



# The Conservation Status of Sharks, Rays and Chimaeras in the Mediterranean Sea



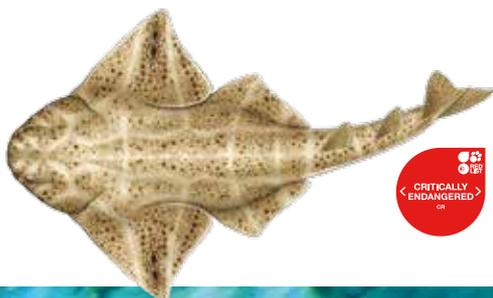
THE IUCN RED LIST OF THREATENED SPECIES™



## Chondrichthyan Crisis in the Mediterranean Sea

An analysis of threat levels across all sharks, rays and chimaeras has revealed the Mediterranean Sea as a key hotspot of extinction risk<sup>1</sup>. Seventy seven species are recorded from the Mediterranean Sea, however of these, four species are considered to be either vagrant or probably vagrant, or Lessepsian immigrants from the Red Sea; they are the Spinner Shark (*Carcharhinus brevipinna*), the Reticulate Whipray (*Himantura uarnak*), the Great Hammerhead (*Sphyrna mokarran*) and the Scalloped Hammerhead (*Sphyrna lewini*). These four species have been excluded as Not Applicable for the Mediterranean region. Three species are endemic to the Mediterranean Sea and found nowhere else – Maltese Skate (*Leucoraja melitensis*; CR), Rough Skate (*Raja radula*; EN), and the Speckled Skate (*Raja polystigma*; LC). More than half of the species assessed, 39 of 73 species, are regionally threatened; 31 are most imperilled in the Critically Endangered (20 species) and Endangered (11) categories (Figure 1). On a global scale, of the 20 species of sharks, rays and chimaeras that have been assessed as Critically Endangered, seven have some part of their distribution in the Mediterranean Sea. Of the other 13 regionally CR species, the Mediterranean Sea part of their population is more threatened than the remainder of their global range.

The level of threat may be worse because uncertainty in species status remains moderately high in the Mediterranean Sea; of the 73 assessed species 13 remain Data Deficient. Status uncertainty tends to be greatest along North African coasts, emphasizing the need for further research in this part of the Mediterranean region where species richness was also greatest (Figure 2). Although there are synoptic research surveys throughout the northern coastal waters of the Mediterranean Sea, there are no population time-series available from North African waters. By assuming varying fractions of the Data Deficient species are threatened, the overall level of threat ranges from 53% (if none of the DD species are threatened) to 71% if all DD species are threatened. Up to two-thirds of Chondrichthyans may be threatened, the mid-point estimate suggests 65% of extant species for which sufficient data are available are threatened.



*Squatina squatina*  
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Furthermore, there is no sign of improvement in the status of Mediterranean Chondrichthyans more than a decade since they were first assessed. We can track changes in status of Chondrichthyans by comparing these findings to the first Mediterranean Sea Red List assessment in 2007<sup>2</sup> to this most recent assessment in 2016. There were no genuine improvements in status for the 73, whereas the status of 11 species worsened by at least one Red List Category.



There is **NO SIGN OF IMPROVEMENT** in the status of Mediterranean Chondrichthyans more than a decade since they were first assessed

At least half of the rays (50%, 16 of 32 species) in the Mediterranean Sea face an elevated risk of extinction, as well as 56% of sharks (23 of 41), whereas the only chimaera species (*Chimaera monstrosa*) is considered Least Concern in these waters. Of a total 27 chondrichthyan Families occurring in the Mediterranean Sea, 74% (20 Families, 39 species) have at least one species listed as threatened, 52% (14 Families, 24 species) of which have all species listed as threatened. Examples of Families with all species threatened are the thresher sharks (Family Alopiidae), the Angel Sharks (Squatinidae), and the Guitarfishes (Rhinobatidae). Of the remaining 45% of species in the region, 13 are Data Deficient (one of which is endemic to the Mediterranean Sea), nine Near Threatened, and 12 Least Concern. When the Mediterranean Sea Chondrichthyans were first assessed<sup>2</sup> 18 species were considered DD, only seven of which are still DD, representing significant knowledge improvement between assessments.

The principal driver of decline and local extinction is overfishing. Most species are taken as retained valuable bycatch in small-scale and large-scale trawl and net multispecies fisheries (Figure 3). Oceanic pelagic sharks are taken as retained secondary bycatch in longline fisheries targeting swordfishes and tunas. More recently, there is concern over the escalating targeting of pelagic sharks as tunas and swordfishes are increasingly regulated. The status of several pelagic sharks has worsened, including: Basking Shark, White Shark, Blue Shark, and Smooth Hammerhead Sharks. Bycatch volumes and species composition are poorly documented and data are rarely incorporated into national and international (FAO) statistics, therefore numbers of sharks caught as bycatch can only be crudely estimated<sup>3</sup>. Despite being banned in 2002, illegal driftnetting is intense and widespread throughout the Mediterranean Sea, e.g. fleets from Algeria, Italy, Morocco, Turkey, among others, continue to fish illegally with pelagic driftnets<sup>4</sup>, and thus is likely to be an important and largely hidden source of mortality for sharks.

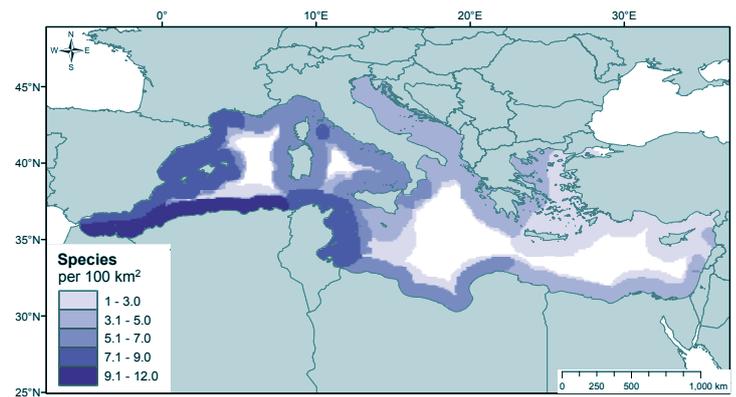
Historically, the diversity of chondrichthyans was greatest in the western Mediterranean Sea, particularly in the coastal waters of Morocco, Algeria, and Tunisia, which harbour between 57 and 69 species (Figure 4). Diversity is slightly lower in the northwest Mediterranean countries of Spain (including the Balearic Islands), France, Italy, Albania, and Greece. Intermediate levels of diversity were found in the central Mediterranean countries of Libya, Malta, the Italian island of Sicily, and the coastal waters of the countries bordering the Adriatic and Aegean Seas.

**FIGURE 1**  
Summary of the Red List status of Chondrichthyans in the Mediterranean Sea.

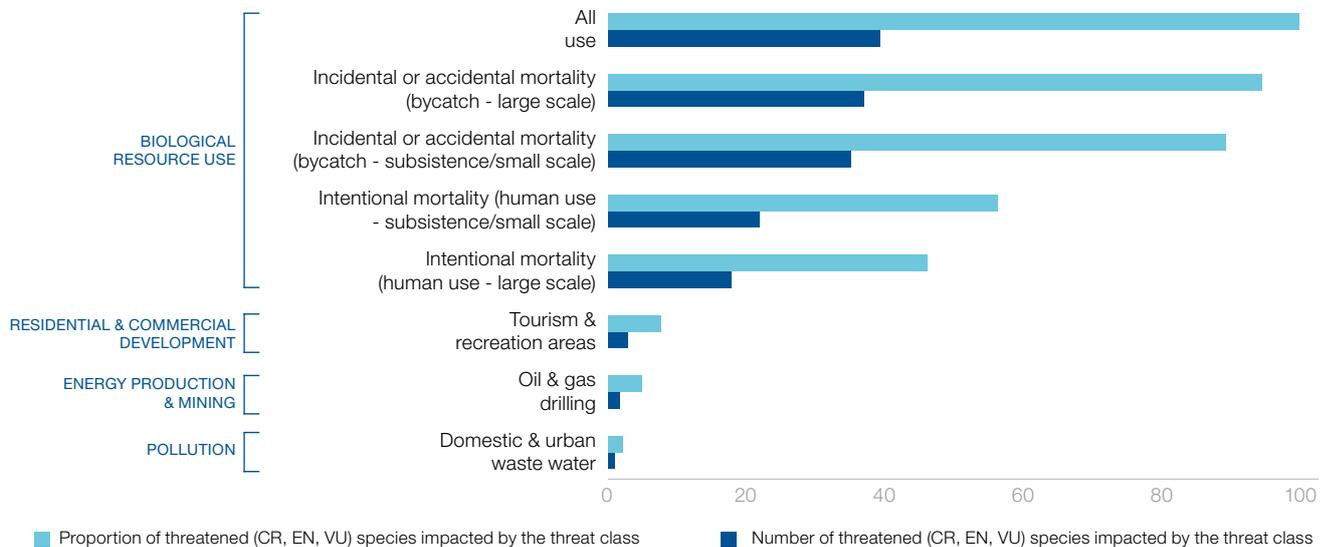
IUCN Red List Category	Number of Species
Extinct (EX)	0
Regionally Extinct (RE)	0
Critically Endangered (CR)	20
Endangered (EN)	11
Vulnerable (VU)	8
Near Threatened (NT)	9
Least Concern (LC)	12
Data Deficient (DD)	13
Total number of species assessed	<b>73</b>

\* This table does not include the four vagrant or Lessepsian migrant species that have been considered Not Applicable (NA) for the Mediterranean region

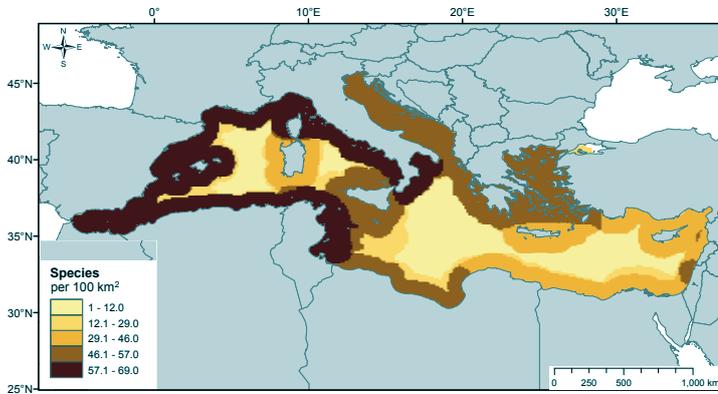
**FIGURE 2**  
Distribution of Data Deficient Chondrichthyans within the Mediterranean Sea.



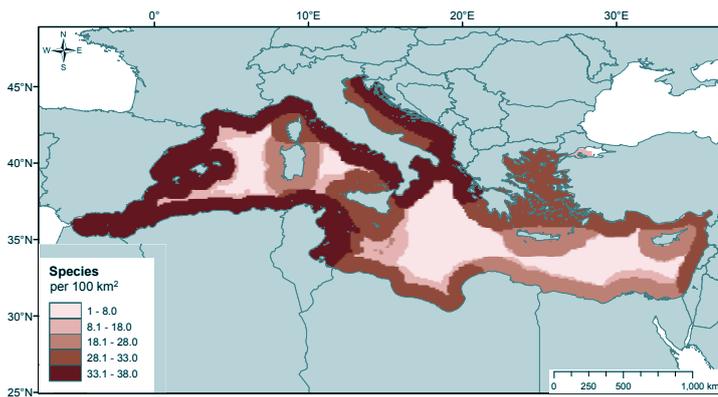
**FIGURE 3**  
The primary threats driving Chondrichthyans to extinction in the Mediterranean Sea.



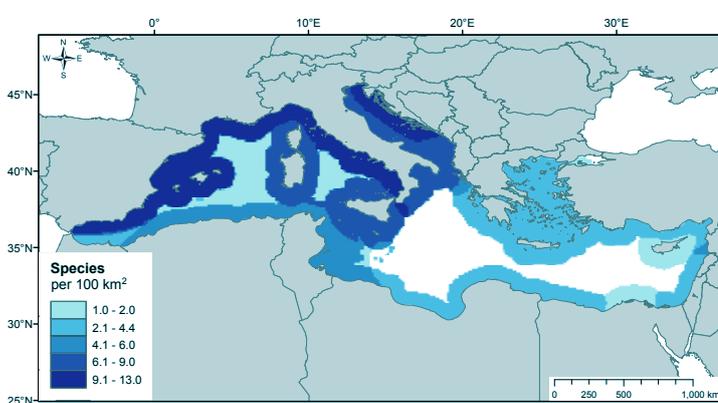
**FIGURE 4**  
Historical species richness of Chondrichthyans within the Mediterranean Sea.



**FIGURE 5**  
Distribution of threatened (CR, EN, and VU) Chondrichthyans within the Mediterranean Sea.



**FIGURE 6**  
Extinct and Possibly Extinct species in the Mediterranean Sea, showing that local extinctions have been most prevalent in the NW Mediterranean Sea.



## THE PRINCIPAL DRIVER OF DECLINE AND LOCAL EXTINCTION IS OVERFISHING.

Most species are taken as retained valuable bycatch in small-scale and large-scale trawl and net multispecies fisheries

More recently, there has been a significant decline in species richness throughout the Mediterranean Sea due to increasing threats and local extinctions. Historically, the number of threatened species was very high with as many as 33 to 38 threatened species found in 100 km<sup>2</sup> cells in the coastal waters of the western and central Mediterranean Sea (Figure 5). Threat levels are also high throughout the eastern Mediterranean Sea, with as many as 8 to 18 threatened species per 100 km<sup>2</sup>. No country has fewer than 29 threatened species within its Exclusive Economic Zone.



*Squatina oculata*  
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This substantial change in species richness patterns over the past half-century is due to the local extinction of thirteen species from significant parts of the range (Figure 6). Geographically, local extinctions have been most prevalent in the NW Mediterranean waters of Spain, France, and Italy, and in the waters of the countries bordering the Adriatic Sea and northwest African countries. ➤



Spiny Butterfly Ray,  
*Gymnura altavela*  
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> Despite our rapidly improved understanding of their widespread overexploitation in the Mediterranean basin<sup>5,6</sup>, no effective chondrichthyan-focused management measures have been successfully implemented, nor enforced. Stock assessments are underway, however assessments are not management measures, but essential precursors to set catch limits for those more productive species that could be brought into sustainability. In 2010 and 2011 the General Fisheries Commission for the Mediterranean (GFCM), the regional fisheries management organisation for the Mediterranean Sea, adopted *ad hoc* measures to reduce the bycatch of pelagic sharks such as Thresher, Mako and Hammerhead sharks. In 2012, the GFCM banned finning practices in the Mediterranean and Black seas and also prohibited the capture and sale of the sharks and rays species listed in Annex II of the Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD) Protocol of the Barcelona Convention. In 2010-2013 the GFCM carried out a three-year research programme to improve the knowledge and assess the status of elasmobranchs in the region, and it continues to work in close collaboration with the regional experts to contrast sharks and rays populations' decline. However only a few of its Parties have taken concrete domestic action to implement these recommendations. Prohibitions on catch, such as required for the species listed on the Barcelona Convention, should be urgently implemented to avoid further declines and extinctions. The IUCN Shark Specialist Group and the Shark Trust are working together to ensure implementation of protections for all three species of Angel Shark.

## AUTHORS

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**Sandbar Shark,**  
*Carcharhius plumbeus*  
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# The Conservation Status of Sharks, Rays and Chimaeras in the Mediterranean Sea

This 2016 regional assessment of the Mediterranean Sea included 73 species of sharks, rays and chimaeras. Four species (*Carcharhinus brevipinna*, *Himantura uarnak*, *Sphyrna mokarran* and *Sphyrna lewini*) are not eligible for assessment in the Mediterranean region as they are considered to be either vagrants or Lessepsian immigrants (from the Red Sea). Three species (*Leucoraja melitensis*, *Raja polystigma* and *Raja radula*) are considered endemic to the Mediterranean Sea; the species name of these endemic rays is highlighted in red in the table below.

1/4

ORDER: CHIMAERIFORMES		MEDITERRANEAN RED LIST CATEGORY & CRITERIA	COMMON NAMES EN: ENGLISH ES: ESPAÑOL FR: FRANÇAIS	INTERNATIONAL LEGAL INSTRUMENTS
Family	Scientific Name Authority			
Chimaeridae	<i>Chimaera monstrosa</i> Linnaeus, 1758	● Near Threatened	EN Rabbit Fish, Rat Fish ES Quimera FR Chimère commune	

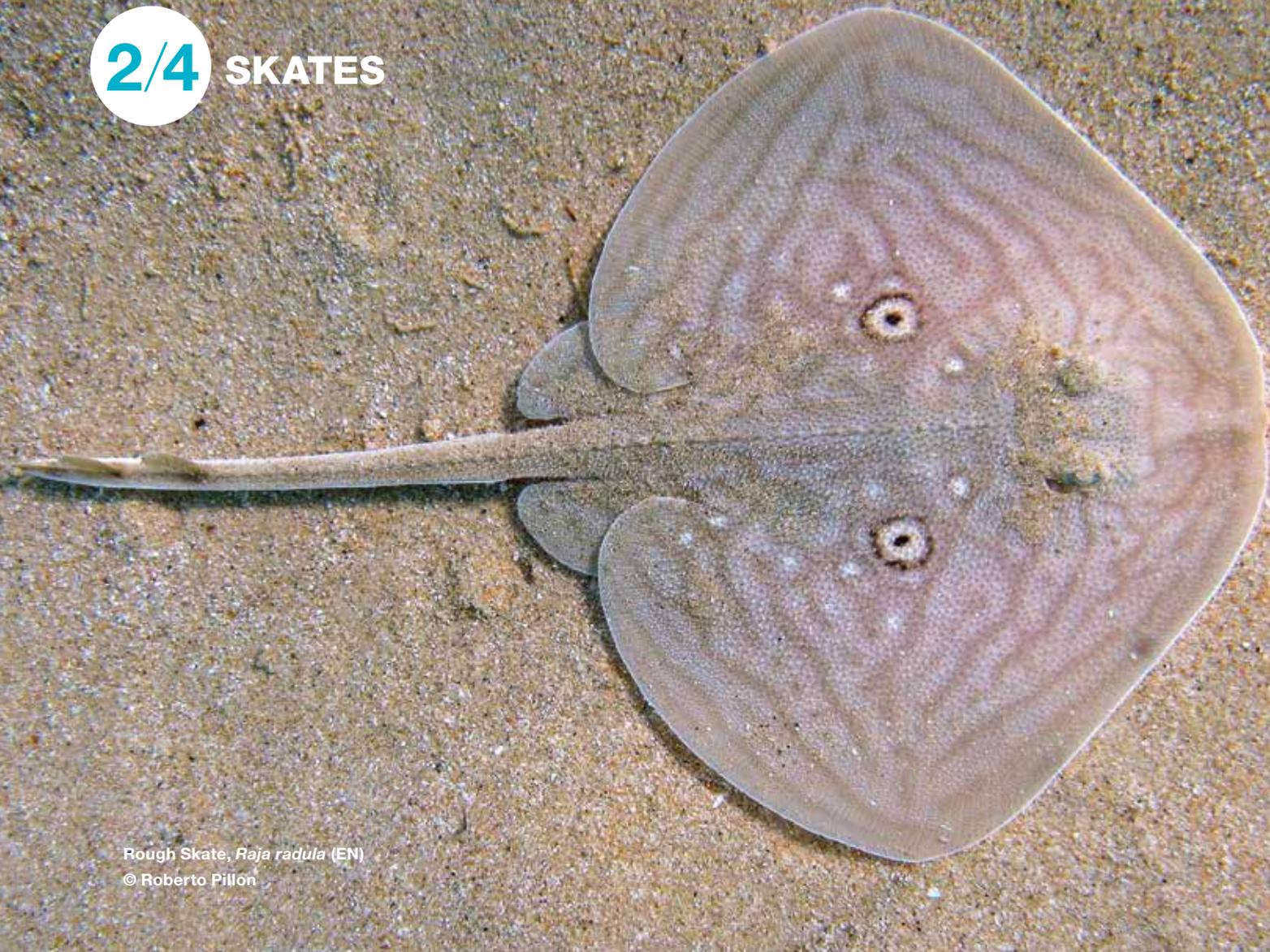
## RAYS

ORDER: RAJIFORMES		MEDITERRANEAN RED LIST CATEGORY & CRITERIA	COMMON NAMES EN: ENGLISH ES: ESPAÑOL FR: FRANÇAIS	INTERNATIONAL LEGAL INSTRUMENTS
Family	Scientific Name Authority			
Dasyatidae	<i>Dasyatis centroura</i> (Mitchill, 1815)	● Vulnerable A2d	EN Roughtail Stingray ES Raya Látego Isleña FR Pastenague Épineuse	
	<i>Dasyatis marmorata</i> (Steindachner, 1892)	● Data Deficient	EN Marbled Stingray ES Raya Látego Jaspada FR Pastenague Marbrée	
	<i>Dasyatis pastinaca</i> (Linnaeus, 1758)	● Vulnerable A2d	EN Common Stingray ES Raya Látego Común, Chucho FR Raie Pastenague	
	<i>Himantura uarnak</i> (Gmelin, 1789)	Not Applicable	EN Reticulate Whipray, Honeycomb Stingray ES Chupare Oval FR Pastenague Indienne	
	<i>Pteroplatytrigon violacea</i> (Bonaparte, 1832)	● Least Concern	EN Pelagic Stingray ES Raya Látego Violeta, Raya Negra FR Pastenague Violette	
	<i>Taeniurops grabata</i> (Geoffroy Saint-Hilaire, 1817)	● Data Deficient	EN Round Faintail Stingray ES Chupare Redondo, Pastinaca Redonda FR Pastenague Africaine, Pastenague Ronde	
Gymnuridae	<i>Gymnura altavela</i> (Linnaeus, 1758)	● Critically Endangered A2bd	EN Spiny Butterfly Ray ES Raya Mariposa, Mantelina FR Raie-papillon Épineuse	BCN Conv.: Annex II
Mobulidae	<i>Mobula mobular</i> (Bonnaterre, 1788)	● Endangered A2d	EN Giant Devil Ray ES Manta, Manta Mobula FR Diable de Mer Méditerranéen, Mante	BCN Conv.: Annex I & II / CITES: Appendix I / BCN Conv.: Annex II
Myliobatidae	<i>Myliobatis aquila</i> (Linnaeus, 1758)	● Vulnerable A2b	EN Common Eagle Ray ES Águila Marina FR Hirondelle, Aigle Commun	
	<i>Pteromylius bovinus</i> (Geoffroy Saint-Hilaire, 1817)	● Critically Endangered A2c	EN Bullray ES Pez Obispo FR Aigle Vachette	
	<i>Pristis pectinata</i> Latham, 1794	● Critically Endangered A2b; D	EN Smalltooth Sawfish ES Pez Sierra FR Poisson-scie Tident	
Pristidae	<i>Pristis pristis</i> (Linnaeus, 1758)	● Critically Endangered A2b; D	EN Largetooth Sawfish, Common Sawfish ES Pez Sierra, Pez Sierra Común FR Poisson-scie Commun	BCN Conv.: Annex II
	<i>Dipturus batis</i> (Linnaeus, 1758)	● Critically Endangered A2b	EN Common Skate ES Noriega, Raya Noruega FR Pocheteau Gris	
	<i>Dipturus oxyrinchus</i> (Linnaeus, 1758)	● Near Threatened	EN Longnosed Skate ES Picón, Raya Plouca FR Pocheteau Noir	
	<i>Leucoraja circularis</i> (Couch, 1838)	● Critically Endangered A2bd	EN Sandy Skate ES Raya Falsa Yela FR Raie Circulaire	BCN Conv.: Annex II
	<i>Leucoraja fullonica</i> (Linnaeus, 1758)	● Critically Endangered A2bd	EN Shagreen Skate ES Raya Cardadora FR Raie Chardon	
	<i>Leucoraja melitensis</i> (Clark, 1926)	● Critically Endangered A2bcd+3bcd	EN Malfese Skate, Maltese Ray ES Raya de Malta FR Raie de Malte, Raie Maltaise	BCN Conv.: Annex II
	<i>Leucoraja naevus</i> (Müller & Henle, 1841)	● Near Threatened	EN Cuckoo Skate ES Raya Santiaguesa FR Raie Fleurie	
	<i>Malacoraja clavata</i> (Linnaeus, 1758)	● Near Threatened	EN Thornback Skate ES Raya de Clavos, Raya FR Raie Bouclée	
Rajidae	<i>Raja asterias</i> Delaroche, 1809	● Near Threatened	EN Starry Skate ES Raya Estrelada, Raya FR Raie Étoilée	
	<i>Raja brachyura</i> Lafont, 1871	● Near Threatened	EN Blonde Skate, Blonde Ray ES Raya Boca de Frosa FR Raie Blanche, Raie Lisse	
	<i>Raja miraletus</i> (Linnaeus, 1758)	● Least Concern	EN Brown Skate ES Raya de Espejos FR Raie Mir'oir	
	<i>Raja montagui</i> Fowler, 1910	● Least Concern	EN Spotted Skate, Spotted Ray ES Raya Pintada FR Raie Douce	
	<i>Raja polystigma</i> Regan, 1923	● Least Concern	EN Speckled Skate, Speckled Ray ES Raya Manchada FR Raie Tachetée	
	<i>Raja radula</i> Delaroche, 1809	● Endangered A4b	EN Rough Skate ES Raya Áspera FR Raie Rape	
	<i>Raja undulata</i> Lacepède, 1802	● Near Threatened	EN Undulate Skate, Undulate Ray ES Raya Mosalco FR Raie Brunette	
	<i>Rostrolaja alba</i> (Lacepède, 1803)	● Endangered A2bd	EN White Skate ES Raya Bramante FR Raie Blanche	BCN Conv.: Annex II
Rhinobatidae	<i>Glaucostegus cemiculus</i> (Geoffroy Saint-Hilaire, 1817)	● Endangered A3bd	EN Blackchin Guitarfish ES Guitarra de Morro Negro FR Guitare de Mer Fousseuse	BCN Conv.: Annex II
	<i>Rhinobatos rhinobatos</i> (Linnaeus, 1758)	● Endangered A2b	EN Common Guitarfish ES Pez Guitarra, Guitarra FR Guitare de Mer Commune	BCN Conv.: Annex II
Rhinopteridae	<i>Rhinoptera marginata</i> (Geoffroy Saint-Hilaire, 1817)	● Data Deficient	EN Lusitanian Cownose Ray ES Gavián Lusitánico, Arzobispo FR Mourine Lusitanienne	
	<i>Tetronarce nobiliana</i> (Bonaparte, 1835)	● Least Concern	EN Great Torpedo Ray, Electric Ray ES Tremieiga Negra, Torpedo del Atlántico FR Torpille Noire	
Torpedinidae	<i>Torpedo marmorata</i> Risso, 1810	● Least Concern	EN Spotted Torpedo ES Tembladiera, Tremieiga, Tremolina Común FR Torpille Marbrée	
	<i>Torpedo torpedo</i> (Linnaeus, 1758)	● Least Concern	EN Common Torpedo Ray ES Tembladiera, Tremieiga, Tremolina Común FR Torpille Ocellée	

# SHARKS

ORDER: CARCHARHINIFORMES		MEDITERRANEAN RED LIST CATEGORY & CRITERIA		COMMON NAMES		INTERNATIONAL LEGAL INSTRUMENTS	
FAMILY	SCIENTIFIC NAME AUTHORITY	EN: ENGLISH	ES: ESPAÑOL	FR: FRANÇAIS			
Carcharhinidae	<i>Carcharhinus altimus</i> (Springer, 1950)	● Data Deficient	● Bignose Shark	ES Tiburón Baboso	FR Requin Babosse		
	<i>Carcharhinus brachyurus</i> (Günther, 1870)	● Data Deficient	● Copper Shark	ES Tiburón Cobrizo	FR Requin Cuivre		
	<i>Carcharhinus brevipinna</i> (Müller & Henle, 1839)	Not Applicable	● Spinner Shark	ES Tiburón Aleta Negra	FR Requin Tisserand		
	<i>Carcharhinus limbatus</i> (Müller & Henle, 1839)	● Data Deficient	● Blacktip Shark	ES Tiburón de Puntas Negras, Tiburón, Macuira	FR Requin Bordé		
	<i>Carcharhinus obscurus</i> (Lesueur, 1818)	● Data Deficient	● Dusky Shark	ES Tiburón Atrenero	FR Requin de Sable		
	<i>Carcharhinus plumbeus</i> (Nardo, 1827)	● Endangered A4d	● Sandbar Shark	ES Tiburón Trozo	FR Requin Gris	BCN Conv.: Annex III	
	<i>Priace glauca</i> (Linnaeus, 1758)	● Critically Endangered A2bd	● Blue Shark	ES Tiburón Azul, Tintorera	FR Peau Bleue	BCN Conv.: Annex III	
	<i>Galeus atlanticus</i> (Vallant, 1888)	● Near Threatened	● Atlantic Sawtail Catshark	ES Olayo Atlántico, Pintarroja Atlántica	FR Chien Atlantique		
	<i>Galeus melastomus</i> Rafinesque, 1810	● Least Concern	● Blackmouth Catshark	ES Pintarroja Bocanegra	FR Chien Espagnol		
	<i>Scyliorhinus canicula</i> (Linnaeus, 1758)	● Least Concern	● Small Spotted Catshark	ES Pintarroja	FR Petite Roussette		
Sphyrnidae	<i>Scyliorhinus stellaris</i> (Linnaeus, 1758)	● Near Threatened	● Nursehound	ES Atlán	FR Grande Roussette		
	<i>Sphyrna lewini</i> (Griffith & Smith, 1834)	Not Applicable	● Scalloped Hammerhead	ES Cornuda, Tiburón Martillo	FR Requin-marteau Halicorne	CITES: Appendix II / BCN Conv.: Annex II	
	<i>Sphyrna mokarran</i> (Rüppell, 1837)	Not Applicable	● Great Hammerhead	ES Cornuda Gigante, Tiburón Martillo	FR Grand Requin-marteau	CITES: Appendix I / BCN Conv.: Annex II	
	<i>Sphyrna zygaena</i> (Linnaeus, 1758)	● Critically Endangered A2bd	● Smooth Hammerhead	ES Cornuda, Tiburón Martillo	FR Requin-marteau Commun	CITES: Appendix II / BCN Conv.: Annex II	
	<i>Galeorhinus galeus</i> (Linnaeus, 1758)	● Vulnerable A2bd	● Topo	ES Cazón	FR Requin-hà	BCN Conv.: Annex II	
	<i>Mustelus asterias</i> Cloquet, 1819	● Vulnerable A2bd	● Starry Smoothhound	ES Musola Dentuda	FR Émissole tachetée	BCN Conv.: Annex II	
	<i>Mustelus mustelus</i> (Linnaeus, 1758)	● Vulnerable A2bd	● Common Smoothhound	ES Musola	FR Émissole lisse	BCN Conv.: Annex III	
	<i>Mustelus punctulatus</i> Risso, 1827	● Vulnerable A4d	● Blackspotted Smoothhound	ES Musola, Musola Pimienta	FR Émissole lisse	BCN Conv.: Annex III	
	<b>ORDER: HEXANCHIFORMES</b>						
	Hexanchidae	<i>Heptanchias perlo</i> (Bonnaterre, 1788)	● Data Deficient	● Sharpnose Sevengill Shark	ES Cañabota Bocadulbe, Bocadulce	FR Requin Perlon	BCN Conv.: Annex III
<i>Hexanchus griseus</i> (Bonnaterre, 1788)		● Least Concern	● Bluntnose Sixgill Shark	ES Cañabota Gris	FR Requin Grisset		
<i>Hexanchus nakamurai</i> Teng, 1962		● Data Deficient	● Bigeyed Sixgill Shark	ES Cañabota Oligrande	FR Requin Vache		
<b>ORDER: LAMNIFORMES</b>							
Alopiidae	<i>Alopias superciliosus</i> Lowe, 1841	● Endangered A2bd	● Bigeye Thresher Shark	ES Zorro Ojón	FR Renard à Gros Yeux	CMS: Appendix II / CITES: Appendix II	
	<i>Alopias vulpinus</i> (Bonnaterre, 1788)	● Endangered A2bd	● Common Thresher Shark	ES Zorro	FR Renard	CMS: Appendix I & II / CITES: Appendix II / BCN Conv.: Annex II	
	<i>Cetorhinus maximus</i> (Günther, 1765)	● Endangered A2bd	● Basking Shark	ES Tiburón Peregrino	FR Requin Pélerin	CMS: Appendix I & II / CITES: Appendix II / BCN Conv.: Annex II	
Lamnidae	<i>Carcharodon carcharias</i> (Linnaeus, 1758)	● Critically Endangered A2d	● Great White Shark	ES Tiburón Blanco	FR Grand Requin Blanc	CMS: Appendix I & II / CITES: Appendix II / BCN Conv.: Annex II	
	<i>Isurus oxyrinchus</i> Rafinesque, 1810	● Critically Endangered A2bd	● Shortfin Mako	ES Tiburón Mako, Marrajo	FR Requin Mako, Requin-taube Bleu	CMS: Appendix II / BCN Conv.: Annex II	
	<i>Isurus paucus</i> Guitart, 1966	● Data Deficient	● Longfin Mako	ES Marrajo Carite, Marrajo Negro	FR Petit Requin Taube, Petit Taube		
Odontaspidae	<i>Lamna nasus</i> (Bonnaterre, 1788)	● Critically Endangered A2bd	● Porbeagle	ES Marrajo Sardinero, Callón	FR Requin-taube Commun	CMS: Appendix II / CITES: Appendix II / BCN Conv.: Annex II	
	<i>Carcharias taurus</i> Rafinesque, 1810	● Critically Endangered C2a(i)	● Sand Tiger Shark	ES Tiburón Toro, Toro Bacota	FR Requin Taureau	BCN Conv.: Annex II	
	<i>Odontaspis ferox</i> (Risso, 1810)	● Critically Endangered A2bd	● Smalltooth Sand Tiger	ES Solrayo, Monstruo de Malpelo, Tiburón Liso	FR Requin Féroce	BCN Conv.: Annex II	
<b>ORDER: SQUALIFORMES</b>							
Dalatiidae	<i>Centrophorus granulosus</i> (Bloch & Schneider, 1801)	● Critically Endangered A4b	● Gulper Shark	ES Quelvacho, Gelve	FR Squalo-chagrin Commun, Squalo-chagrin Aiguille	BCN Conv.: Annex III	
	<i>Dalatis licha</i> (Bonnaterre, 1788)	● Vulnerable A3d+4d	● Kitefin Shark	ES Carrocho, Lija	FR Squalo Liche		
	<i>Echinorhinus brucus</i> (Bonnaterre, 1788)	● Endangered A2bd	● Bramble Shark	ES Pez Olavo	FR Squalo Bouclé		
Etmopteridae	<i>Etmopterus spinax</i> (Linnaeus, 1758)	● Least Concern	● Velvet Belly Lanternshark	ES Negrito, Tiburón Linterna Velludo	FR Sagre Commun	BCN Conv.: Annex II	
	<i>Oxynotus centrina</i> (Linnaeus, 1758)	● Critically Endangered A2bd	● Angular Rough Shark	ES Cerdo Marino	FR Centrine Commune		
	<i>Centroscymnus coeleps</i> (Barbosa du Bocage & de Brito Capello, 1864)	● Least Concern	● Portuguese Dogfish	ES Pailona	FR Pailona Commun		
Squalidae	<i>Somniosus rostratus</i> (Risso, 1827)	● Data Deficient	● Little Sleeper Shark	ES Tollo Boreal, Tiburón Dormilón	FR Laimargue de la Méditerranée		
	<i>Squalus acanthias</i> Linnaeus, 1758	● Endangered A2bd	● Spiny Dogfish, Picked Dogfish	ES Mielga, Galludo	FR Aiguillat Commun	CMS: Appendix II / BCN Conv.: Annex III	
	<i>Squalus blainville</i> (Risso, 1827)	● Data Deficient	● Longnose Spurdog	ES Galludo	FR Aiguillat Coq		
<b>ORDER: SQUATINIFORMES</b>							
Squatinae	<i>Squalus megalops</i> (Macleay, 1881)	● Data Deficient	● Shortnose Spurdog	ES Galludo Nato	FR Aiguillat Nez Court		
	<i>Squatina aculeata</i> Olivier, 1829	● Critically Endangered A2bd	● Sawback Angelshark	ES Angelote Espinuso	FR Ange de Mer Épineux	BCN Conv.: Annex II	
	<i>Squatina oculata</i> Bonaparte, 1840	● Critically Endangered A2bcd+3cd	● Smoothback Angel Shark	ES Pez Angel	FR Ange de Mer Ocellé	BCN Conv.: Annex II	
<i>Squatina squatina</i> (Linnaeus, 1758)	● Critically Endangered A2bcd+3d	● Angelshark	ES Pez Angel	FR Ange de Mer Commun	BCN Conv.: Annex II		

A number of species are protected under Appendix I (Endangered migratory species) and/or II (Migratory species conserved through Agreements) of the Convention on Migratory Species (CMS), Appendix I (Species threatened with extinction) of CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora), or under Annex II (List of Endangered or Threatened Species) or III (List of Species Whose Exploitation is Regulated) of the SPA/BD Protocol (Specially Protected Areas and Biological Diversity in the Mediterranean) of the Barcelona Convention (BCN Conv.).



Rough Skate, *Raja radula* (EN)  
© Roberto Pillon

# Endangered Endemic Skates of the Mediterranean Sea

**ROUGH SKATE**  
*Raja radula*



**MALTESE SKATE**  
*Leucoraja melitensis*



**S** **KATES** in the family Rajidae, particularly the larger bodied species, have suffered severe declines, with evidence of local extinction of two of the very largest species found in the Mediterranean Sea – the White Skate (*Rostroraja alba*) and the Common Skate (*Dipturus* spp.). Here we draw attention to the plight of the Rough Skate (*Raja radula*), one of the three skates found nowhere else in the world; the Endangered

Rough Skate, like the Critically Endangered Maltese Skate (*Leucoraja melitensis*) and the Least Concern Speckled Skate (*Raja polystigma*) are endemic and currently confirmed only in the Mediterranean Sea.

The Rough Skate is found in coastal waters to 350 m in depth, more commonly at less than 40 m in depth, especially in the western Mediterranean Sea around the Balearic Islands. Like all other skates this species

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lays pairs of 5 cm-long eggs, or ‘mermaids purses’, mainly in spring and summer. The eggs hatch after around four months of development. The maximum size reached is approximately 70 cm in length. Little is known of the age of maturation, however it is inferred that the generation span is around nine years.

The Rough Skate is not exploited or traded commercially but is commonly taken as bycatch of demersal trawl, gillnet, trammel net, bottom longline, and purse seine fisheries, although no species-specific catch data are available. For example, in the Balearic Islands this skate is more common in shallow waters where it is taken in: trammel net fisheries targeting Cuttlefish (*Sepia officinalis*) and bony fish; gillnet fisheries targeting the European Spiny Lobster (*Palinurus elephas*) and the Red Mullet (*Mullus surmuletus*); and bottom longline fisheries targeting groupers (*Epinephelus spp.*) and sea breams (Sparidae). Species-specific data are not usually available because landings of skates are grouped as “rays” or “skates”.

According to information provided by the International Bottom Trawl Survey in the Mediterranean (MEDITS), the Rough Skate was captured in only 21 of 6,336 tows in the northern Mediterranean Sea between 1994 and 1999. There is evidence that the Rough Skate was formerly more abundant

in this region. Further east, in the Aegean Sea, this skate is uncommon and, where present, it appears to have undergone steep declines in the past two decades.

Given that the Rough Skate appears to be endemic to the Mediterranean Sea where it has recently declined in some regions, and ongoing relatively intense fishing pressure overlaps with parts of its range, the Rough Skate was assessed as Endangered based on an estimated decline of >50% over a three-generation period (27 years).

Currently no species-specific management or conservation measures are in place for the Rough Skate. It is recommended that catch and trends of this species be monitored and science-based catch limits are set and enforced to halt the decline.

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Dulvy, N. and Walls, R. 2015. *Leucoraja melitensis*. The IUCN Red List of Threatened Species 2015: e.T61405A48954483. <http://dx.doi.org/10.2305/IUCN.UK.2015-1.RLTS.T61405A48954483.en>

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*Raja radula* © Roberto Pillon



# 3/4 ANGEL SHARKS



The Angelshark, *Squatina squatina* (CR)  
© Tom Young

## The near extinction of the Angel Sharks from the Mediterranean Sea

ANGELSHARK  
*Squatina squatina*



SAWBACK  
ANGELSHARK  
*Squatina aculeata*



SMOOTHBACK  
ANGELSHARK  
*Squatina oculata*



**A**NGEL SHARKS\* (Squatinae) are among the most threatened families of the chondrichthyans, along with sawfishes (Pristidae) and Guitarfishes (Rhinoatidae). There are three Angel Shark species present in the Mediterranean Sea: the Angelshark\*, the Sawback Angelshark, and the Smoothback Angelshark. These Angel Sharks have broadly similar distributions, ecology and life histories. All three species are Critically Endangered (Ferretti *et al.* 2016 a,b, Soldo and Bariche 2016) and their populations are decreasing. Most is known of the distribution, ecology and declines of the Angelshark (*Squatina squatina*) with little detail known of the other two species. All three species are thought to be nearly extinct throughout much of their range in the Mediterranean Sea. Angel Sharks prefer sandy and muddy habitats and can be found close inshore at depths ranging from less than 5 m down to at least 150 m in depth. Angel Sharks are

bottom-dwelling sit-and-wait predators and hence are susceptible to capture because they are found in habitats favoured by trawlers and netters. Like rays, skates and guitarfishes, these flat sharks are highly catchable because their large size at birth means they are retained by even large mesh nets. Angel Sharks were taken as a retained bycatch of trawl, net and longline fisheries, but were also formerly targeted with nets called *squanere* (Angel Shark nets) in parts of the Mediterranean Sea. Fishing effort of these gears has increased over the last half century leading to the decline and local extinction of many larger-bodied species of skates and rays. The Angelshark *Squatina squatina* was formerly common and widespread in coastal and continental shelf seas; originally ranging from Scandinavia to northwest Africa (Mauritania and the Canary Islands), including the Mediterranean and Black Seas. The Angelshark reaches at least

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\* The name 'Angel Shark' refers to all species within the family Squatinidae, whilst 'Angelshark' refers to the species *Squatina squatina*.



# The near extinction of the Angel Sharks from the Mediterranean Sea

183 cm in length, possibly up to 244 cm in the Mediterranean Sea. Angel Sharks give birth to live young, with litter sizes of the Angelshark ranging from 7 to 25 pups after a 10-month long gestation period. Little is known of the lifespan or maturation of the three Angel Sharks in the Mediterranean Sea, but the generation span was inferred to be 11 years for *S. squatina*, 12 years for *S. oculata*, and 15 years for *S. aculeata*.

The Angelshark was reportedly common, or at least frequently or regularly recorded in many areas during the 19<sup>th</sup> and early 20<sup>th</sup> centuries and its decline and disappearance is well documented. However, in the past few decades not one single individual has been captured in NE Atlantic and Mediterranean scientific surveys. Beyond the remaining stronghold of the Canary Islands, only occasional catches are reported from commercial and recreational fishers in the NE Atlantic.

Since 2012 these three Angel Sharks have been listed in Annex II of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean Sea (SPA/BD Protocol) of the Barcelona Convention. Subsequently, the General Fisheries Commission for the Mediterranean has developed a specific recommendation (GFCM/36/2012/3) on fisheries management measures for the elasmobranchs species listed in the aforementioned Annex and it states that these species cannot be retained on board, landed, or sold and must be released unharmed and alive.

It remains unclear whether this protection is well enforced as there are reported landings of Angel Sharks in the Mediterranean in recent years. There is a clear need to ensure that protection is enforced and that recovery planning is initiated.

\*\* The Angel Shark Project is a collaboration between, Universidad de Las Palmas de Gran Canaria, the Zoological Society of London, and the Zoologisches Forschungsmuseum Alexander Koenig.

The Angel Shark Project\*\*, the IUCN Shark Specialist Group, and the Shark Trust are working with a number of stakeholders to develop an Angelshark Action Plan for the Canary Islands (focused specifically on *S. squatina*), alongside a wider Eastern Atlantic and Mediterranean Angel Shark Conservation Strategy.



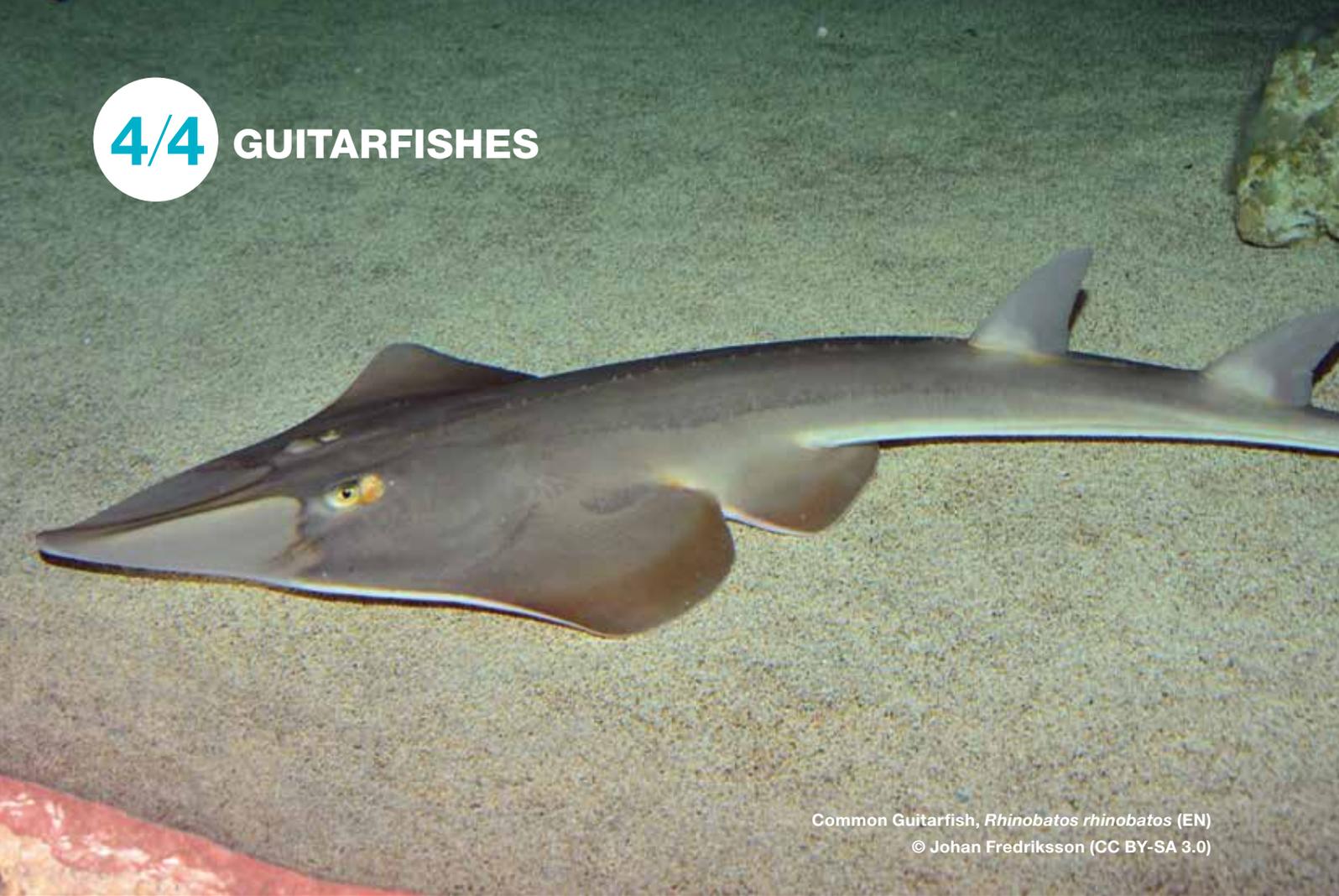
The Canary Islands Angelshark workshop  
© Jorge Castellano

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# 4/4 GUITARFISHES



Common Guitarfish, *Rhinobatos rhinobatos* (EN)  
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## Endangered Guitarfishes

COMMON GUITARFISH  
*Rhinobatos rhinobatos*



BLACKCHIN GUITARFISH  
*Glaucostegus cemiculus*



**TWO SPECIES OF GUITARFISH** are found in the Mediterranean Sea and both are listed as Endangered (Bradai and Soldo 2016, Soldo and Bradai 2016):

the Blackchin Guitarfish (*Glaucostegus cemiculus*) and the Common Guitarfish (*Rhinobatos rhinobatos*). Guitarfishes (Family Rhinobatidae) are amongst the most threatened families of the cartilaginous fishes, along with sawfishes (Pristidae) and Angel Sharks (Squatinae). Both guitarfishes have broadly similar distributions, ecology and life histories and here we focus on one of the species, the Common Guitarfish.

The Common Guitarfish is a large-bodied, bottom-dwelling ray that lives close inshore

ranging from very shallow water below the intertidal zone down to 180 m at the edge of the continental shelf. It lives over sandy and muddy seabeds and feeds on bottom-dwelling fishes and invertebrates. The Common Guitarfish gives birth to live young in late summer and autumn. Each mother produces around five pups (of 30 cm long) each year after a 10 to 12 month long pregnancy. Common Guitarfish females mature relatively early at an age of four years old and reach a maximum age of 24 years and each generation span is approximately 13.5 years long. Males have a much shorter lifespan, reaching only a maximum of 15 years of age. Males also tend to be smaller, with a maximum length of about 1.2 m and 5.5 kg, compared to 1.5 m and 13 kg for females.

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The Common Guitarfish was once widespread in the eastern Atlantic – ranging throughout Spanish and Portuguese waters – into the coastal waters of the entire Mediterranean Sea. Little is known about its current population size, but the *International Bottom Trawl Survey in the Mediterranean Sea* (MEDITS) that samples from Alboran Sea near the Gibraltar Straits to the Aegean Sea between Greece and Turkey failed to catch a single specimen between 1994-1999. The species is still present in parts of the southern Mediterranean Sea, with recent sightings in Tunisian waters.

The Common Guitarfish is fished throughout its range, mainly taken as retained bycatch in artisanal fisheries and as bycatch in industrial fisheries using trawls and gillnets. Its shallow depth distribution means it is within reach of most fishing gears throughout its range. It is likely to be retained for domestic consumption of its meat and to meet international trade demand for their fins. Guitarfishes, like sawfishes, have valuable fins.

Guitarfishes are protected in the waters of the Atlantic and Mediterranean Sea. In 2012, these species were added to Annex II of the SPA/BD Protocol of the Barcelona Convention. The General Fisheries Commission for the Mediterranean has developed a specific recommendation (GFCM/36/2012/3) on fisheries management measures for the elasmobranchs species listed in the aforementioned Annex and these species “cannot be retained on board, trans-shipped, landed, transferred, stored, sold or displayed or offered for sale”, and “must be released unharmed and alive, to the extent possible”. It remains unclear if this recommendation is being enforced for guitarfishes in the Mediterranean.

In 2011, the European Union (EU) prohibited any EU vessel to fish for, retain on board, tranship, land, store, sell, display or offer for sale any species of guitarfish in European Union Atlantic waters, however this protection did not extend to Mediterranean waters, and there is a clear need for this protection to be extended to Mediterranean waters.



Common Guitarfish, *Rhinobatos rhinobatos* (EN)  
© Citron (CC-BY-SA-3.0)

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## MEDITERRANEAN SHARKS AND RAYS FACE AN EXTINCTION CRISIS

At least 53% of the sharks, rays and chimaeras native to the Mediterranean Sea are at risk of extinction and require urgent action to conserve their populations and habitats.

This publication summarizes the outcomes of a significant collaboration between the IUCN Centre for Mediterranean Cooperation, the IUCN Global Species Programme and the IUCN Shark Specialist Group who, together with experts from across the Mediterranean region, have worked to bring together available information on the species of Chondrichthyans found in the Mediterranean Sea and produce assessments for the IUCN Red List of Threatened Species™.

This assessment was undertaken through the Mediterranean Red List Initiative, which is coordinated by the IUCN Centre for Mediterranean Cooperation.



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