easy identification: this characteristic reflects if one species is easy to identify from its external phenotypic aspect, without carrying out a laboratory dissection or other analyses.
- Parameter: field that indicates if the species could be used for a posterior statistical analysis. Otherwise indicates if the species is not valid for this kind of analysis.
- ROV (Remote Operate Vehicle) Easy: indicate if the species is easy to be identified in the ROV footage.
- By-catch frequency: this variable represents a discrete value in relation to the frequency of occurrence of a species in relation to a selected métiers.
- Specific longline: Indication if the species appears usually in the longline by-catch.
- Suitability: this field gives an idea whether the species is displayed in either gear by-catch and/or video image footage.

LIST OF SPECIES

SPECIES	TUNISIA	ITALY	SPAIN	EASY IDENTIFICATION	PARAMETER	ROV EASY	BYCATCH FREQUENCY	SPECIFIC LONGLINE	SUITABILITY
<i>Abietinaria abietina</i>	x			y	difficult				
<i>Acanthella acuta</i>	n.a.	x	x	y	difficult	no	low		
<i>Alcyonium acaule</i>	x	x	x	y	length	yes	low		
<i>Alcyonium palmatum</i>	x	x	x	y	length	yes	low		
<i>Antedon mediterranea</i>	x	x	x	Y	difficult	no	medium		
<i>Antipathes dichotoma</i>	x	x	x	Y	length	yes	low		
<i>Antipathella subpinnata</i>	x	x	n.a.	Y	difficult	yes	low		
<i>Aphrodita aculeata</i>	x			y	difficult				
<i>Aplidium albicans</i>	x	x	x	N	difficult	no	low		
<i>Aplidium conicum</i>	x	x	x	Y	difficult	no	low		
<i>Aplidium proliferum</i>	n.a.	n.a.	x	N	difficult	n.d	low		
<i>Aplidium proliferum</i>	x	x	x	Y	difficult	no	low		
<i>Aplysina cavernicola</i>	x	x	x	Y	length	no	low		
<i>Ascidia mentula</i>	x	x	x	Y	difficult	yes	low		
<i>Astraea rugosa</i>	X	x	x	Y	length	no	low		
<i>Astropecten aranciacus</i>	X	x	x	Y	length	yes	high	longline	
<i>Astrospartus mediterraneus</i>	x	x	x	Y	difficult	yes	medium		suitable
<i>Axinella damicornis</i>	x	x	x	Y	length	yes	low		
<i>Axinella polypoides</i>	x	x	x	X	length	yes	medium		
<i>Axinella verrucosa</i>	x	x	x	X	length	yes	low		
<i>Bebryce mollis</i>	n.a.	x	n.a.	N	difficult	yes	low		
<i>Botryllus schosleri</i>	x	x	x	N	difficult	no	low		
<i>Caberea boryi</i>	n.a.	x	x	N	difficult	no	low		

<i>Calliostoma conulus</i>	x			y	difficult			
<i>Callogorgia verticillata</i>	n.a.	x	x	Y	length	yes	low	
<i>Caryophyllia ciathus</i>	x	x	x	N	difficult	no	low	
<i>Caryophyllia smithii</i>	x	x	x	N	difficult	no	low	
<i>Cellaria salicornioides</i>	x				difficult			
<i>Centrostephanus longispinus</i>	x	x	x	Y	difficult	yes	low	
<i>Ceradocus spinicauda</i>	x			y	difficult			
<i>Cerianthus membranaceus</i>	x			y	difficult			
<i>Chaetaster longipes</i>	n.a.	x	x	Y	length	yes	low	

SPECIES

TUNISIA
ITALY
SPAIN
EASY
IDENTIFICATION
PARAMETER
ROV EASY
FISHING
FREQUENCY
SPECIFIC
LONGLINE
SUITABILITY

<i>Charonia lampas</i>	x	x	x	Y	length	yes	low	suitable
<i>Chondria capillaris</i>	x			y	difficult			
<i>Chondrosia</i> sp.	x	x	x	Y	difficult	yes	low	
Cidaridae	x	x	x	Y	length	yes	high	
<i>Cladocora ceaspitosa</i>	x	x	x	Y	difficult	no	low	
<i>Clathrina</i> sp.	x			n	difficult			
<i>Codium bursa</i>	x	x	x	Y	length	yes	medium	
<i>Corallium rubrum</i>	x	x	x	Y	difficult	yes	low	
<i>Cymodocea nodosa</i>	x	x	x	Y	length	yes	low	
<i>Cystoseira</i> sp.	x	x	x	Y	length	yes	low	suitable
<i>Dardanus calidus</i>	x			y				
<i>Dendrophyllia cornigera</i>	x	x	x	Y	length	yes	low	
<i>Dendrophyllia ramea</i>	n.a.	x	n.a.	Y	width	yes	medium	
<i>Diazona violacea</i>	x	x	x	Y	difficult	no	low	
<i>Dictyota dichotoma</i>	x			y	difficult			

SPECIES	TUNISIA	ITALY	SPAIN	EASY IDENTIFICATION	PARAMETER	ROV EASY	FISHING FREQUENCY	SPECIFIC LONGLINE	SUITABILITY
<i>Dictyota hamifera</i>	x			y	difficult				
<i>Dumontia contorta</i>	x			y	difficult				
<i>Dysidea fragilis</i>	x			y	difficult				
<i>Echinaster sepositus</i>	x	x	x	Y	length	yes	medium		
<i>Echinus acutus</i>	n.a.	x	x	N	length	no	low		
<i>Echinus melo</i>	n.a.	x	x	Y	length	yes	low		
<i>Ellisella paraplexauroides</i>	x	n.a.	n.a.	Y	length	yes	low		
<i>Eunicella cavolinii</i>	x	x	x	Y	length	yes	low		
<i>Eunicella singularis</i>	x	x	x	Y	length	yes	low		
<i>Eunicella verrucosa</i>	x	x	x	N	length	n	low		
<i>Filograna implexa</i>	x	x	x	Y	difficult	yes	medium		
<i>Flabellia petiolata</i>	x			y	difficult				
<i>Funiculina quadrangularis</i>	x	x	x	Y	length	yes	low		
<i>Gloiocladia repens</i>	x			y	difficult				
<i>Gobius niger</i>	x			y	difficult				
<i>Gryphus vitreus</i>	x	x	x	Y	length	yes	low		
<i>Hacelia attenuata</i>	x	x	x	Y	length	yes	medium		
<i>Haliclona elegans</i>	x	x	x	Y	difficult	no	low		
<i>Haliclona mediterranea</i>	x	x	x	Y	difficult	no	low		
<i>Halocynthia papillosa</i>	x	x	x	Y	length	yes	medium		
<i>Hermodice carunculata</i>	x	x	x	Y	difficult	yes	low		
<i>Hexaplex trunculus</i>	x	x	x	Y	length	n	medium		
<i>Holothuria forskali</i>	x	x	x	Y	difficult	n	low		
<i>Holothuria polii</i>	x	n.a.	x	Y	difficult	n	low		

<i>Holothuria tubulosa</i>	x	x	x	Y	difficult	yes	medium		
<i>Hornera frondiculata</i>	x	x	x	Y	difficult	yes	medium		suitable
<i>Jania rubens</i>	x			y	difficult				
<i>Lamontoria articulata</i>	x			y	difficult				
<i>Laminaria spp.</i>	x	x	x	Y	difficult	yes	medium		suitable
<i>Laetmonice hystrix</i>	x			y	difficult				
<i>Laevicardium crassum</i>	x			y	difficult				
<i>Leiopathes glaberrima</i>	n.a.	x	n.a.	N	length	yes	low		
<i>Leptogorgia sarmentosa</i>	x	x	x	Y	length	yes	medium		
<i>Leptometra phalangium</i>	x	x	x	Y	difficult	yes	low		suitable
<i>Lithophyllum sp.</i>	x			y	difficult				
<i>Lithothamnion valens</i>	x	n.a.	x	Y	difficult	n	medium		
<i>Lophozozymus incisus</i>	x			y	difficult				
<i>Lytocarpia myriophyllum</i>	n.a.	x	x	Y	length	yes	low		
<i>Lunatia fusca</i>	n.a.	n.a.	x	Y	length	n	low		
<i>Marthasterias glacialis</i>	x	x	x	Y	length	n	low		longline
<i>Mesophyllum spp.</i>	x	x	x	n	difficult	no	low		
<i>Microcosmus sulcatus</i>	x	x	x	Y	difficult	no	medium		longline
<i>Myriapora truncata</i>	x	x	x	Y	length	yes	low		
<i>Nemertesia antennina</i>	x	x	x	Y	difficult	yes	low		
<i>Neopycnodonte cochlear</i>	x	n.a.	x	Y	length	yes	low		
<i>Ophiothrix fragilis</i>	x	x	x	Y	difficult	yes	low		
<i>Ophiura texturata</i>	n.a.	x	x	Y	difficult	yes	low		
<i>Ophiura superba</i>	x			y	difficult				
<i>Ostrea viridis</i>	x	x	x	Y	length	no	low		
<i>Pagrus prideaux</i>	x			y	difficult				
<i>Paramuricea clavata</i>	n.a.	x	x	Y	length	yes	low		longline suitable
<i>Paramuricea macrospina</i>	n.a.	x	x	Y	length	yes	medium		longline suitable

SPECIES	TUNISIA	ITALY	SPAIN	EASY IDENTIFICATION	PARAMETER	ROV EASY	FISHING FREQUENCY	SPECIFIC LONGLINE	SUITABILITY
<i>Parantipathes larix</i>	n.a.	x	n.a.	Y	length	yes	low		
<i>Pennatula sp.</i>	x	x	x	N	length	yes	medium		
<i>Pentapora fascialis</i>	x	x	x	Y	difficult	yes	medium		suitable
<i>Petrosia ficiformis</i>	x	x	x	N	difficult	no	low		
<i>Peyssonnelia squamaria</i>	x	x	x	n	difficult	no	low		
<i>Phallusia mamillata</i>	x	x	x	Y	difficult	yes	low		
<i>Phyllopora crista</i>	x	n.a.	x	Y	difficult	no	low		
<i>Phymatolithon calcareum</i>	x	n.a.	x	N	difficult	no	medium		
<i>Pleraplysilla spinifera</i>	x			y	difficult				
<i>Poecillastra compressa</i>	x	x	x	Y	difficult	yes	low		
<i>Posidonia oceanica</i>	x	x	x	Y	difficult	yes	high		suitable
<i>Processa modica modica</i>	x			y	difficult				
<i>Propilidium exiguum</i>	x			y	difficult				
<i>Pteria hirundo</i>	x	x	x	Y	length	yes	low		
<i>Pteroeides spinosum</i>	x	x	x	Y	difficult	yes	low	longline	
<i>Pyura dura</i>	x	x	x	Y	difficult	no	low		
<i>Reteporella sp.</i>	x	x	x	N	difficult	No	medium		suitable
<i>Sabella pavonina</i>	x	x	x	Y	difficult	no	low		
<i>Sabella spallanzanii</i>	x	x	x	Y	length	yes	low		
<i>Sargassum sp.</i>	x	x	x	Y	difficult	yes	medium		
<i>Schizomavella mamillata</i>	x			y	difficult				
<i>Scyllarides lotus</i>	x			y	difficult				
<i>Sertularella spp.</i>	x	x	x	N	difficult	no	low		
<i>Siphonochalina crassa</i>	n.a.	n.a.	x	Y	difficult	no	low		

<i>Smittina cervicornis</i>	x	x	x	Y	difficult	no	low	
<i>Spatangus purpureus</i>	x	x	x	Y	length	yes	high	
<i>Sphaerechinus granularis</i>	x	x	x	Y	length	yes	medium	
<i>Spinimuricea klavareni</i>	n.a.	x	n.a.	Y	length	yes	medium	longline
<i>Spongia officinalis</i>	x	x	x	Y	difficult	yes	low	
<i>Stichopus regalis</i>	x	x	x	Y	difficult	yes	low	
<i>Suberites domuncula</i>	x	x	x	Y	length	yes	low	
<i>Suberites syringella</i>	x	n.a.	n.a.	Y	difficult	no	low	
<i>Tethya aurantium</i>	n.a.	n.a.	x	Y	difficult	yes	low	
<i>Tethyaster subinermis</i>	n.a.	x	x	Y	length	yes	low	

SPECIES	TUNISIA	ITALY	SPAIN	EASY IDENTIFICATION	PARAMETER	ROV EASY	FISHING FREQUENCY	SPECIFIC LONGLINE	SUITABILITY
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<i>Tethys fimbria</i>	x	n.a.	x	Y	difficult	yes	low	
<i>Turbicellepora avicularis</i>	x	x	x	N	difficult	no	medium	
<i>Ulva sp.</i>	x	x	x	N	difficult	no	low	
<i>Umbraculum umbraculum</i>	x	x	x	Y	length	no	low	
<i>Venus verrucosa</i>	x	x	x	N	length	no	low	
<i>Veretillum cynamorium</i>	x	x	x	Y	length	yes	low	
<i>Vidalia volubilis</i>	x	x	x	Y	difficult	yes	medium	
<i>Viminella flagellum</i>	x	x	x	Y	length	yes	low	
<i>Virgularia mirabilis</i>	x	x	x	Y	length	yes	low	