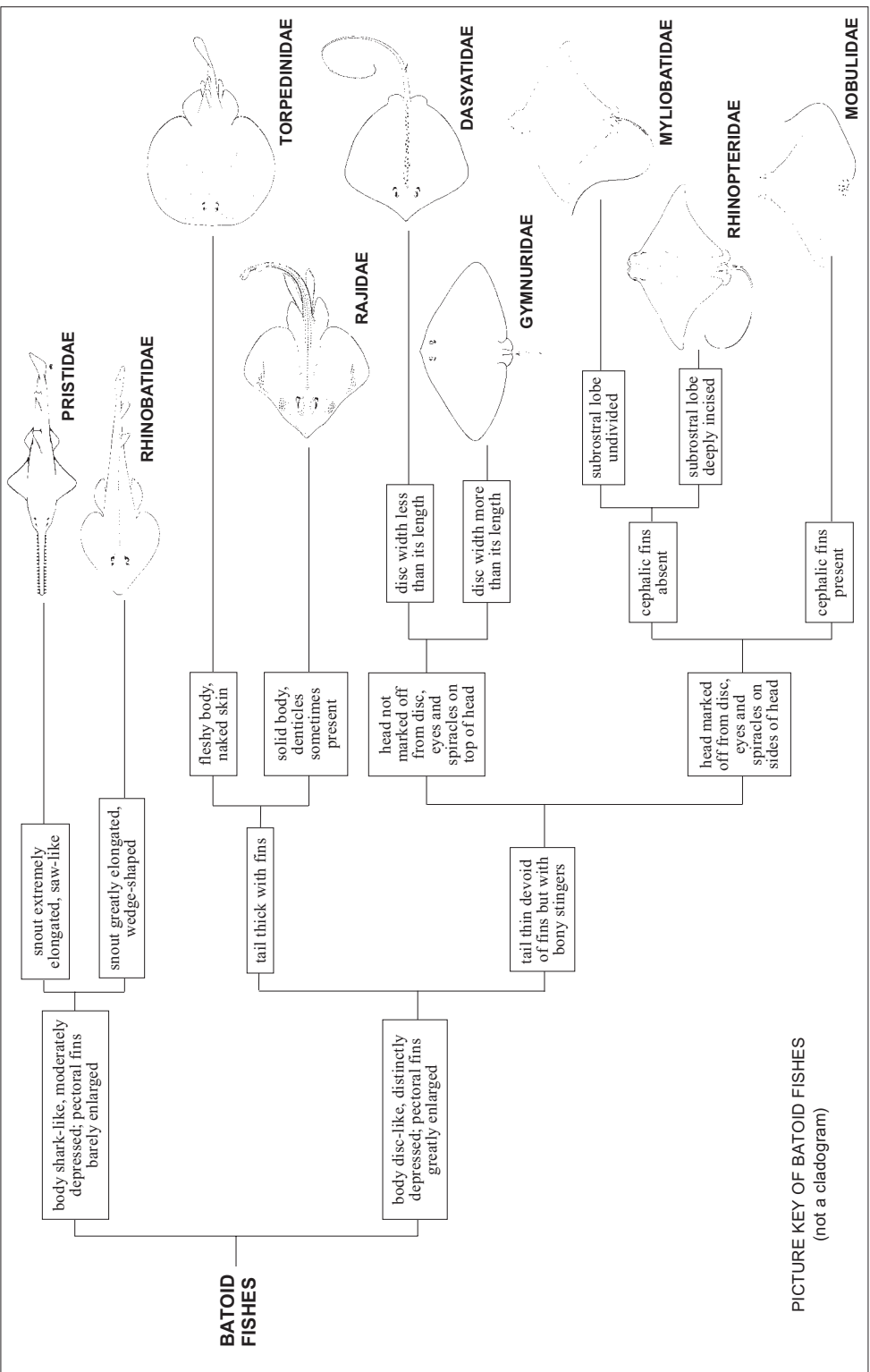


BATOID FISHES

(sawfishes, guitarfishes, electric rays, skates, rays, and stingrays)

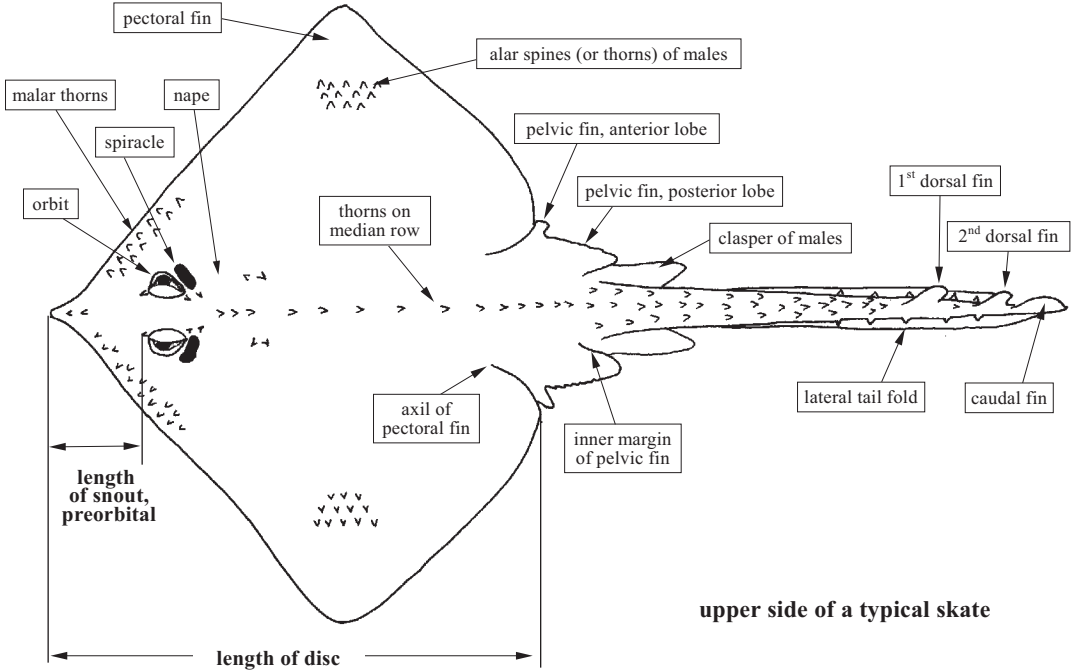


PICTURE KEY OF BATOID FISHES
(not a cladogram)

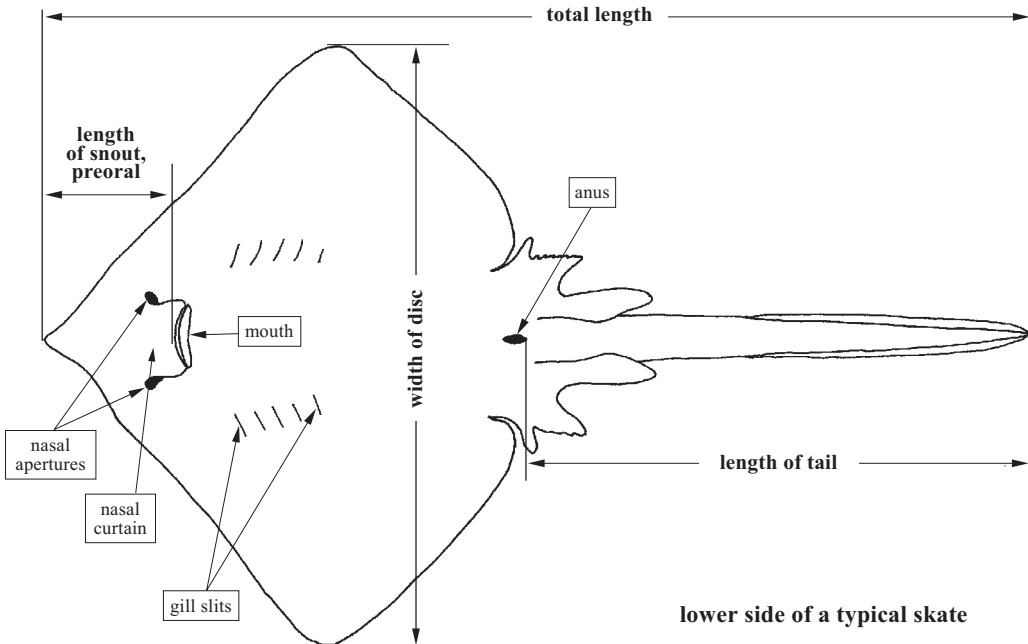
BATOID FISHES

Rays, Skates, Guitarfishes and Mantas

TECHNICAL TERMS AND MEASUREMENTS



upper side of a typical skate



lower side of a typical skate

LIST OF ORDERS, SUBORDERS, FAMILIES AND SPECIES OCCURRING IN THE AREA

A question mark (?) before the scientific name indicates that presence in the area needs confirmation.

Order **RAJIFORMES**

? Suborder **PRISTOIDEI**

? Family **PRISTIDAE**

? *Pristis pectinata*

? *Pristis pristis*

Suborder **RHINOBATOIDEI**

Family **RHINOBATIDAE**

Rhinobatos (Glaucostegus) cemiculus

Rhinobatos (Rhinobatos) rhinobatos

Suborder **TORPEDINOIDEI**

Family **TORPEDINIDAE**

Torpedo (Tetronarce) nobiliana

Torpedo (Torpedo) marmorata

Torpedo (Torpedo) sinuspersici

Torpedo (Torpedo) torpedo

Suborder **RAJOIDEI**

Family **RAJIDAE**

Dipturus batis

Dipturus oxyrinchus

Leucoraja circularis

Leucoraja fullonica

Leucoraja melitensis

Leucoraja naevus

Raja asterias

Raja brachyura

Raja clavata

Raja miraletus

Raja montagui

Raja polystigma

Raja radula

Raja undulata

Rostroraja alba

Suborder **MYLIOBATOIDEI**

Family **DASYATIDAE**

Dasyatis centroura

Dasyatis marmorata

Dasyatis pastinaca

Himantura uarnak

Pteroplatytrygon violacea

Taeniura grabata

Family **GYMNURIDAE**

Gymnura altavela

Family **MYLIOBATIDAE**

Myliobatis aquila

Pteromylaeus bovinus

Family **RHINOPTERIDAE**

Rhinoptera marginata

Family **MOBULIDAE**

Mobula mobular

GUIDE TO THE ORDERS AND FAMILIES OF BATOID FISHES OCCURRING IN THE AREA

Order RAJIFORMES – Sawfishes, Guitarfishes, Electric rays, Skates, Rays and Stingrays

Body dorsoventral depressed; anterior edge of the pectoral fin attached to side of head; gill slits ventral; nostrils when present, on the upperside of the head. Tail stout, shark-like or slender and whip-like; anal fin absent; eyes and spiracles on dorsal surface.

Suborder PRISTOIDEI – Sawfishes

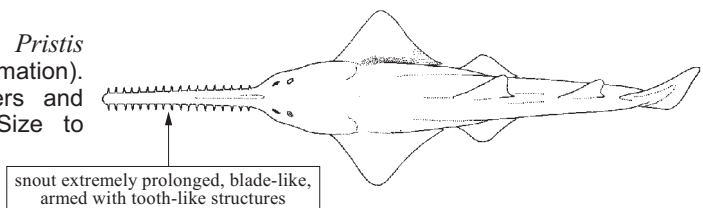
A large body shark-like with a saw-like elongated snout bearing a row of strong lateral teeth on each side; barbels absent; two dorsal fins and a caudal fin.

PRISTIDAE

Page 56

Sawfishes

Perhaps two species of the genus *Pristis* (their presence needs confirmation). Demersal in shallow marine waters and estuaries, entering fresh water. Size to 730 cm TL.



Suborder RHINOBATOIDEI – Guitarfishes, wedgefishes and shark-rays

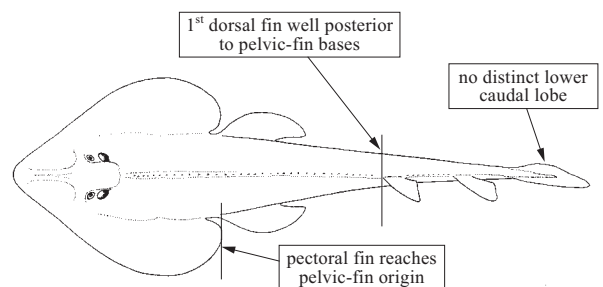
Body elongated and shark-like with pectoral fins expanded and fused with head and trunk; two subequal and well-separated dorsal fins; no saw-like snout.

RHINOBATIDAE

Page 57

Guitarfishes

Demersal, in inshore waters and sometimes in deep waters of the upper slope; off sandy beaches, muddy bays, estuaries and off river mouths. From intertidal down to 366 m. Size to 300 cm TL. Two species of the same genera in the area.



Suborder TORPEDINOIDEI – Electric rays

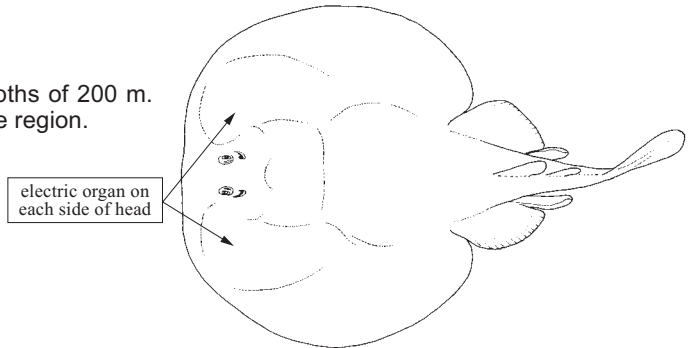
Pectoral fins greatly expanded and fused with head and trunk, forming a large oval disc; tail stout and shark-like, without any spines, a large electric organ on each side of head, usually partially visible under the skin as a pattern of hexagonal markings.

TORPEDINIDAE

Page 58

Electric rays

Demersal, from shallow waters to depths of 200 m. Size to 130 cm TL. Four species in the region.



Suborder RAJOIDEI – Skates and rays

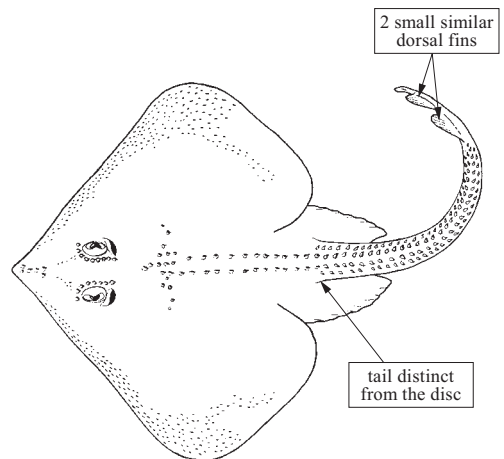
Greatly enlarged pectoral fins, strongly depressed as a rhomboid disc, fused completely to sides of head and trunk. Upper surfaces sparsely to densely covered with prickles and small and/or distinct thorn-lets and thorns. Caudal fin rudimentary.

RAJIDAE

Page 60

Skates and Rays

Demersal from shallow depths to nearly 2 000 m. Size to 130 cm disc width. Four genera and 16 species in the Mediterranean.



Suborder MYLIOBATOIDEI – Stingrays, butterfly rays, eagle rays and mantas

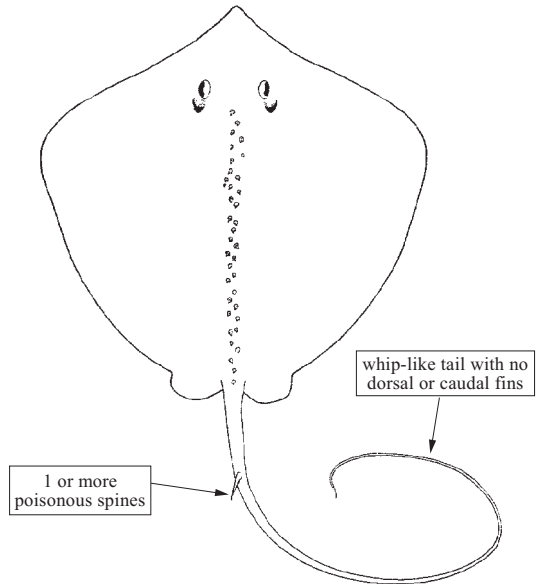
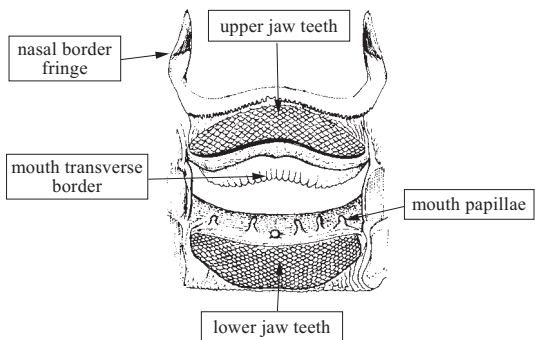
Body flattened with pectoral fins greatly expanded and fused with head and trunk; tail slender or whip-like, usually with one or several spines; usually with a single dorsal fin, but no caudal fin. No electric organ.

DASYATIDAE

Page 67

Stingrays

Mostly demersal in marine, estuarine and fresh-water habitats, down to 480 m of depth. Size to 200 cm disc width. Three genera and six species in the region.

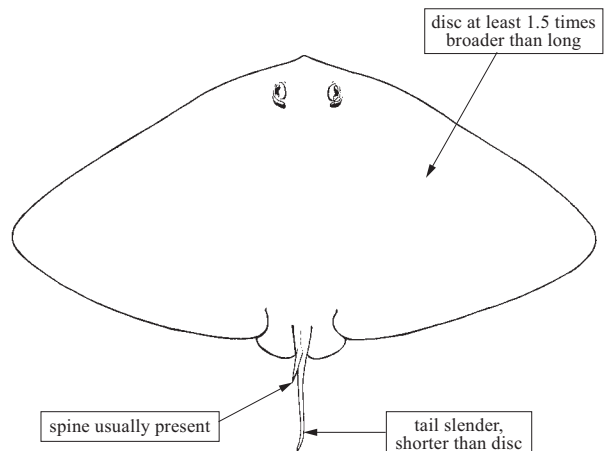


GYMNURIDAE

Page 70

Butterfly rays

Demersal, inshore waters off sandy beaches, estuaries, enclosed bays and lagoons, offshore banks down to a depth of 110 m. Size to 250 cm disc width. A single species in the region.

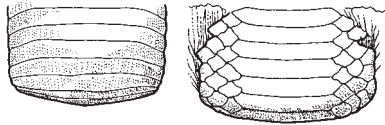


MYLIOBATIDAE

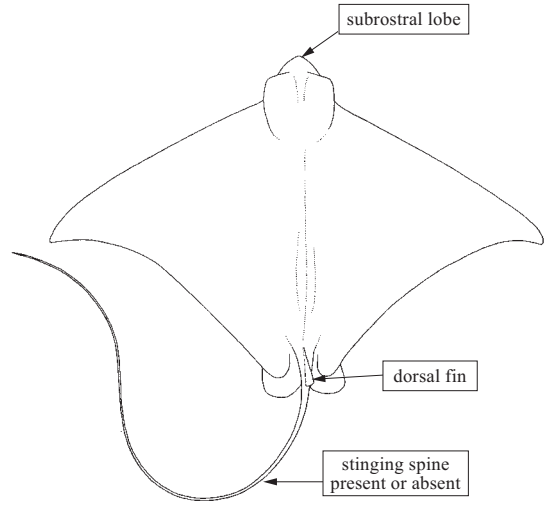
Page 71

Eagle rays

Coastal to depths of around 100 m. Size to 180 cm disc width. Two genera and two species reported in the Mediterranean.



enlargement of teeth



RHINOPTERIDAE

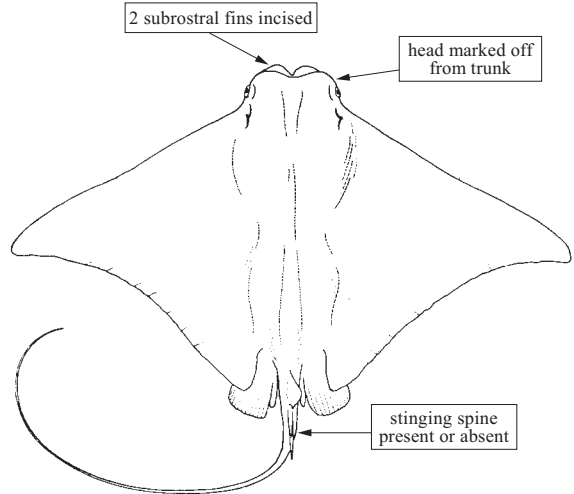
Page 72

Cownose rays

Semipelagic inshore and offshore, off sandy beaches, estuaries, enclosed bays and lagoons and offshore banks; from the intertidal to at least 26 m of depth. Size to 150 cm disc width. One species in the region.



enlargement of teeth

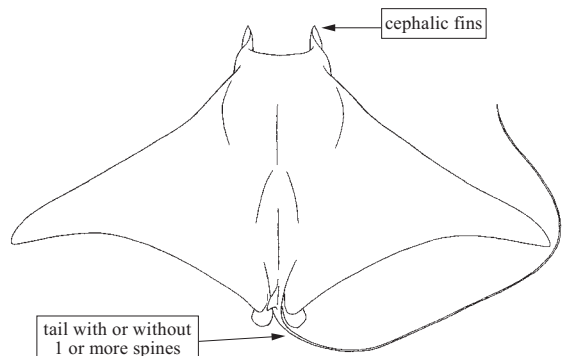


MOBULIDAE

Page 72

Mantas and devil rays

The only living vertebrates with three pairs of functional limbs. Pelagic, in coastal and oceanic waters from the intertidal to the epipelagic zone. Size to at least 670 cm disc width. A single species in the region.



PRISTIDAE

Pristis pectinata Latham, 1794

(Plate VII, 51)

Frequent synonyms / misidentifications:
None / None.

FAO names: **En** – Smalltooth sawfish;
Fr – Poisson-scie tident; **Sp** – Peje-peine.

Size: To about 500 cm TL.

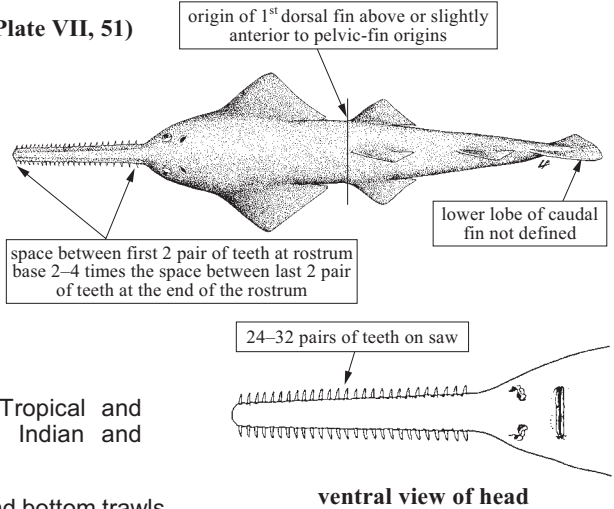
Habitat and biology: In shallow bays (5–100 m), lagoons and estuaries, also enters fresh water. Ovoviviparous with 15 to 20 embryos.

Distribution: Rare in the Mediterranean. Tropical and subtropical Atlantic. Presence uncertain in Indian and Pacific Oceans.

Importance to fisheries: Caught with lines and bottom trawls. Severely depleted, it needs strong conservation measures.

Conservation and exploitation status: IUCN, Endangered (Aabcd+2cd); Critically Endangered (A1bcd+2cd) in the North and South West Atlantic; Mediterranean, rare or absent.

Remarks: Tortonese (1987) did not consider Pristidae (sawfishes) to be present in the Mediterranean. Other authors however report occurrences in the eastern Mediterranean (Stehmann and Buerkel *in* Whitehead *et al.*, 1984; Golani 1996).



ventral view of head

Pristis pristis (Linnaeus, 1758)origin of 1st dorsal fin anterior to pelvic-fin origin

PRISTIDAE

Frequent synonyms / misidentifications:
None / None.

FAO names: **En** – Common sawfish;
Fr – Poisson-scie commun; **Sp** – Pez sierra común.

Size: To about 450 cm TL.

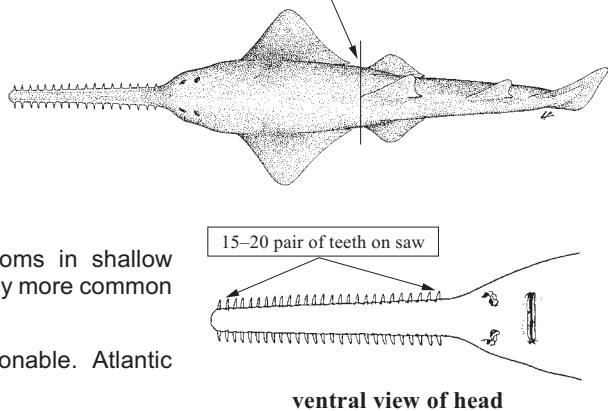
Habitat and biology: Benthic on soft bottoms in shallow coastal waters. Rare in northern regions, locally more common along African Atlantic coast. Ovoviviparous.

Distribution: Mediterranean records questionable. Atlantic from Portugal to Angola.

Importance to fisheries: Caught with line and bottom trawls. Severely depleted, it needs strong conservation measures.

Conversation and exploitation status: IUCN, Critically Endangered; Mediterranean, rare or absent species.

Remarks: Tortonese (1987) did not consider Pristidae (sawfishes) to be present in the Mediterranean. Other authors however report occurrences in the eastern Mediterranean (Stehmann and Buerkel *in* Whitehead *et al.*, 1984; Golani, 1996).



ventral view of head

RHINOBATIDAE

Rhinobatos (Glaucostegus) cemiculus Geoffroy St-Hilaire, 1817

(Plate VII, 52)

Frequent synonyms / misidentifications:

None / None.

FAO names: **En** – Blackchin guitarfish; **Fr** – Guitare de mer fousseuse; **Sp** – Guitarra barbanegra.

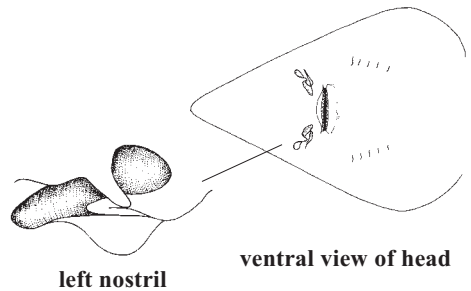
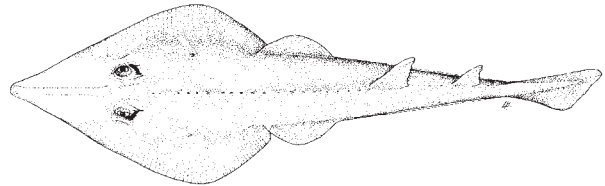
Size: To about 180 cm TL.

Habitat and biology: Benthic on sandy and muddy bottom and seabeds, from shallow water to about 100 m. Ovoviviparous, one or two litters per year, of 4 to 6 embryos.

Distribution: Whole Mediterranean, absent in the Black Sea. Atlantic from Portugal to Angola.

Importance to fisheries: In some areas of the Mediterranean basin usually caught by gillnet, bottom set and drifting longlines. Bycatch in bottom trawl fisheries.

Conversation and exploitation status: IUCN, needs to be investigated; Mediterranean, nowadays relatively rare, threatened species.

***Rhinobatos (Rhinobatos) rhinobatos*** (Linnaeus, 1758)

(Plate VII, 53) RHINOBATIDAE

Frequent synonyms / misidentifications:

None / None.

FAO names: **En** – Common guitarfish; **Fr** – Guitare de mer commune; **Sp** – Guitarra comun.

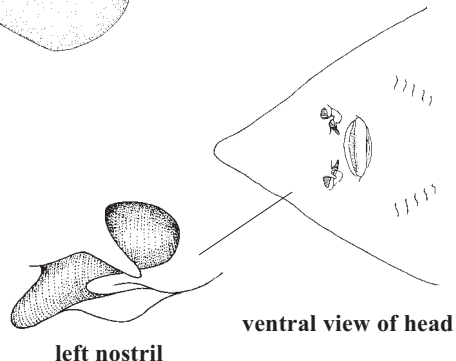
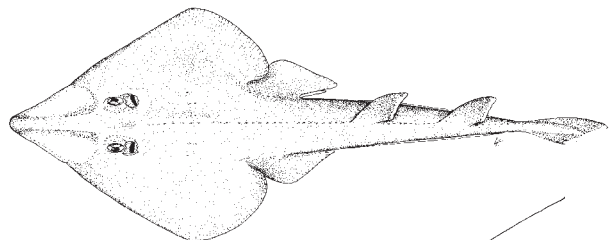
Size: To about 100 cm TL.

Habitat and biology: Benthic on sandy and muddy bottom and seabeds, from shallow water to about 100 m. Ovoviviparous, one or two litters per year, of 4 to 10 embryos.

Distribution: Whole Mediterranean, absent in the Black Sea. Atlantic from Bay of Biscay to Angola.

Importance to fisheries: In some areas of the Mediterranean basin usually caught by gillnet, bottom set and drifting longlines. Bycatch in bottom trawl fisheries.

Conversation and exploitation status: IUCN needs to be investigated; Mediterranean, threatened species.



TORPEDINIDAE

***Torpedo (Tetronarce) nobiliana* Bonaparte, 1835**

(Plate VII, 54)

Frequent synonyms / misidentifications:
Torpedo (Tetronarce) nobiliana Fowler, 1936 /
 None.

FAO names: En – Electric ray; Fr – Torpille
 noire; Sp – Tremolina negra.

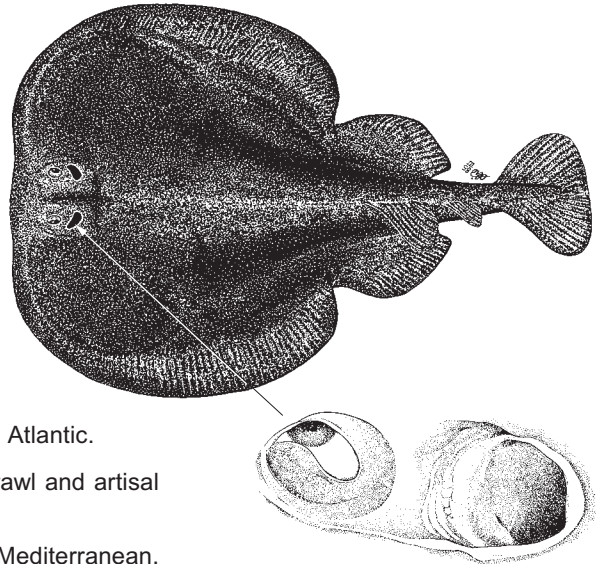
Size: To about 180 cm TL.

Habitat and biology: Juveniles benthic on
 soft bottoms, adults frequently pelagic or
 semipelagic, from 10 to 150 m. The adults can
 be pelagic or semipelagic, reported migrating
 over large distances. Probably ovoviviparous.

Distribution: Whole Mediterranean, absent in
 the Black Sea. Atlantic northward to Scotland,
 rare in the North Sea, South Africa and western Atlantic.

Importance to fisheries: Bycatch in bottom trawl and artisal
 demersal fisheries in coastal grounds.

Conservation and exploitation status: Mediterranean,
 vulnerable species.



eye and spiracle with smooth
 margins, no papillae

***Torpedo (Torpedo) marmorata* Risso, 1810**

(Plate VII, 55)

TORPEDINIDAE

Frequent synonyms / misidentifications:
 None / None.

FAO names: En – Marbled electric ray;
 Fr – Torpille marbrée; Sp – Tremolina mármol.

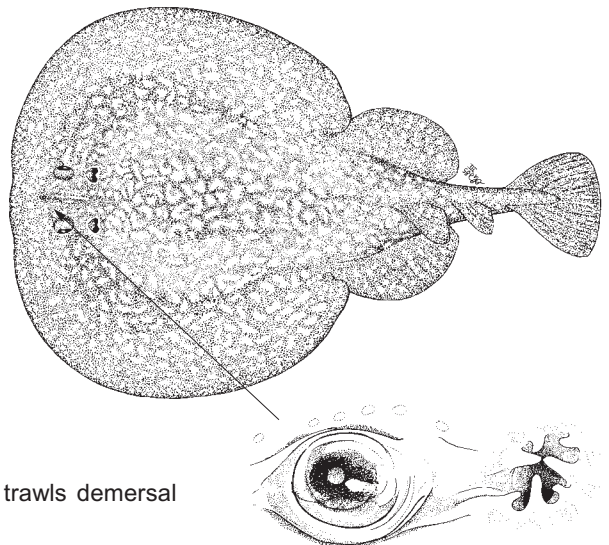
Size: To about 100 cm TL.

Habitat and biology: Benthic on soft as well
 as rocky bottoms, between 10 and 100 m of
 depth. Ovoviviparous, females mature at
 about 40 cm, males at 29 cm TL. Gestation of
 about ten months from November to
 December, 2 to 13 embryos, their number
 depending on size of female.

Distribution: Whole Mediterranean, absent
 in the Black Sea. Atlantic northward to Brittany
 and South Africa.

Importance to fisheries: Bycatch of bottom trawls demersal
 fisheries in coastal grounds.

Conversation and exploitation status: Mediterranean,
 vulnerable species.



eye and spiracle with
 6–8 tentacles

Torpedo (Torpedo) sinuspersici Olfers, 1831

(Plate VIII, 56)

TORPEDINIDAE

Frequent synonyms / misidentifications:
None / *Torpedo panthera* Olfers, 1831.

FAO names: En – Marbled electric ray.

Size: To 1.3 m total length, 90 cm disc width.

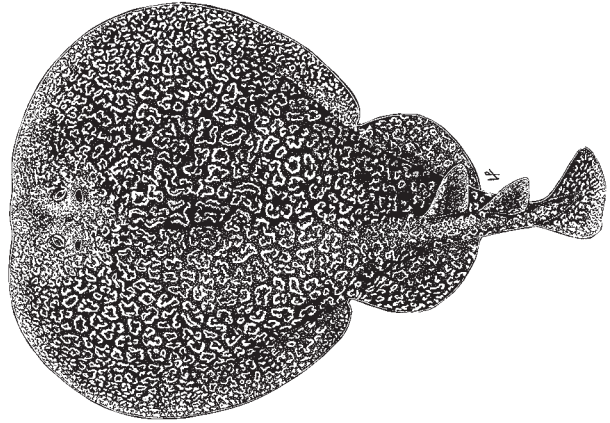
Habitat and biology: Inshore waters over sandy bottoms, down to a depth of 200 m. Can deliver a strong electric shock. Ovoviviparous with 9 to 22 per litter

Distribution: Mediterranean, in the Levantine Sea. From South Africa to India, including the Red Sea.

Importance to fisheries: Caught with hook-and-lines and bottom trawls. Flesh edible.

Conservation and exploitation status: Unknown.

Remarks: Lessepsian species recently reported in the Mediterranean by Saad *et al.*, 2004.

***Torpedo (Torpedo) torpedo*** (Linnaeus, 1758)

(Plate VIII, 57)

TORPEDINIDAE

Frequent synonyms / misidentifications:
Torpedo ocellata Rafinesque, 1810 / None.

FAO names: En – Common torpedo; Fr – Torpille ocellée; Sp – Tremolina comun.

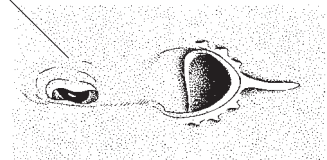
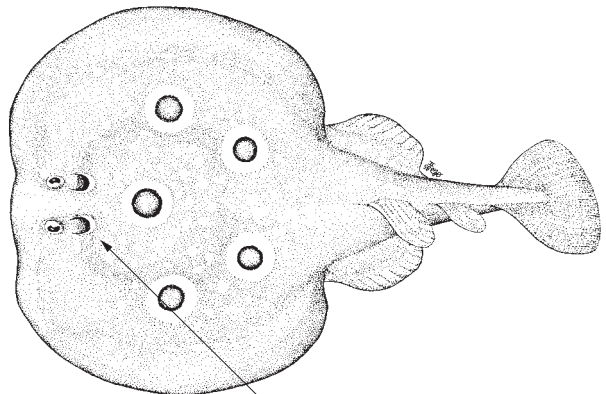
Size: From 30 to 40 cm, to about 60 cm TL.

Habitat and biology: Benthic on soft bottoms, usually inshore up to 70 m, occasionally deeper. Ovoviviparous, gestation period from March to October; 3 to 21 young of 8 to 10 cm TL, depending on female size.

Distribution: Whole Mediterranean, absent in the Black Sea, most common in tropical waters.

Importance to fisheries: Bycatch in bottom trawls coastal fisheries.

Conservation and exploitation status: Mediterranean, vulnerable species.



eye and spiracle with small papillae