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# IDENTIFICATION GUIDE TO SHARKS, RAYS, SKATES AND CHIMAERAS OF THE SOUTHEAST ASIAN REGION (VOLUME 2)



By  
Ahmad Ali  
Annie Lim Pek Khiok  
Fahmi  
Tassapon Krajangdara  
Dharmadi

**2020**

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## Introduction

This guide was developed by SEAFDEC/MFRDMD, SEAFDEC SECRETARIAT and SEAFDEC-TD in collaboration with Department of Fisheries Malaysia; Research Centre for Oceanography, Indonesia Institute of Science (LIPI); Center for Fisheries Research, Ministry of Marine Affairs and Fisheries (MMAF), Indonesia; and the Upper Andaman Sea Fisheries Research and Development Center (Phuket), Department of Fisheries Thailand. This guide is another outcome of a one-year comprehensive data collection on shark, ray, skate and chimaera landings conducted from 2015-2016 in Cambodia, Malaysia, Myanmar, Indonesia, Vietnam and Thailand. This guide will be useful to identify up to species or genus levels at all landing sites. Printing cost was funded by the Department of Fisheries Malaysia.

Most sharks, rays, skates and chimaeras species look very similar within the family and difficult to quickly identify by enumerators or in some cases even taxonomists especially for deep water species. With more than 300 species already recognized and many new species continuously being discovered in the Southeast Asian Region, the challenge is becoming more complicated.

This guide was developed in addition to that of four publications by SEAFDEC including 'Field Guide to Sharks of the Southeast Asian Region'; 'Field Guide to Look-alike Sharks and Rays Species of the Southeast Asian Region'; 'Field Guide to Rays, Skates and Chimaeras of the Southeast Asian Region' and 'Identification Guide to Sharks, Rays and Skates of the Southeast Asian Region (Volume 1).

This guide includes 50 species of sharks, 30 species of rays, six species of skates and four species of chimaeras found in this region. Colour photographs and drawings are provided for each species with highlighted arrows on the main identifying characters. Images look-alike species were arranged in one page or the following adjacent page for easy comparison.

This guide was made possible based on knowledge and experiences of all authors through their studies especially in Malaysia, Indonesia, Myanmar, Cambodia, Vietnam and Thailand and accumulated information from enumerators during this project as well as other publications. All authors of this guidebook were directly involved in this project as taxonomists.

## Classification

The classification used in this book follows classification adopted by Compagno (1999), Last and Stevens (2009), Ebert *et al.* (2013), Weigmann (2016) and Last *et al.* (2016).



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## **CONTENTS**

Illustrated Guide of External Terminology used for Sharks	7
Illustrated Guide of External Terminology used for Batoids, Skates and Chimaeras	9
<b>Key to Order: SHARKS</b>	10
Key to Families of Order SQUALIFORMES in the Southeast Asian Region	11
Key to Families of Order LAMNIFORMES in the Southeast Asian Region	12
Key to Families of Order ORECTOLOBIFORMES in the Southeast Asian Region	13
Key to Families of Order CARCHARHINIFORMES in the Southeast Asian Region	14
<b>Key to Order: BATOIDS, SKATES &amp; CHIMAERAS</b>	15
Key to Families of Order RHINOPRISTIFORMES in the Southeast Asian Region	16
Key to Families of Order TORPEDINIFORMES in the Southeast Asian Region	17
Key to Families of Order RAJIFORMES in the Southeast Asian Region	17
Key to Families of Order MYLIOBATIFORMES in the Southeast Asian Region	18
Key to Families of Order CHIMAERIFORMES in the Southeast Asian Region	19
<b>SHARKS</b>	
<b>Order ECHINORHINIFORMES</b>	<b>21</b>
<b>Family: ECHINORHINIDAE [Bramble sharks]</b>	21
<i>Echinorhinus brucus</i> (Bonnaterre, 1788)	21
<b>Order SQUALIFORMES</b>	<b>20-23</b>
<b>Family: SQUALIDAE [Dogfishes]</b>	20-21
<i>Squalus edmundsi</i> Last, White & Stevens, 2007	20
<i>Squalus hemipinnis</i> Last, White & Stevens, 2007	20
<i>Squalus montalbani</i> Whitley, 1931	20
<i>Squalus nasutus</i> Last, Marshall & White, 2007	20
<i>Cirrhigaleus barbifer</i> Tanaka, 1912	21
<b>Family: SOMNIOSIDAE [Sleeper sharks]</b>	21
<i>Centroscyrnus coelolepis</i> Bocage & Capello, 1864	21
<i>Proscymnodon plunketi</i> (Waite, 1910)	21
<b>Family: CENTROPHORIDAE [Gulper sharks]</b>	22

---

<i>Centrophorus cf lusitanicus</i> Bocage & Capello, 1864	22
<i>Centrophorus squamosus</i> (Bonnaterre, 1788)	22
<i>Centrophorus granulosus</i> (Bloch & Schneider, 1801)	22
<i>Deania calcea</i> (Lowe, 1839)	22
<b>Family: ETMOPTERIDAE [Lanternsharks]</b>	<b>23</b>
<i>Etmopterus</i> sp.	23
<i>Etmopterus sculptus</i> Ebert, Compagno & De Vries, 2011	23
<i>Etmopterus bigelowi</i> Shirai & Tachikawa, 1993	23
<b>Family: DALATIIDAE [Kitefin sharks]</b>	<b>23</b>
<i>Isistius brasiliensis</i> (Quoy & Gaimard, 1824)	23
<b>Order SQUATINIFORMES</b>	<b>24</b>
<b>Family: SQUATINIDAE [Angelsharks]</b>	<b>24</b>
<i>Squatina cf africana</i> (Regan, 1908)	24
<b>Order ORECTOLOBIFORMES</b>	<b>24</b>
<b>Family: ORECTOLOBIDAE [Wobbegongs]</b>	<b>24</b>
<i>Eucrossorhinus dasypogon</i> (Bleeker, 1867)	24
<b>Order LAMNIFORMES</b>	<b>24-25</b>
<b>Family: MEGACHASMIDAE [Megamouth sharks]</b>	<b>24</b>
<i>Megachasma pelagios</i> Taylor, Compagno & Struhsaker, 1983	24
<b>Family: ODONTASPIDIDAE [Sand sharks]</b>	<b>24</b>
<i>Carcharias taurus</i> Rafinesque, 1810	24
<b>Family: MITSUKURINIDAE [Goblin sharks]</b>	<b>25</b>
<i>Mitsukurina owstoni</i> Jordan, 1898	25
<b>Order CARCHARHINIFORMES</b>	<b>25-32</b>
<b>Family: SCYLIORHINIDAE [Catsharks]</b>	<b>25-27</b>
<i>Apristurus platyrhynchus</i> (Tanaka, 1909)	25

<i>Apristurus longicephalus</i> Nakaya, 1975	25
<i>Bythaelurus hispidus</i> (Alcock, 1891)	25
<i>Cephaloscyllium cooki</i> Last, Séret & White, 2008	26
<i>Cephaloscyllium pictum</i> Last, Séret & White, 2008	26
<i>Cephaloscyllium</i> cf <i>signourum</i> Last, Séret & White, 2008	26
<i>Cephaloscyllium</i> cf <i>speccum</i> Last, Séret & White, 2008	26
<i>Cephaloscyllium silasi</i> (Talwar, 1974)	27
<i>Bythaelurus lutarius</i> (Springer & D'Aubrey, 1972)	27
<i>Parmaturus nigripalatum</i> Fahmi & Ebert, 2018	27
<b>Family: PSEUDOTRIAKIDAE [False catsharks]</b>	27
<i>Pseudotriakis microdon</i> de Brito Capello, 1868	27
<b>Family: TRIAKIDAE [Houndsharks]</b>	28
<i>Hemitriakis indroyonoi</i> White, Compagno & Dharmadi, 2009	28
<i>Mustelus griseus</i> Pietschmann, 1908	28
<i>Mustelus mangalorensis</i> Cubello, Remya & Kurup, 2011	28
<b>Family: HEMIGALEIDAE [Weasel sharks]</b>	29
<i>Chaenogaleus macrostoma</i> (Bleeker, 1852)	29
<i>Paragaleus randalli</i> Compagno, Krupp & Carpenter, 1996	29
<i>Paragaleus tengi</i> (Chen, 1963)	29
<b>Family: CARCHARHINIDAE [Requiem sharks]</b>	30-32
<i>Carcharhinus albimarginatus</i> (Rüppell, 1837)	30
<i>Carcharhinus amboinensis</i> (Müller & Henle, 1839)	30
<i>Carcharhinus brachyurus</i> (Günther, 1870)	30
<i>Carcharhinus borneensis</i> (Bleeker, 1859)	30
<i>Carcharhinus macloti</i> (Müller & Henle, 1839)	31
<i>Carcharhinus obscurus</i> (Lesueur, 1818)	31
<i>Negaprion acutidens</i> (Rüppell, 1837)	31
<i>Glyphis gangeticus</i> (Müller & Henle, 1839)	31
<i>Glyphis glyphis</i> (Müller & Henle, 1839)	32
<i>Glyphis</i> sp.	32

	<i>Lamiopsis tephrodes</i> (Fowler, 1905)	32
<b>Family:</b>	<b>SPHYRNIDAE [Hammerhead sharks]</b>	32
	<i>Sphyrna zygaena</i> (Linnaeus, 1758)	32
<b>RAYS</b>		
<b>Order</b>	<b>RHINOPRISTIFORMES</b>	<b>33-34</b>
<b>Family:</b>	<b>RHINIDAE [Wedgefishes]</b>	33
	<i>Rhynchobatus cooki</i> Last, Kyne & Compagno, 2016	33
	<i>Rhynchobatus palpebratus</i> Compagno & Last, 2008	33
<b>Family:</b>	<b>RHINOBATIDAE [Guitarfishes]</b>	33
	<i>Rhinobatos lionotus</i> Norman, 1926	33
	<i>Rhinobatos ranongensis</i> Last, Séret & Naylor 2019	33
<b>Family:</b>	<b>GLAUCOSTEGIDAE [Giant Guitarfishes]</b>	34
	<i>Glaucostegus cf granulatus</i> (Cuvier, 1829)	34
<b>Order</b>	<b>TORPEDINIFORMES</b>	<b>34</b>
<b>Family:</b>	<b>PLATYRHINIDAE [Fanrays]</b>	34
	<i>Platyrhina psomadakisi</i> White & Last, 2016	34
<b>Family:</b>	<b>NARCINIDAE [Numbfishes]</b>	34
	<i>Benthobatis moresbyi</i> Alcock, 1898	34
	<i>Narcine atzi</i> Carvalho & Randall, 2003	34
<b>Order</b>	<b>RAJIFORMES</b>	<b>35-36</b>
<b>Family:</b>	<b>RAJIDAE [Skates]</b>	35
	<i>Dipturus amphispinus</i> Last & Alava, 2013	35
	<i>Okamejei acutispina</i> (Ishiyama, 1958)	35
	<i>Orbiraja powelli</i> (Alcock, 1898)	35
<b>Family:</b>	<b>GURGESIELLIDAE [Pygmy skates]</b>	36
	<i>Cruriraja andamanica</i> (Lloyd, 1909)	36



<b>Family:</b>	<b>ANACANTHOBATIDAE [Legskates]</b>	36
	<i>Sinobatis andamanensis</i> Last & Bussarawit, 2016	36
	<i>Sinobatis borneensis</i> (Chan, 1965)	36
<b>Order</b>	<b>MYLIOBATIFORMES</b>	<b>36-42</b>
<b>Family:</b>	<b>HEXATRYGONIDAE [Sixgill stingrays]</b>	36
	<i>Hexatrygon bickelli</i> Heemstra & Smith, 1908	36
<b>Family:</b>	<b>DASYATIDAE [Stingrays]</b>	37-42
	<i>Brevitrygon javaensis</i> (Last & White, 2013)	37
	<i>Hemitrygon longicauda</i> (Last & White, 2013)	37
	<i>Hemitrygon navarrae</i> (Steindachner, 1892)	37
	<i>Hemitrygon cf navarrae</i> (Steindachner, 1892)	37
	<i>Fluvitrygon kittipongi</i> (Vidthayanon & Roberts, 2006)	38
	<i>Fluvitrygon oxyrhynchus</i> (Sauvage, 1878)	38
	<i>Hemitrygon bennetti</i> (Müller & Henle, 1841)	38
	<i>Hemitrygon laosensis</i> (Roberts & Karnasuta, 1987)	38
	<i>Hemitrygon parvonigra</i> (Last & White, 2008)	39
	<i>Fluvitrygon signifier</i> (Compagno & Roberts, 1982)	39
	<i>Himantura cf australis</i> Last, White & Naylor, 2016	39
	<i>Neotrygon cf leylandi</i> (Last, 1987)	40
	<i>Telatrygon biasa</i> Last, White & Naylor, 2016	40
	<i>Telatrygon zugei</i> (Müller & Henle, 1841)	40
	<i>Urogymnus granulatus</i> (Macleay, 1883)	40
	<i>Neotrygon australiae</i> Last, White & Séret, 2016	41
	<i>Neotrygon caeruleopunctata</i> Last, White & Séret, 2016	41
	<i>Neotrygon varidens</i> (Garman, 1885)	41
	<i>Maculabatis cf gerrardi</i> (Type 1)	42
	<i>Maculabatis cf gerrardi</i> (Type 2)	42
	<i>Maculabatis cf gerrardi</i> (Type 3)	42

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**CHIMAERAS****Order CHIMAERIFORMES 43****Family: CHIMAERIDAE [Shortnose chimaeras] 43**

*Chimaera phantasma* (Jordan & Snyder, 1900) 43

*Chimaera aff macrospina* Didier, Last & White, 2008 43

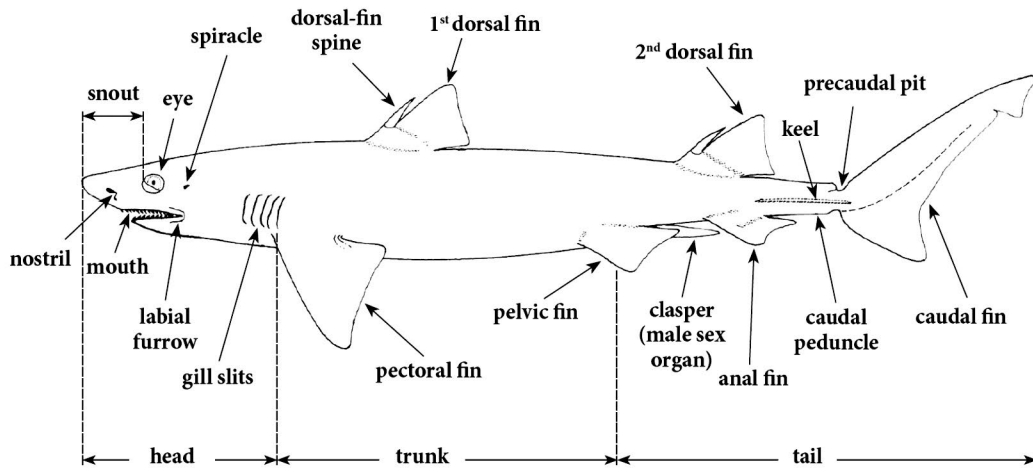
*Hydrolagus cf deani* (Smith & Radcliffe, 1912) 43

**Family: RHINOCHIMAERIDAE [Longnose chimaeras] 43**

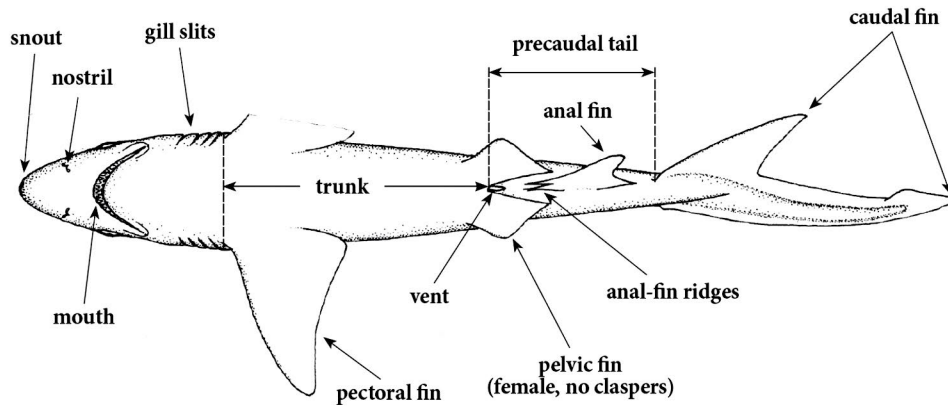
*Neoharriotta pinnata* (Schnakenbeck, 1931) 43

**REFERENCES 44**

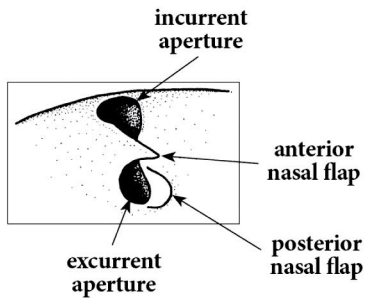
## Illustrated Guide of External Terminology used for Sharks



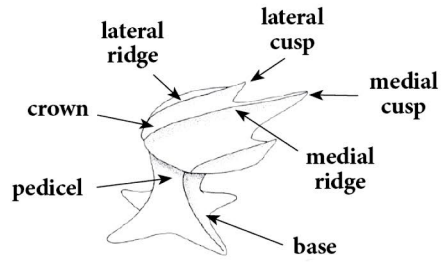
LATERAL VIEW



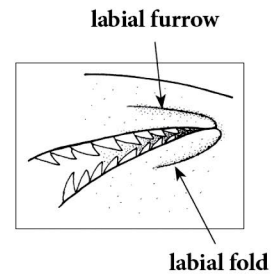
VENTRAL VIEW



Detail of nostril



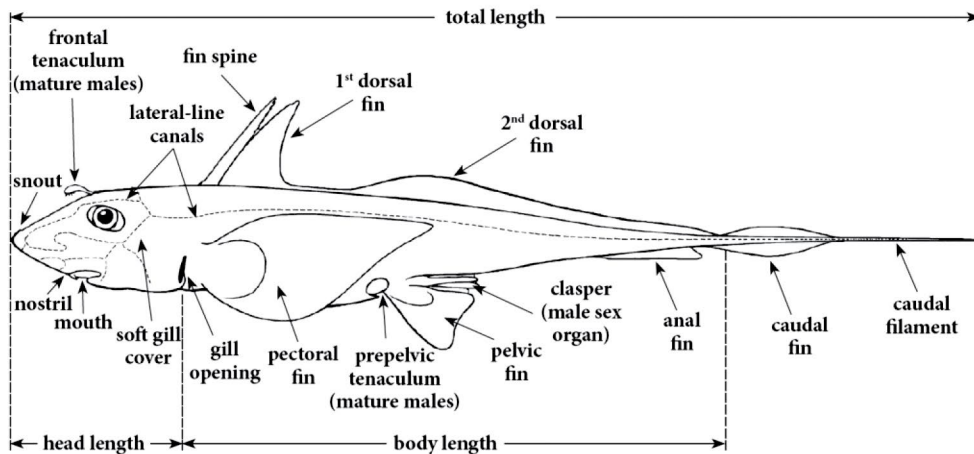
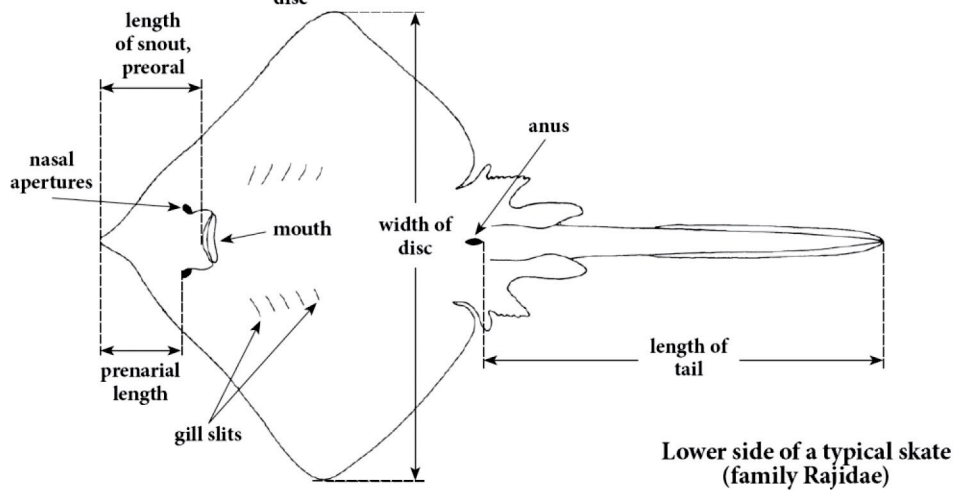
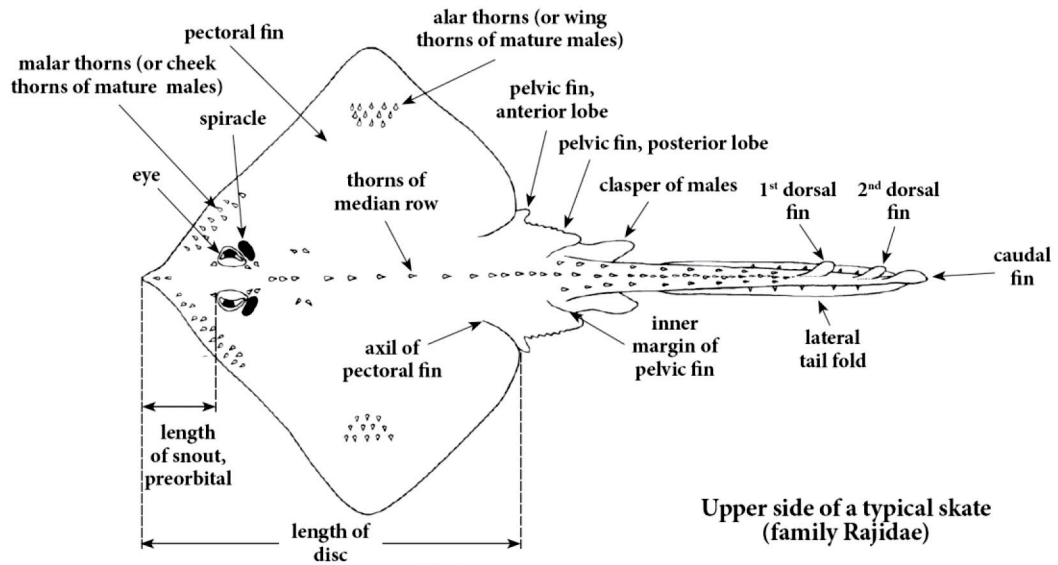
View of a lateral trunk dermal denticle



Mouth corner

[Source: *FAO Species Identification Guide for Fishery Purposes 1998 Vol.2*]

**Illustrated Guide of External Terminology used for Batoids, Skates and Chimaeras**

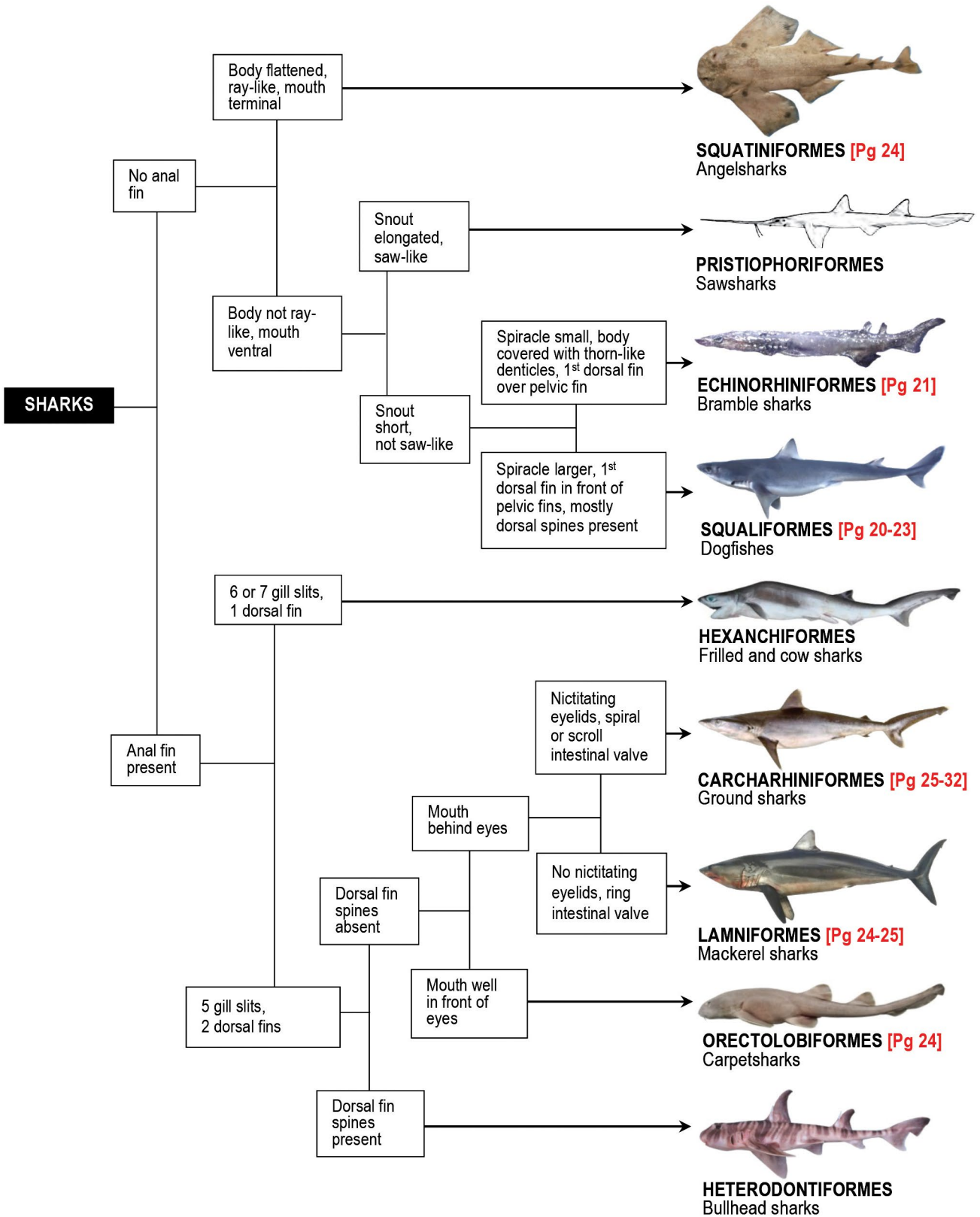


**Lateral view of a typical Chimaera**

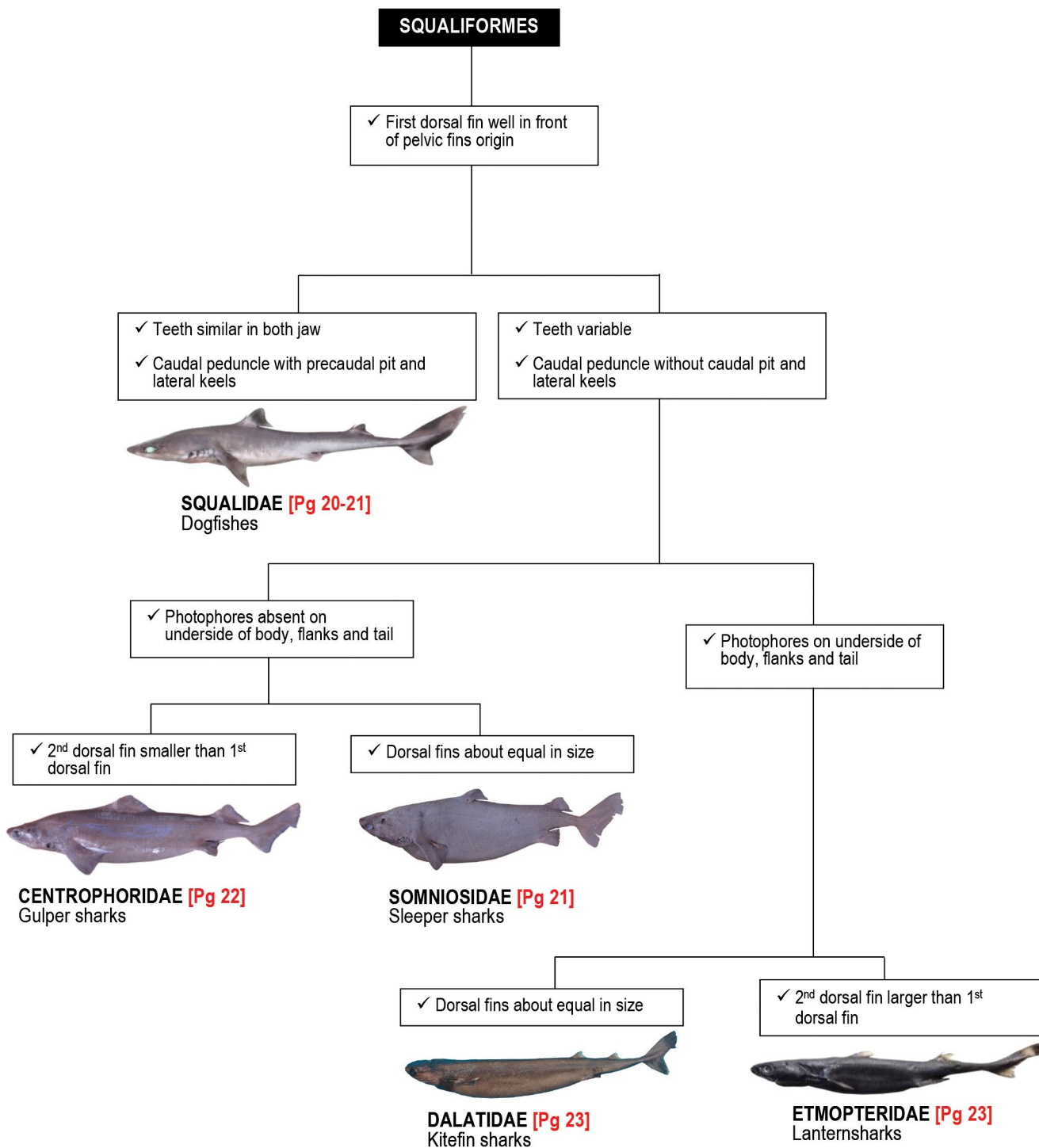
[Source: FAO Species Identification Guide for Fishery Purposes 1998 Vol.3]



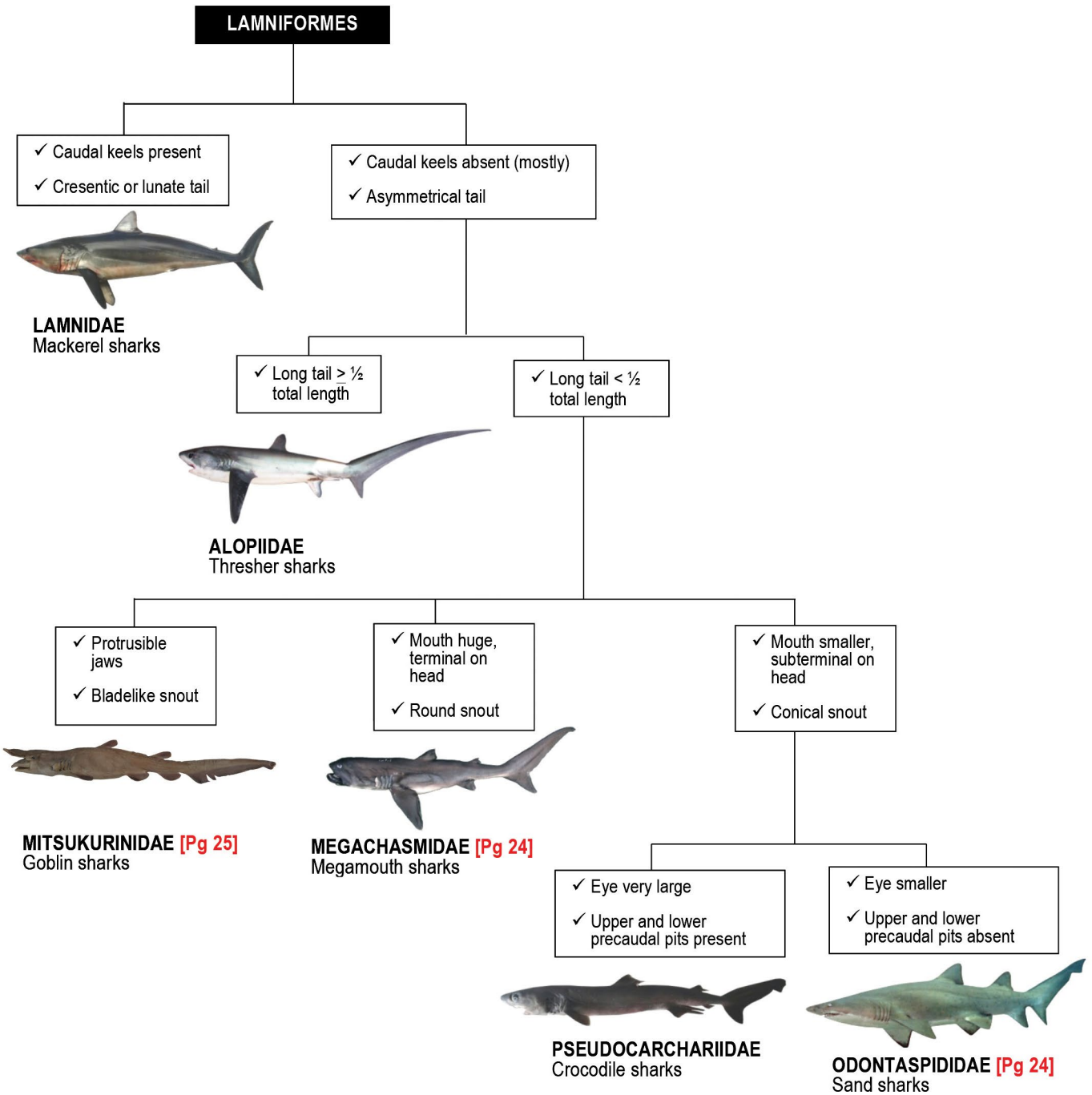
**Key to Order: SHARKS**



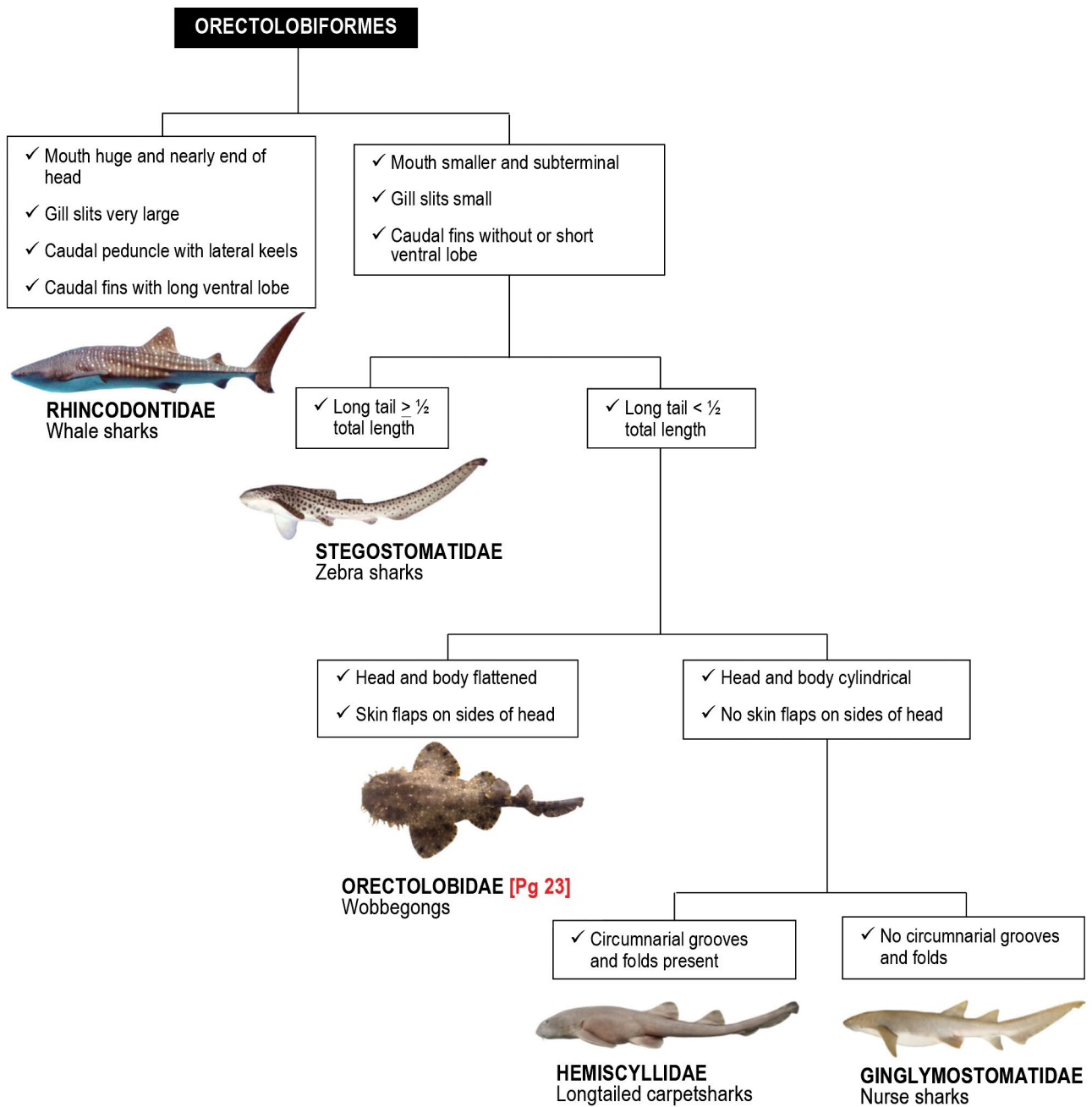
## Key to Families of Order SQUALIFORMES in the Southeast Asian Region



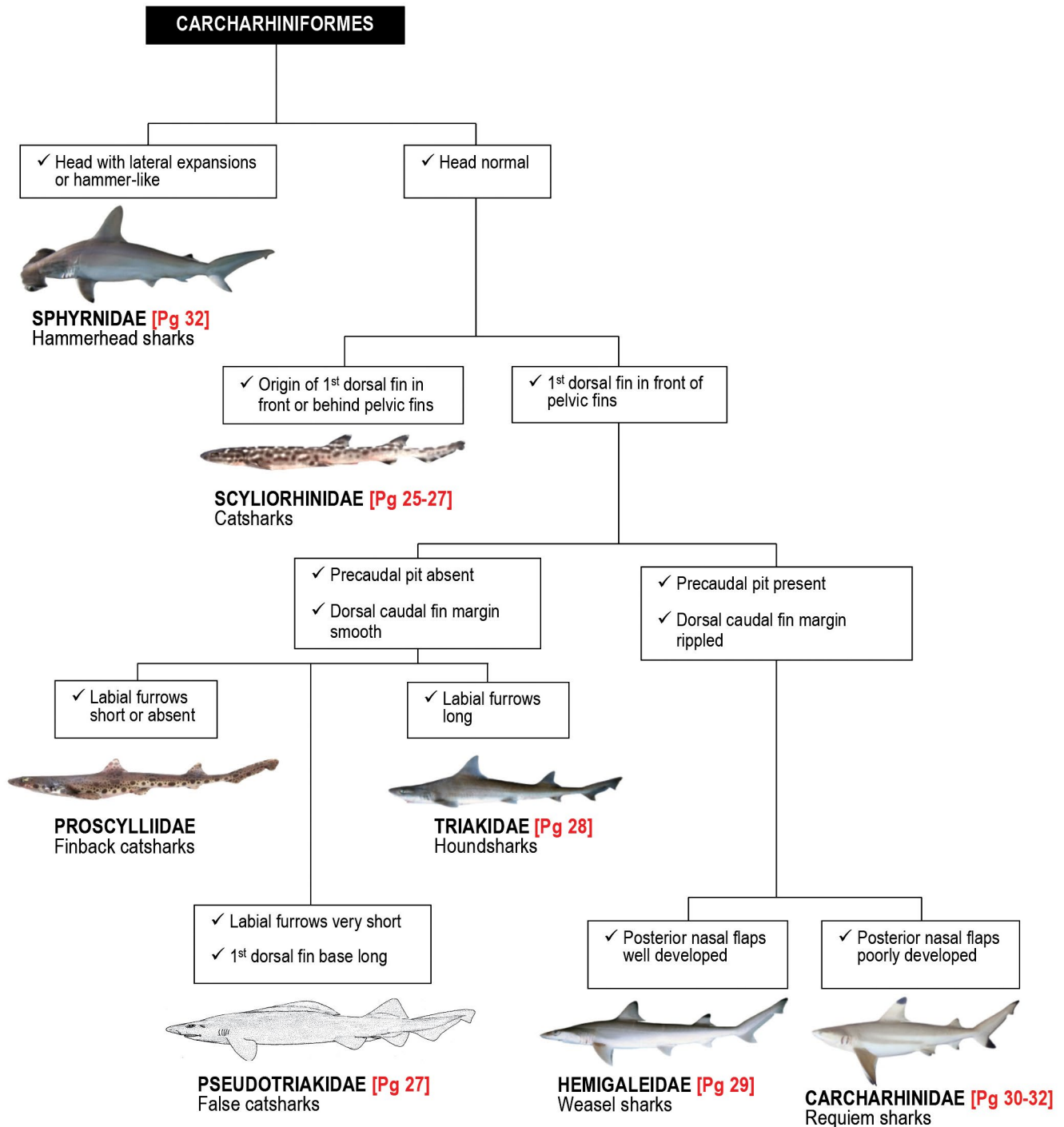
# Key to Families of Order LAMNIFORMES in the Southeast Asian Region



## Key to Families of Order ORECTOLOBIFORMES in the Southeast Asian Region

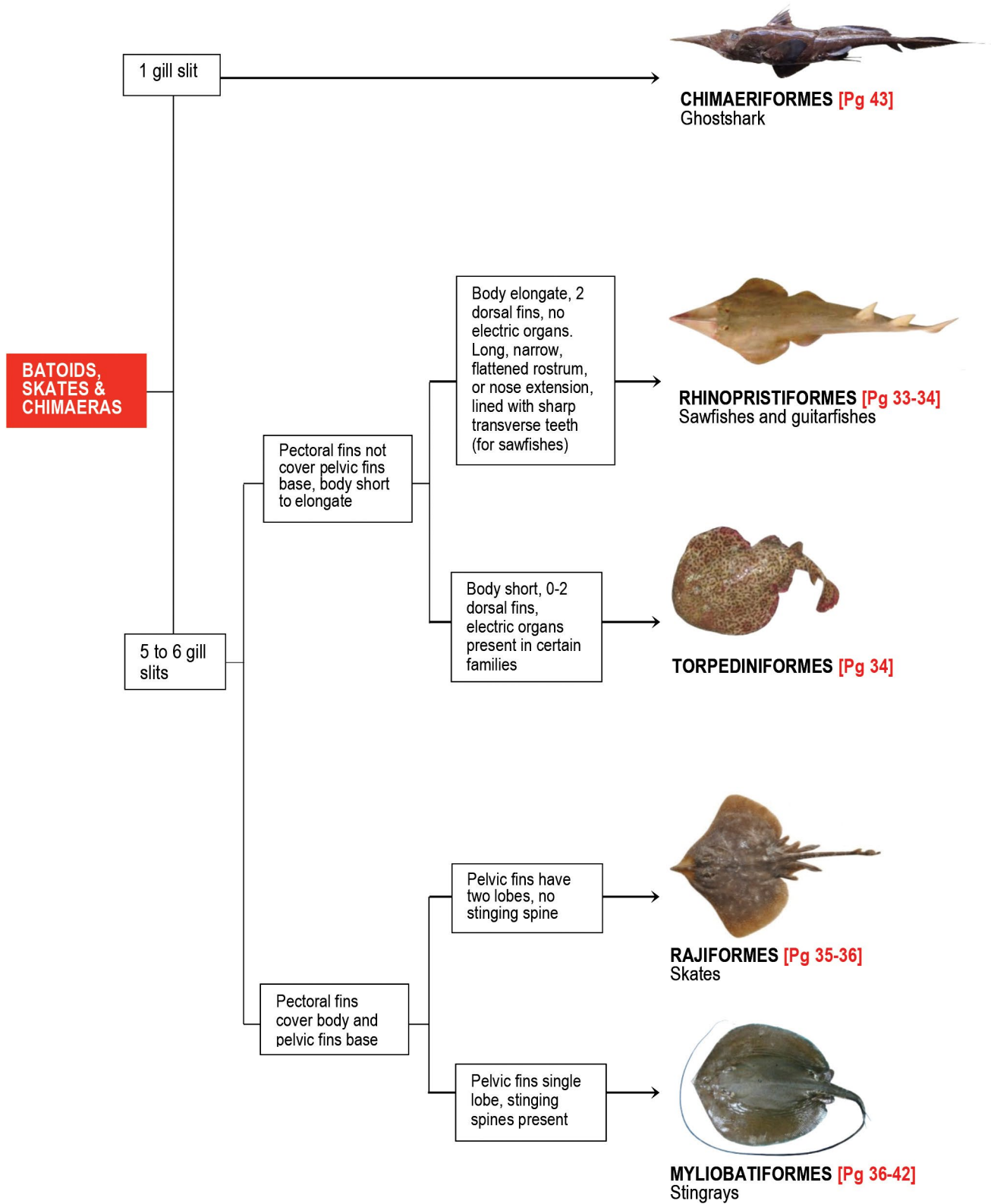


**Key to Families of Order CARCHARHINIFORMES in the Southeast Asian Region**

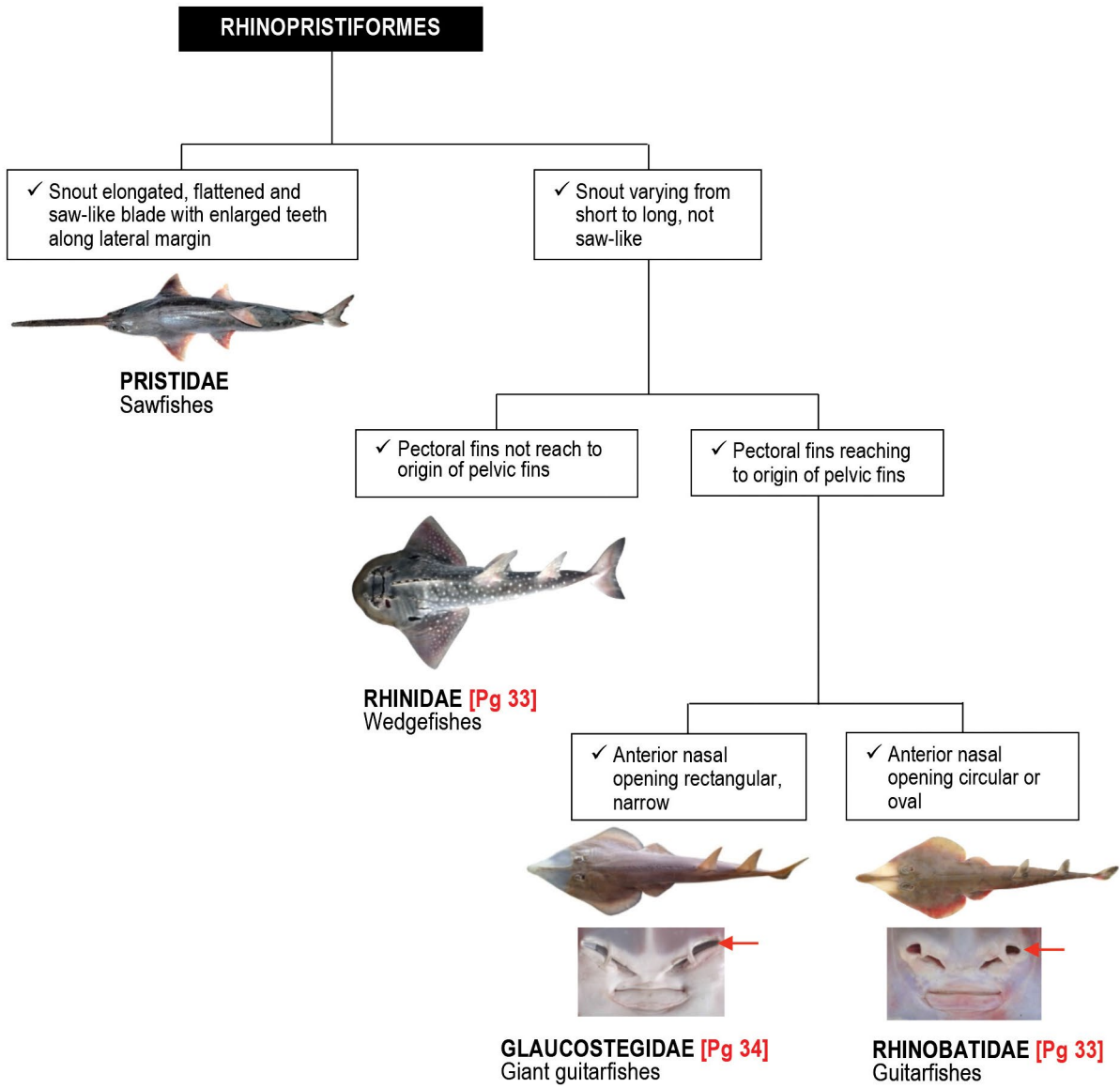




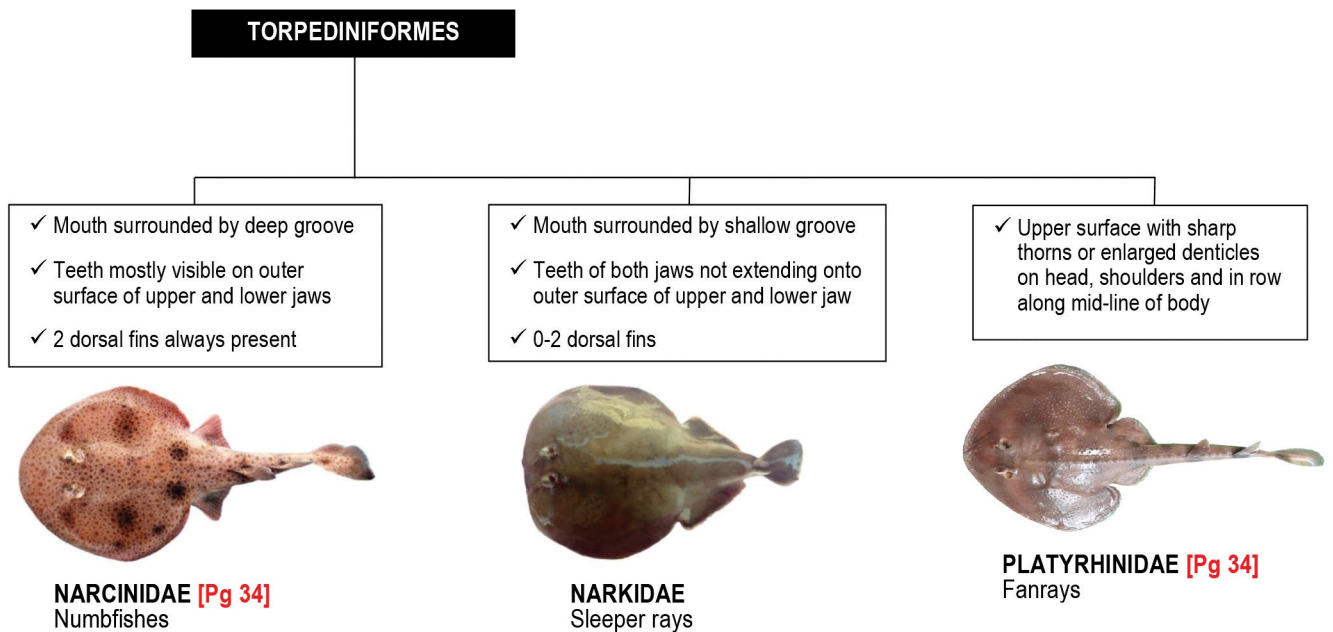
**KEY TO ORDER: BATOIDS, SKATES & CHIMAERAS**



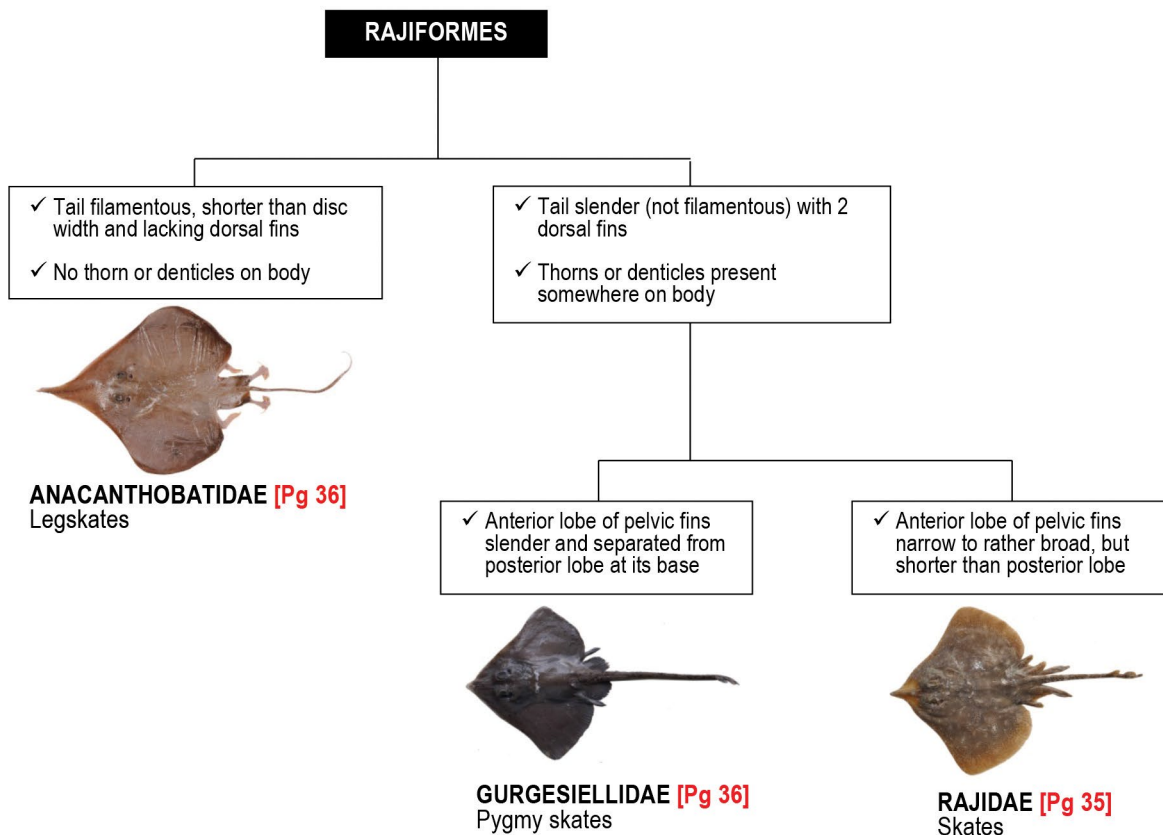
**Key to Families of Order RHINOPRISTIFORMES in the Southeast Asian Region**



## Key to Families of Order TORPEDINIFORMES in the Southeast Asian Region



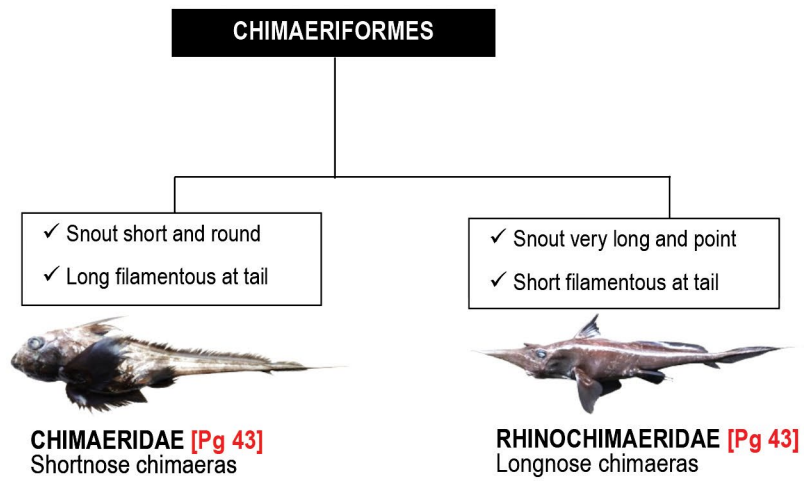
## Key to Families of Order RAJIFORMES in the Southeast Asian Region





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## Key to Families of Order CHIMAERIFORMES in the Southeast Asian Region

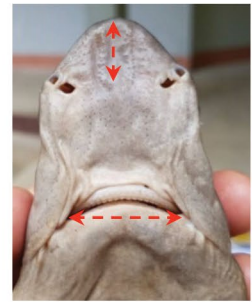
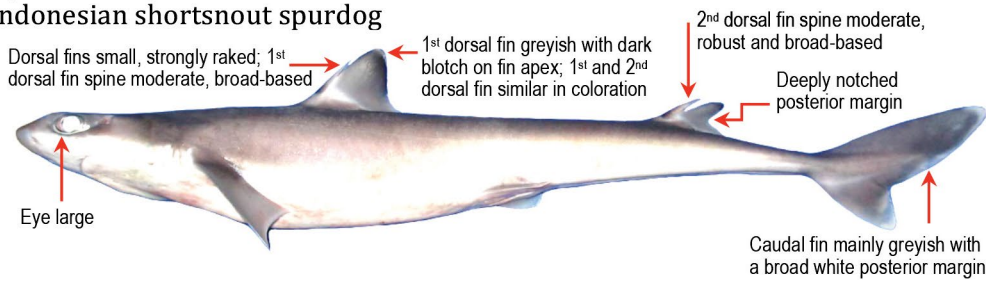




**SQUALIDAE**

*Squalus hemipinnis* Last, White & Stevens, 2007

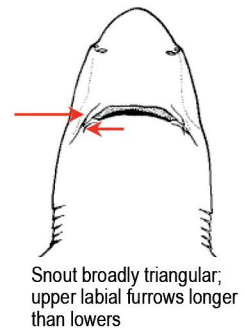
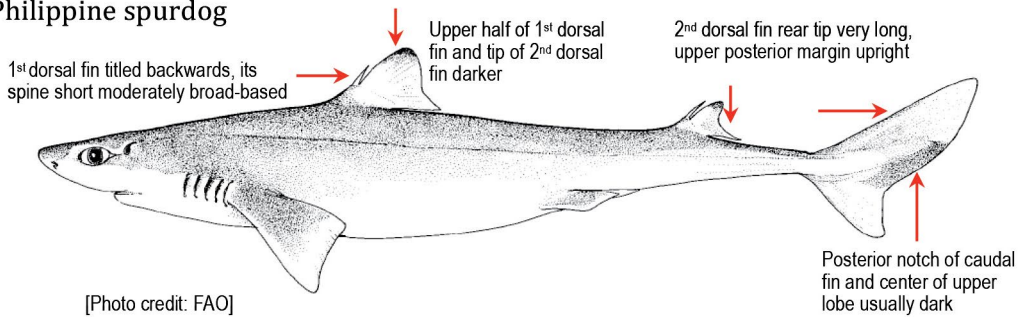
Indonesian shortsnout spurdog



**SQUALIDAE**

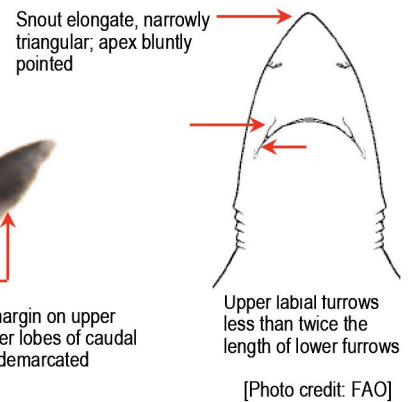
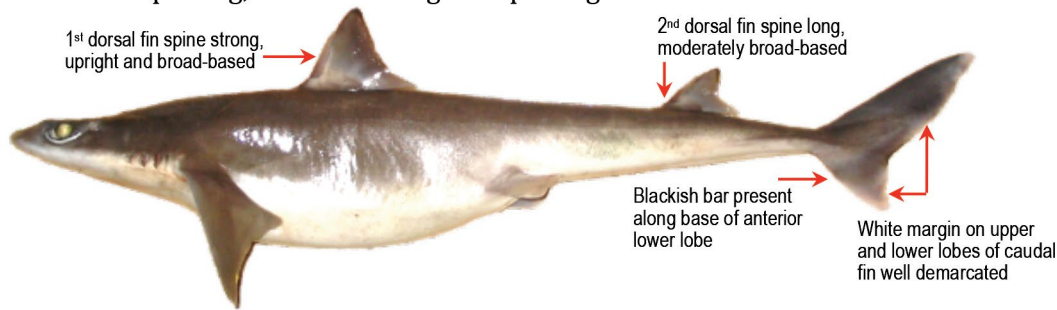
*Squalus montalbani* Whitley, 1931

Philippine spurdog



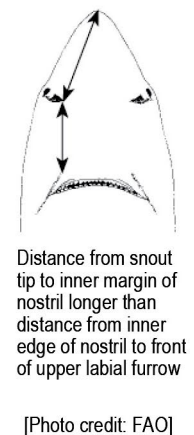
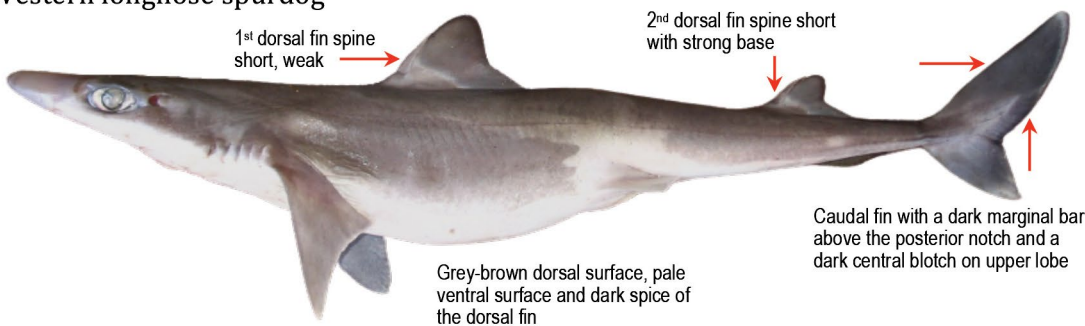
**SQUALIDAE**

*Squalus edmundsi* Last, White & Stevens, 2007  
Edmunds' spurdog, Indonesian highfin spurdog



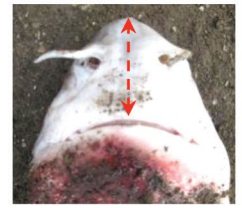
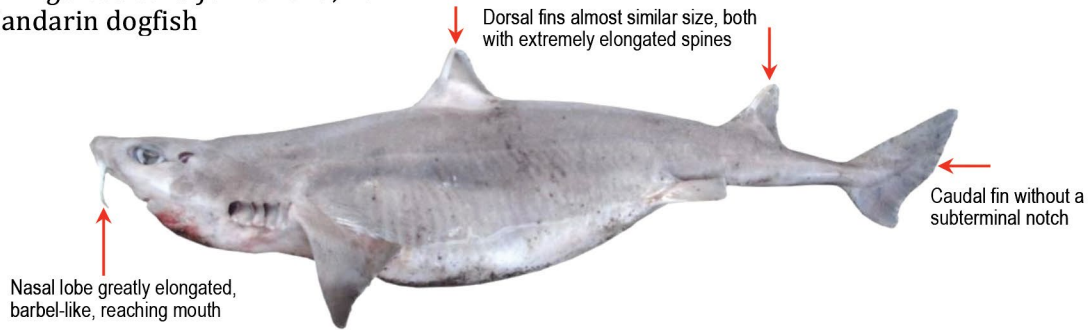
**SQUALIDAE**

*Squalus nasutus* Last, Marshall & White, 2007  
Western longnose spurdog



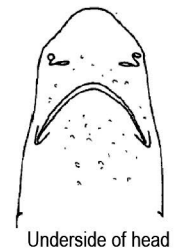
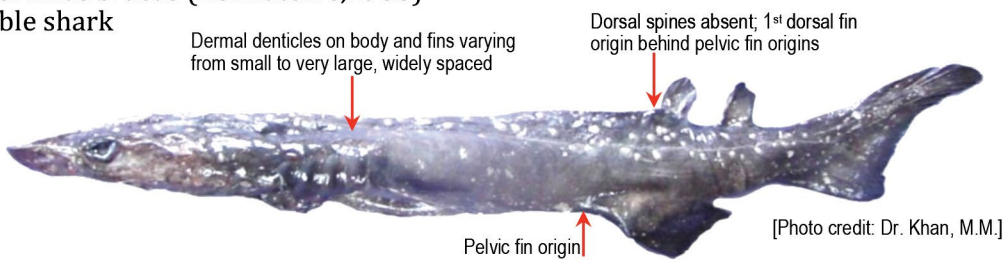
**SQUALIDAE**

*Cirrhigaleus barbifer* Tanaka, 1912  
Mandarin dogfish



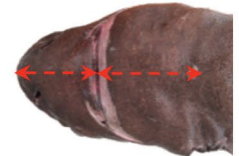
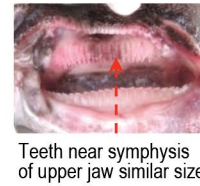
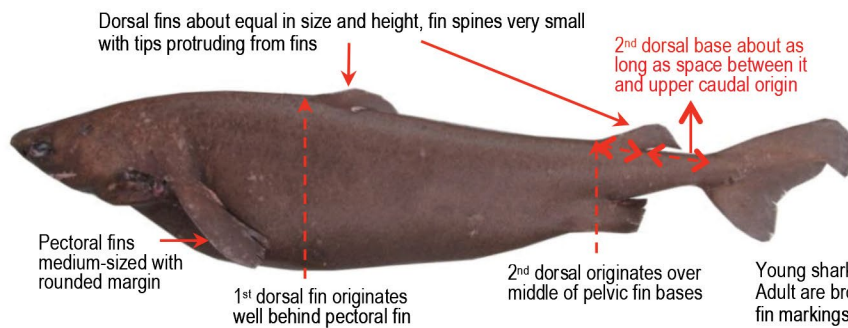
**ECHINORHINIDAE**

*Echinorhinus brucus* (Bonnaterre, 1788)  
Bramble shark



**SOMNIOSIDAE**

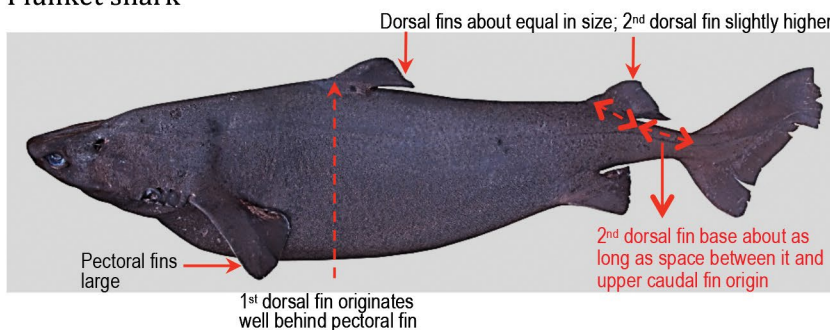
*Centroscymnus coelolepis* Bocage & Capello, 1864  
Portuguese dogfish



Note:  
Young sharks uniform blue-black in colour; Adult are brown-black with no prominent fin markings

**SOMNIOSIDAE**

*Proscymnodon plunketi* (Waite, 1910)  
Plunket shark

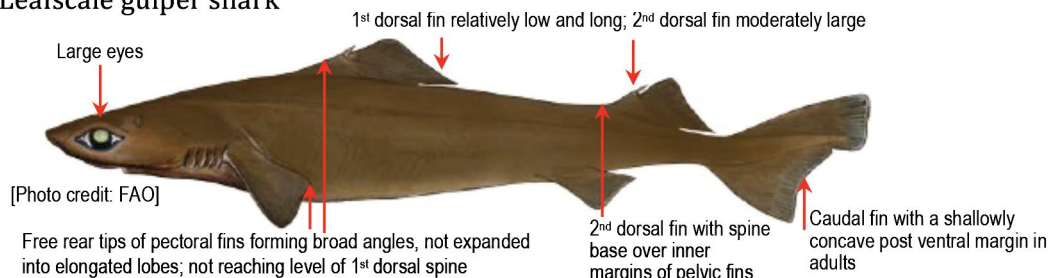




**CENTROPHORIDAE**

*Centrophorus squamosus* (Bonnaterre, 1788)

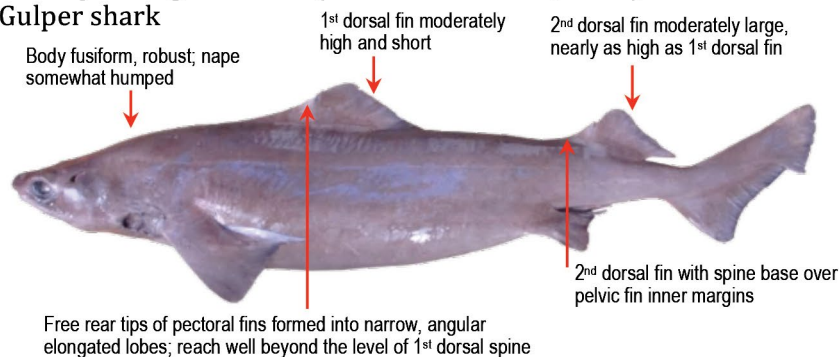
Leafscale gulper shark



**CENTROPHORIDAE**

*Centrophorus granulosus* (Bloch & Schneider, 1801)

Gulper shark

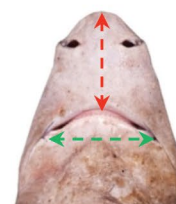
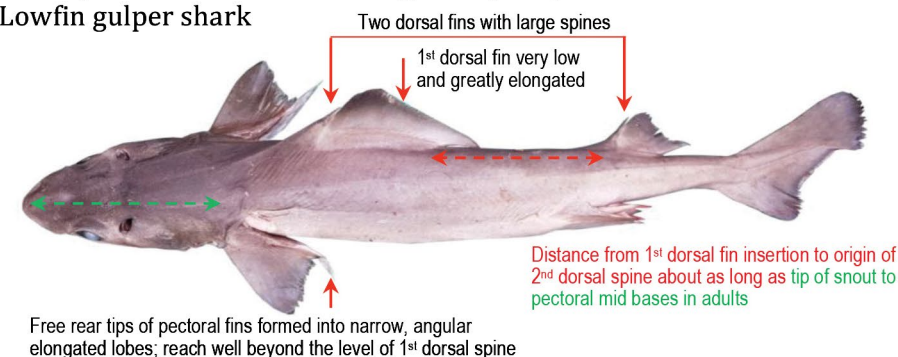


Note:  
No prominent blackish fin markings; body dark grey or grey-brown above, slightly lighter below

**CENTROPHORIDAE**

*Centrophorus cf lusitanicus* Bocage & Capello, 1864

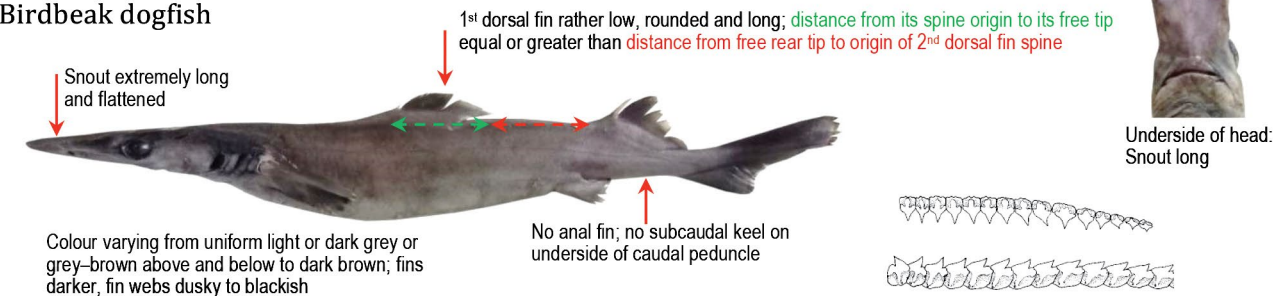
Lowfin gulper shark



**CENTROPHORIDAE**

*Deania calcea* (Lowe, 1839)

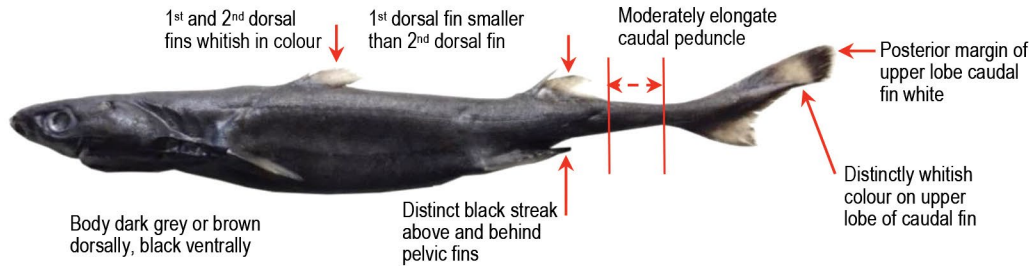
Birdbeak dogfish



[Credit: FAO]

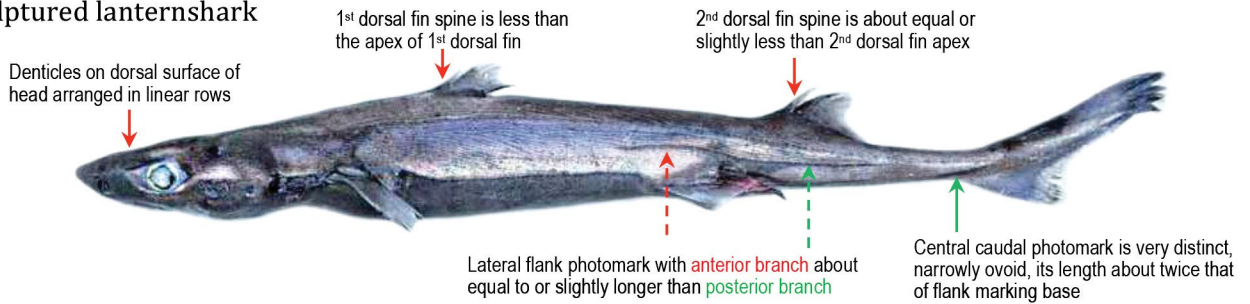
**ETMOPTERIDAE**

*Etmopterus* sp.  
Lanternshark



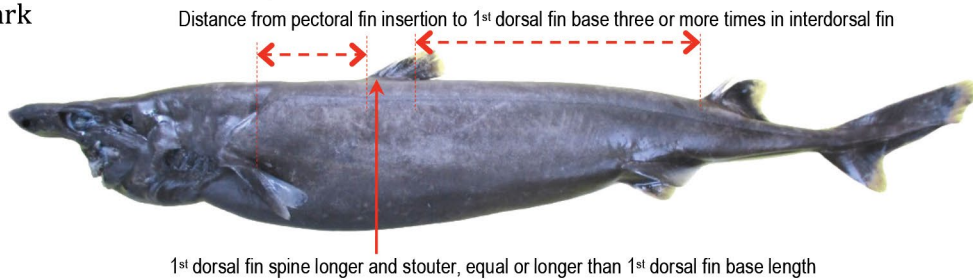
**ETMOPTERIDAE**

*Etmopterus sculptus* Ebert, Compagno & De Vries, 2011  
Sculptured lanternshark



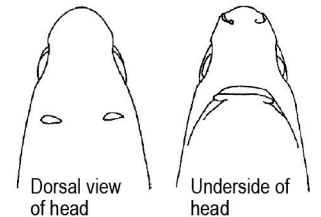
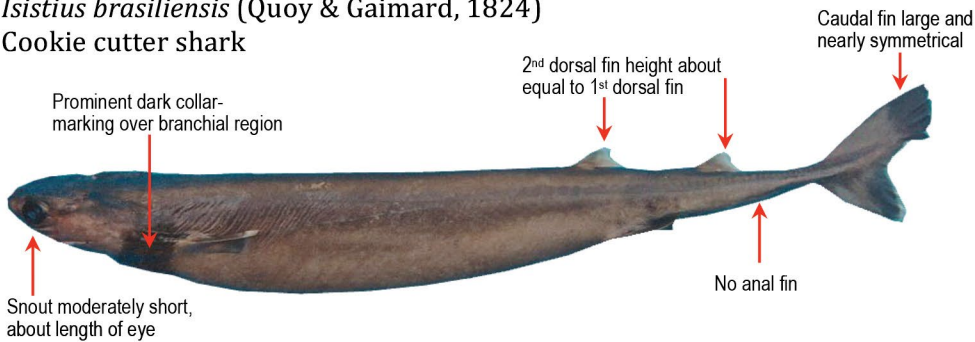
**ETMOPTERIDAE**

*Etmopterus bigelowi* Shirai & Tachikawa, 1993  
Blurred lanternshark



**DALATIIDAE**

*Isistius brasiliensis* (Quoy & Gaimard, 1824)  
Cookie cutter shark



## SQUATINIDAE

*Squatina cf africana* (Regan, 1908)

African angelshark

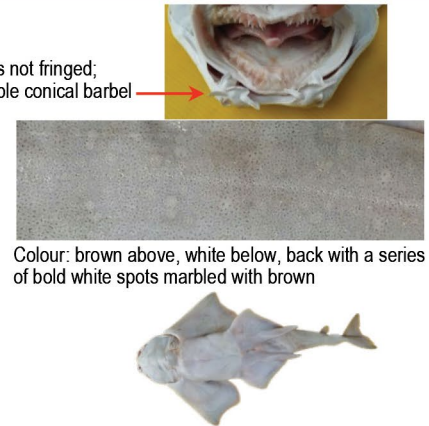
Enlarged thorns or denticles present on head between eyes and spiracles and on nape, but none on midback

Pectoral fins very large, angular, with a triangular anterior lobe

1<sup>st</sup> dorsal fin origin opposite or slightly posterior to free rear tips of pelvic fins

Dorsal fins similar shape and size

Nasal flaps not fringed; with a simple conical barbel



Colour: brown above, white below, back with a series of bold white spots marbled with brown

## ORECTOLOBIDAE

*Eucrossorhinus dasypogon* (Bleeker, 1867)

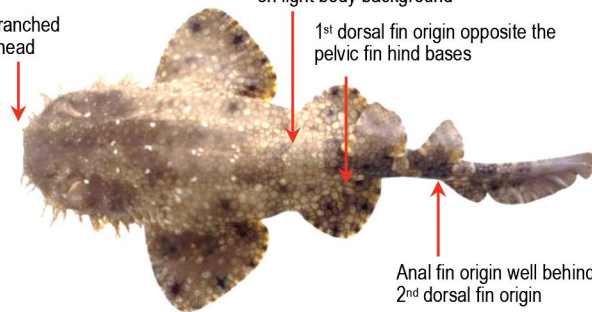
Tasselled wobbegong

Profuse, highly branched dermal lobes on head

Reticulated colour pattern of narrow dark lines and dark spots on light body background

1<sup>st</sup> dorsal fin origin opposite the pelvic fin hind bases

Anal fin origin well behind 2<sup>nd</sup> dorsal fin origin



## MEGACHASMIDAE

*Megachasma pelagios* Taylor, Compagno & Struhsaker, 1983

Megamouth shark

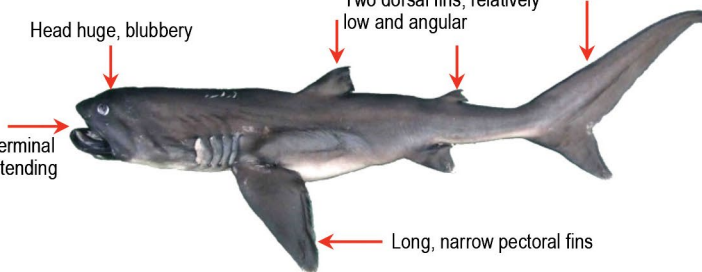
Head huge, blubbery

Two dorsal fins, relatively low and angular

Tail asymmetrical with a longer upper lobe [similar to that of thresher shark]

Mouth very broad and terminal on head, with corner extending behind the eyes

Long, narrow pectoral fins



## ODONTASPIDIDAE

*Carcharias taurus* Rafinesque, 1810

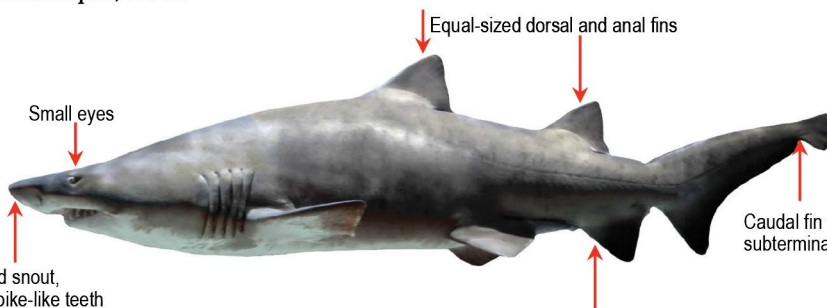
Sandtiger shark

Small eyes

Equal-sized dorsal and anal fins

Short pointed snout, protruding spike-like teeth

Caudal fin with pronounced subterminal notch; ventral lobe short

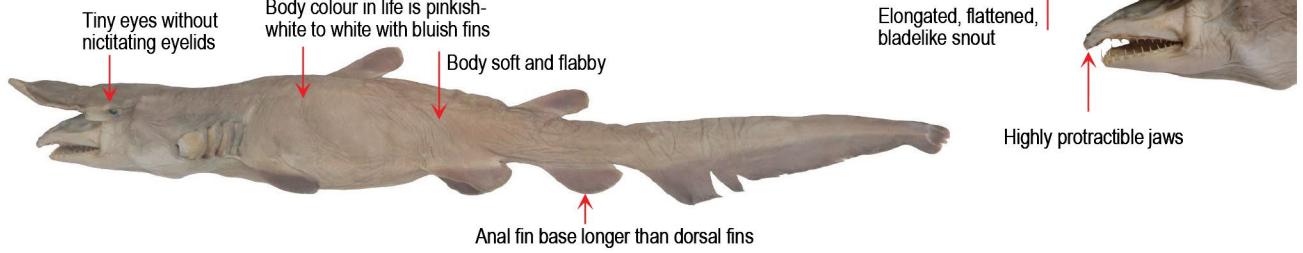




**MITSUKURINIDAE**

*Mitsukurina owstoni* Jordan, 1898

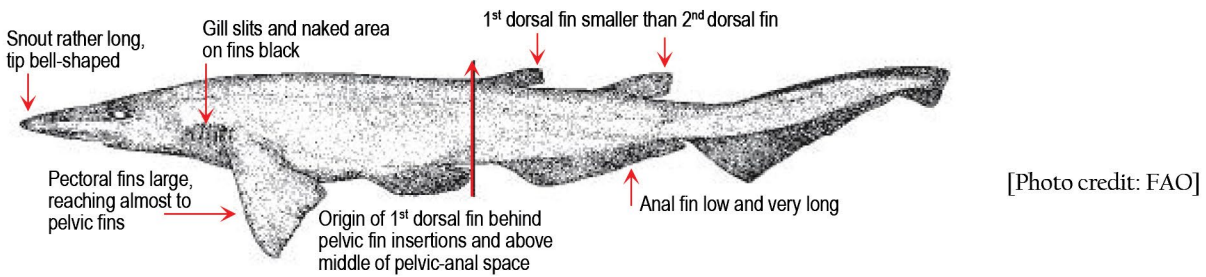
Goblin



**SCYLIORHINIDAE**

*Apristurus platyrhynchus* (Tanaka, 1909)

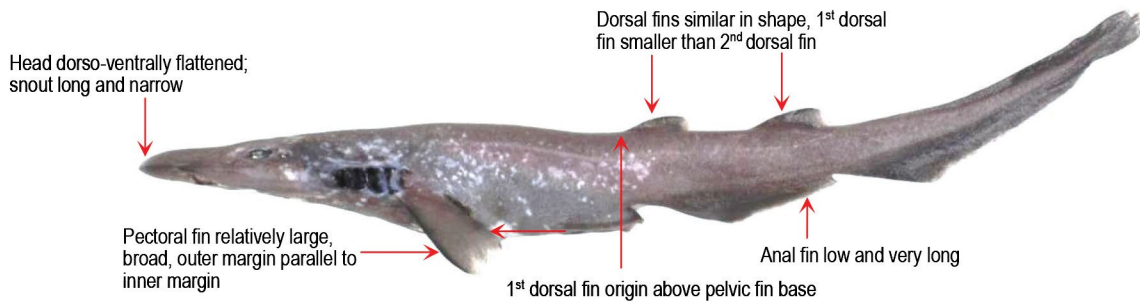
Bigfin catshark



**SCYLIORHINIDAE**

*Apristurus longicephalus* Nakaya, 1975

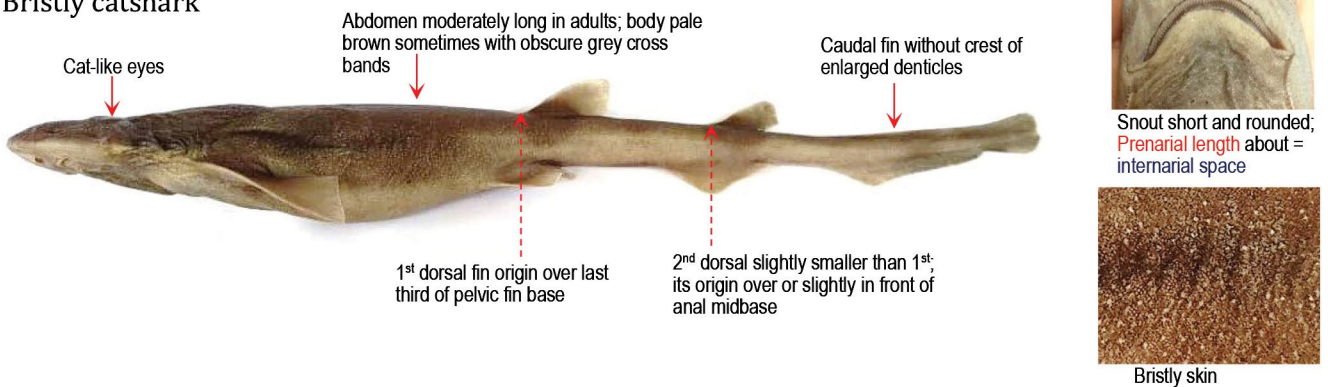
Longhead catshark



**SCYLIORHINIDAE**

*Bythaelurus hispidus* (Alcock, 1891)

Bristly catshark



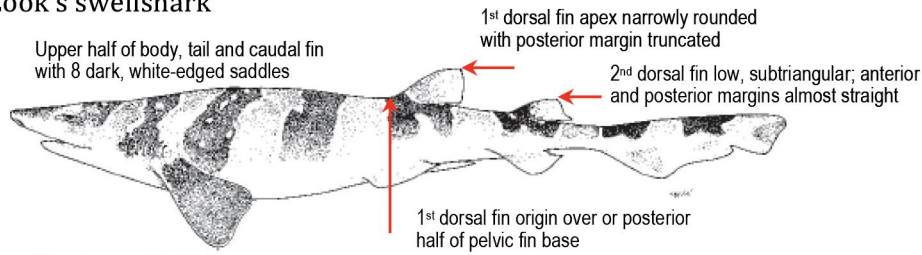


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**SCYLIORHINIDAE**

*Cephaloscyllium cooki* Last, Séret & White, 2008

Cook's swellshark



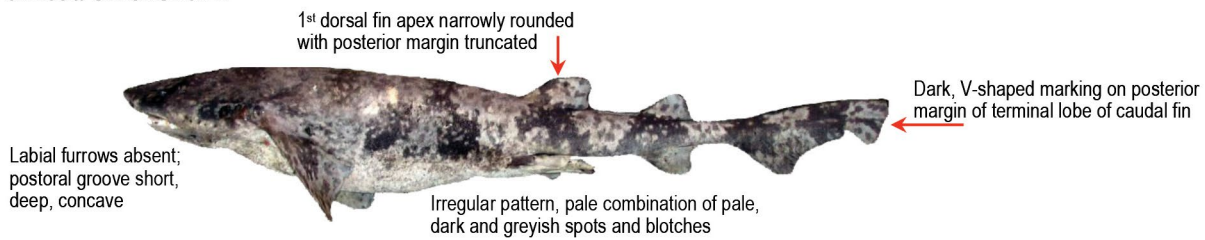
[Photo credit: FAO]

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**SCYLIORHINIDAE**

*Cephaloscyllium pictum* Last, Séret & White, 2008

Painted swellshark

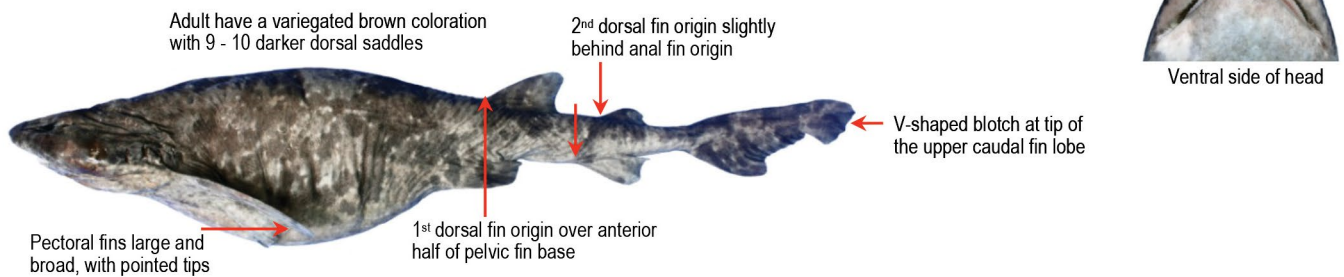


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**SCYLIORHINIDAE**

*Cephaloscyllium cf signourum* Last, Séret & White, 2008

Flagtail swellshark

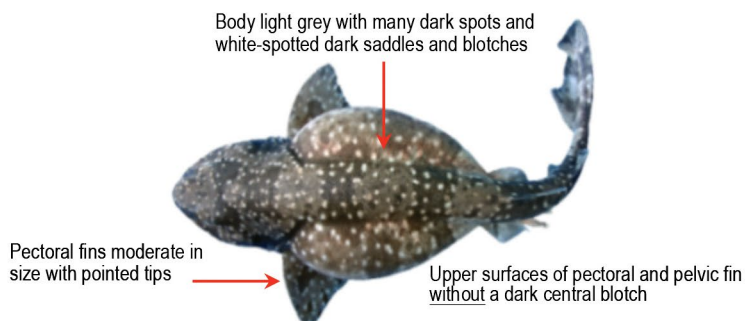


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**SCYLIORHINIDAE**

*Cephaloscyllium cf speccum* Last, Séret & White, 2008

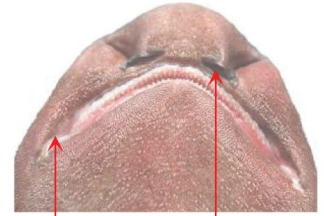
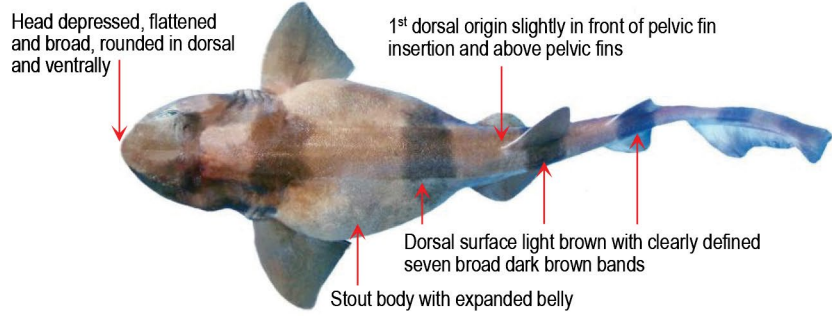
Speckled swellshark



**SCYLIORHINIDAE**

*Cephaloscyllium silasi* (Talwar, 1974)

Indian swellshark



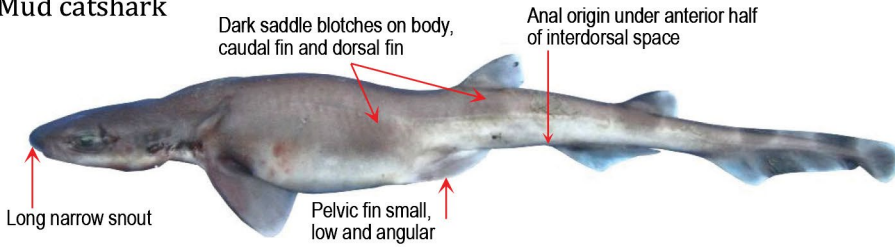
Labial furrows absent

Anterior nasal flaps broadly triangular

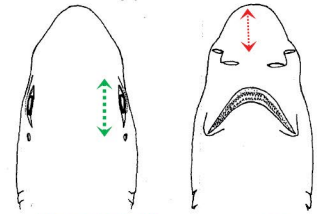
**SCYLIORHINIDAE**

*Bythaelurus lutarius* (Springer & D'Aubrey, 1972)

Mud catshark



Dorsal view of head  
Snout moderately long and narrowly parabolic

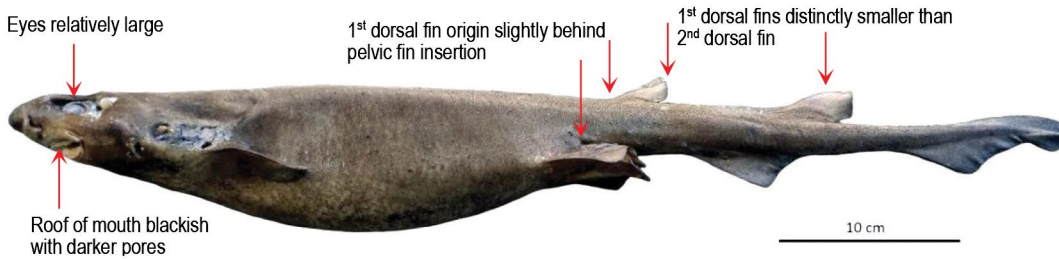


Prenarial snout shorter than eye

**SCYLIORHINIDAE**

*Parmaturus nigripalatum* Fahmi & Ebert, 2018

Indonesian filetail catshark

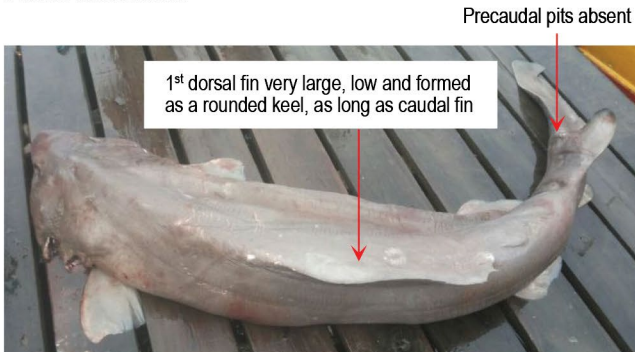


Mouth large, semi-angular; upper labial furrow almost equal to lower labial furrow

**PSEUDOTRIAKIDAE**

*Pseudotriakis microdon* de Brito Capello, 1868

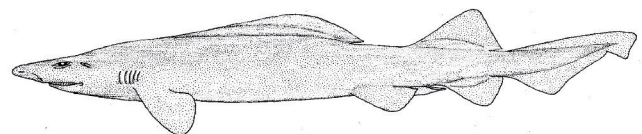
False catshark



Eyes elongated and slit-like, with length over two times height



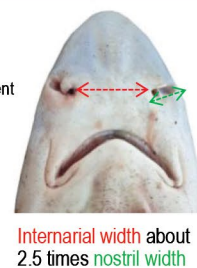
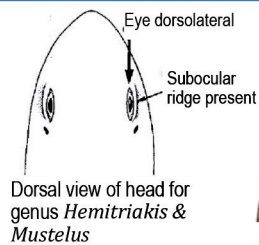
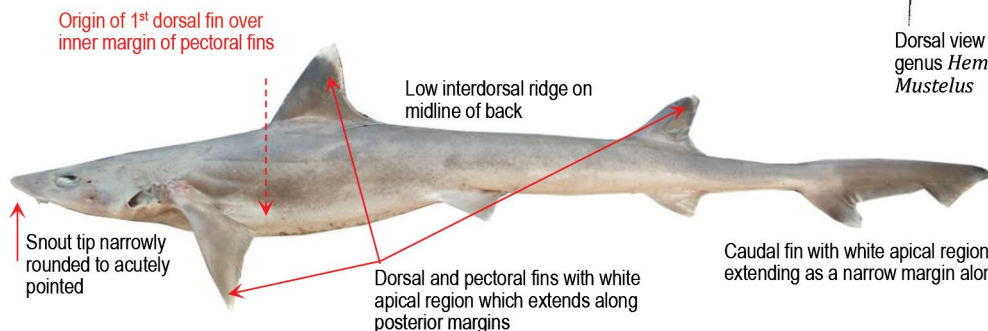
Very large mouth with a wide gape



[Photo credit: FAO]

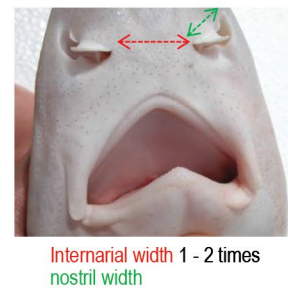
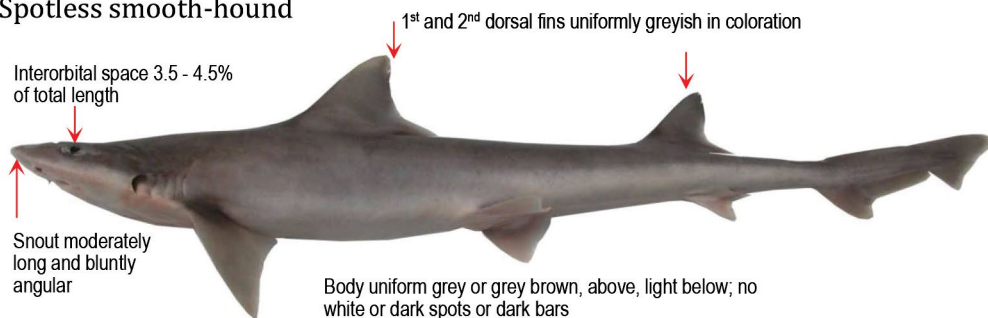
**TRIAKIDAE**

*Hemitriakis indroyonoi* White, Compagno & Dharmadi, 2009  
Indonesian houndshark



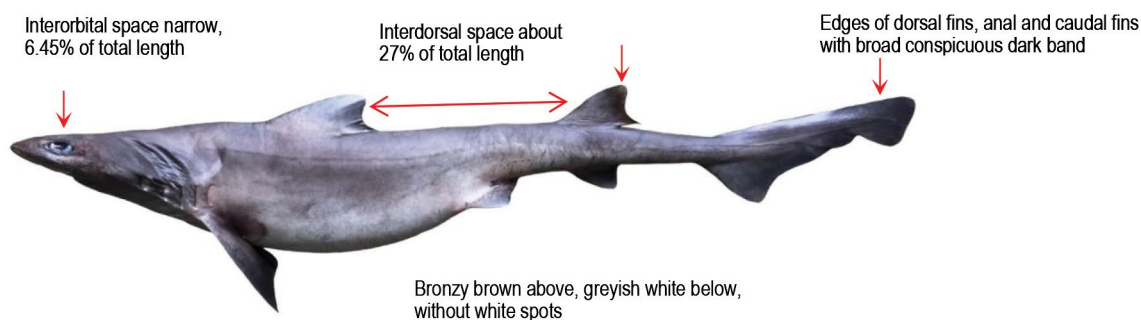
**TRIAKIDAE**

*Mustelus griseus* Pietschmann, 1908  
Spotless smooth-hound



**TRIAKIDAE**

*Mustelus mangalorensis* Cubello, Remya & Kurup, 2011  
Whitespotted gummy shark





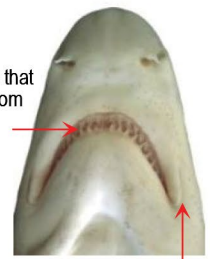
**HEMIGALEIDAE**

*Chaenogaleus macrostoma* (Bleeker, 1852)

Hooktooth shark



Strongly hooked cusps that prominently protrude from mouth when closed



Labial furrows moderately long

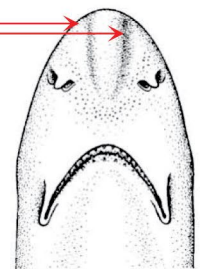
**HEMIGALEIDAE**

*Paragaleus randalli* Compagno, Krupp & Carpenter, 1996

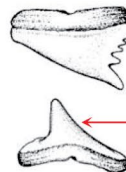
Slender weasel shark



A pair of longitudinal black lines on underside of prenarial snout



Snout narrow, long mouth

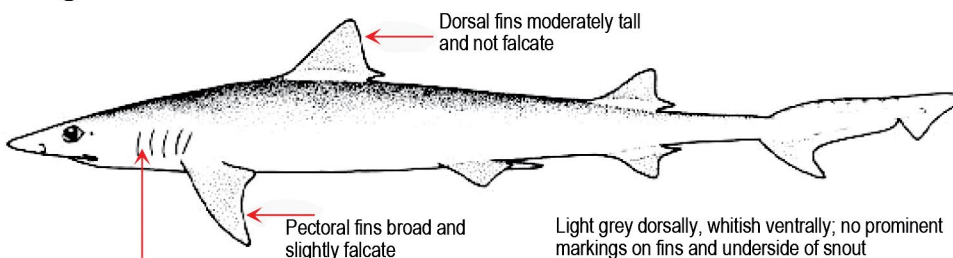


Lower anterior teeth mostly with oblique cusps

**HEMIGALEIDAE**

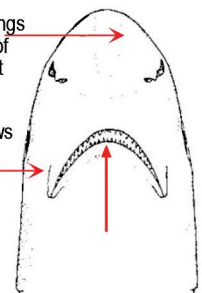
*Paragaleus tengi* (Chen, 1963)

Straight-tooth weasel shark

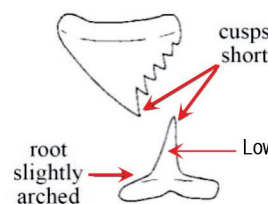


No dark markings on underside of prenarial snout

Upper labial furrows longer than lower labial furrows



Mouth narrowly arched

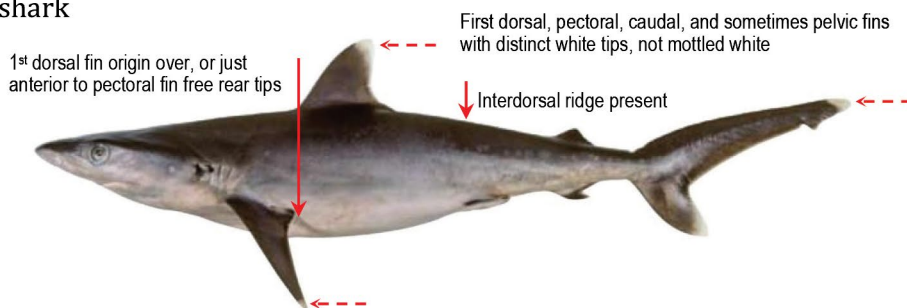


[Photo credit: FAO]

**CARCHARHINIDAE**

*Carcharhinus albimarginatus* (Rüppell, 1837)

Silvertip shark

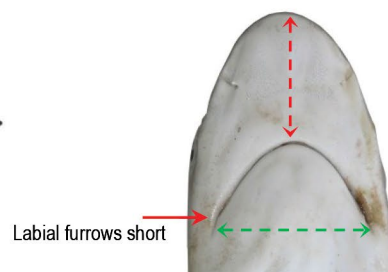
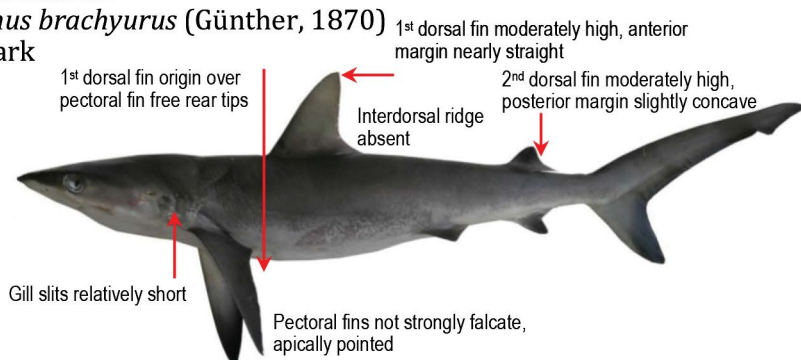


Snout moderately long and broadly parabolic

**CARCHARHINIDAE**

*Carcharhinus brachyurus* (Günther, 1870)

Copper shark

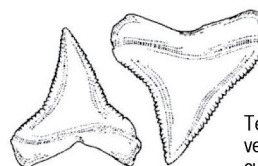
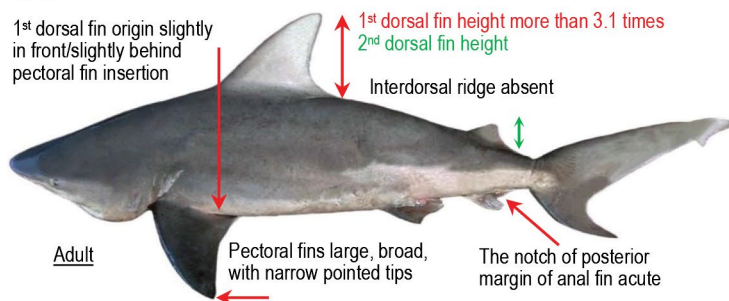


Snout length about equal or smaller than mouth width

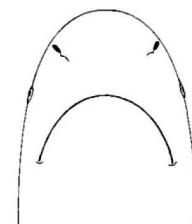
**CARCHARHINIDAE**

*Carcharhinus amboinensis* (Müller & Henle, 1839)

Pigeys shark



Teeth in upper jaw triangular, very broad, heavy, serrated cusps

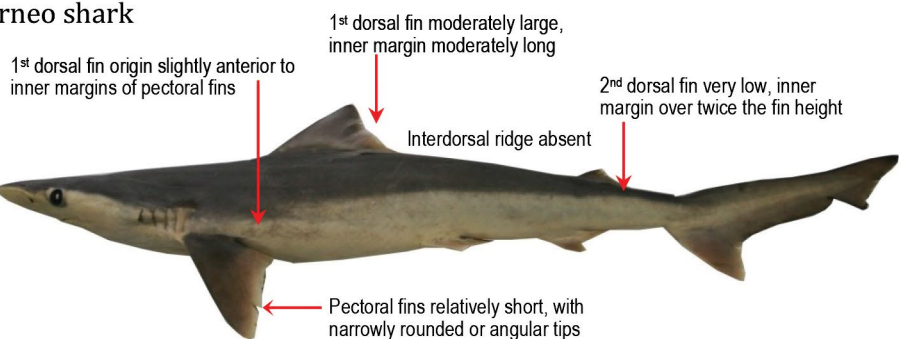


Snout extremely short, shorter than distance between nostril

**CARCHARHINIDAE**

*Carcharhinus borneensis* (Bleeker, 1859)

Borneo shark

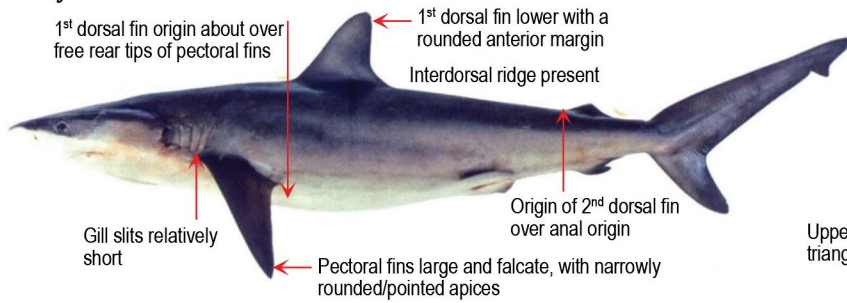


Snout very long and pointed

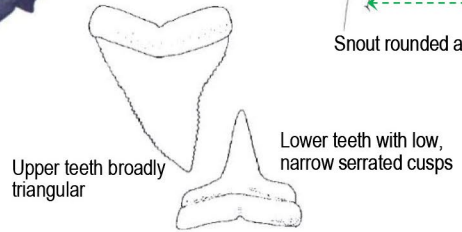
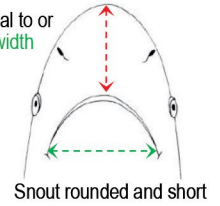
**CARCHARHINIDAE**

*Carcharhinus obscurus* (Lesueur, 1818)

Dusky shark



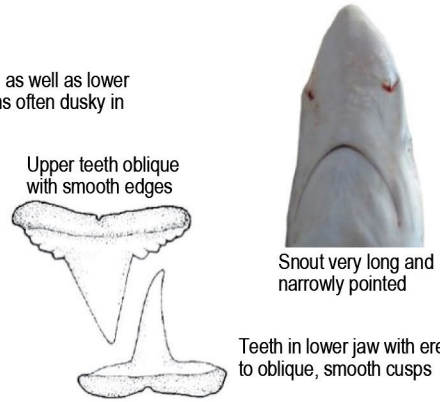
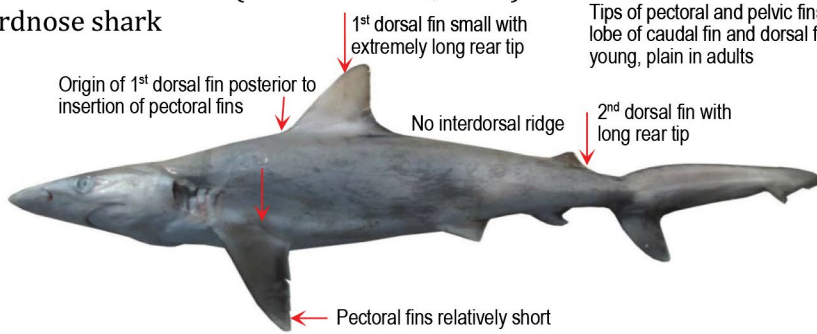
Mouth length equal to or less than mouth width



**CARCHARHINIDAE**

*Carcharhinus macroti* (Müller & Henle, 1839)

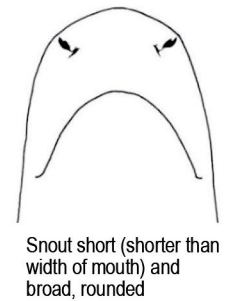
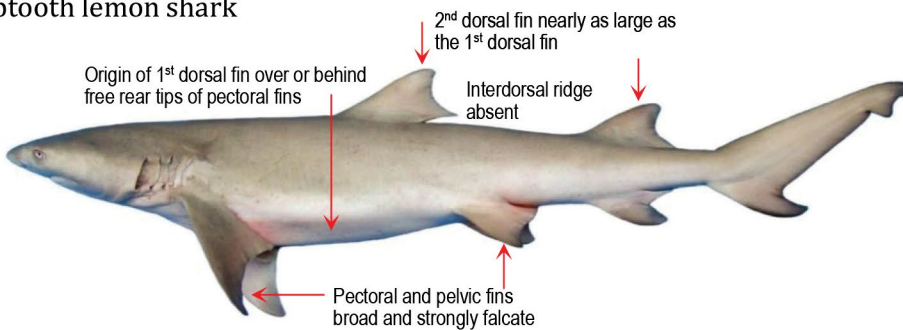
Hardnose shark



**CARCHARHINIDAE**

*Negaprion acutidens* (Rüppell, 1837)

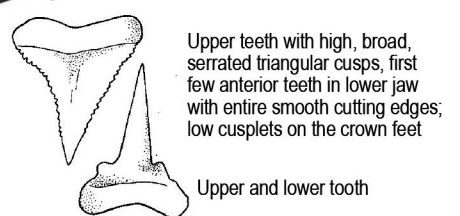
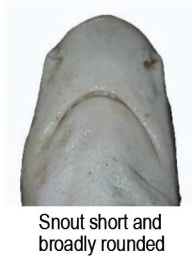
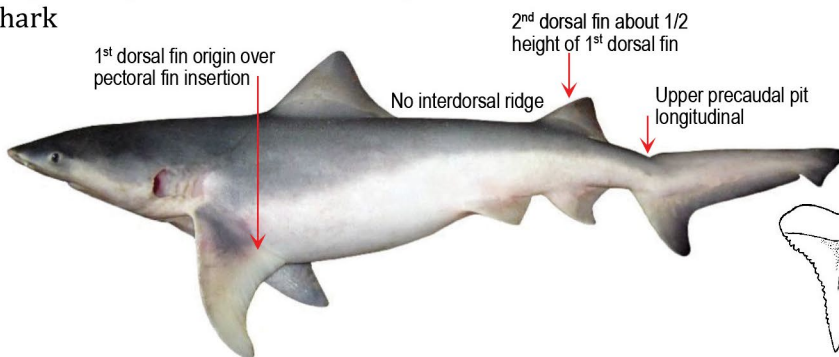
Sharptooth lemon shark



**CARCHARHINIDAE**

*Glyphis gangeticus* (Müller & Henle, 1839)

Ganges shark

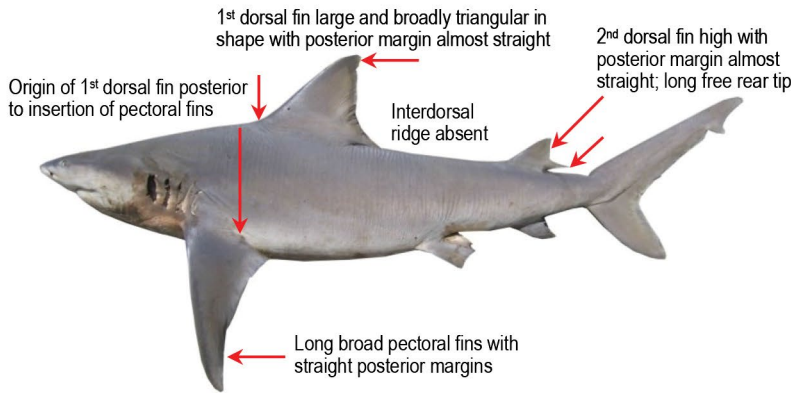




**CARCHARHINIDAE**

*Glyphis* sp.

Borneo / Kalimantan broadfin shark



Teeth in upper jaw broad and triangular with outer margins serrated; lower teeth erected with narrow cusps



Snout short and bluntly rounded; mouth long and parabolic

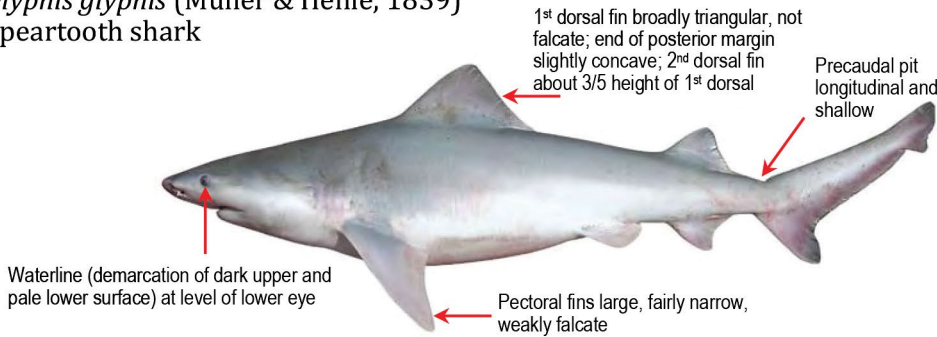
Precaudal pit longitudinal and shallow



**CARCHARHINIDAE**

*Glyphis glyphis* (Müller & Henle, 1839)

Speartooth shark

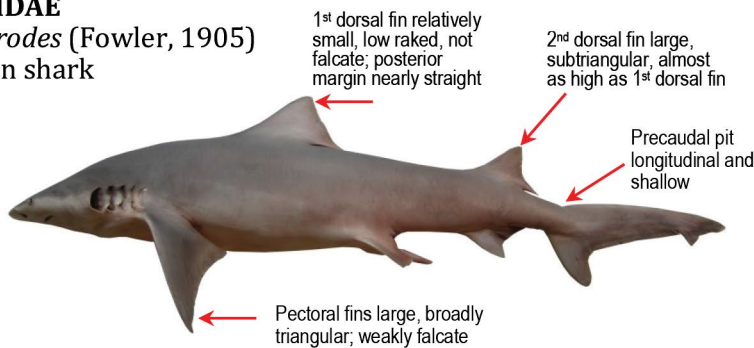


Snout short and bluntly rounded; mouth long and parabolic

**CARCHARHINIDAE**

*Lamiopsis tephrodes* (Fowler, 1905)

Borneo broadfin shark

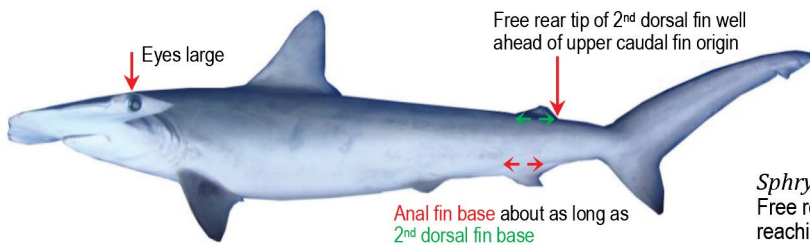


Moderately long snout

**SPHYRNIDAE**

*Sphyrna zygaena* (Linnaeus, 1758)

Smooth hammerhead



Prenarial groove

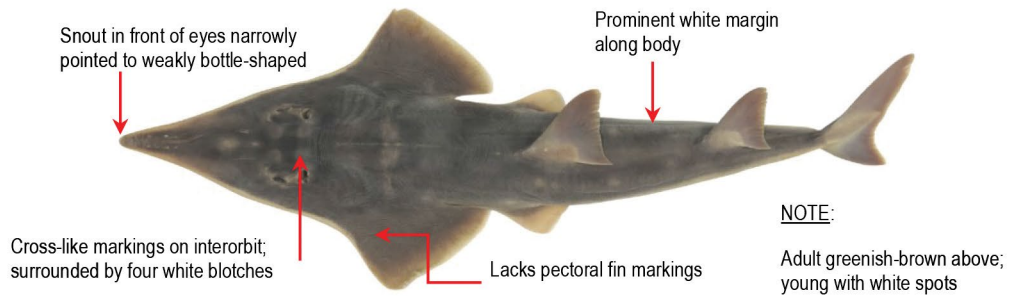
Anterior margin of head without indentation medially



*Sphyrna lewini*: Free rear tip of 2<sup>nd</sup> dorsal fin nearly reaching upper caudal fin origin

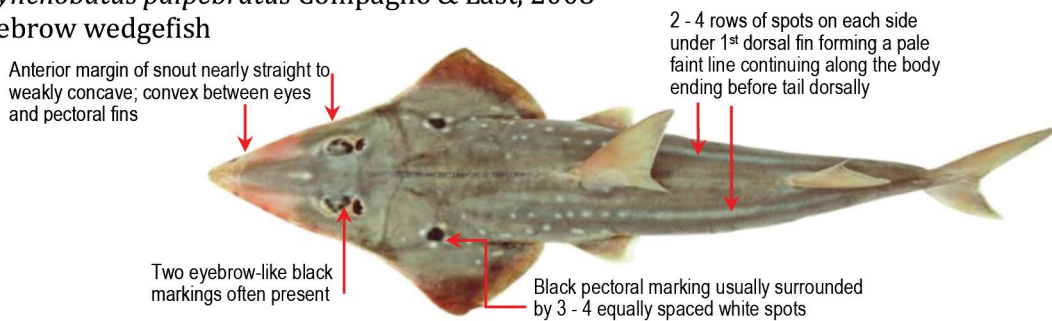
**RHINIDAE**

*Rhynchobatus cooki* Last, Kyne & Compagno, 2016  
Roughnose wedgefish, Clown wedgefish



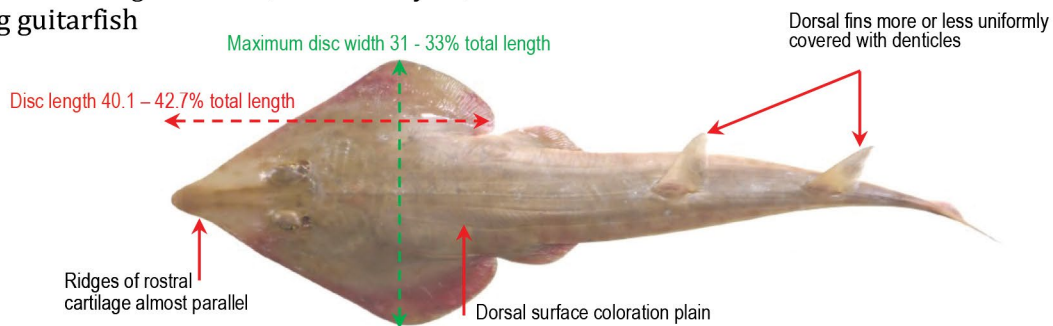
**RHINIDAE**

*Rhynchobatus palpebratus* Compagno & Last, 2008  
Eyebrow wedgefish



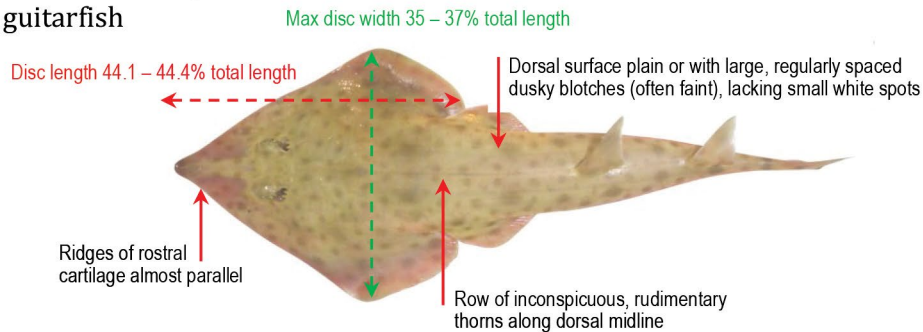
**RHINOBATIDAE**

*Rhinobatos ranongensis* Last, Séret & Naylor, 2019  
Ranong guitarfish



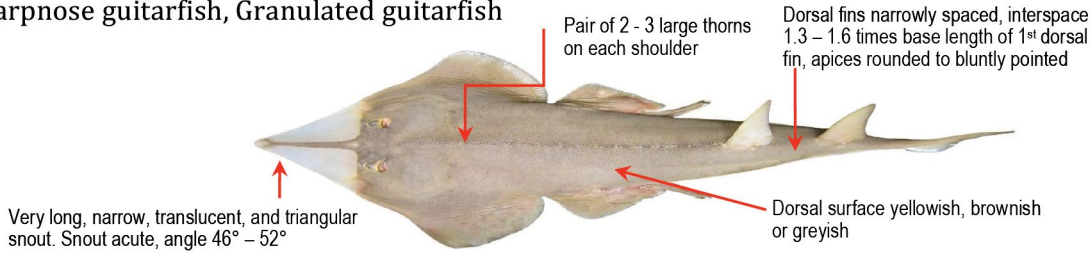
**RHINOBATIDAE**

*Rhinobatos lionotus* Norman, 1926  
Smoothback guitarfish



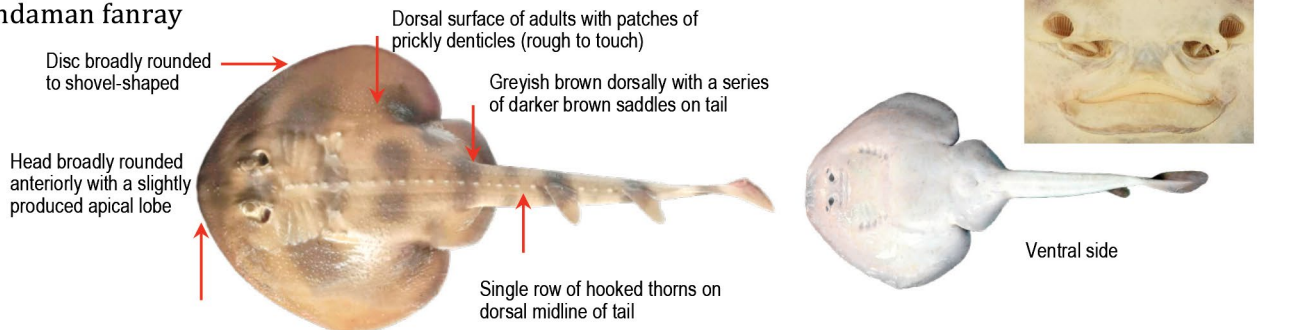
**GLAUCOSTEGIDAE**

*Glaucostegus cf granulatus* (Cuvier, 1829)  
 Sharpnose guitarfish, Granulated guitarfish



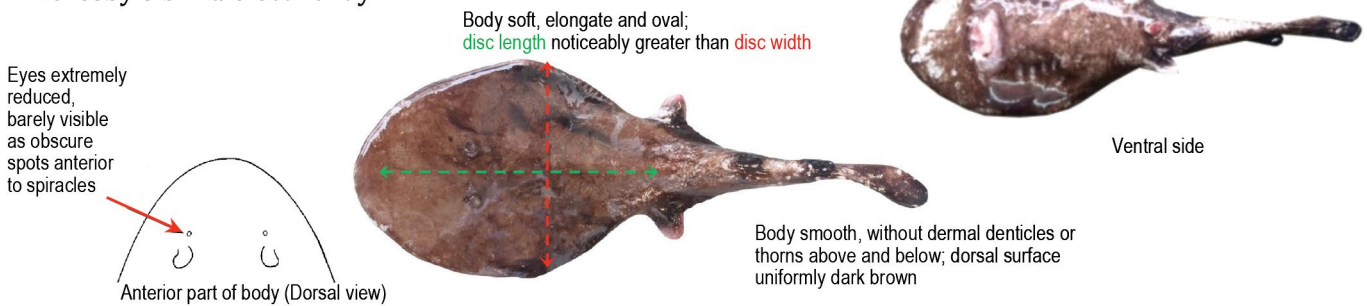
**PLATYRHINIDAE**

*Platyrhina psomadakisi* White & Last, 2016  
 Andaman fanray



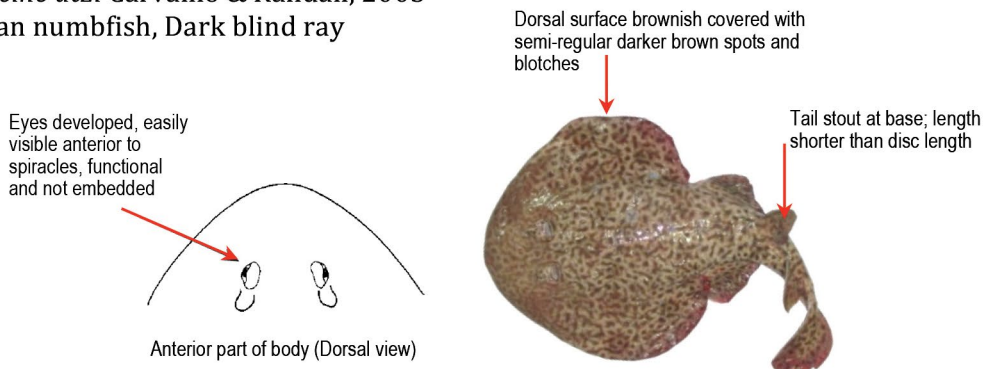
**NARCINIDAE**

*Benthobatis moresbyi* Alcock, 1898  
 Moresby's blind electric ray



**NARCINIDAE**

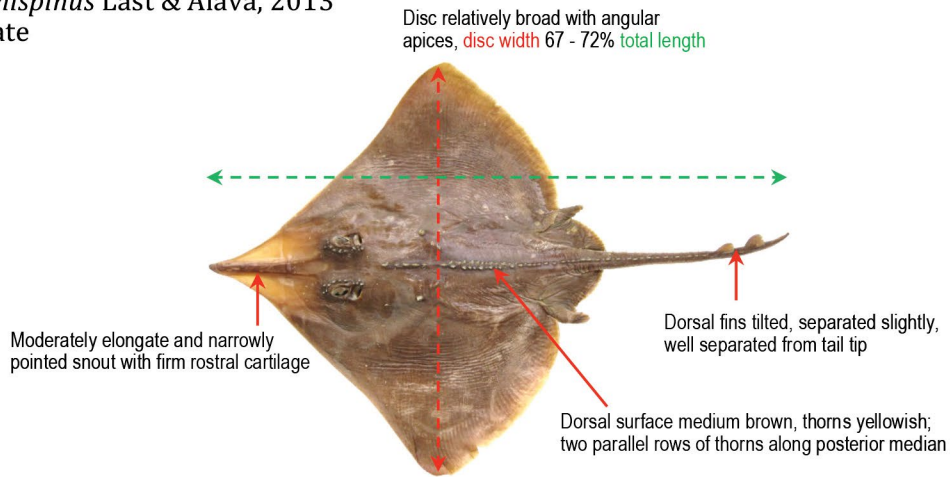
*Narcine atzi* Carvalho & Randall, 2003  
 Oman numbfish, Dark blind ray





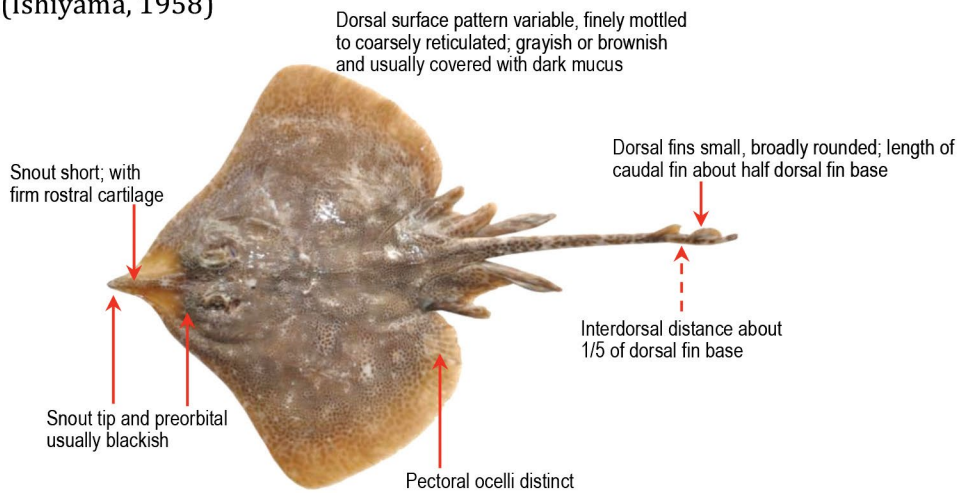
**RAJIDAE**

*Dipturus amphispinus* Last & Alava, 2013  
Ridgeback skate



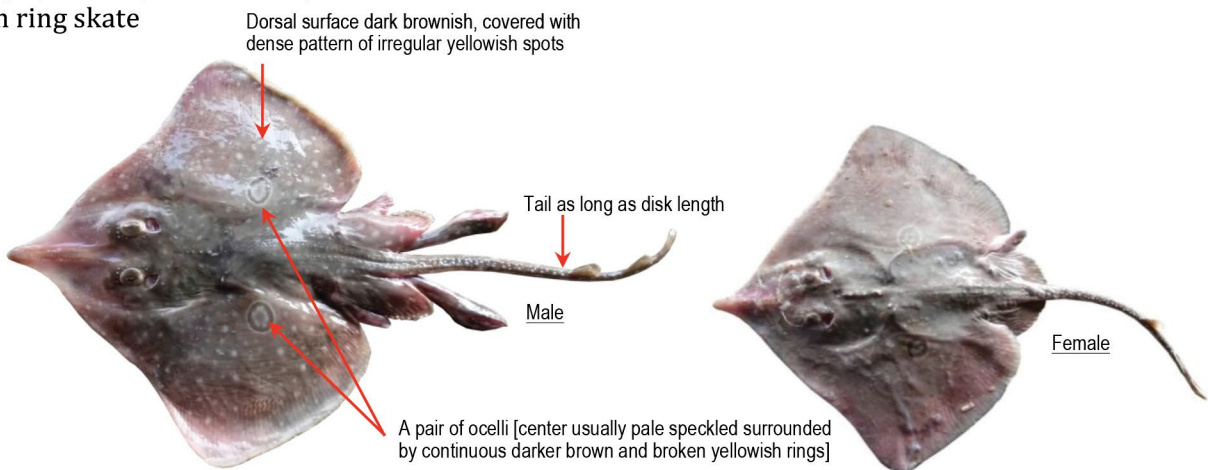
**RAJIDAE**

*Okamejei acutispina* (Ishiyama, 1958)  
Sharpspine skate



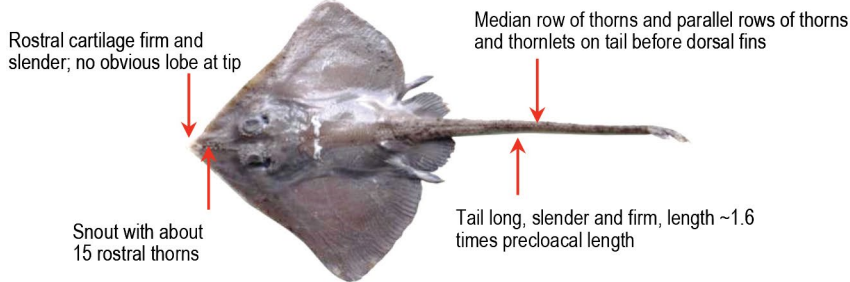
**RAJIDAE**

*Orbiraja powelli* (Alcock, 1898)  
Indian ring skate



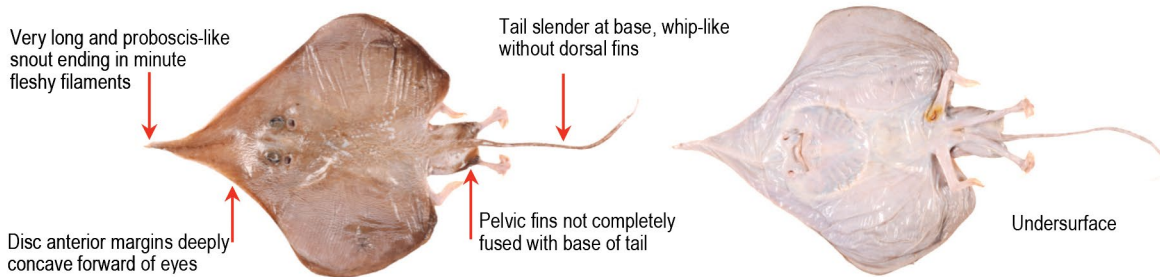
**GURGESIELLIDAE**

*Cruriraja andamanica* (Lloyd, 1909)  
Andaman pygmy skate



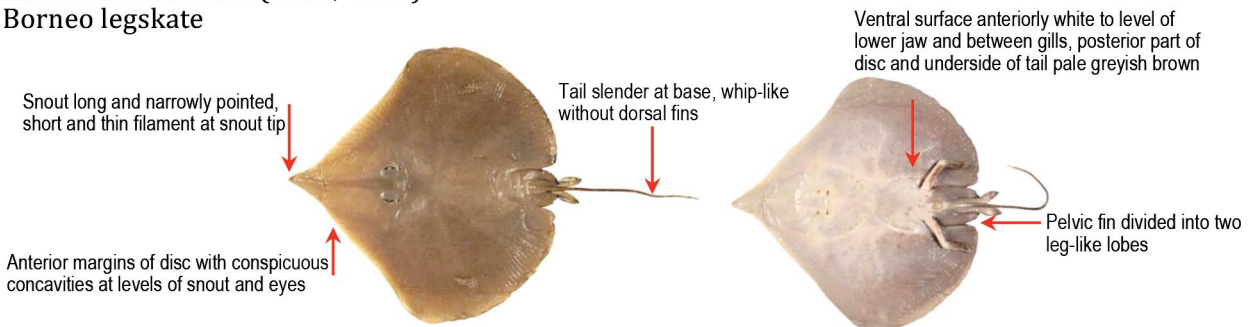
**ANACANTHOBATIDAE**

*Sinobatis andamanensis* Last & Bussarawit, 2016  
Andaman legskate



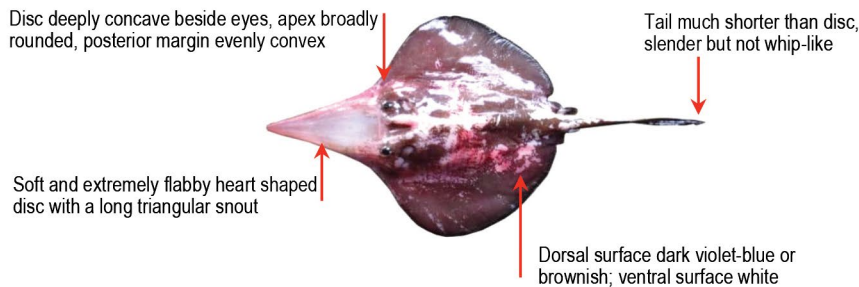
**ANACANTHOBATIDAE**

*Sinobatis borneensis* (Chan, 1965)  
Borneo legskate



**HEXATRYGONIDAE**

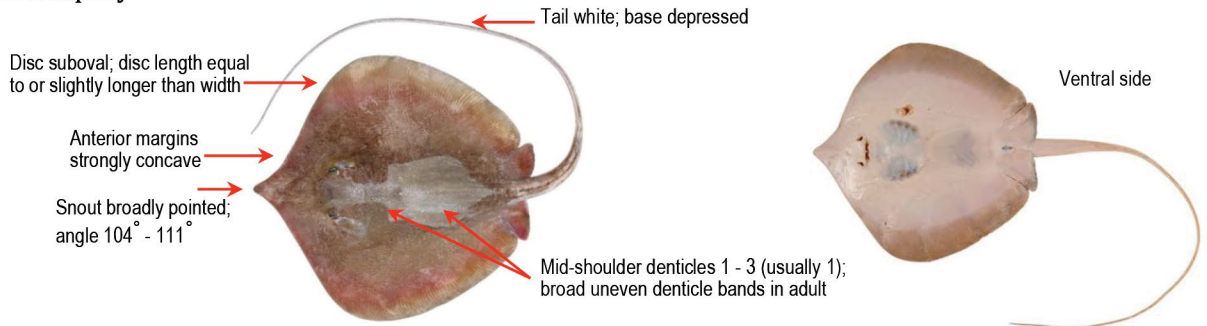
*Hexatrygon bickelli* Heemstra & Smith, 1908  
Sixgill stingray



**DASYATIDAE**

*Brevitrygon javaensis* (Last & White, 2013)

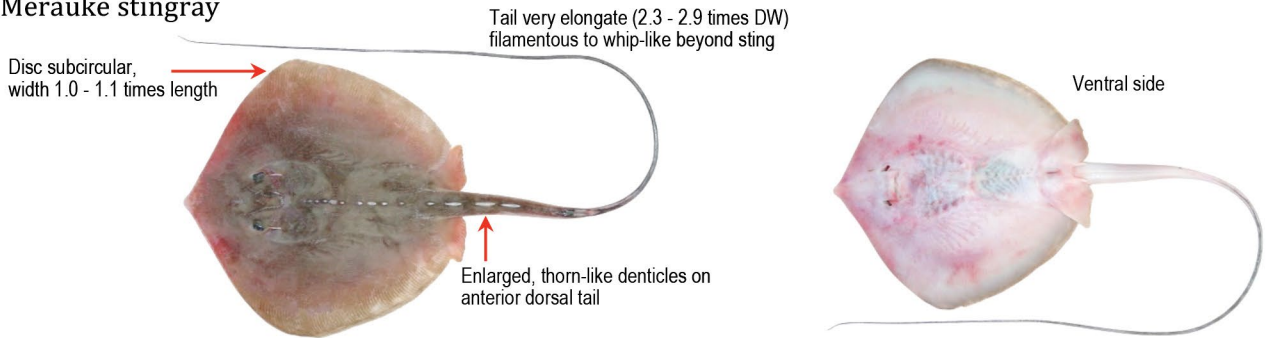
Javan whipray



**DASYATIDAE**

*Hemitrygon longicauda* (Last & White, 2013)

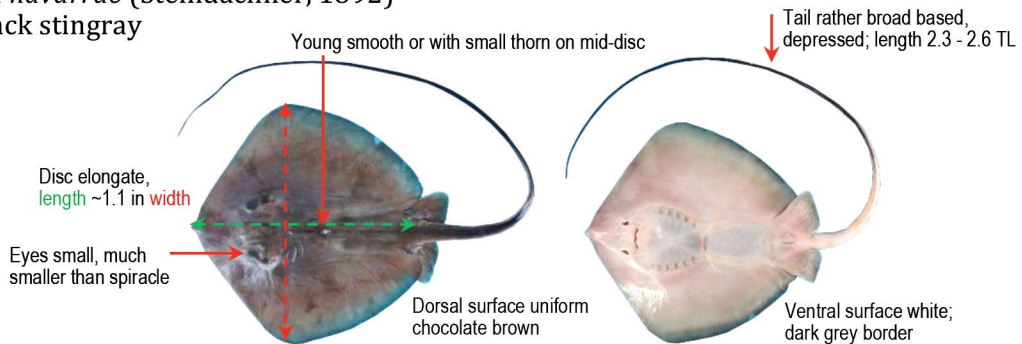
Merauke stingray



**DASYATIDAE**

*Hemitrygon navarrae* (Steindachner, 1892)

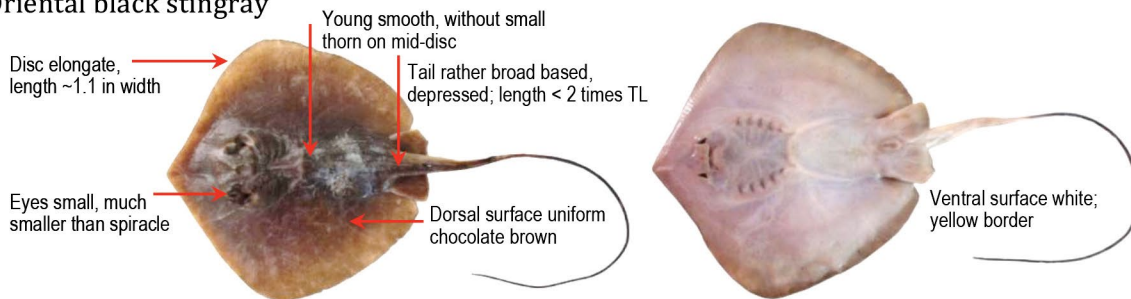
Oriental black stingray



**DASYATIDAE**

*Hemitrygon cf navarrae* (Steindachner, 1892)

Oriental black stingray

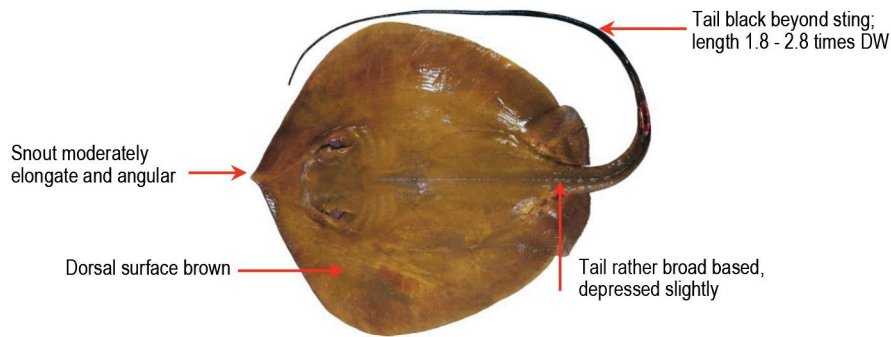




**DASYATIDAE**

*Hemitrygon laosensis* (Roberts & Karnasuta, 1987)

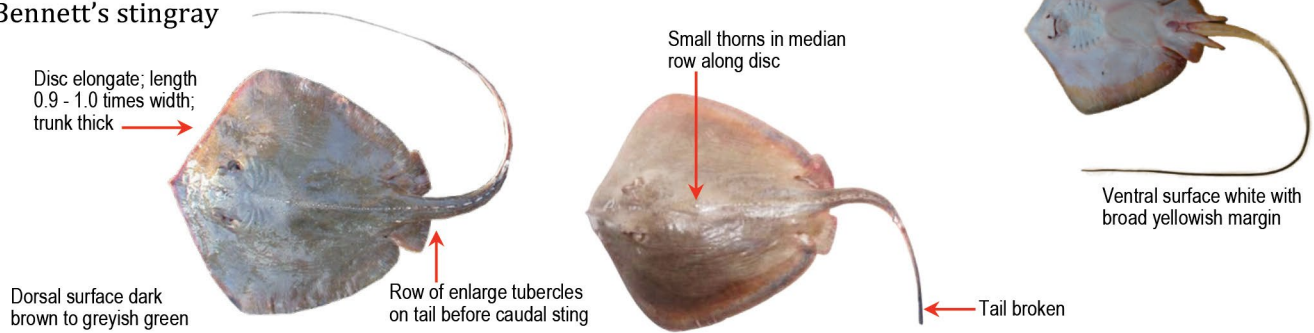
Mekong stingray



**DASYATIDAE**

*Hemitrygon bennetti* (Müller & Henle, 1841)

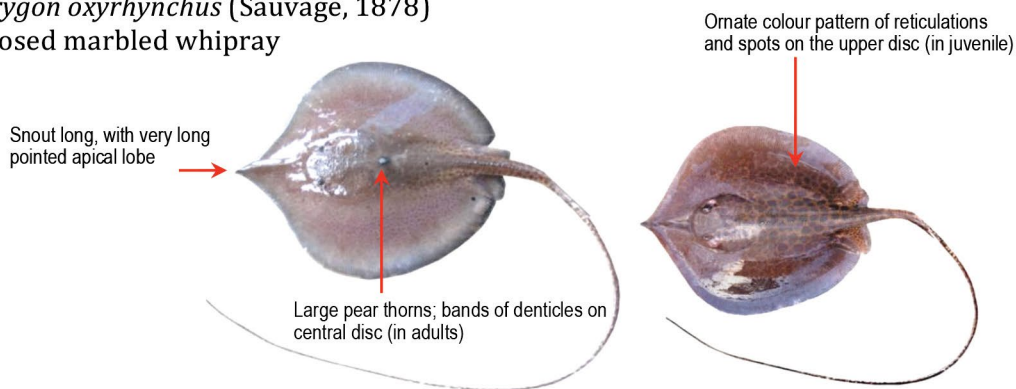
Bennett's stingray



**DASYATIDAE**

*Fluvitrygon oxyrhynchus* (Sauvage, 1878)

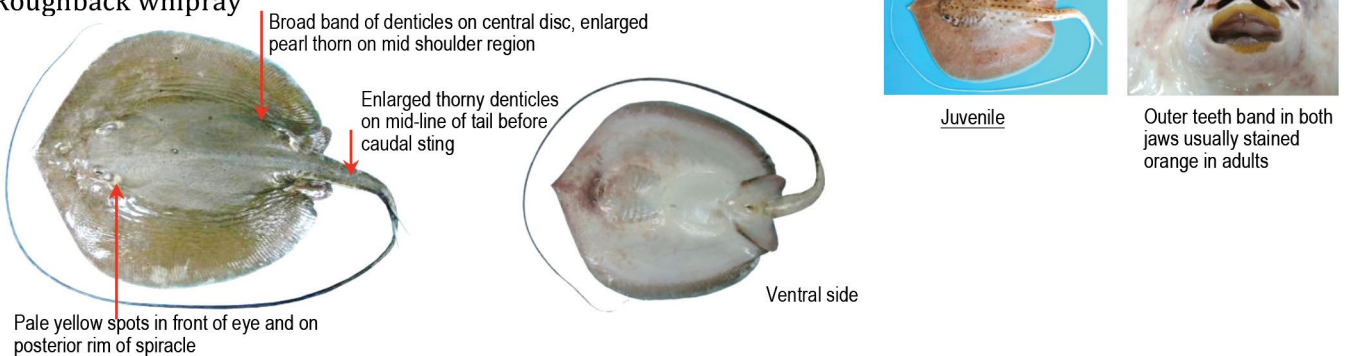
Longnosed marbled whipray



**DASYATIDAE**

*Fluvitrygon kittipongi* (Vidthayanon & Roberts, 2006)

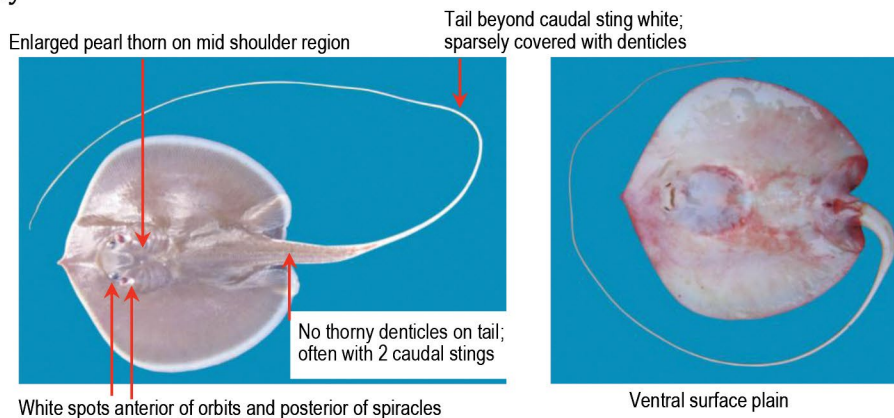
Roughback whipray



**DASYATIDAE**

*Fluvitrygon signifier* (Compagno & Roberts, 1982)

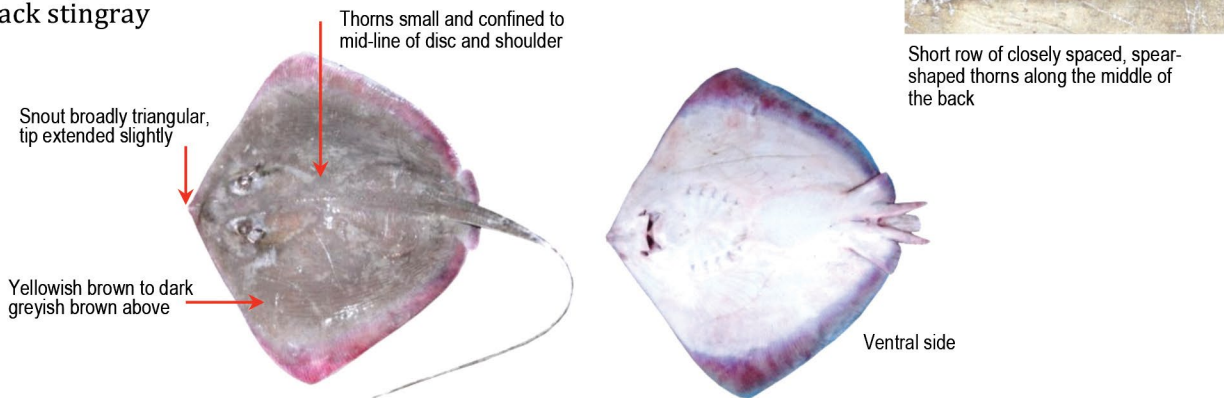
White-edge whipray



**DASYATIDAE**

*Hemistrygon parvonigra* (Last & White, 2008)

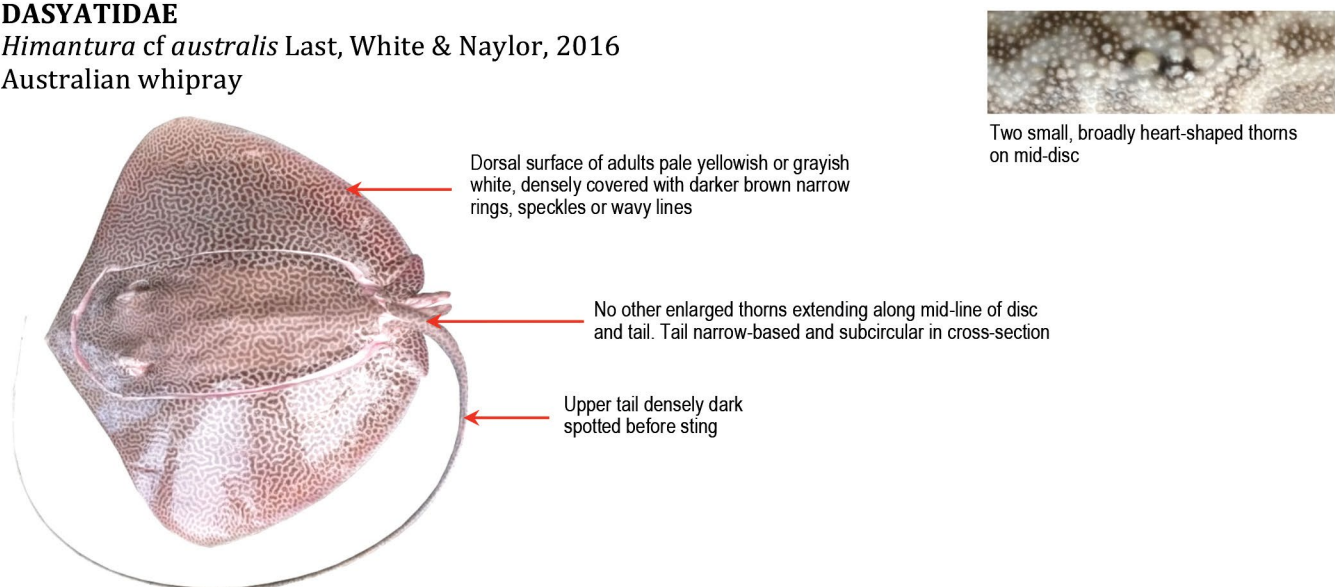
Dwarf black stingray



**DASYATIDAE**

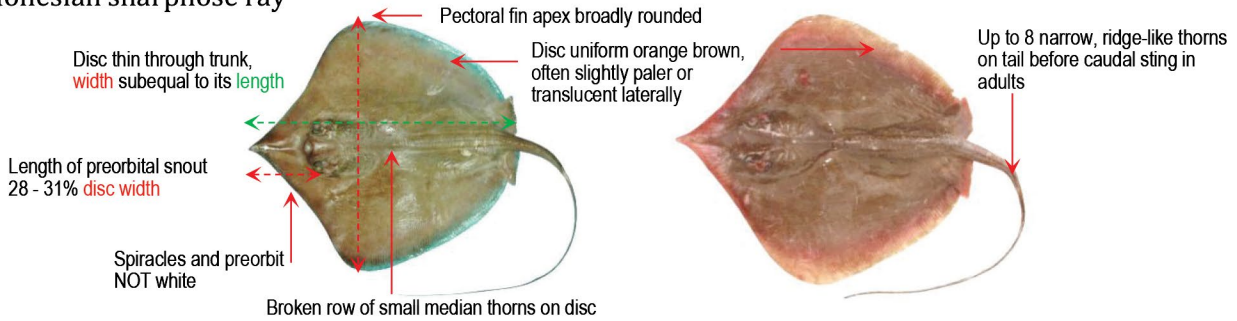
*Himantura cf australis* Last, White & Naylor, 2016

Australian whipray



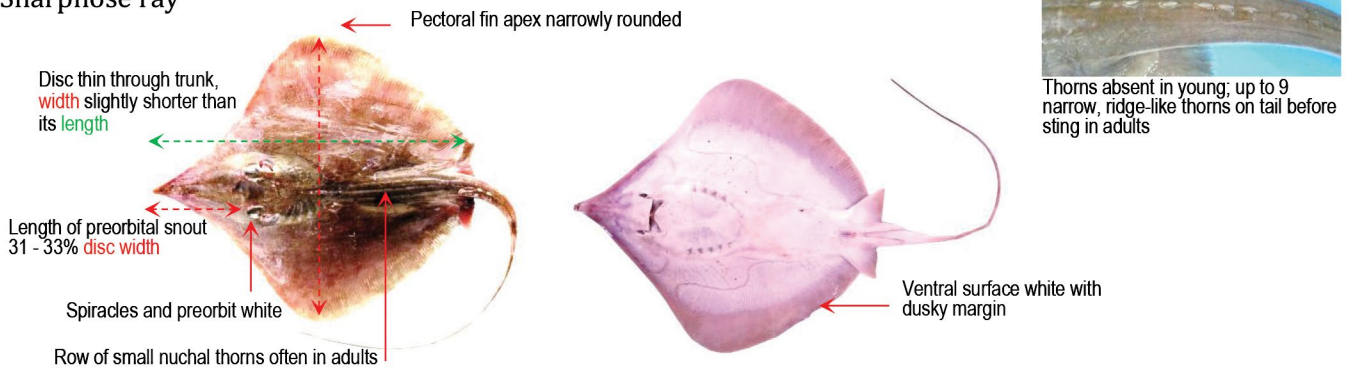
**DASYATIDAE**

*Telatrygon biasa* Last, White & Naylor, 2016  
Indonesian sharpnose ray



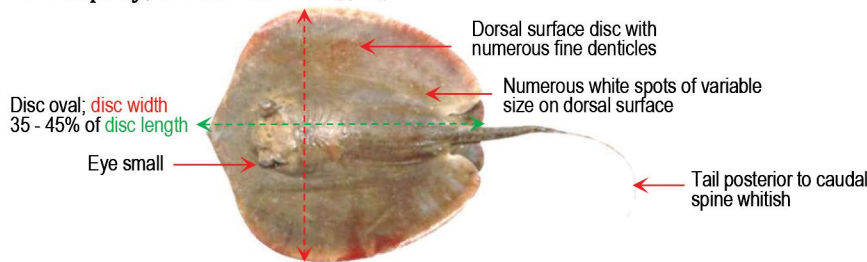
**DASYATIDAE**

*Telatrygon zugei* (Müller & Henle, 1841)  
Sharpnose ray



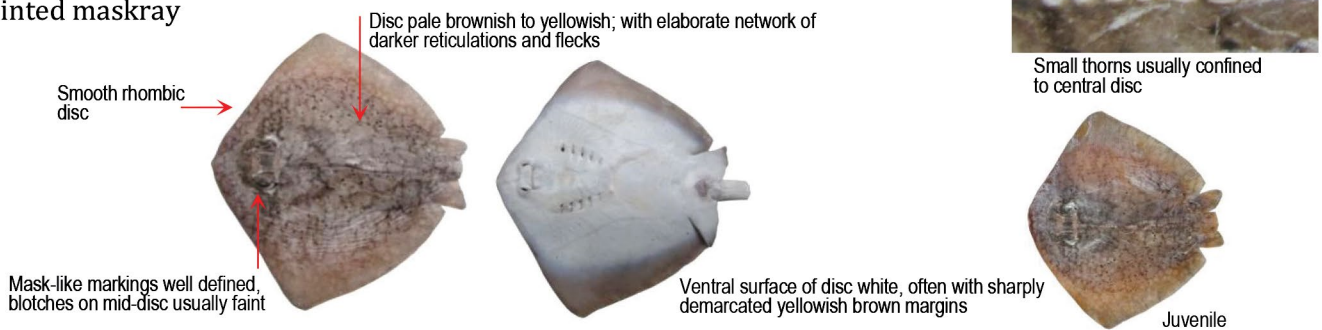
**DASYATIDAE**

*Urogymnus granulatus* (Macleay, 1883)  
Mangrove whipray, White-tail stingray



**DASYATIDAE**

*Neotrygon cf leylandi* (Last, 1987)  
Painted maskray

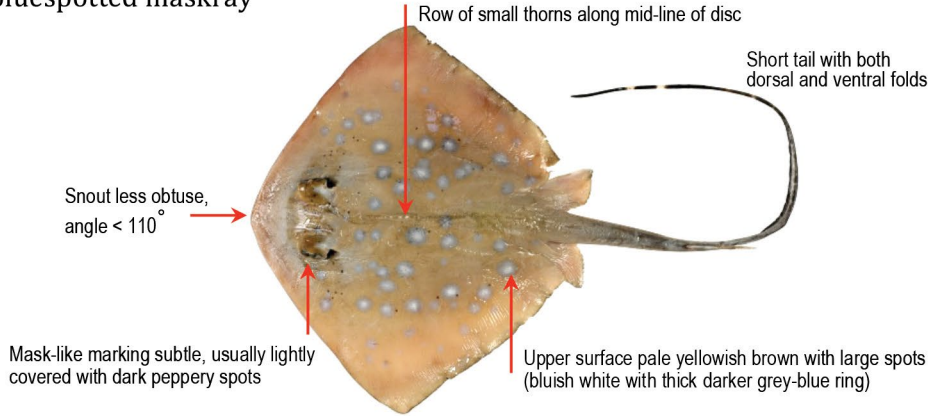




**DASYATIDAE**

*Neotrygon australiae* Last, White & Séret, 2016

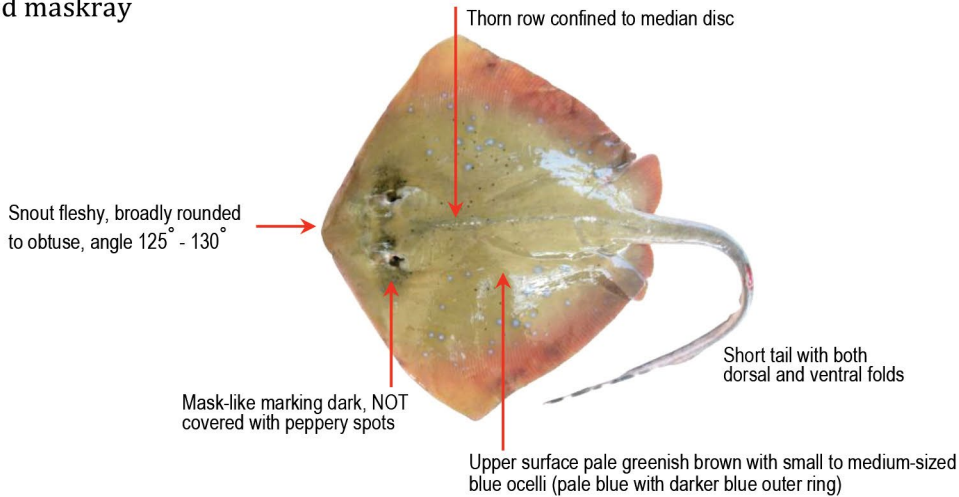
Australian bluespotted maskray



**DASYATIDAE**

*Neotrygon caeruleopunctata* Last, White & Séret, 2016

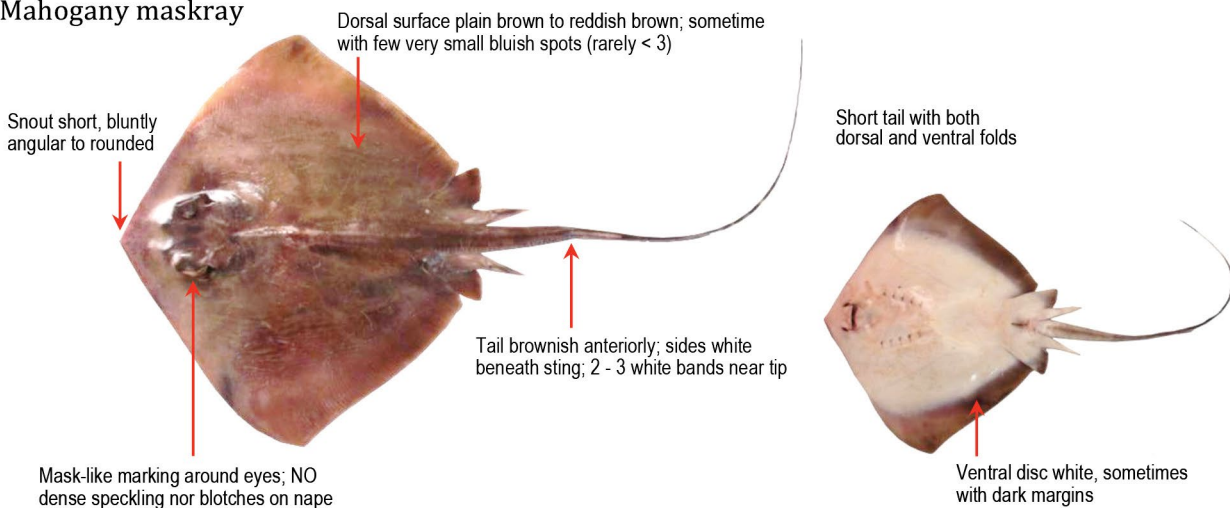
Bluespotted maskray



**DASYATIDAE**

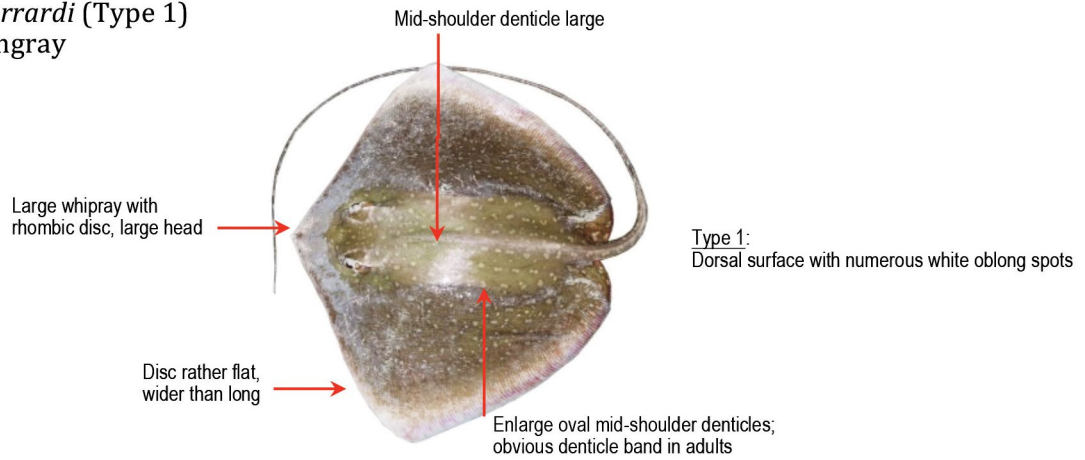
*Neotrygon varidens* (Garman, 1885)

Mahogany maskray



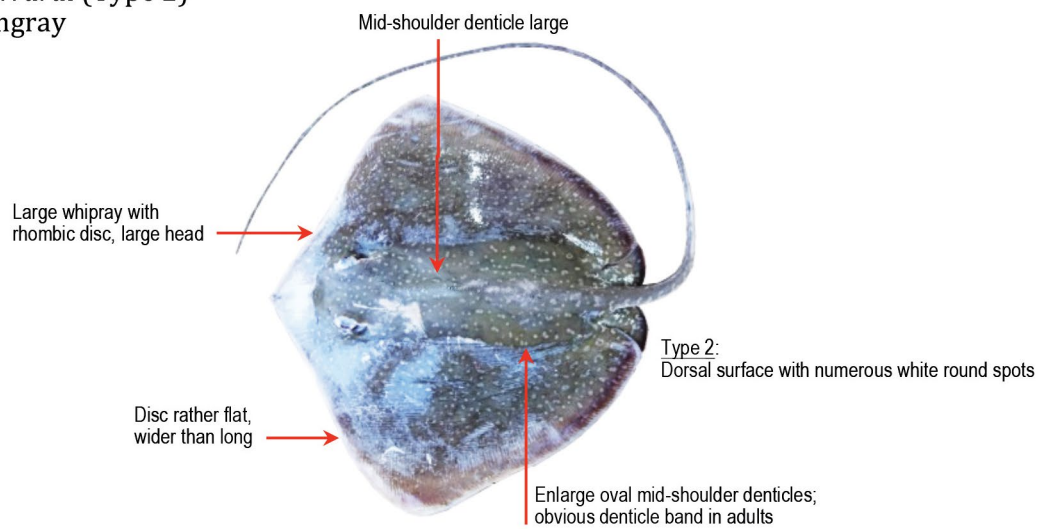
**DASYATIDAE**

*Maculabatis cf gerrardi* (Type 1)  
Whitespotted stingray



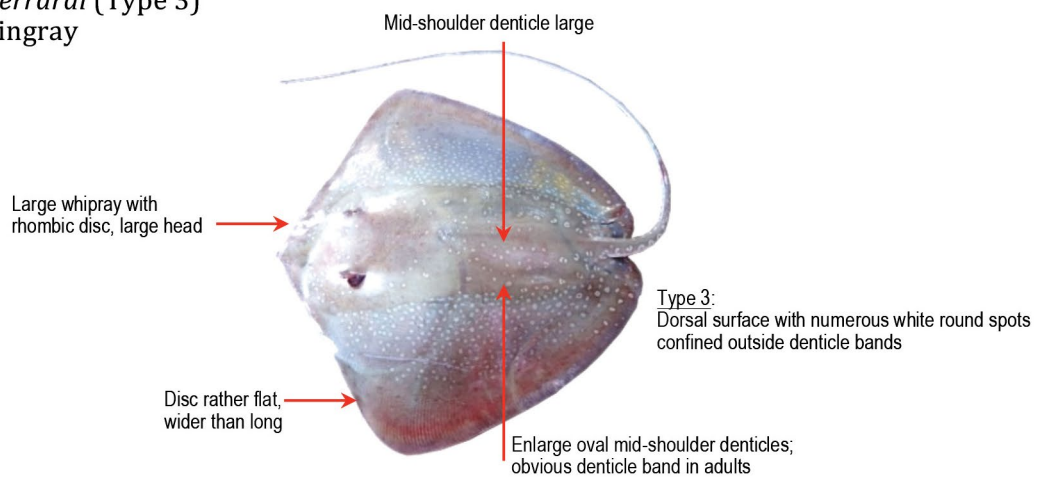
**DASYATIDAE**

*Maculabatis cf gerrardi* (Type 2)  
Whitespotted stingray



**DASYATIDAE**

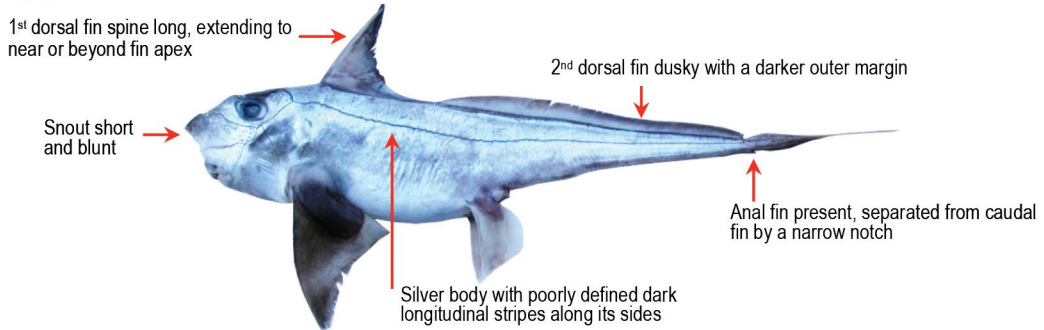
*Maculabatis cf gerrardi* (Type 3)  
Whitespotted stingray



**CHIMAERIDAE**

*Chimaera phantasma* Jordan & Snyder, 1900

Silver chimaera



**CHIMAERIDAE**

*Chimaera aff macrospina* Didier, Last & White 2008

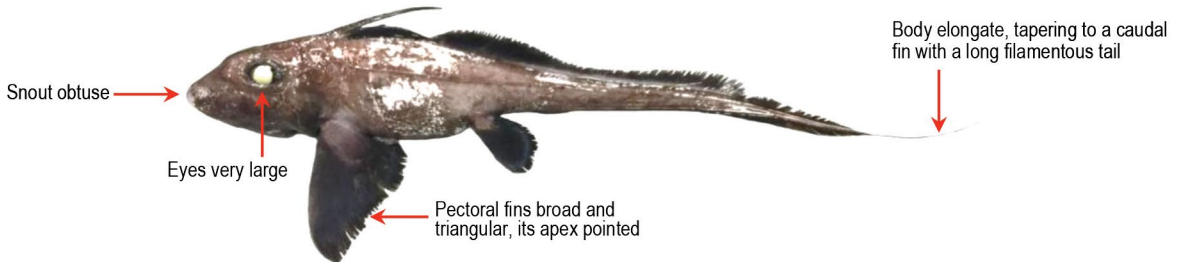
Longspine chimaera



**CHIMAERIDAE**

*Hydrolagus cf deani* (Smith & Radcliffe, 1912)

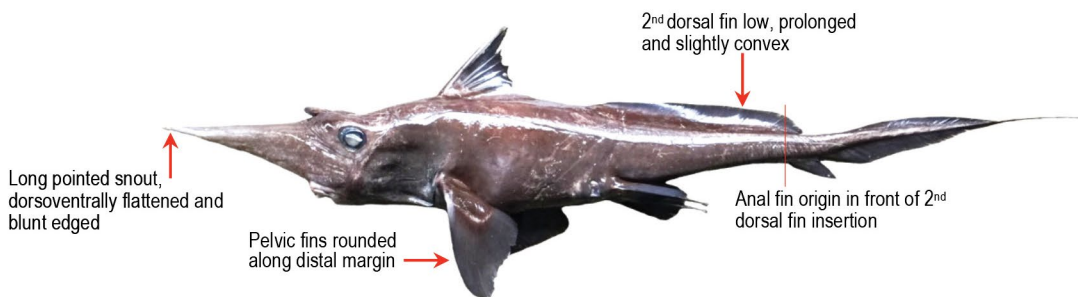
Philippine chimaera



**RHINOCHIMAERIDAE**

*Neoharriotta pinnata* (Schnakenbeck, 1931)

Sicklefin chimaera





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**AHMAD BIN ALI (Ph. D)** is the Chief of SEAFDEC/MFRDMD in Terengganu, Malaysia. He is also a member and Co-Regional Vice Chair, IUCN Sharks Specialist Group for Southeast Asia Region. He had authored and co-authored books and research papers on taxonomy, biology and management of elasmobranch published nationally and internationally.



**MS. ANNIE LIM PEK KHIOK** is a Senior Laboratory Assistant of Regional Fisheries Biosecurity Centre, Kuching, Sarawak. She is a member of IUCN Shark Specialist Group for Southeast Asia Region. She had authored and co-authored books and research papers on taxonomy and biology of elasmobranch as well as bony fishes published in Malaysia and the Southeast Asian Region.



**MR. FAHMI (M. Phil)** is a Senior Researcher at Research Centre for Oceanography, Indonesia Institute of Science (LIPI), Jakarta, He is a member and Co-regional Vice Chair of IUCN Shark Specialist Group for Southeast Asia Region and one of key researchers on chondrichthyans in Indonesia. He had authored and co-authored books and scientific papers on chondrichthyans published nationally and internationally



**MR. TASSAPON KRAJANGDARA (M. Sc)** is a Fishery Science, Senior Professional Level and Head of Fisheries Resources Assessment Unit, Upper Andaman Sea Fisheries Research and Development Center (Phuket) Thailand. He is a well-known chondrichthyans taxonomist in Thailand and appointed by the Department of Fisheries Thailand as a resource person for preparation the NPOA-Sharks for Thailand. He is a member of IUCN Shark Specialist Group for Southeast Asia Region. He had authored and co-authored books and research papers on taxonomy and biology of elasmobranch as well as bony fishes published in Thailand and in the Southeast Asian Region.



**MR. DHARMADI** is a Senior Researcher at Center for Fisheries Research, Ministry of Marine Affairs and Fisheries (MMAF) Jakarta, Indonesia. He is a member of IUCN Sharks Specialist Group for Southeast Asia Region and a member of 'Himpenindo' (Himpunan Peneliti Indonesia/Indonesian Research Association). He is a well-known chondrichthyans taxonomist in Indonesia. He had authored and co-authored books and scientific papers on chondrichthyans published nationally and internationally.

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