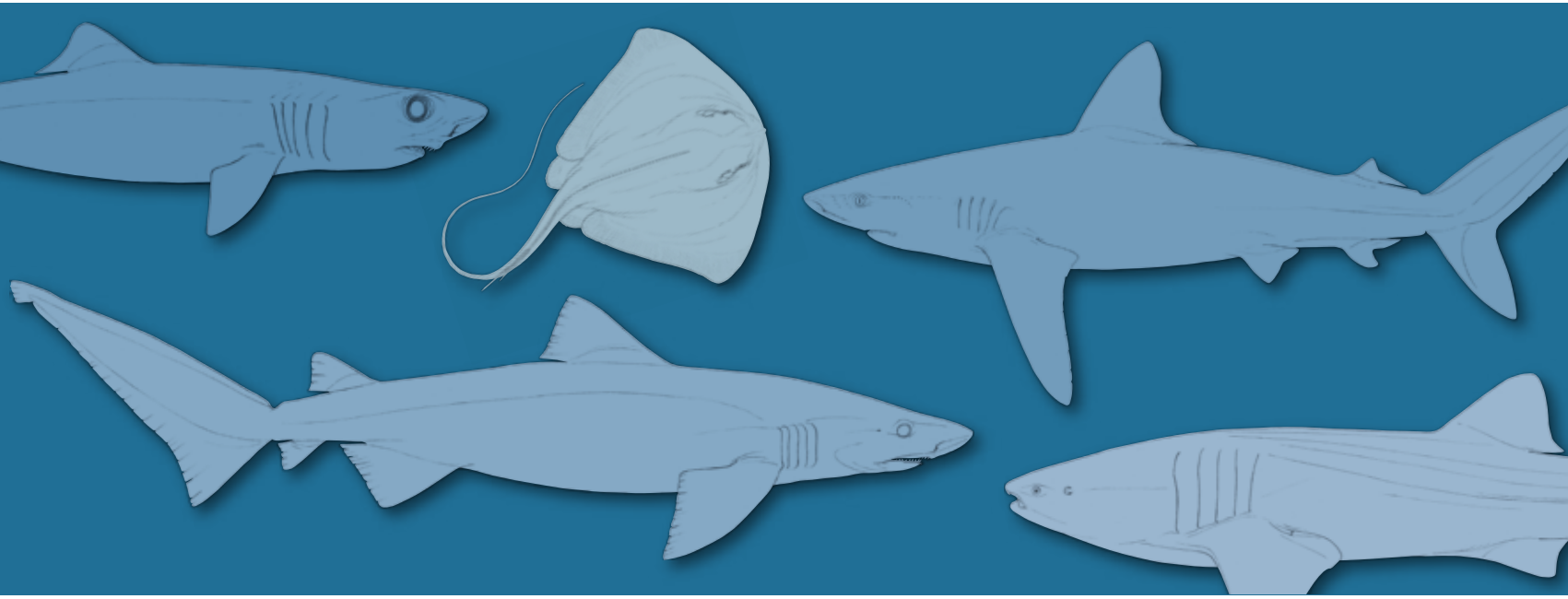
Food and Agriculture Organization
of the United Nations

On board guide for the identification of
PELAGIC SHARKS AND RAYS
Western Indian Ocean



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INTRODUCTION

The present field guide is designed to assist in the identification of pelagic sharks and rays of the Western Indian Ocean that are major, moderate, or minor importance to fisheries. It encompasses the offshore, high seas portion of FAO Fishing Area 51.

The Western Indian Ocean pelagic elasmobranch fauna is currently represented by thirty four shark species and seven ray species. This field guide includes full species accounts for all known species, although it is acknowledged that some vagrant species not included here may on occasion be caught. Each species is described, depicted with a colour illustration and photo, and key distinguishing features of similar-looking species occurring in the area are highlighted allowing for easy and accurate identification in the field.

This field guide is intended to help fishery workers collecting catch data in the field in the identification of the sharks and rays they are likely to encounter. It is conceived to be updatable, offering the possibility to add additional species accounts as new information becomes available.

FAO. 2014. On Board Guide for the Identification of Pelagic Sharks and Rays of the Western Indian Ocean.

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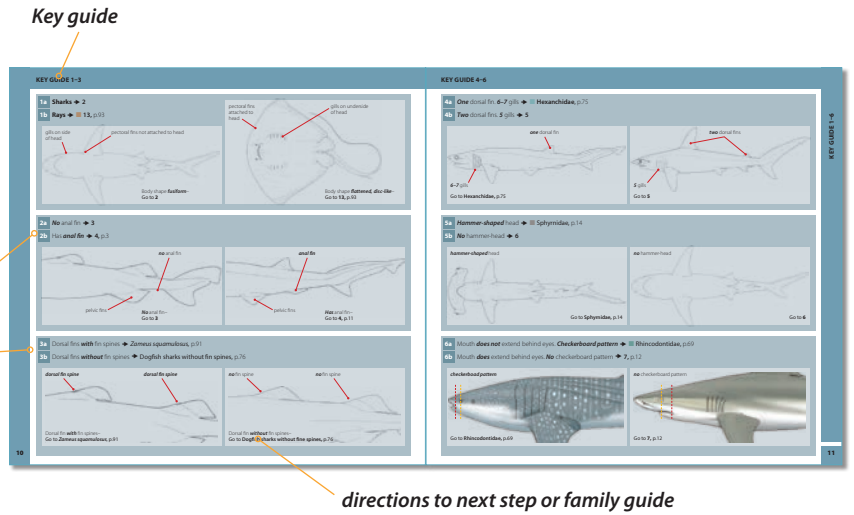
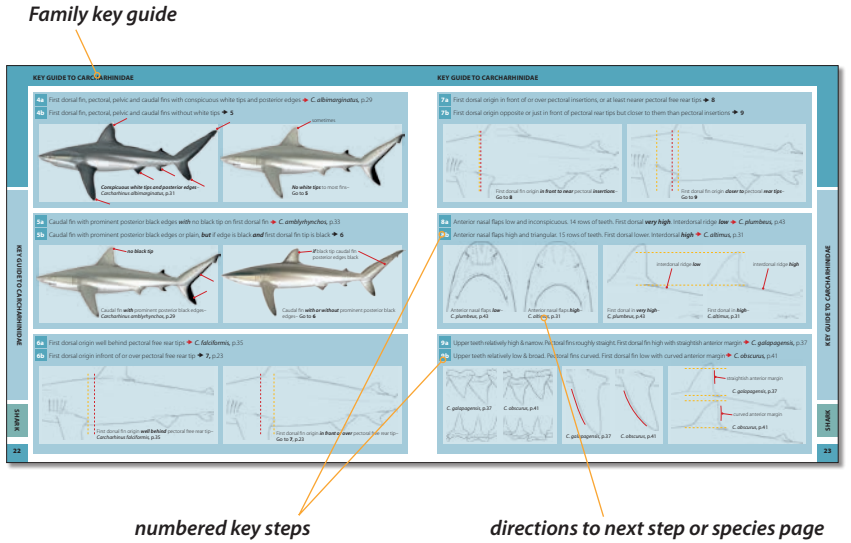
We also thank Guy Stevens (Manta Trust) for his valuable input and suggestions on identifying Mobulid rays in the field.

HOW TO USE THIS GUIDE

The format adopted here is designed to streamline the process of identifying the most common, and some of the less common, pelagic shark and ray species occurring in the Western Indian Ocean. The first thing the user should do when a specimen is caught is go to the **Key Guide** to determine which key characters the specimen has and follow the key to the families, **Sharks pages 10 to 13** and **Rays pages 93 to 94**.



Once the **family** of the specimen has been determined, you should then go to the appropriate page for that family. The **species** can then be determined by going through the family key, on that page, and then going to the individual species page with its accompanying page of similar species on the reverse side.

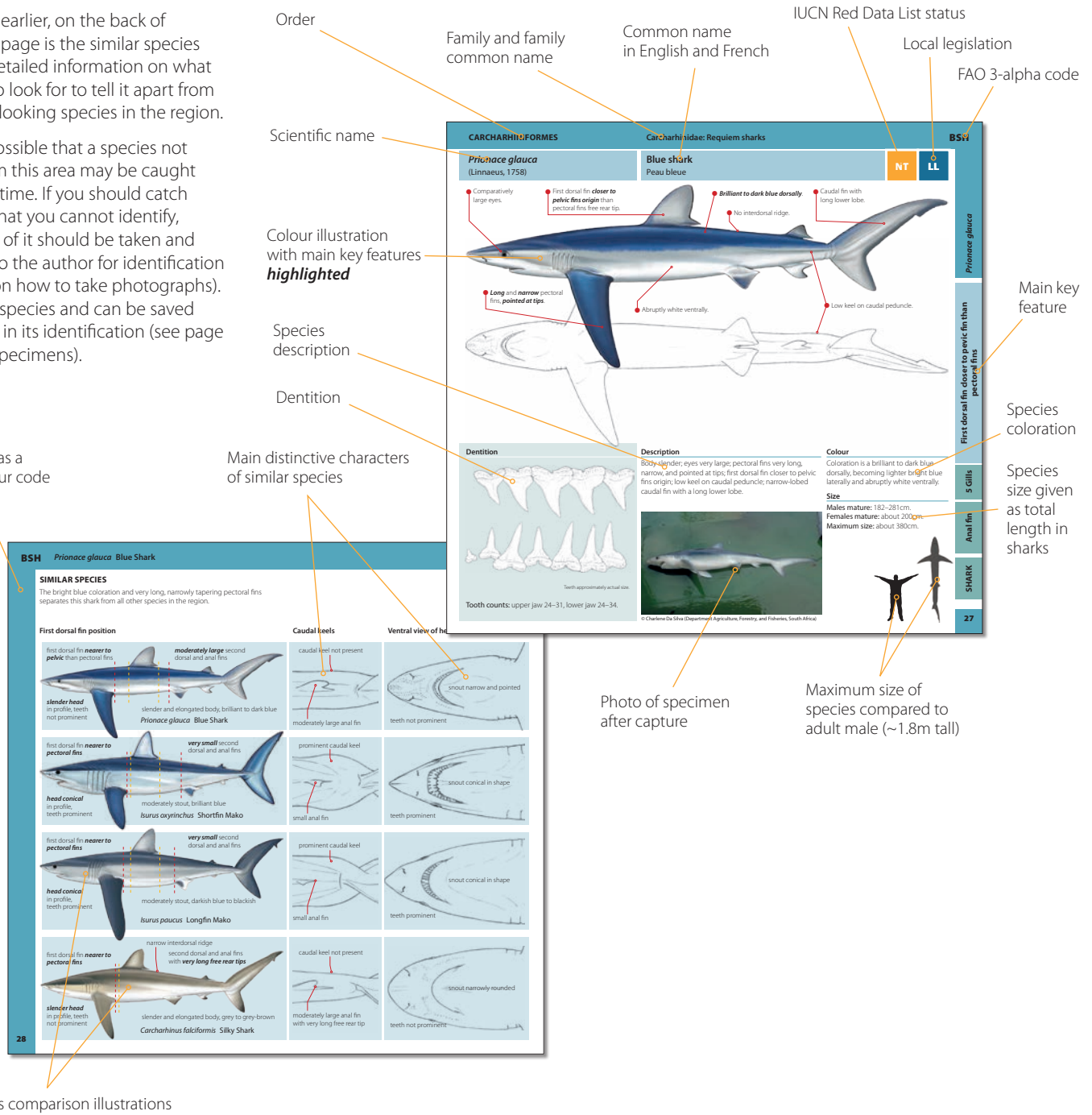


Some of the families consist of a single wide-ranging species that are quite distinct from all others in the area, while other families and genera may have several species which look very similar in appearance. Some of the less common or rare species, mostly the dogfish sharks, can be easily separated from most other sharks by following the key.

The shark genera *Alopias*, *Carcharhinus* and *Sphyrna*, and the ray genus *Mobula* can be a little more difficult to separate into species since many of these species are very similar in appearance. However, the shark genera can be identified to species by focusing on particular characteristics, such as general body shape, coloration, the position of the fins, and tooth shape. In the mobulids (devil rays) the shape of the disc, the 'wings', head length, length of the 'horns', and general body coloration, can be used to separate them.

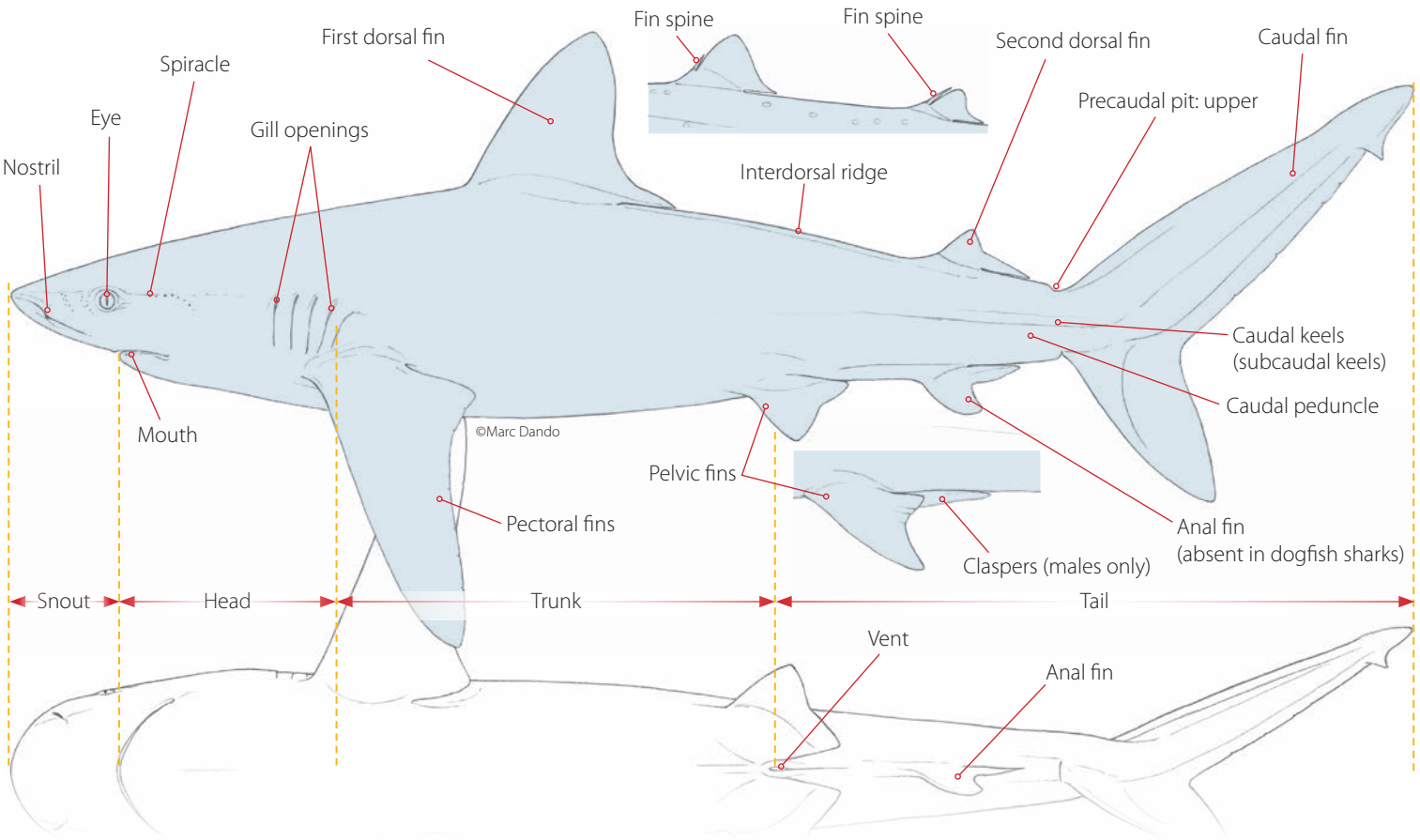
As explained earlier, on the back of each species page is the similar species guide with detailed information on what particularly to look for to tell it apart from other similar looking species in the region.

It is always possible that a species not reported from this area may be caught from time to time. If you should catch a specimen that you cannot identify, photographs of it should be taken and can be sent to the author for identification (see page 8 on how to take photographs). If it is a small species and can be saved that will help in its identification (see page 9 on saving specimens).

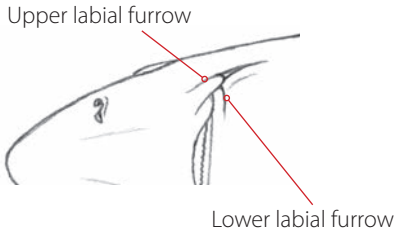


EXTERNAL TERMINOLOGY FOR SHARKS

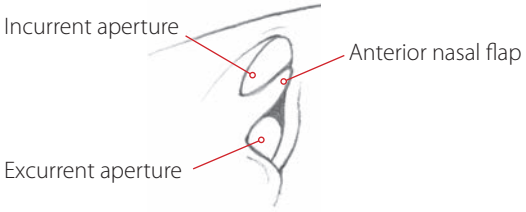
Lateral view



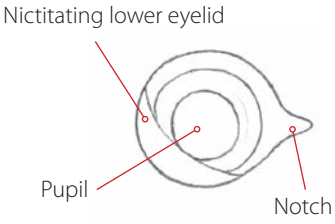
Ventral view



Mouth corner

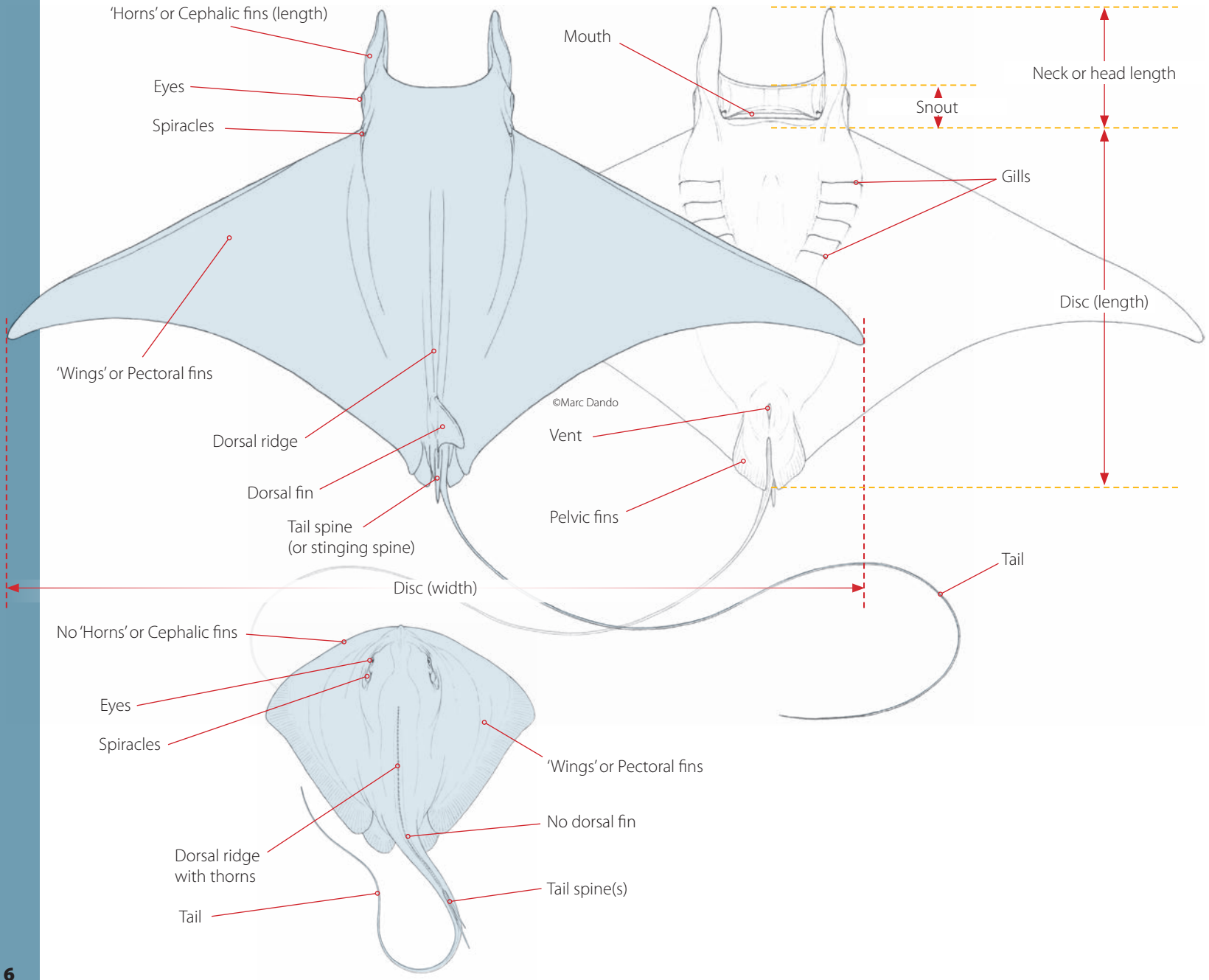


Detail of nostril



Detail of eye

EXTERNAL TERMINOLOGY FOR RAYS



GLOSSARY

Anterior margin: In precaudal fins (see below), the margin (edge) from the fin origin (see below) to its apex (tip).

Caudal keels: A dermal keel on each side of the caudal peduncle that may extend onto the base of the caudal fin, and may, in a few species, extend forward as a body keel to the side of the trunk.

Circumglobal: Occurring around the world.

Circumtropical: Occurring around the tropical regions of the world.

Claspers: The paired copulatory organs present on the pelvic fins of male sharks and rays; used for internal fertilization of eggs.

Cusp: Usually a large, sharp, pointed distal projection of the tooth crown or dermal denticles. Multicuspid refers to the oral teeth or dermal denticles with more than a single cusp. A medial cusp refers to a single, large tooth cusp and lateral cusps or cusplets refers to smaller cusps on each side of a single, larger, medial cusp.

Dermal denticle: A small tooth-like scale found on sharks and rays; some may be rough to the touch on some species, while on other species they may have a softer texture.

Endemic: A species with a restricted geographic distribution.

Free rear tips: The rear portion of a fin (dorsal, pectoral, pelvic, anal) that extends beyond the fin base (the fin's attachment to the body) which is freely moveable; in some species the free rear tips are very elongated and may be useful in species identification.

Head: The distance from the snout tip to the last gill opening.

Inner margin: On the trunk fins (dorsal, pectoral, pelvic, anal), the distance from the posterior end of the fin base (see insertion below) to the free rear tip.

Insertion: The posterior or rear end of the fin base (the fin's attachment to the body) on the trunk fins (dorsal, pectoral, pelvic, anal). See origin below.

Interdorsal ridge: A ridge of skin on the midback of sharks between the dorsal fins; this is an important character for separating genus *Carcharhinus* sharks. The interdorsal ridge may be absent or present (depending on the species), and if present, may be weak (thin) or very prominent.

Labial folds: Skin lobes at the angles of the mouth, usually with labial cartilages inside them. If present, the length of the upper relative to the lower may be useful characteristics in separating some shark species.

Nictitating lower eyelids: Found on ground sharks (order Carcharhiniformes), a moveable lower eyelid that has special posterior eyelid muscles that lift, and in some species, completely close the eye opening.

Origin: The anterior or front end of the fin base (the fin's attachment to the body) on all fins; the caudal fin has an upper and lower origin, but no insertion. See insertion above.

Paired fins: The pectoral and pelvic fins.

Pelagic: Free swimming marine organisms that are not dependent on the bottom.

Posterior margin: In precaudal fins (dorsal, pectoral, pelvic, anal) the margin from the fin apex to the free rear tip (in sharks with a distinct inner margin) or fin insertion (for those without inner margins).

Precaudal fins: All fins (dorsal, pectoral, pelvic, anal) in front of the caudal fin.

Precaudal pit: A depression at the upper and sometimes lower origin of the caudal fins where it joins the caudal peduncle.

Snout: The part of a shark or ray infront of its mouth and eyes, and including its nostrils.

PHOTOGRAPHING, RECORDING, AND SAVING SPECIMENS FOR IDENTIFICATION

By M. Stehmann and D. Ebert

Experience over many years has shown that the identification of sharks and rays can be problematic, especially with similar looking species. Rare species are sometimes encountered and if possible these specimens in addition to being photographed fresh, should be saved and forwarded to experts for possible identification. This can benefit the observers, regional agencies, and scientists (most of whom are interested in these observations), but are not usually at sea.

Taking photographs for easing identification

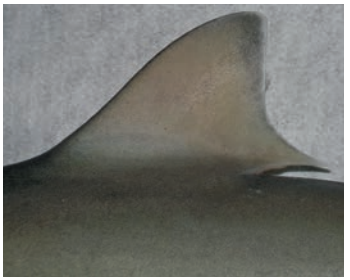
If possible try and place a ruler or other measuring scale alongside the specimen; if no ruler is available, then some other object to show a size relationship. A handwritten label that includes a number, the date, location, and other relevant capture information, and may include the person's name is desirable. Plain coloured or an artificial background contrasting the specimen's colour is fine.

Sharks

Take photographs in lateral view and in total length, and dorsal and ventral views, if possible with the fins erected and spread. Add close-ups of details that catch your eye, e.g. lateral and ventral view of head to gill openings or to origin of pectoral fins, mouth-nasal region, the jaws with dentition and scale cover detail, individual fins, interdorsal ridge, and colour marks or patterns. Close-ups of the teeth are also helpful, especially for the sharks of the genus *Carcharhinus*.

Lateral view, total length © David A. Ebert

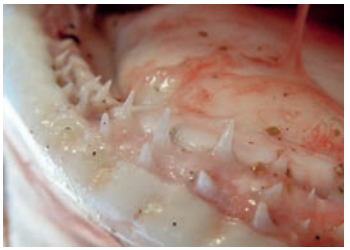
Ventral view, head to gill openings © David A. Ebert



First dorsal fin close-up © David A. Ebert

Trunk fin markings © David A. Ebert

Dorsal view, head and pectoral fins © David A. Ebert

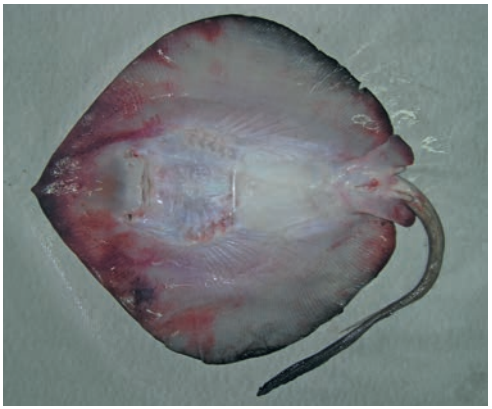


Upper and lower teeth © Al Reeve

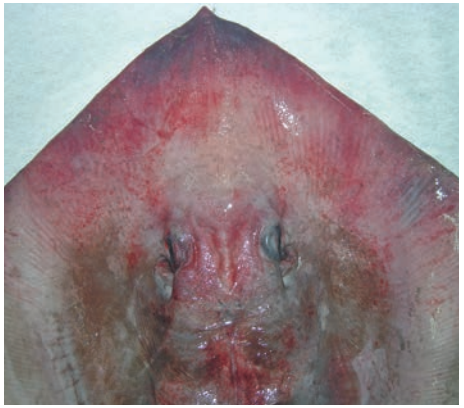
Rays

Take photographs in total dorsal and ventral views. Add close-ups of details, such as the dorsal and ventral view of the head, horn length on mobulids, gill openings, dorsal fin, fin spine (if present), and any obvious colour patterns or markings. The colour patterns of fresh mobulids can be very distinct and useful in separating them to species.

Dorsal view, total size © David A. Ebert



Ventral view, total size © David A. Ebert



Dorsal view, head region close-up © David A. Ebert

Dorsal view, tail and spine close-up © David A. Ebert

Ventral view, vent, pelvic fins and claspers close-up © David A. Ebert

Dorsal view, pelvic fins and base of tail © David A. Ebert

Saving and preservation of unknown, rare, or strange specimens and what to do with them

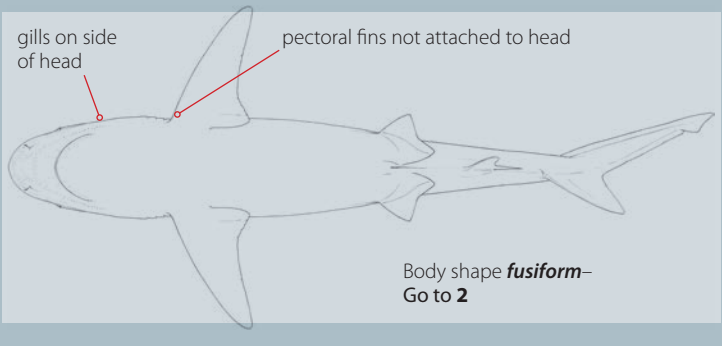
In addition to taking photographs first of the fresh specimen, preserving and forwarding such individuals may be very important for science. These may document, e.g. first geographic records, first records of small young or fully grown adults in a given location, or you may even have found a species so far unknown to science.

At sea, after first photographing it, if possible a photograph or series of digital photographs could be sent to someone (e.g. a scientist) to further check the identification of the specimen and determine whether it should be saved. Once a further determination has been made on its possible identification, and it has been determined the specimen should be saved, it should be preserved by wrapping it in a plastic bag and deep-freezing it. Any associated information (see above) should be included along with the specimen. Use thick, water- and leakage proof plastic bags or box for storage. If it is not possible to send digital photographs from sea, the specimen should then be saved.

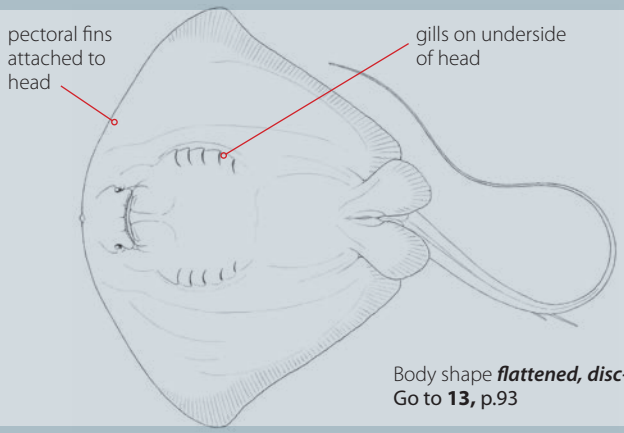
Once back in port, the specimen should remain frozen until someone, preferably from a marine or fishery institute, zoological institute, or museum, and knowledgeable about the possible identification of the specimen can further examine it. Once a determination has been made to save it, a tissue sample (~2-5 gm) should be removed and preserved in a vial of 100% ethanol. The entire specimen, assuming it is not too large, should then be preserved first in 10% formalin. A bin set up in a well-ventilated (the liquid and gas are very toxic) facility and using a dilute concentrated formalin 1:9 with water. If possible, using a syringe, some formalin should be injected into the belly cavity, or a small cut can be made through the belly to allow penetration of formalin to the innards to prevent rotting inside the belly cavity. The storage bin can be outside in a secure area, but undercover and out of the outside elements. Once preserved, the specimen can be shipped to a regional expert for further examination and may be deposited into the fish collection of a national or major international museum.

1a **Sharks ➔ 2**

1b **Rays ➔ 13,** p.93



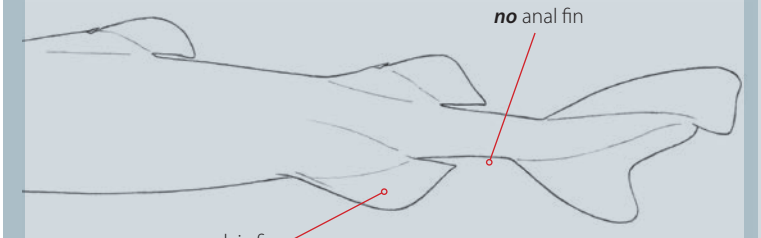
Body shape ***fusiform***–
Go to **2**



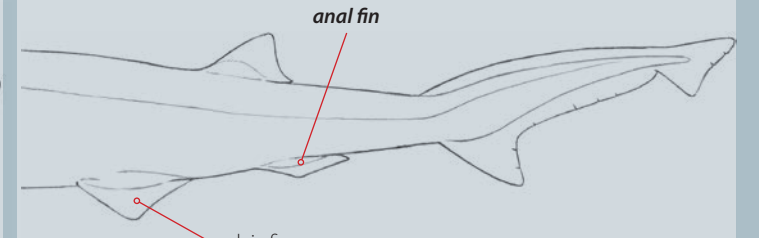
Body shape ***flattened, disc-like***–
Go to **13,** p.93

2a ***No*** anal fin **➔ 3**

2b Has ***anal fin*** **➔ 4,** p.11



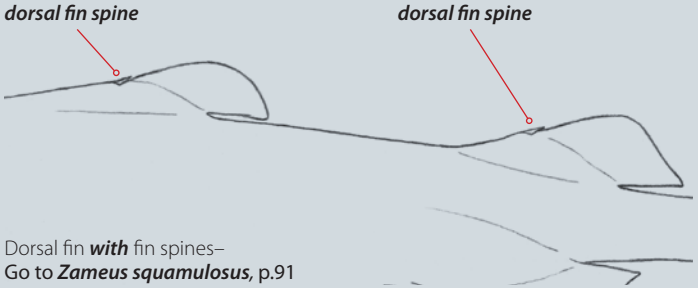
No anal fin–
Go to **3**



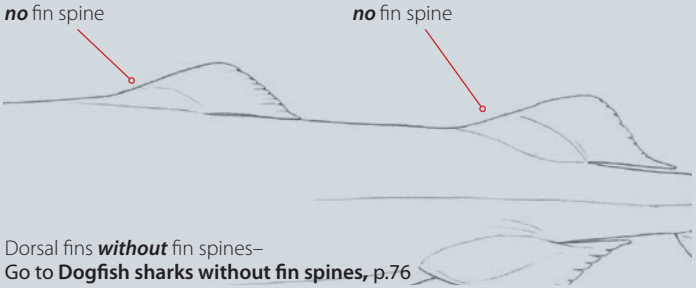
Has anal fin–
Go to **4,** p.11

3a Dorsal fins ***with*** fin spines **➔** *Zameus squamulosus,* p.91

3b Dorsal fins ***without*** fin spines **➔** Dogfish sharks without fin spines, p.76



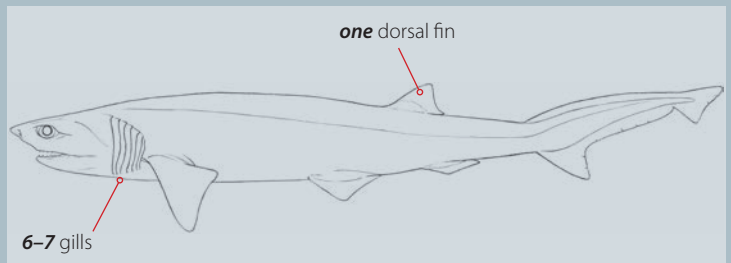
Dorsal fin ***with*** fin spines–
Go to ***Zameus squamulosus,*** p.91



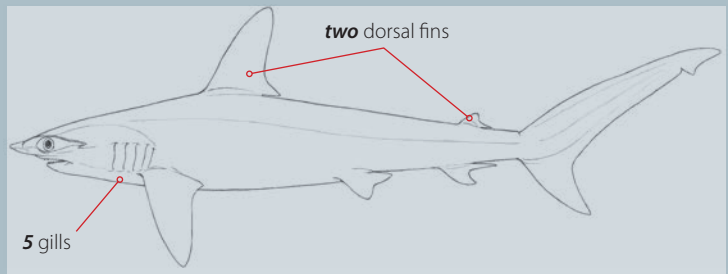
Dorsal fins ***without*** fin spines–
Go to **Dogfish sharks without fin spines,** p.76

4a ***One*** dorsal fin. ***6–7*** gills ➔ **Hexanchidae,** p.75

4b ***Two*** dorsal fins. ***5*** gills ➔ **5**



Go to **Hexanchidae,** p.75

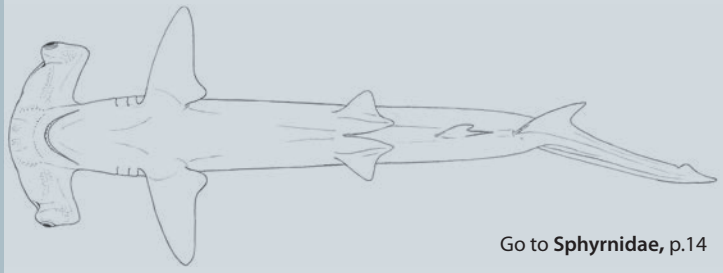


Go to **5**

5a ***Hammer-shaped*** head ➔ Sphyrnidae, p.14

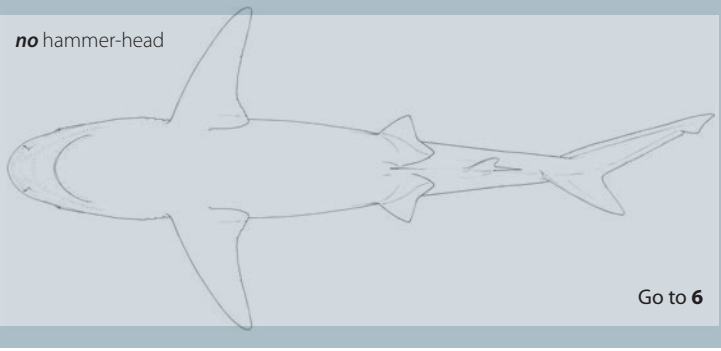
5b ***No*** hammer-shaped head ➔ **6**

hammer-shaped head



Go to **Sphyrnidae,** p.14

no hammer-head

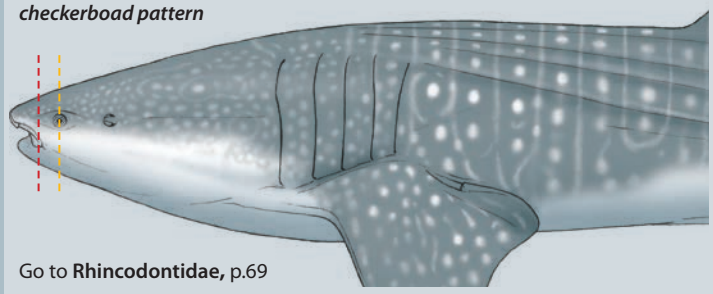


Go to **6**

6a Mouth ***does not*** extend behind eyes. ***Checkerboard pattern*** ➔ Rhincodontidae, p.69

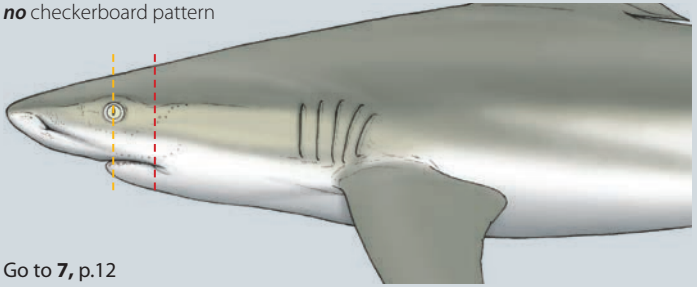
6b Mouth ***does*** extend behind eyes. ***No*** checkerboard pattern ➔ **7,** p.12

checkerboad pattern



Go to **Rhincodontidae,** p.69

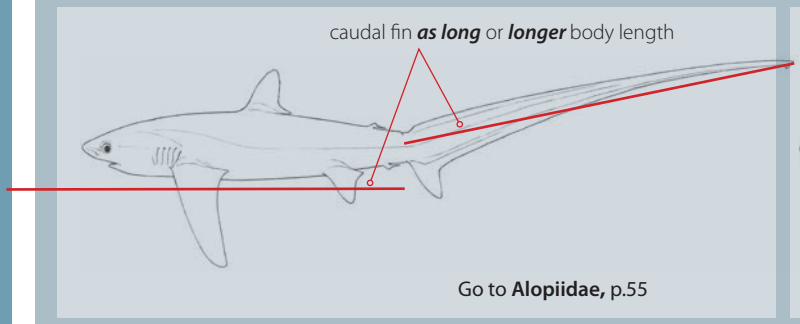
no checkerboard pattern



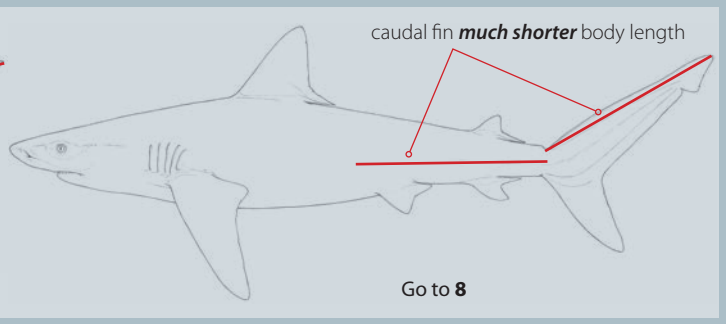
Go to **7,** p.12

7a Caudal fin as long or longer than body length ➔ ■ **Alopiidae** p.55

7b Caudal fin shorter than body length ➔ **8)**



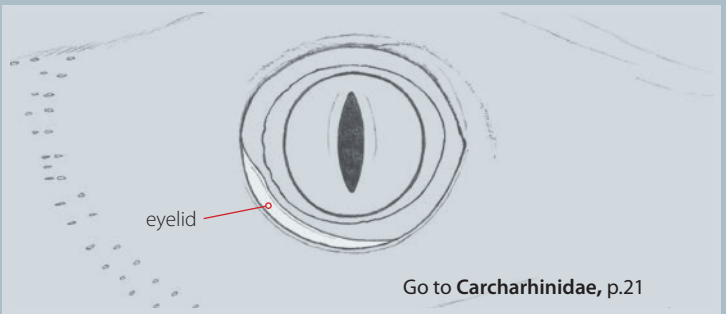
Go to **Alopiidae,** p.55



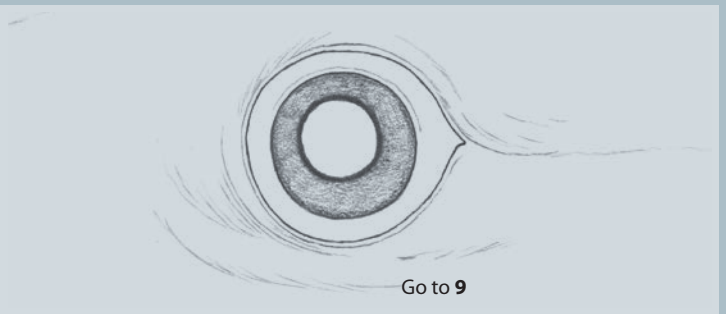
Go to **8**

8a Eyelids present ➔ ■ **Carcharhinidae** p.21

8b Eyelids absent ➔ **9)**



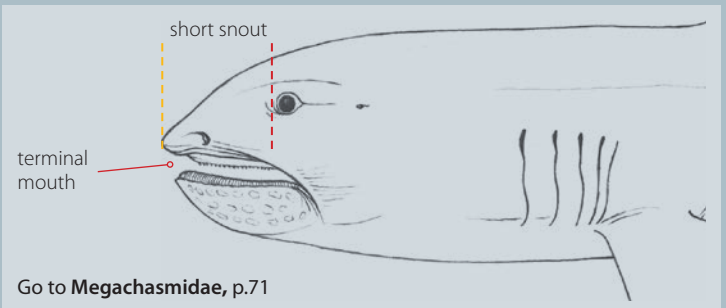
Go to **Carcharhinidae,** p.21



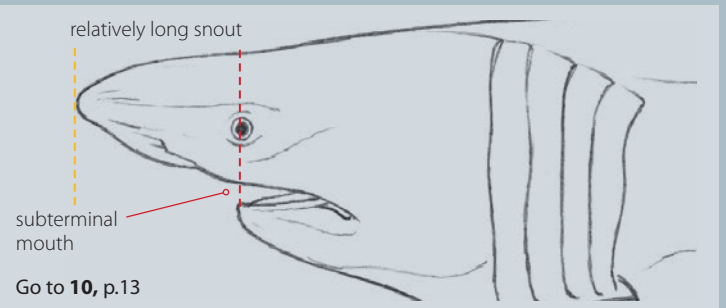
Go to **9**

9a Short snout. Terminal mouth ➔ ■ **Megachasmidae** p.71

9b Relatively long snout. Sub-terminal mouth ➔ **10)** p.13



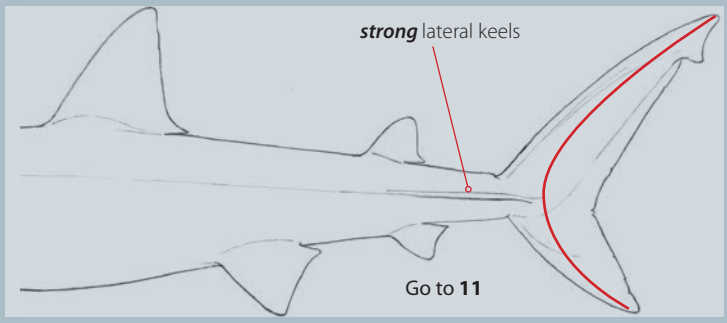
Go to **Megachasmidae,** p.71

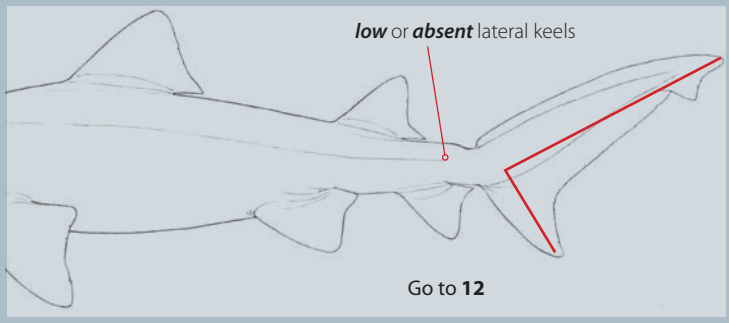


Go to **10,** p.13

10a Caudal fin 'C'-shaped. Strong lateral keels ➔ 11)

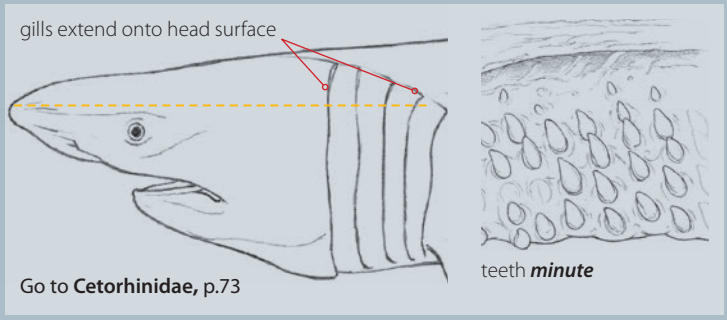
10b Caudal fin not 'C'-shaped. Weak or absent lateral keels ➔ 12)

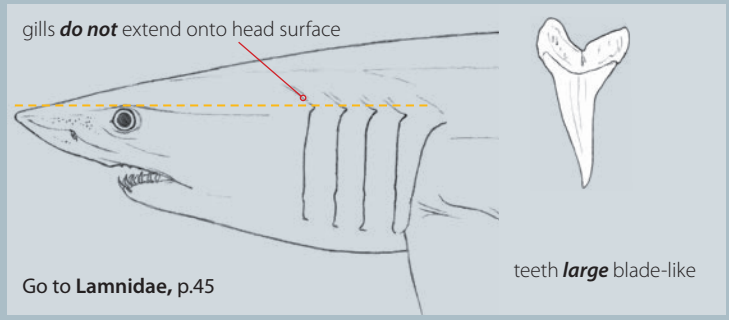




11a Teeth minute. Large gills extend onto surface of head ➔ Cetorhinidae p.73

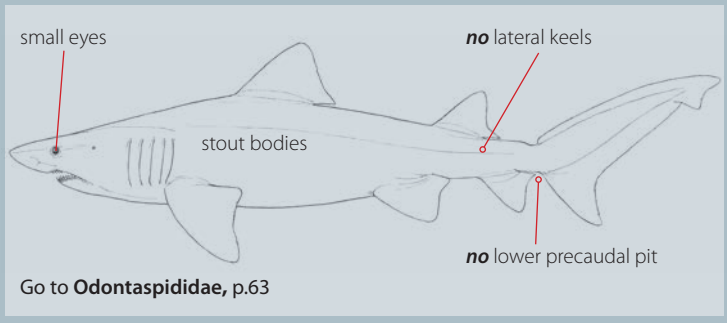
11b Large blade-like teeth. Gills do not extend onto surface of head ➔ Lamnidae p.45

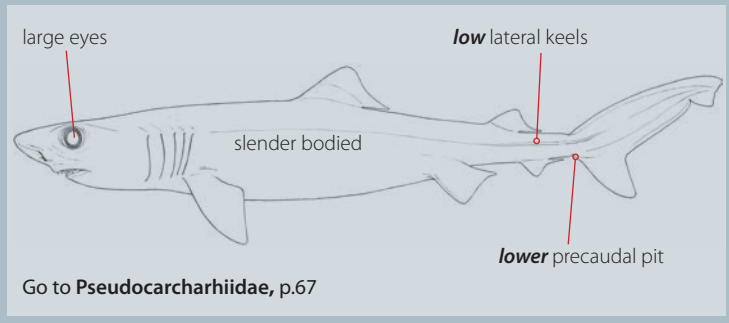




12a Stout bodied. Small eyes. ***No*** lower pre-caudal pit ➔ Odontaspididae p.63

12b Slender bodied. Large eyes. ***Upper*** and ***lower*** pre-caudal pit present ➔ Pseudocarchariidae p.67



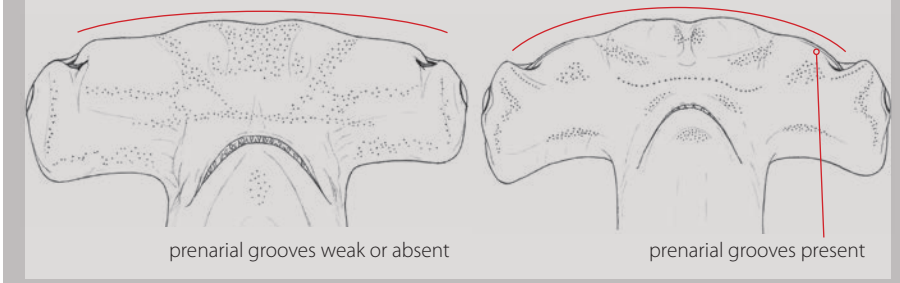


1a Anterior margin of head nearly straight. Prenarial grooves absent or hardly developed. First dorsal fin tall & strongly falcate. Teeth strongly serrated at all sizes. Pelvic fins large & falcate. Second dorsal & anal fins equally very large & falcate → *S. mokarran* p.17

1b Anterior margin of head moderately convex. Prenarial grooves well-developed. First dorsal usually semifalcate. Teeth weakly serrated in adults. Pelvic fins with nearly straight posterior edges. Second dorsal fin with a long inner margin → **2**

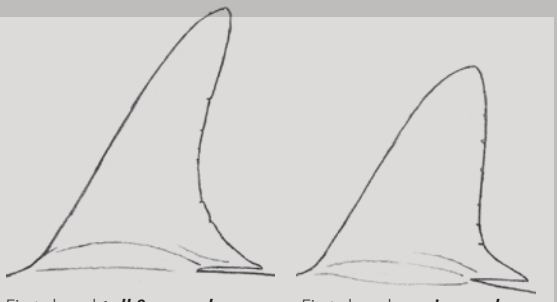
Anterior margin of head ***nearly straight***– *Sphyrna mokarran*, p.17

Anterior margin of head ***moderately convex***– Go to **2**



prenarial grooves weak or absent

prenarial grooves present

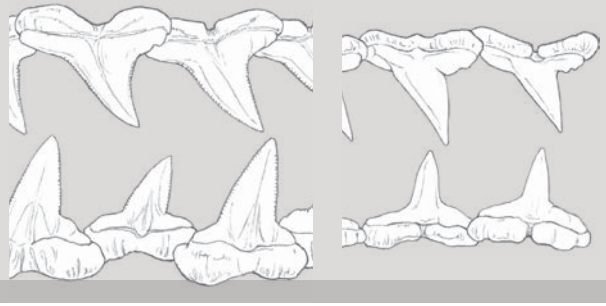


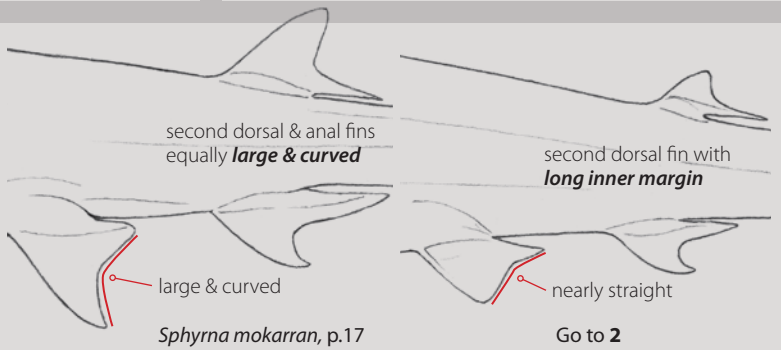
First dorsal ***tall & curved***– *Sphyrna mokarran*, p.17

First dorsal ***semicurved***– Go to **2**

Teeth ***strongly serrated***– *Sphyrna mokarran*, p.17

Teeth ***weakly serrated***– Go to **2**





second dorsal & anal fins equally ***large & curved***

second dorsal fin with ***long inner margin***

large & curved

nearly straight

Sphyrna mokarran, p.17

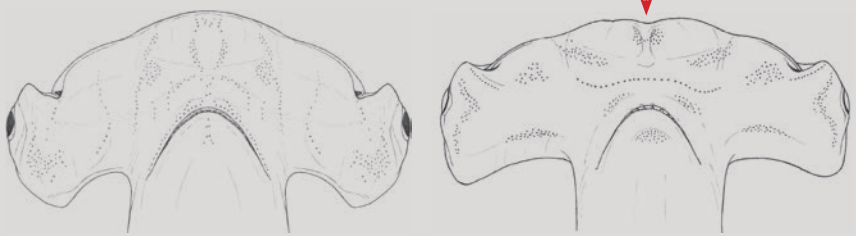
Go to **2**

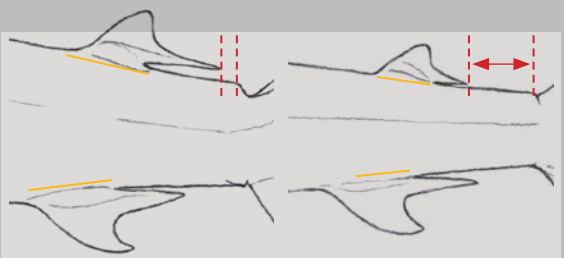
2a No median indentation on anterior margin of head. Free rear tip of second dorsal fin well ahead of upper caudal fin origin. Anal fin base about as large as second dorsal fin base. → *S. zygaena* p.19

2b Prominent median indentation on anterior margin of head. Free rear tip of second dorsal fin nearly reaching upper caudal fin origin. Anal fin base noticeably larger than that of second dorsal fin → *S. lewini* p.15

No median indentation– *Sphyrna zygaena*, p.19

Prominent median indentation– *Sphyrna lewini*, p.15





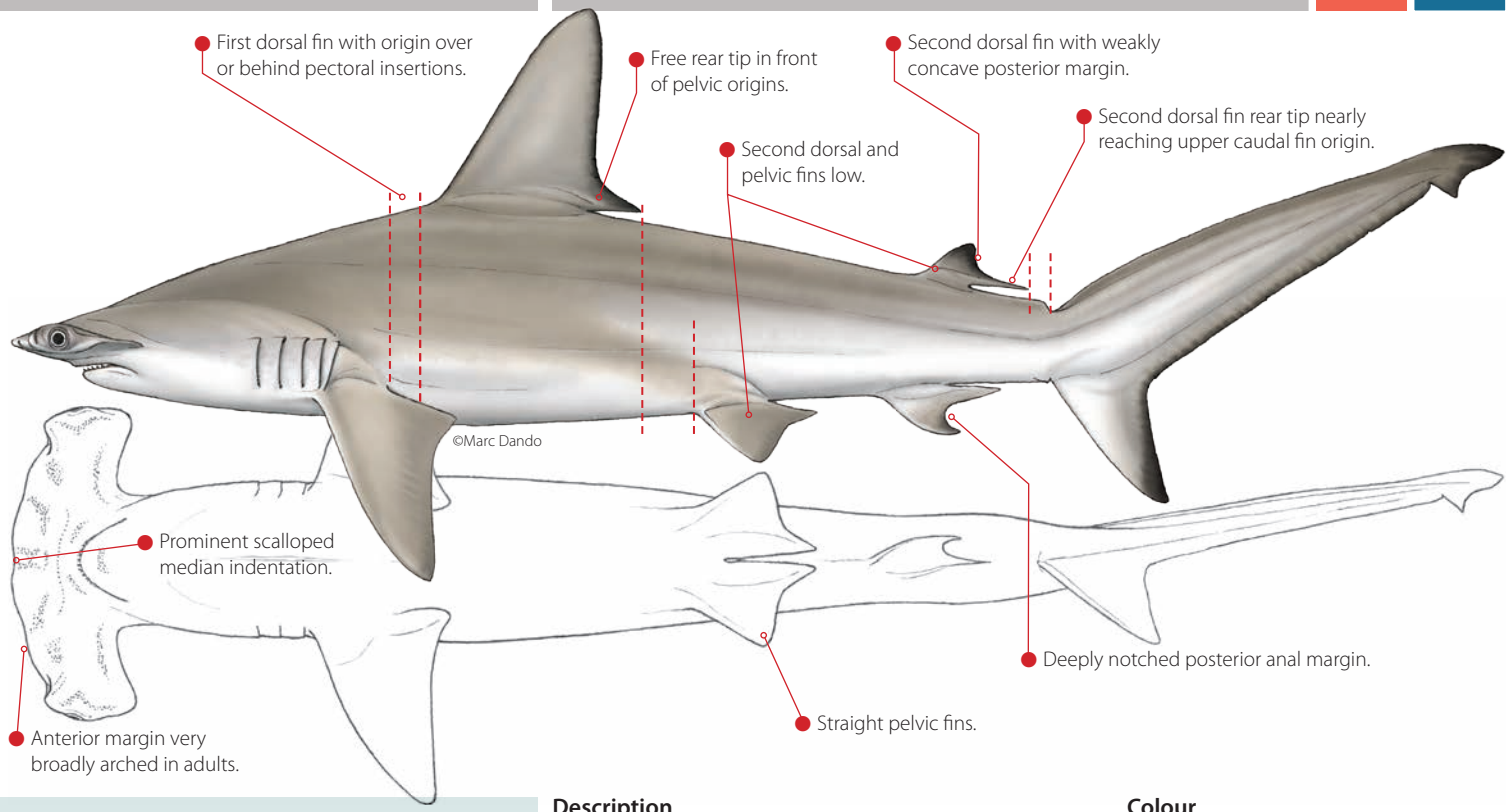
Second dorsal & anal fin base ***about equal***– *Sphyrna zygaena*, p.19

Anal fin base ***much larger*** than second dorsal– *Sphyrna lewini*, p.15

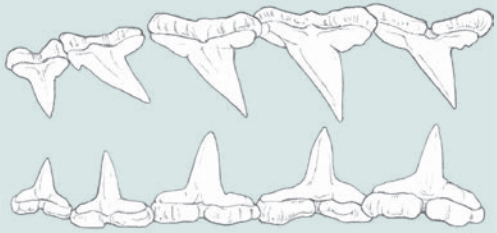
Sphyrna lewini
(Griffith & Smith, 1834)

Scalloped hammerhead
Requin-marteau halicorne

EN LL



Dentition



Teeth approximately actual size.

Teeth large, with a long slender, smooth-edged cusp, no lateral cusplets, similar in both jaws; no intermediate teeth.
Tooth rows: upper 30–36, lower 30–35.

Description

Anterior margin of "hammerhead" curved and with a prominent scalloped indentation. Moderately high first dorsal fin with origin over or behind pectoral insertions and free rear tip in front of pelvic origins. Second dorsal fin with long posterior margin with free rear tip nearly reaching upper caudal origin. Straight to nearly straight pelvic fins. Deeply notched posterior anal margin.

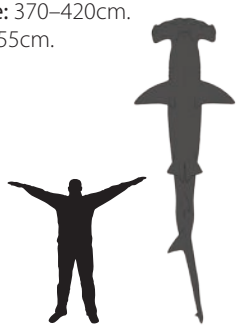
© NOAA Fisheries, USA

Colour

Grey-brown above, white below, undersides of pectoral fin tips dusky (larger specimens) to black (younger specimens).

Size

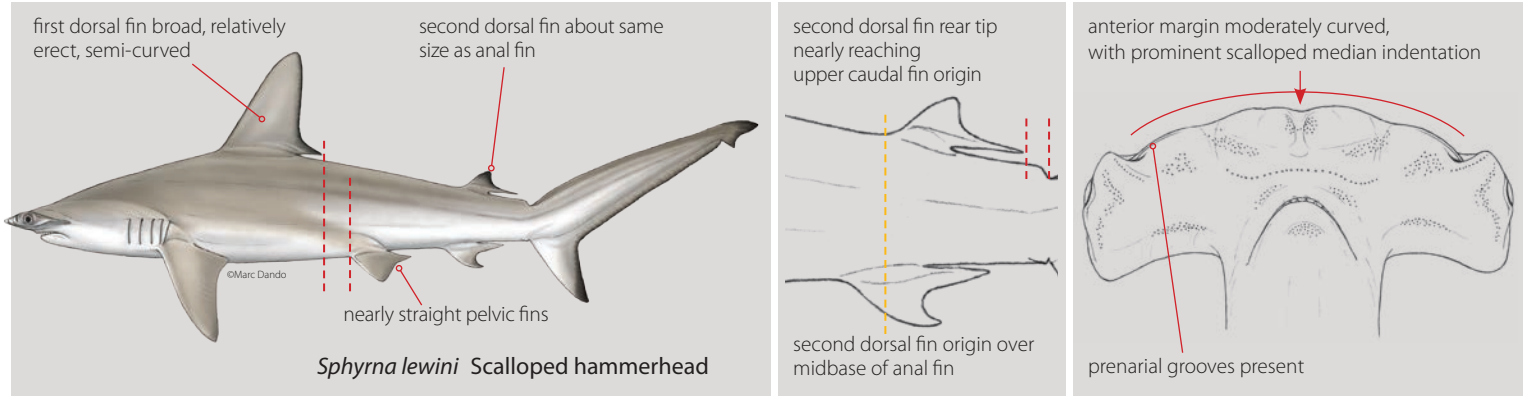
Males mature: 140–150cm.
Females mature: 212cm.
Maximum size: 370–420cm.
Birth size: 40–55cm.



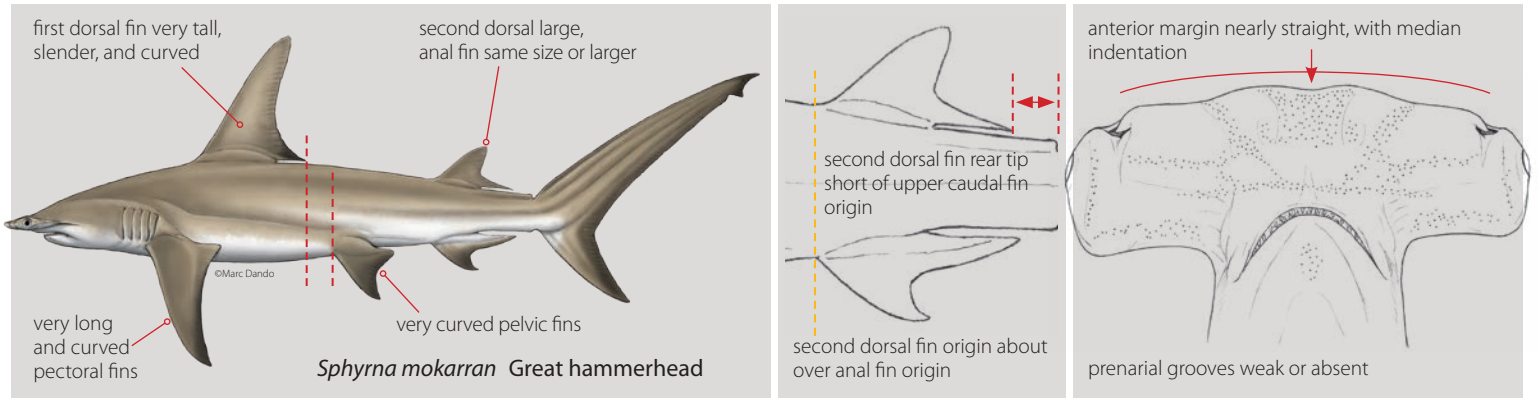
SIMILAR SPECIES

Moderately curved first dorsal fin with origin over or behind pectoral fins insertion and free rear tip in front of pelvic origins, low second dorsal fin with weakly concave posterior margin the long posterior margin is about twice its height with the free rear tip nearly or not quite reaching the upper caudal fin origin, nearly straight pelvic fins, anal fin with deeply notched posterior margin; undersides of pectoral fins dusky or black-tipped.

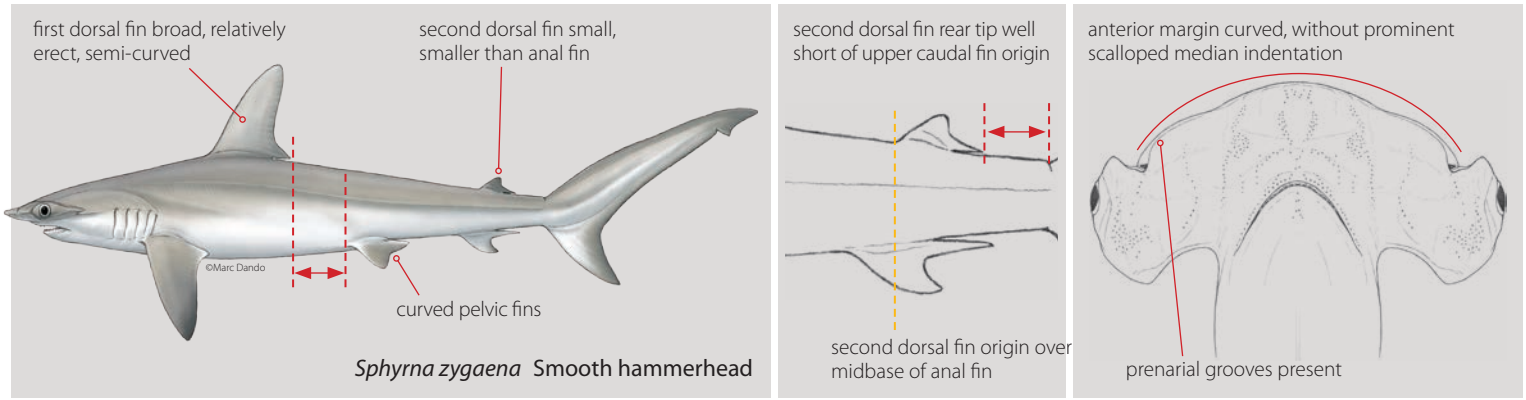
First dorsal, pectoral and pelvic fin sizes and shapes | **Second dorsal and anal fins** | **Ventral view of heads**



Sphyrna lewini Scalloped hammerhead



Sphyrna mokarran Great hammerhead

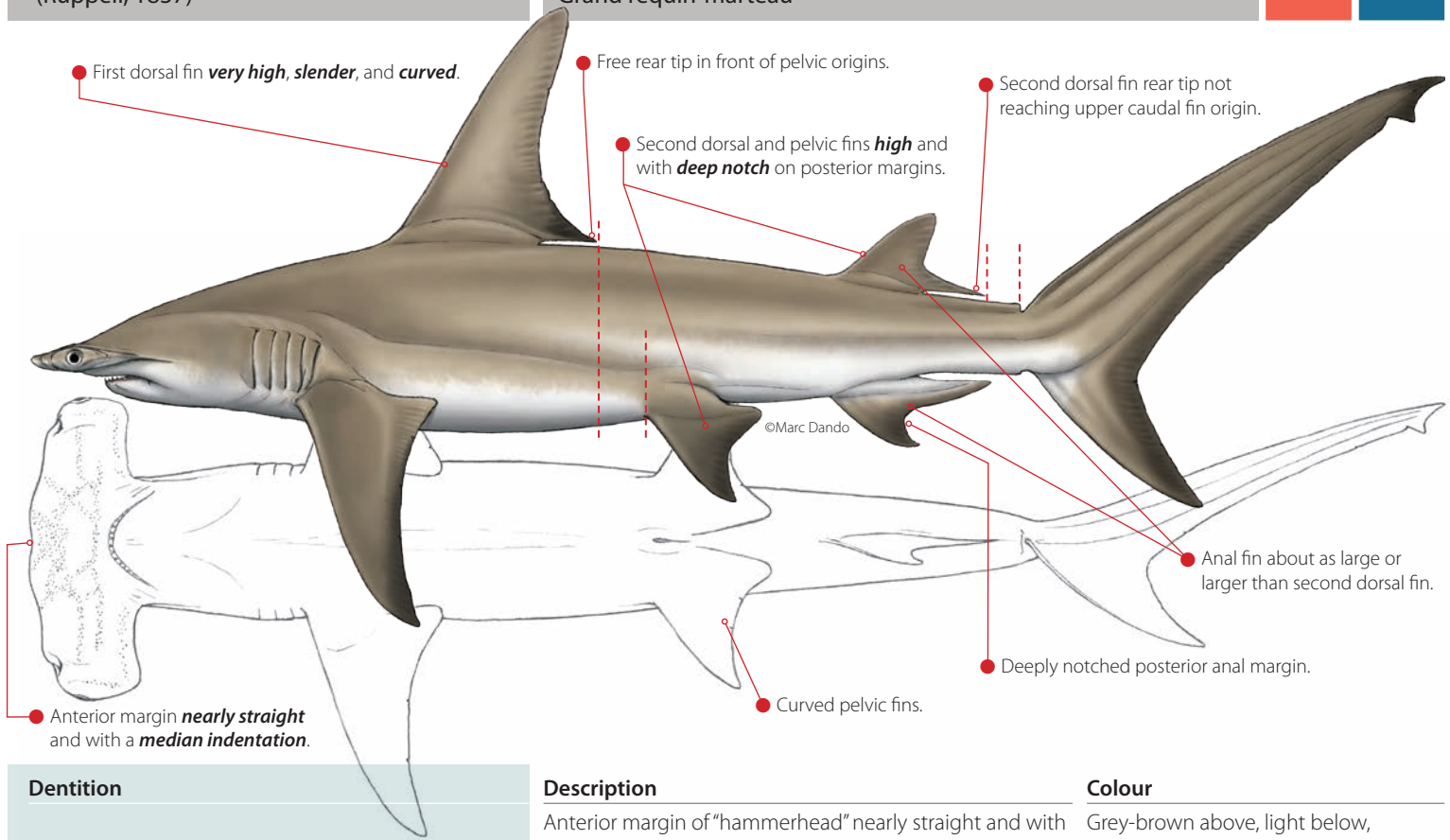


Sphyrna zygaena Smooth hammerhead

Sphyrna mokarran
(Rüppell, 1837)

Great hammerhead
Grand requin-marteau

EN LL



Dentition

Teeth approximately actual size.

Teeth strongly serrated at all sizes.

Tooth count: upper jaw 36–37, lower jaw 34–35.

Description

Anterior margin of "hammerhead" nearly straight and with a median indentation. Very high first dorsal fin with rear tip in front of pelvic origins. Second dorsal and pelvic fins high and with deep notches on posterior margins. Anal fin deeply notched and about as large or larger than second dorsal fin.

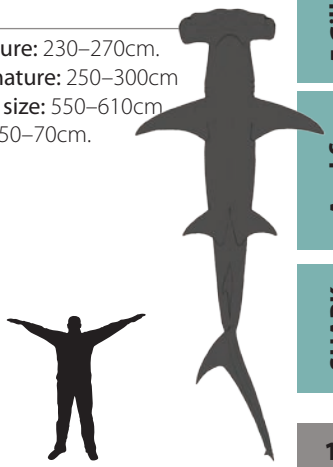
© NOAA Fisheries, USA

Colour

Grey-brown above, light below, without fin markings.

Size

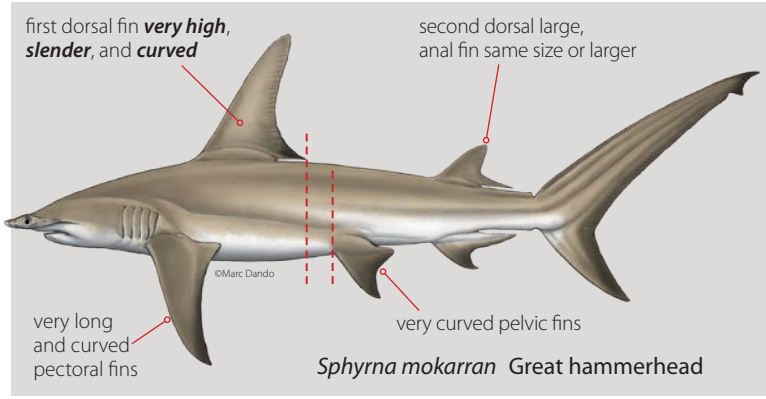
Males mature: 230–270cm.
Females mature: 250–300cm
Maximum size: 550–610cm
Birth size: 50–70cm.



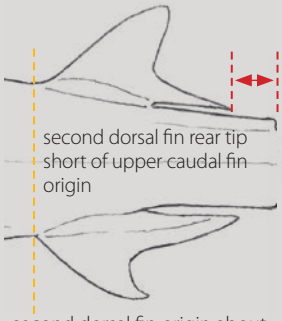
SIMILAR SPECIES

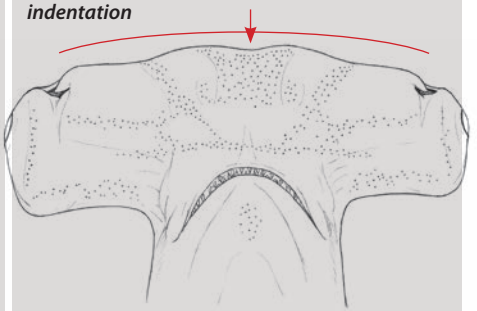
Head anterior margin nearly straight with a median indentation; first dorsal fin very high and curved with the rear tip in front of the pelvic fins origin, second dorsal fin rear tip does not reach near the upper caudal fin origin, anal fin about as large or larger than second dorsal fin with a deeply notched posterior.

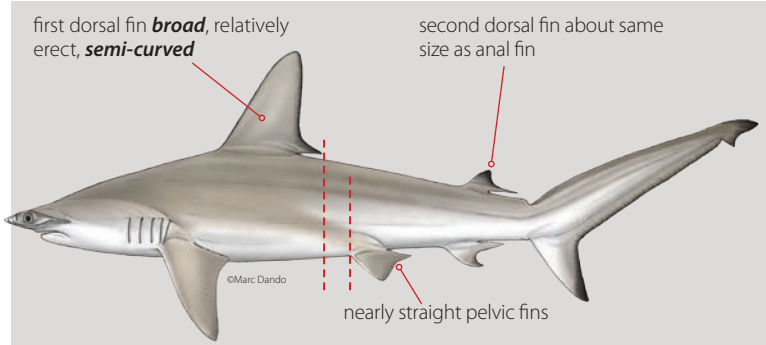
First dorsal, pectoral and pelvic fins sizes and shapes | **Second dorsal and anal fins** | **Ventral view of heads**



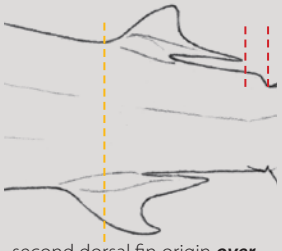
Sphyrna mokarran Great hammerhead

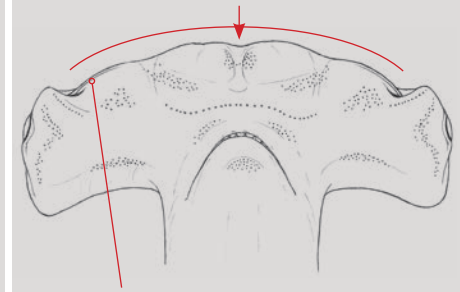


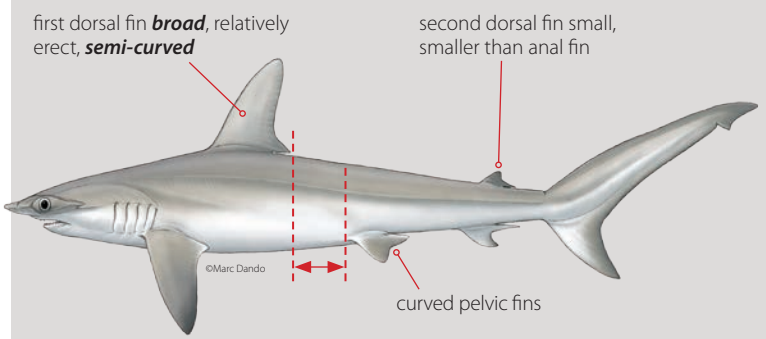




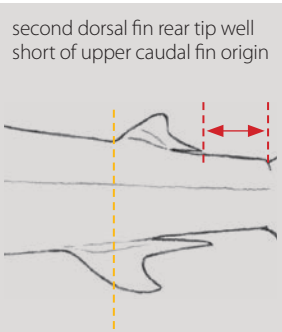
Sphyrna lewini Scalloped hammerhead

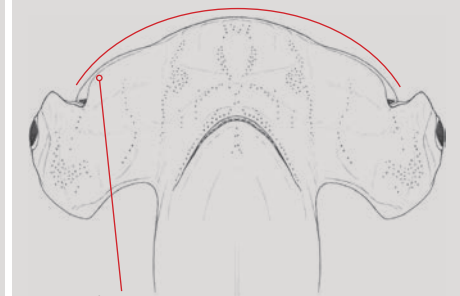






Sphyrna zygaena Smooth hammerhead

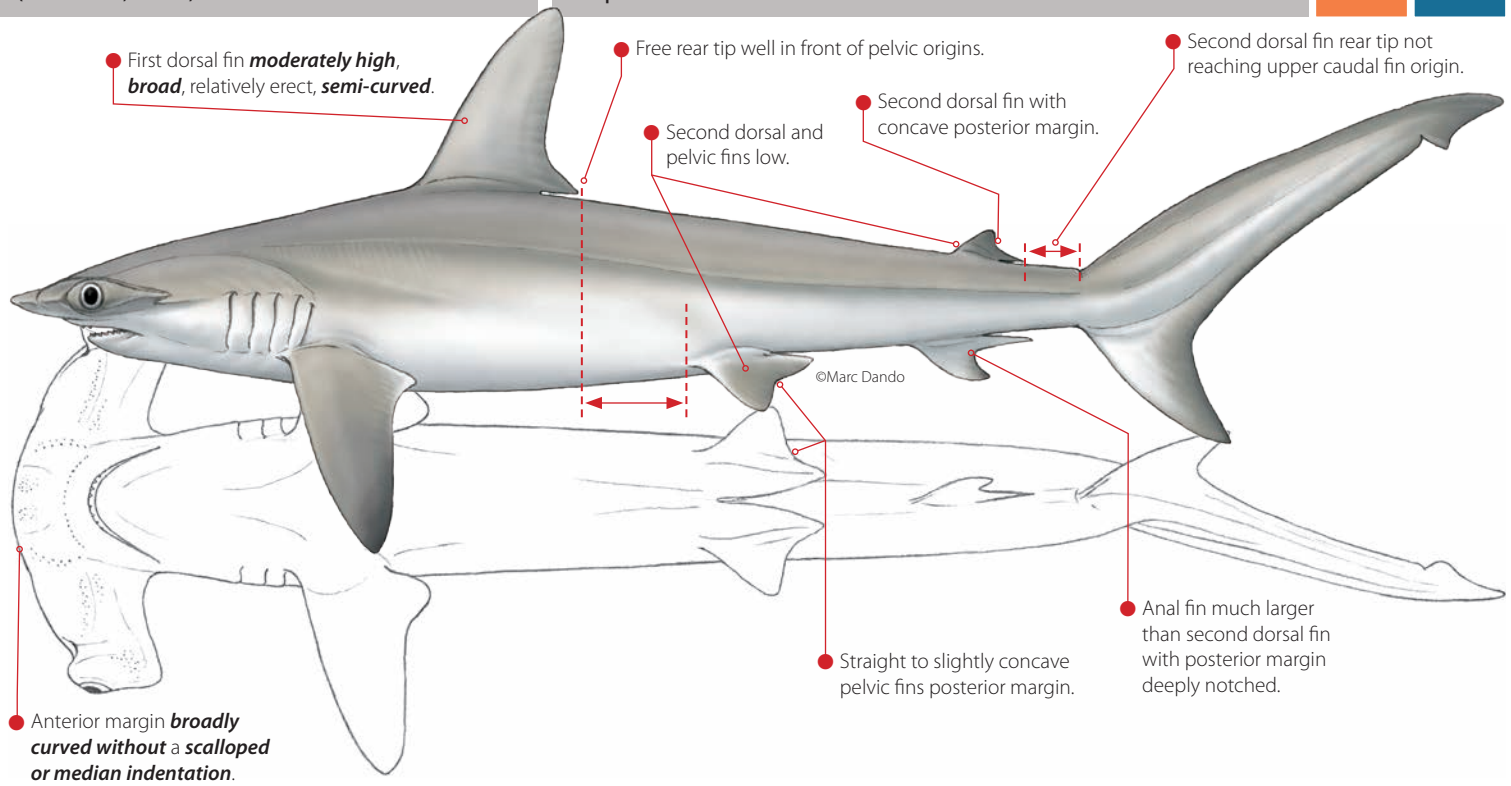




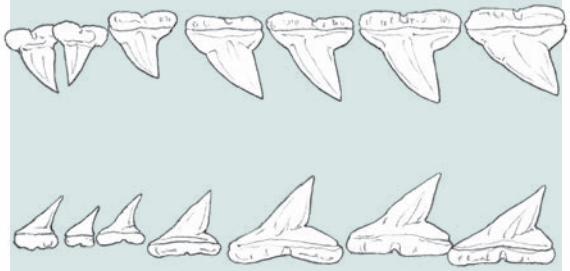
Sphyrna zygaena
(Linnaeus, 1758)

Smooth hammerhead
Requin marteau

VU LL



Dentition



Teeth approximately actual size.

Teeth with very broad cusps and smooth to weakly serrated edge.

Tooth counts: upper jaw 30–32, lower jaw 29–30.

Description

Anterior margin of "hammerhead" curved and without a prominent scalloped indentation. Moderately high first dorsal fin. Second dorsal and pelvic fins low, second dorsal fin rear tip not reaching upper caudal fin origin. Anal fin much larger than second dorsal fin.

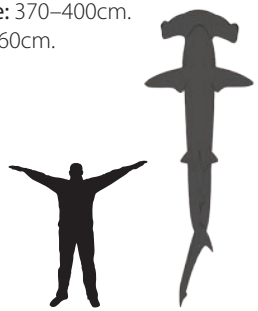
© Reeve/Henderson (Sultan Qaboos University, Muscat, Oman)

Colour

Dark olive or dark grey-brown above, white below, undersides of pectoral fin tips dusky.

Size

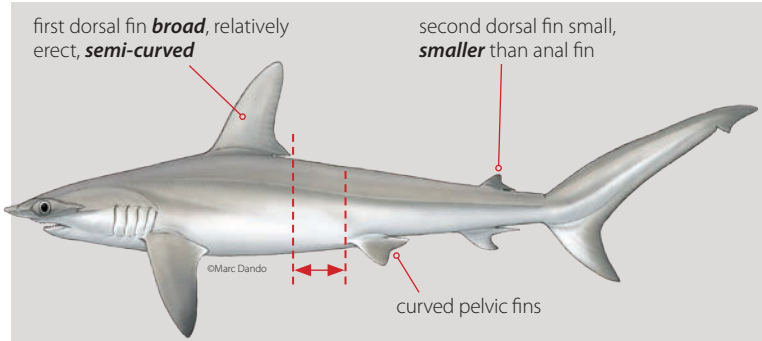
Males mature: 210–240cm.
Females mature: 250–260cm.
Maximum size: 370–400cm.
Birth size: 50–60cm.



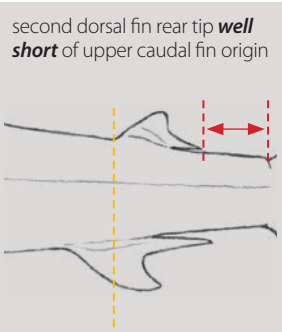
SIMILAR SPECIES

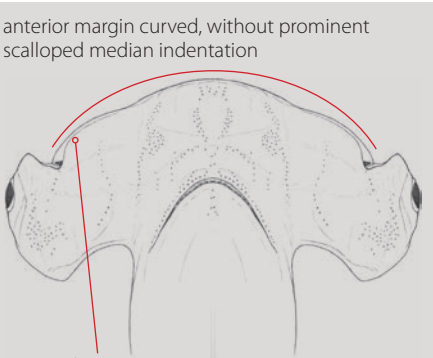
Anterior margin of "hammerhead" curved without a prominent scalloped indentation; moderately high first dorsal fin, second dorsal fin tip does not reach the upper caudal fin origin, anal fin much larger than second dorsal fin with posterior margin deeply notched.

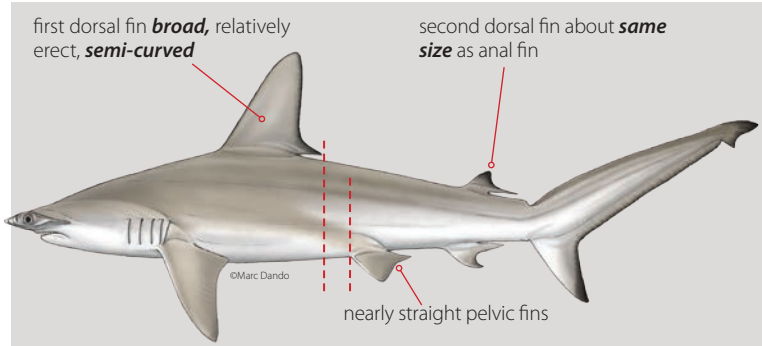
First dorsal, pectoral and pelvic fins sizes and shapes | **Second dorsal and anal fins** | **Ventral view of heads**



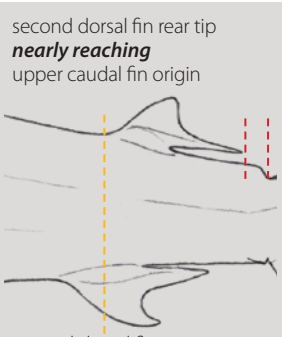
Sphyrna zygaena Smooth hammerhead

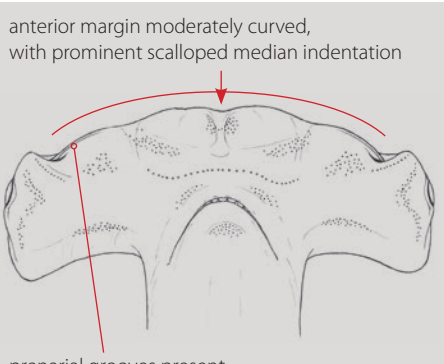


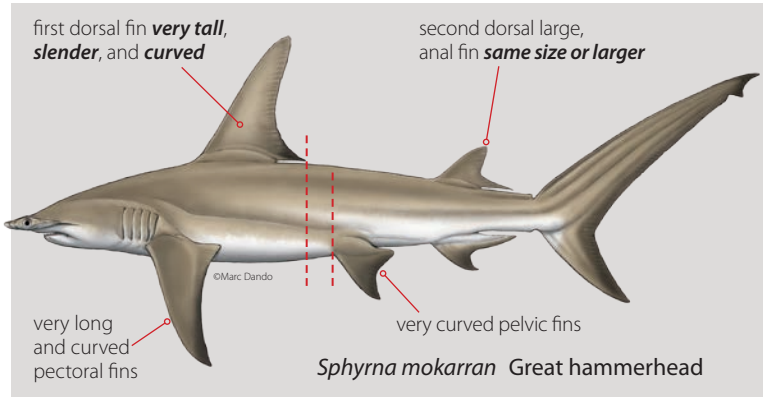




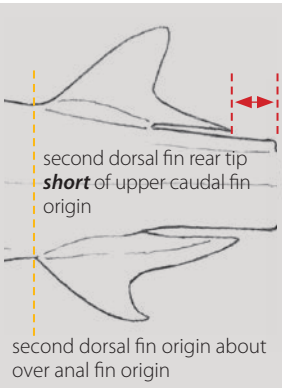
Sphyrna lewini Scalloped hammerhead

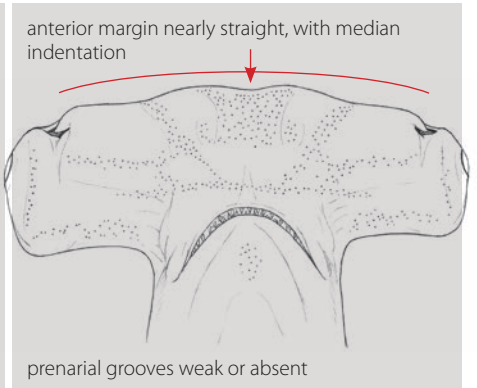






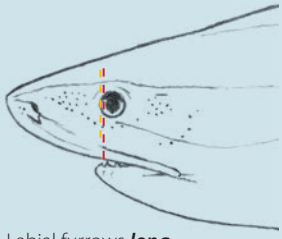
Sphyrna mokarran Great hammerhead



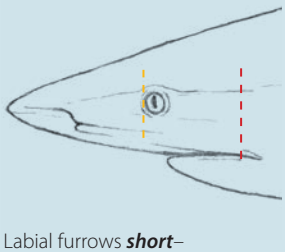


1a Upper labial furrows very long, extending infront of eyes. Prominent lateral keels. → *Galeocerdo cuvier,* p.25

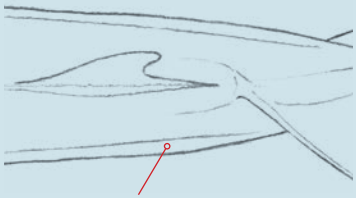
1b Upper labial furrows do not extend infront of eyes. Lateral keels usually absent. → **2**



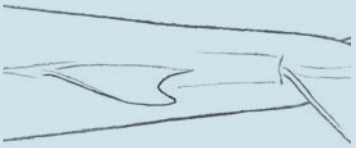
Labial furrows ***long***–
Galeocerdo cuvier, p.25



Labial furrows ***short***–
Go to **2**



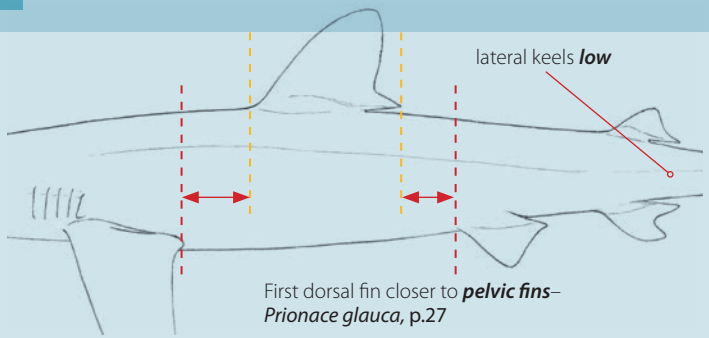
Prominent lateral keels–
Galeocerdo cuvier, p.25



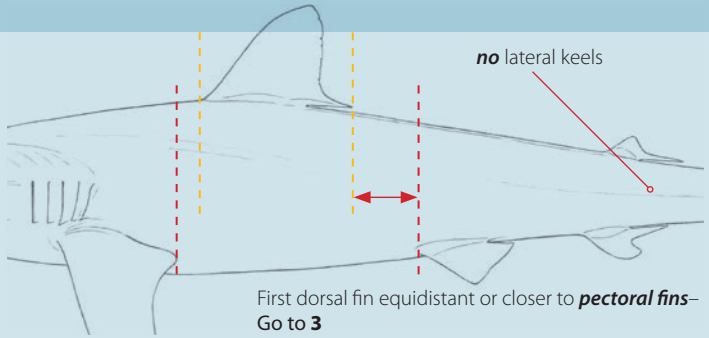
Lateral keels absent, or low–
Go to **2**

2a First dorsal fin much closer to pelvic fins than pectoral fins. Low lateral keels. Briliant blue above. → *P. glauca,* p.27

2b First dorsal fin equidistant or closer to pectoral fins. No lateral keels. → **3,** *Carcharhinus* species



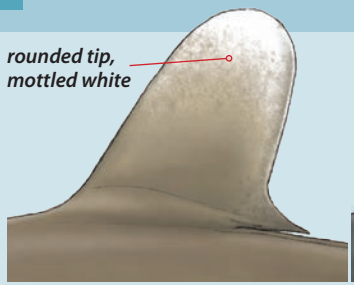
First dorsal fin closer to ***pelvic fins***–
Prionace glauca, p.27



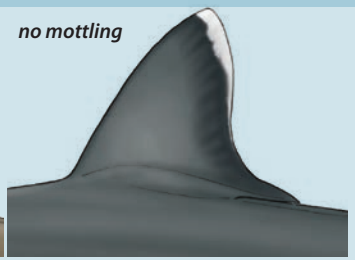
First dorsal fin equidistant or closer to ***pectoral fins***–
Go to **3**

3a First dorsal and pectoral fins very broad with rounded white mottled tips → *C. longimanus,* p.39

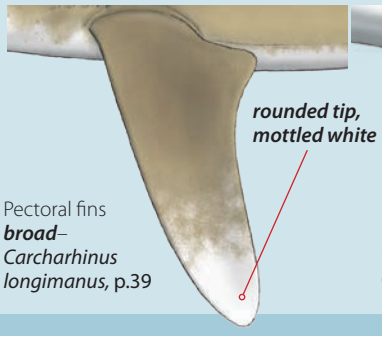
3b Fins not mottled white; first dorsal and pectoral fins tapering with pointed tips → **4,** p.22



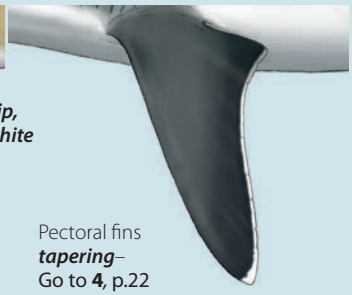
First dorsal fin ***very broad***–
Carcharhinus longimanus, p.39



First dorsal fin ***tapering***–
Go to **4**, p.22



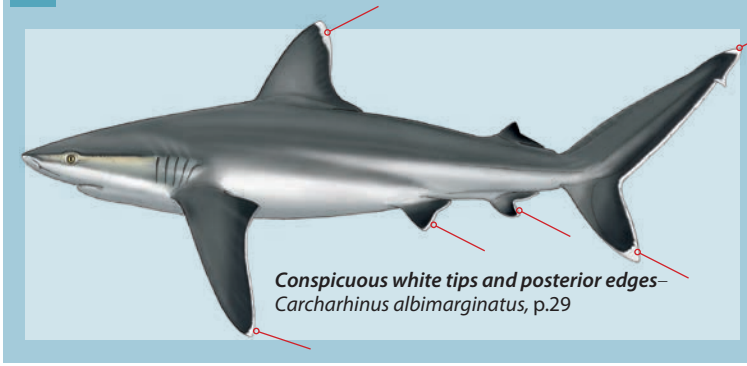
Pectoral fins
broad–
Carcharhinus longimanus, p.39



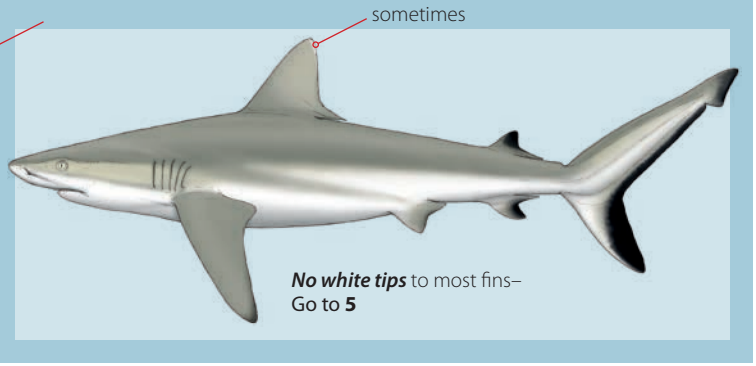
Pectoral fins
tapering–
Go to **4**, p.22

4a First dorsal fin, pectoral, pelvic and caudal fins with conspicuous white tips and posterior edges → *C. albimarginatus,* p.29

4b First dorsal fin, pectoral, pelvic and caudal fins without white tips → **5**



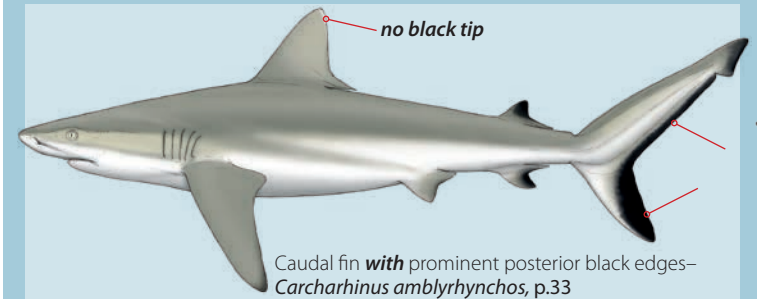
Conspicuous white tips and posterior edges–
Carcharhinus albimarginatus, p.29



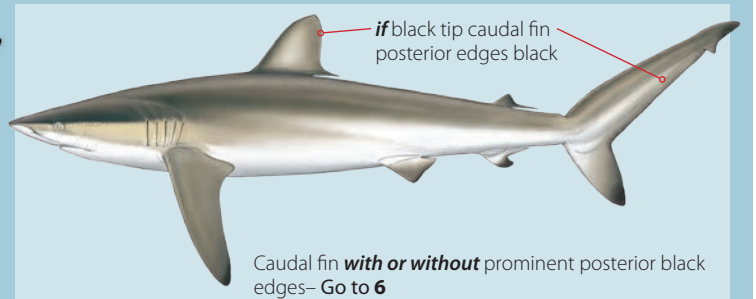
No white tips to most fins–
Go to **5**

5a Caudal fin with prominent posterior black edges ***with*** no black tip on first dorsal fin → *C. amblyrhynchos,* p.33

5b Caudal fin with prominent posterior black edges or plain, ***but*** if edge is black ***and*** first dorsal fin tip is black → **6**



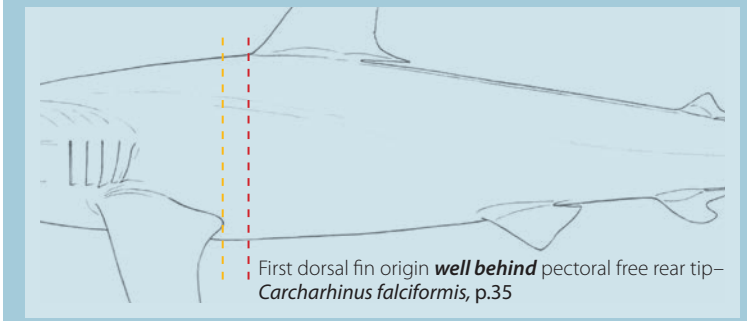
Caudal fin ***with*** prominent posterior black edges–
Carcharhinus amblyrhynchos, p.33



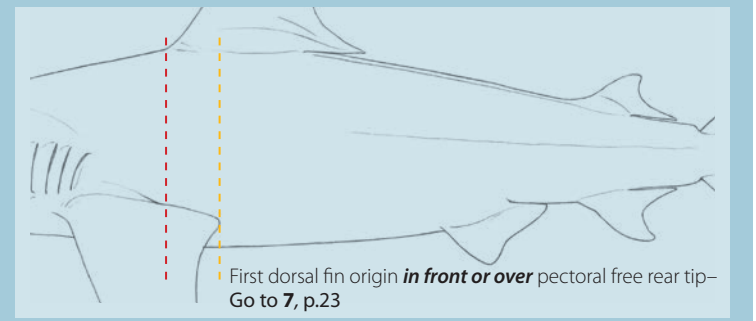
Caudal fin ***with or without*** prominent posterior black edges– Go to **6**

6a First dorsal origin well behind pectoral free rear tips → *C. falciformis,* p.35

6b First dorsal origin infront of or over pectoral free rear tip → **7,** p.23



First dorsal fin origin ***well behind*** pectoral free rear tip–
Carcharhinus falciformis, p.35



First dorsal fin origin ***in front or over*** pectoral free rear tip–
Go to **7**, p.23

7a First dorsal origin in front of or over pectoral insertions, or at least nearer pectoral free rear tips ➔ **8**

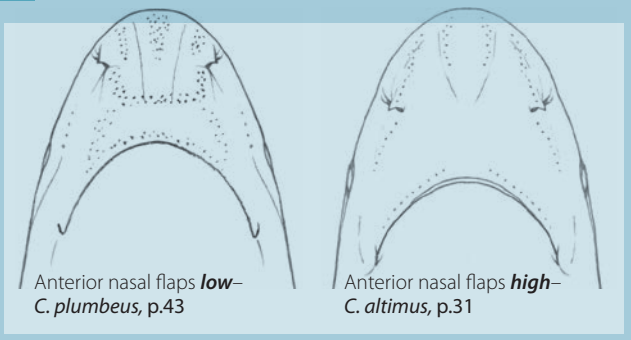
7b First dorsal origin opposite or just in front of pectoral rear tips but closer to them than pectoral insertions ➔ **9**

First dorsal fin origin ***in front to near*** pectoral ***insertions***–
Go to **8**

First dorsal fin origin ***closer to*** pectoral ***rear tips***–
Go to **9**

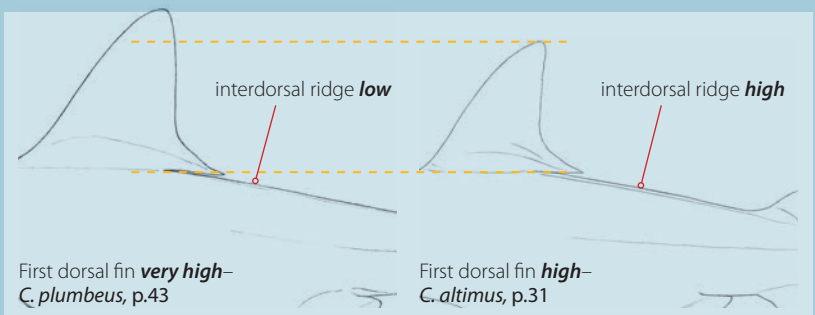
8a Anterior nasal flaps low and inconspicuous. 14 rows of teeth. First dorsal ***very high***. Interdorsal ridge ***low*** ➔ *C. plumbeus,* p.43

8b Anterior nasal flaps high and triangular. 15 rows of teeth. First dorsal lower. Interdorsal ***high*** ➔ *C. altimus,* p.31



Anterior nasal flaps ***low***–
C. plumbeus, p.43

Anterior nasal flaps ***high***–
C. altimus, p.31

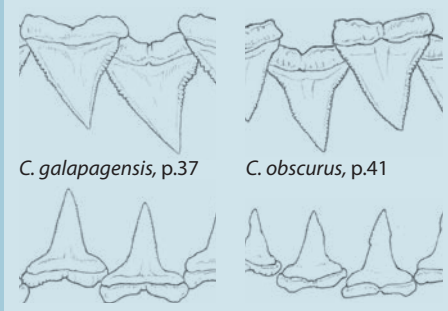


First dorsal fin ***very high***–
C. plumbeus, p.43

First dorsal fin ***high***–
C. altimus, p.31

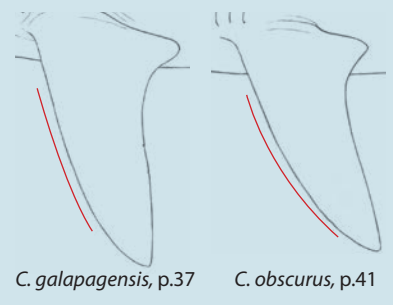
9a Upper teeth relatively high & narrow. Pectoral fins roughly straight. First dorsal fin high with straightish posterior margin ➔ *C. galapagensis,* p.37

9b Upper teeth relatively low & broad. Pectoral fins curved. First dorsal fin low with curved posterior margin ➔ *C. obscurus,* p.41



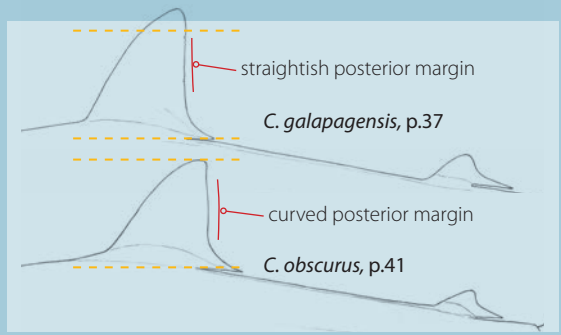
C. galapagensis, p.37

C. obscurus, p.41



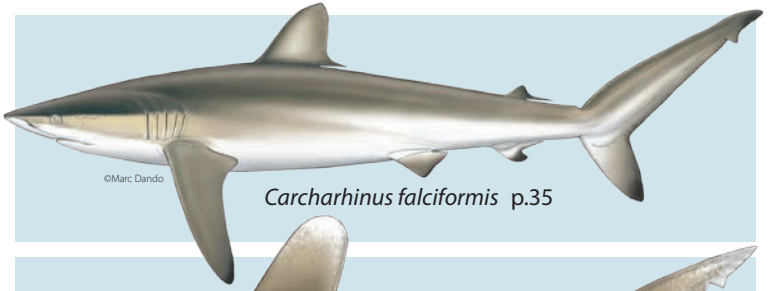
C. galapagensis, p.37

C. obscurus, p.41

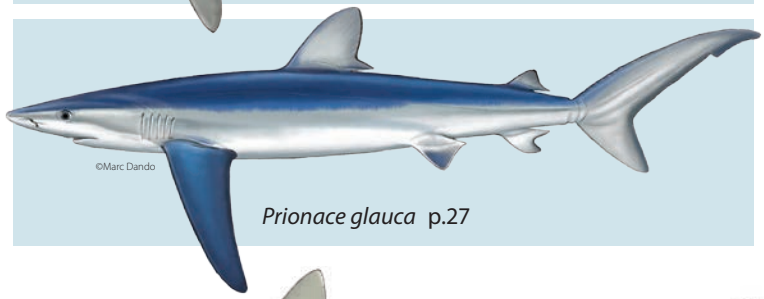


Carcharhinidae species comparison

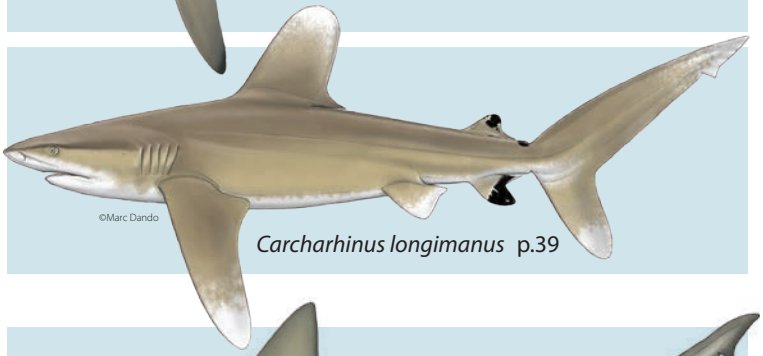
Galeocerdo cuvier p.25



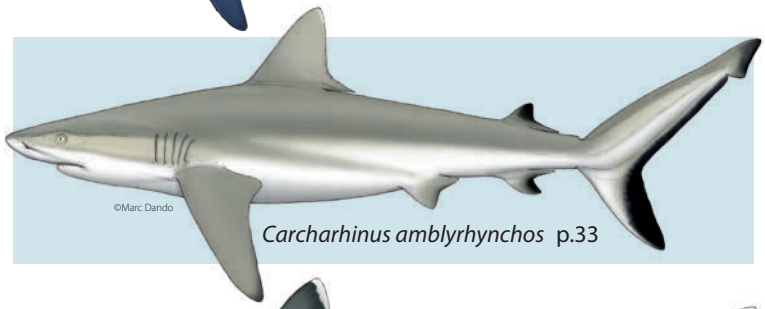
Carcharhinus falciformis p.35



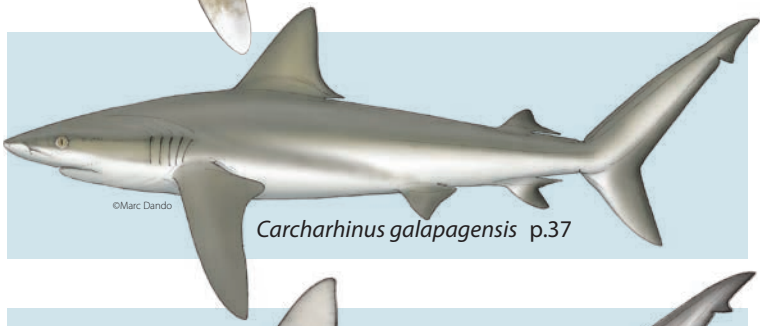
Prionace glauca p.27



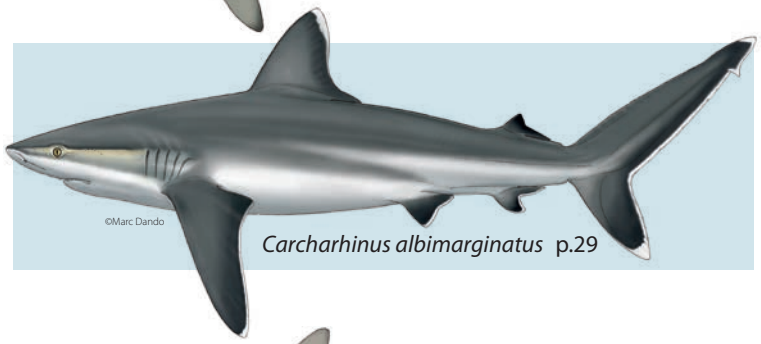
Carcharhinus longimanus p.39



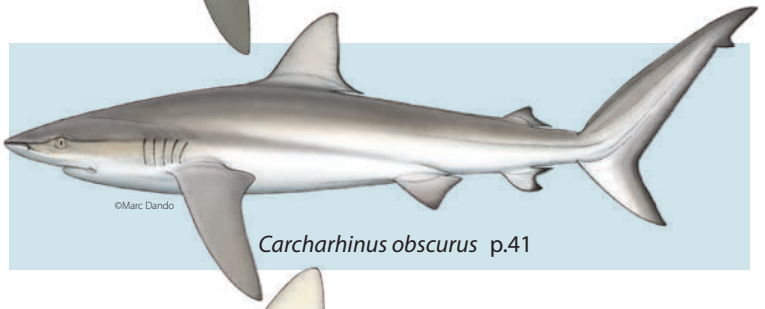
Carcharhinus amblyrhynchos p.33



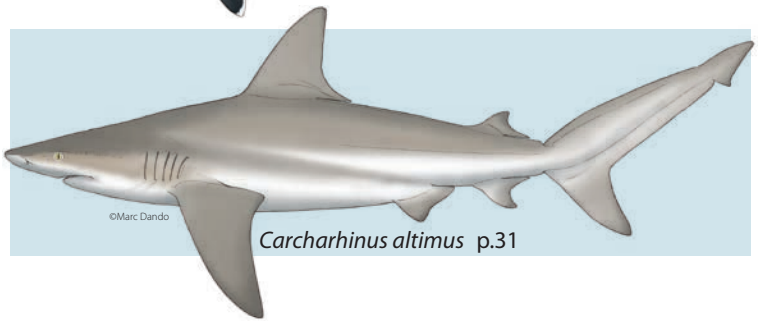
Carcharhinus galapagensis p.37



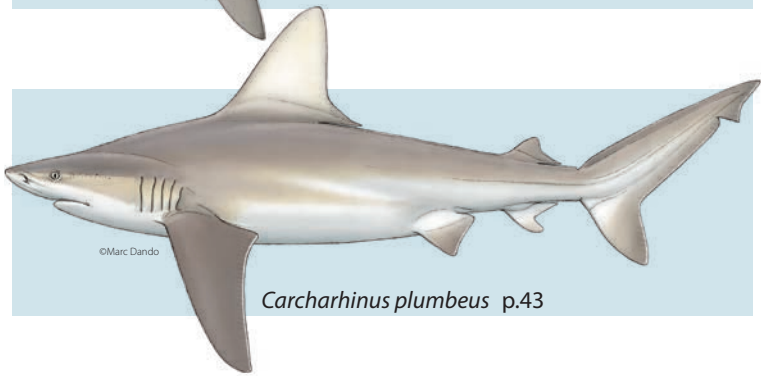
Carcharhinus albimarginatus p.29



Carcharhinus obscurus p.41



Carcharhinus altimus p.31

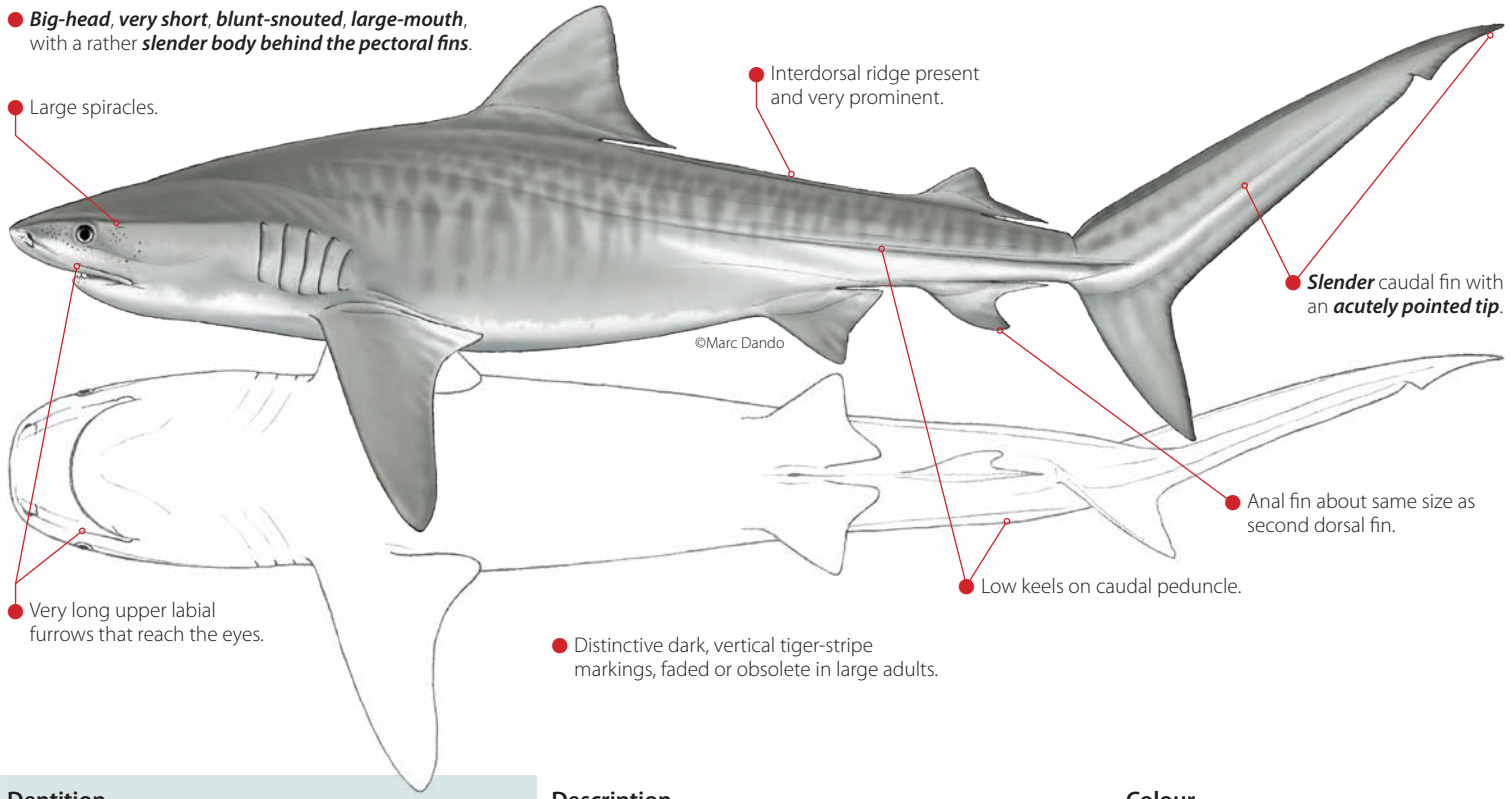


Carcharhinus plumbeus p.43

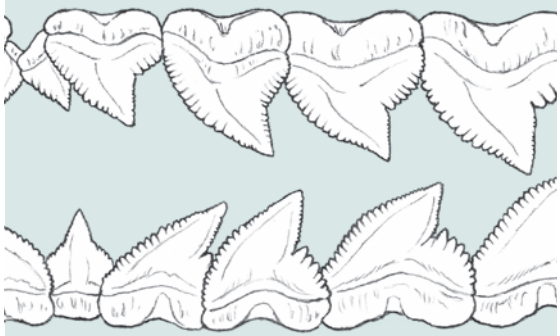
Galeocerdo cuvier
(Péron & Lesueur, 1822)

Tiger shark
Requin tigre commun

NT LL



Dentition



Teeth approximately actual size.

Teeth cockscomb-shaped curved teeth with heavy serrations and distal cusplets.

Tooth counts: upper jaw 18–26, lower jaw 18–25.

Description

A stout bodied, big-headed, short, blunt-snouted, large-mouthed shark with a rather slender body behind the pectoral fins; large slit-like spiracles; labial furrow very long; interdorsal ridge present and very prominent; first dorsal origin above pectoral insertions or inner margins; anal fin about as large as second dorsal.

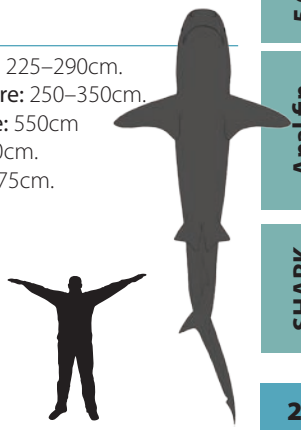
© NOAA Fisheries, USA

Colour

Grey with a unique colour pattern of black spots and vertical bars on dorsal surface of body, bold in young but fading out in adults.

Size

Males mature: 225–290cm.
Females mature: 250–350cm.
Maximum size: 550cm to possibly 700cm.
Birth size: 50–75cm.



SIMILAR SPECIES

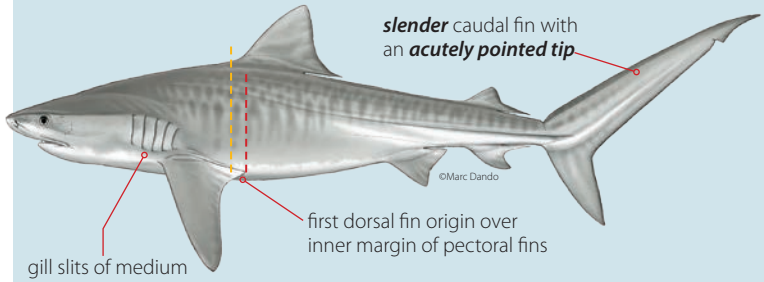
Short blunt snout with broadly rounded mouth; first dorsal fin above pectoral fins inner margin; colour pattern of vertical bars and black spots, bold in young, faded in large adults ; large cockscomb-shaped curved teeth with prominent serrations.

Gill slits, first dorsal position & caudal fin shape

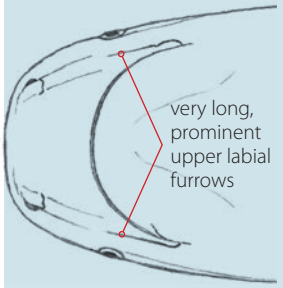
Ventral view of head

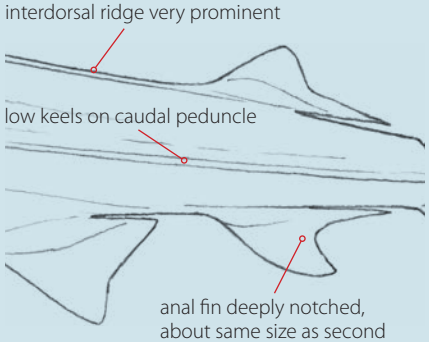
Second dorsal & anal fins

distinctive vertical striping in specimens less than 3m

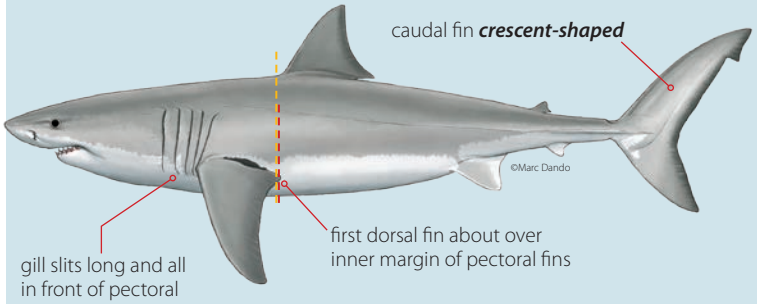


Galeocerdo cuvier Tiger shark

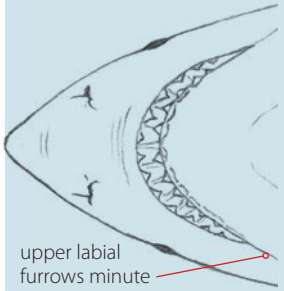


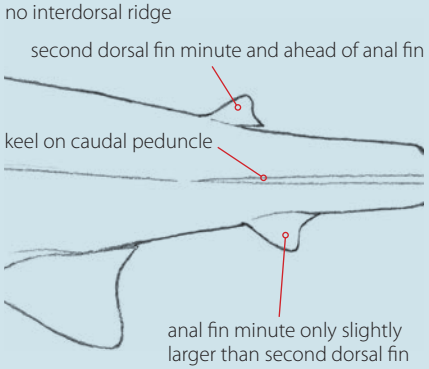


boundary between dorsal colour and ventral white abrupt

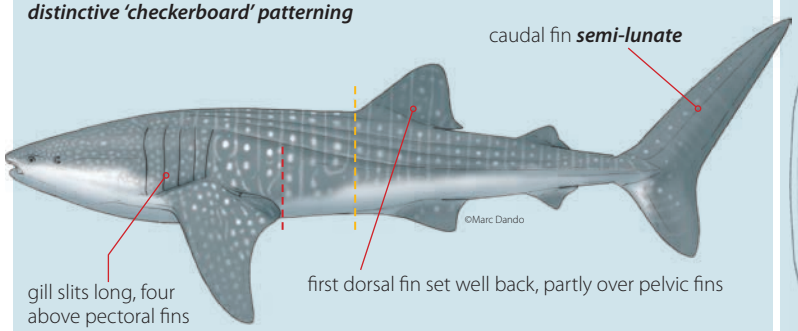


Carcharodon carcharias White shark

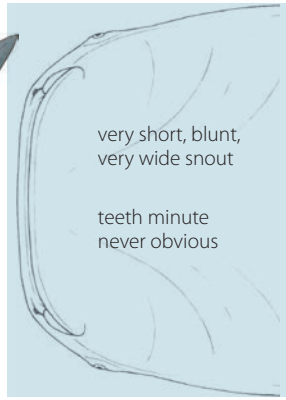


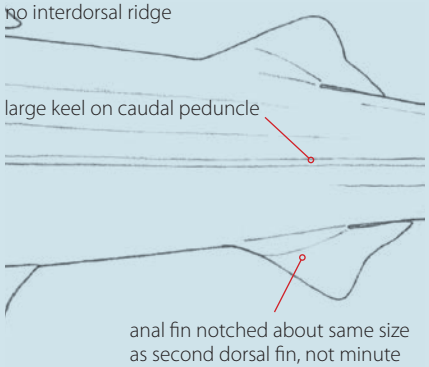


distinctive 'checkerboard' patterning



Rhincodon typus Whale shark

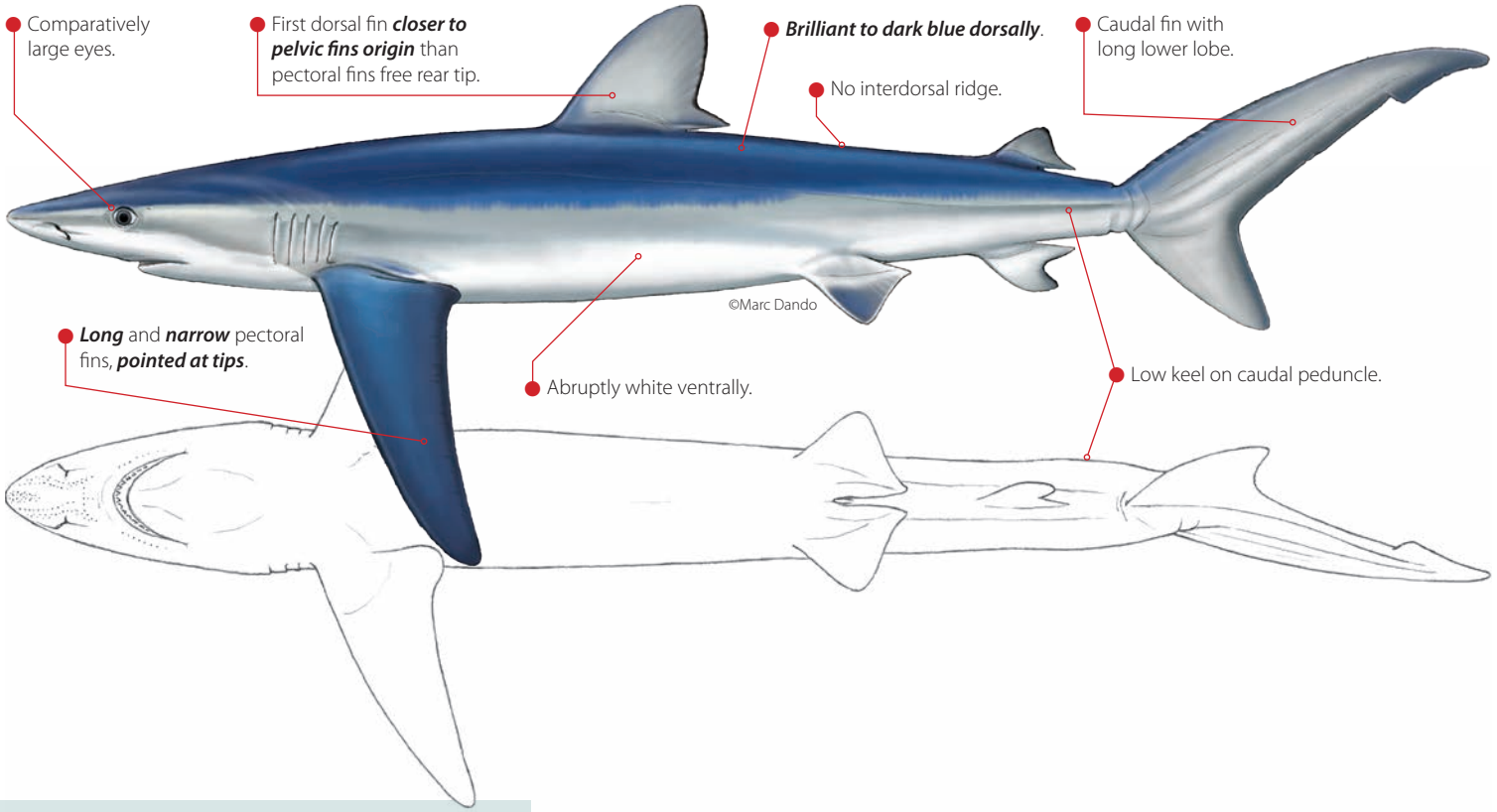




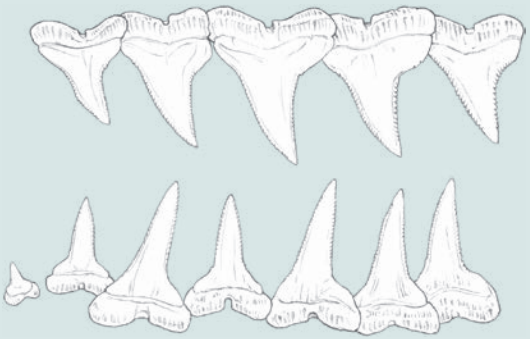
Prionace glauca
(Linnaeus, 1758)

Blue shark
Peau bleue

NT LL



Dentition

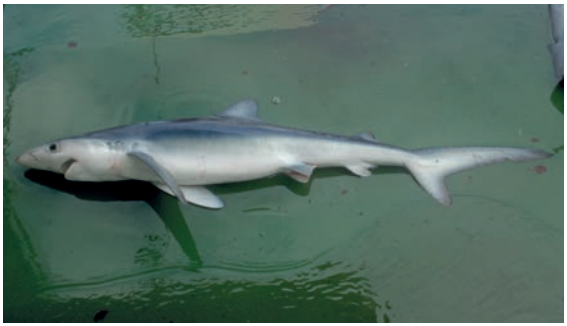


Teeth approximately actual size.

Tooth counts: upper jaw 24–31, lower jaw 24–34.

Description

Body slender; eyes very large; pectoral fins very long, narrow, and pointed at tips; first dorsal fin closer to pelvic fins origin; low keel on caudal peduncle; narrow-lobed caudal fin with a long lower lobe.



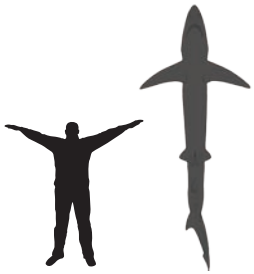
© Charlene Da Silva (Department Agriculture, Forestry, and Fisheries, South Africa)

Colour

Coloration is a brilliant to dark blue dorsally, becoming lighter bright blue laterally and abruptly white ventrally.

Size

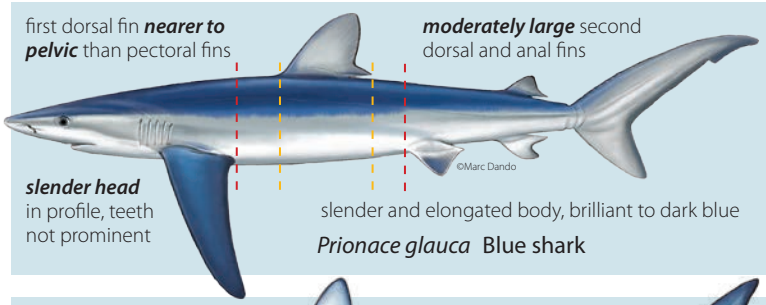
Males mature: 182–281cm.
Females mature: about 200cm.
Maximum size: about 380cm.

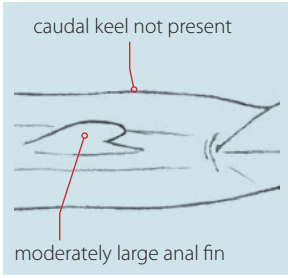


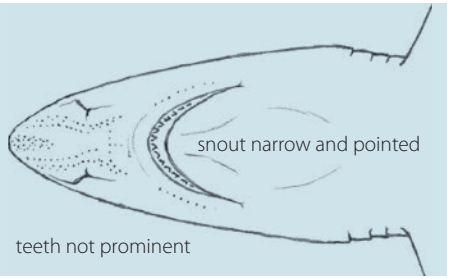
SIMILAR SPECIES

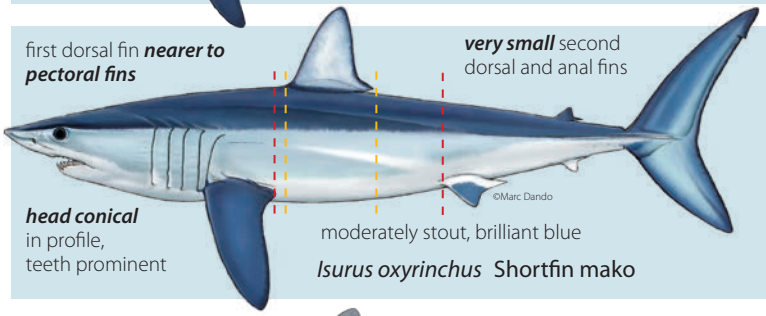
The bright blue coloration and very long, narrowly tapering pectoral fins separates this shark from all other species in the region.

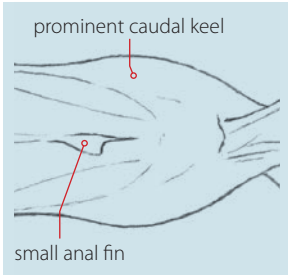
First dorsal fin position | **Caudal keels** | **Ventral view of head**

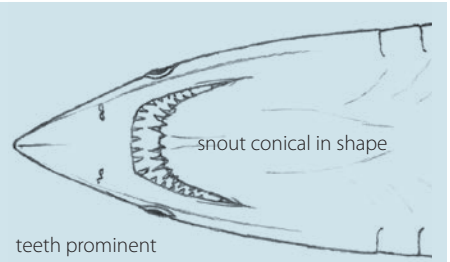


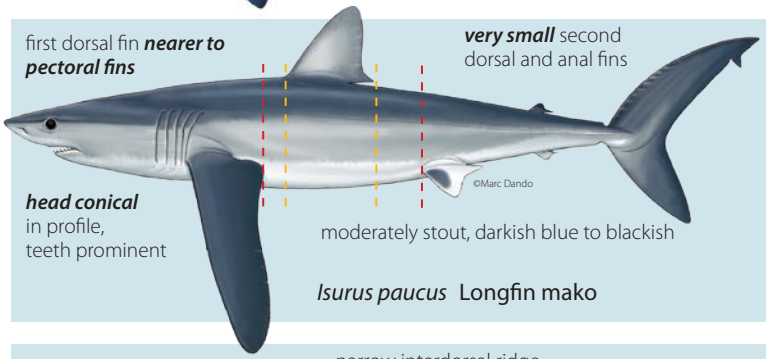


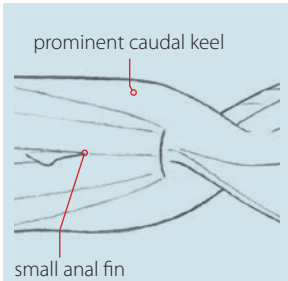


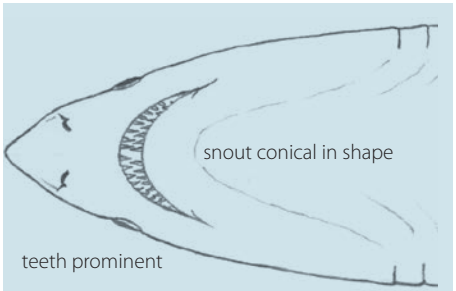


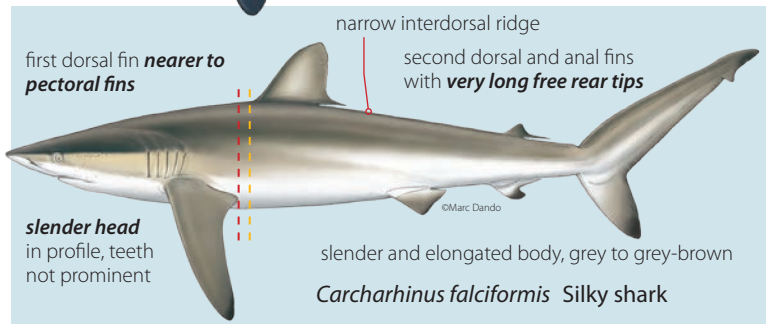


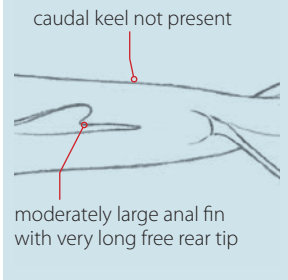


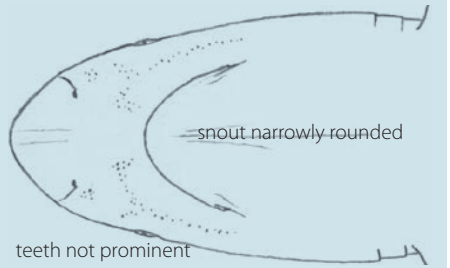








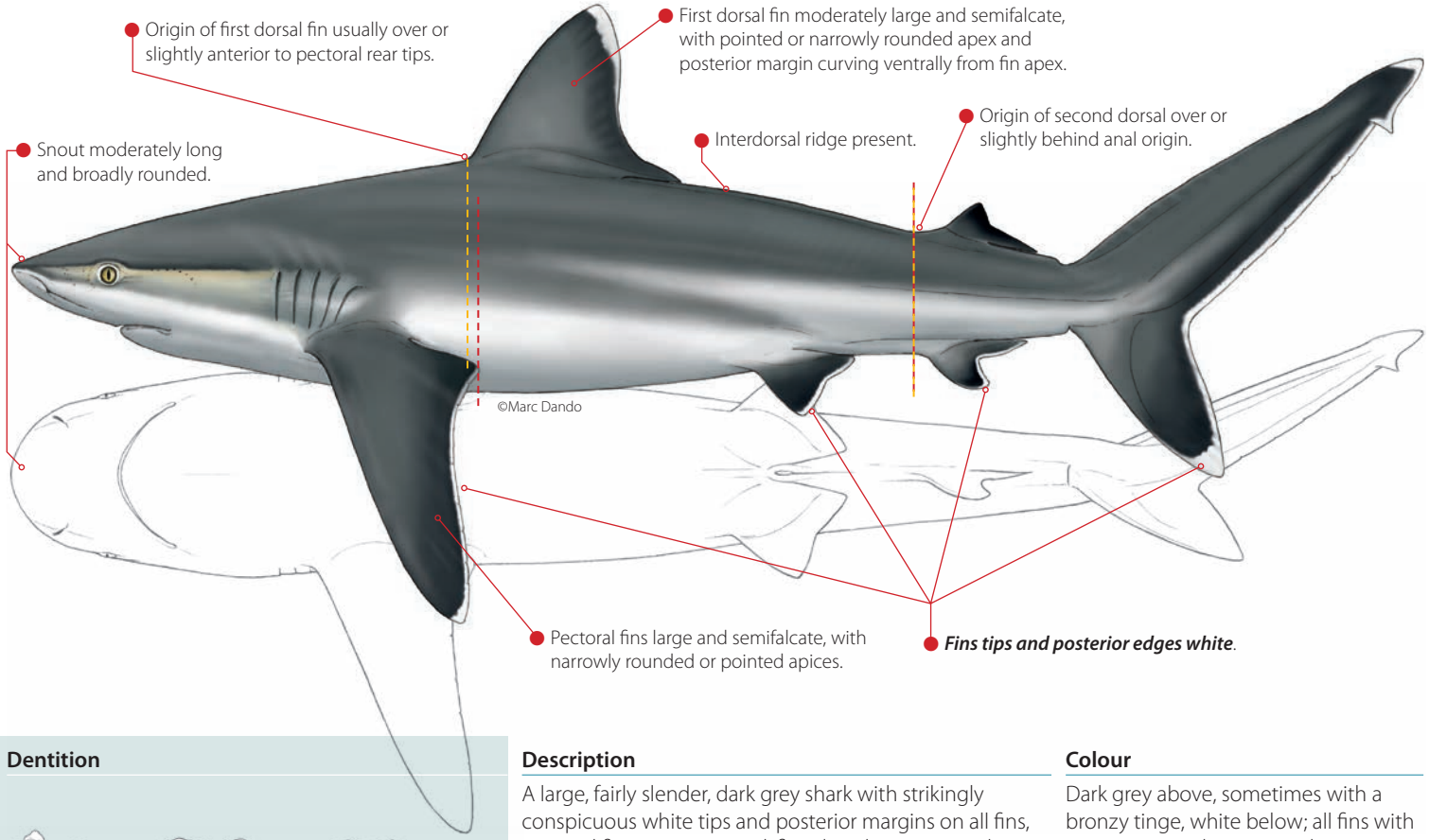




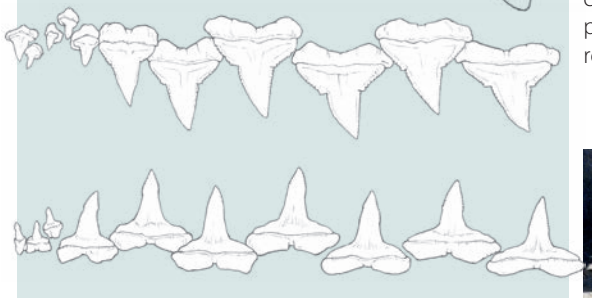
Carcharhinus albimarginatus
(Rüppell, 1837)

Silvertip shark
Requin pointe blanche

NT LL



Dentition



Teeth approximately actual size.

Upper teeth with moderately broad, strongly serrated, erect to moderately oblique, triangular, high cusps; lower teeth with erect, fairly broad serrated cusps.

Tooth counts: upper jaw 24–28, lower jaw 24–28.

Description

A large, fairly slender, dark grey shark with strikingly conspicuous white tips and posterior margins on all fins, pectoral fins narrow tipped; first dorsal apex narrowly rounded or pointed.

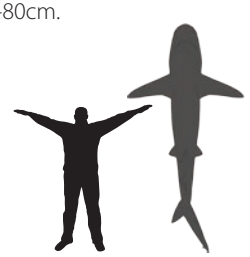
© Malcolm Francis (NIWA, New Zealand)

Colour

Dark grey above, sometimes with a bronzy tinge, white below; all fins with conspicuous white tips and posterior margins; an inconspicuous white band on flank.

Size

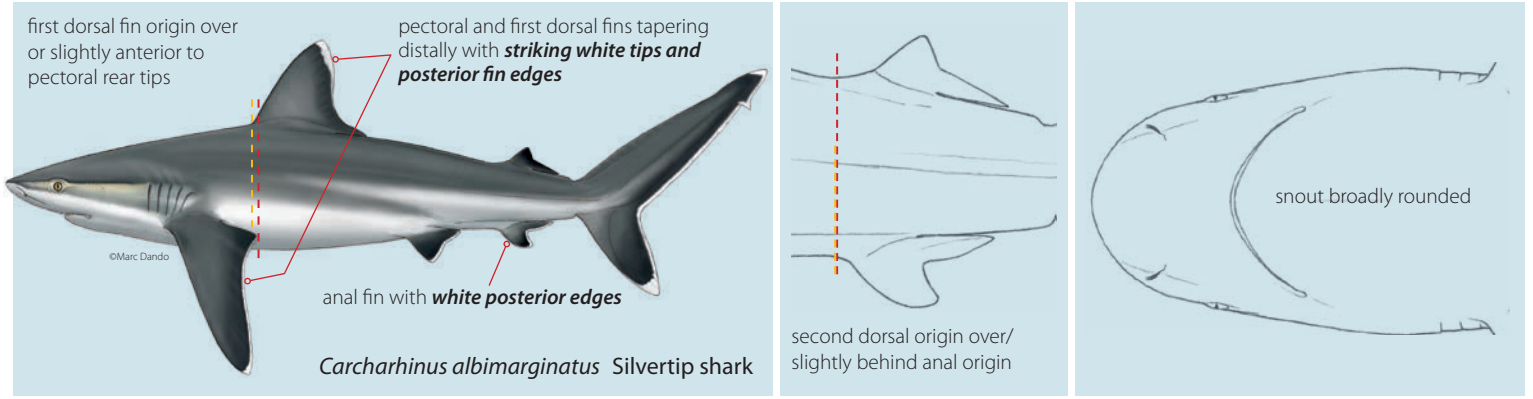
Males mature: 160–180cm.
Females mature: 160–200cm.
Maximum size: 300cm.
Birth size: 60–80cm.



SIMILAR SPECIES

Snout moderately long and broadly rounded; pectoral fins large and semi-curved, with narrowly rounded or pointed apices, first dorsal fin moderately large and semi-curved with pointed or narrowly rounded apex its posterior margin curving ventrally from fin apex, origin of first dorsal fin usually over or slightly anterior to pectoral rear tips, origin of second dorsal over or slightly behind anal fin origin; fins tips and posterior edges white.

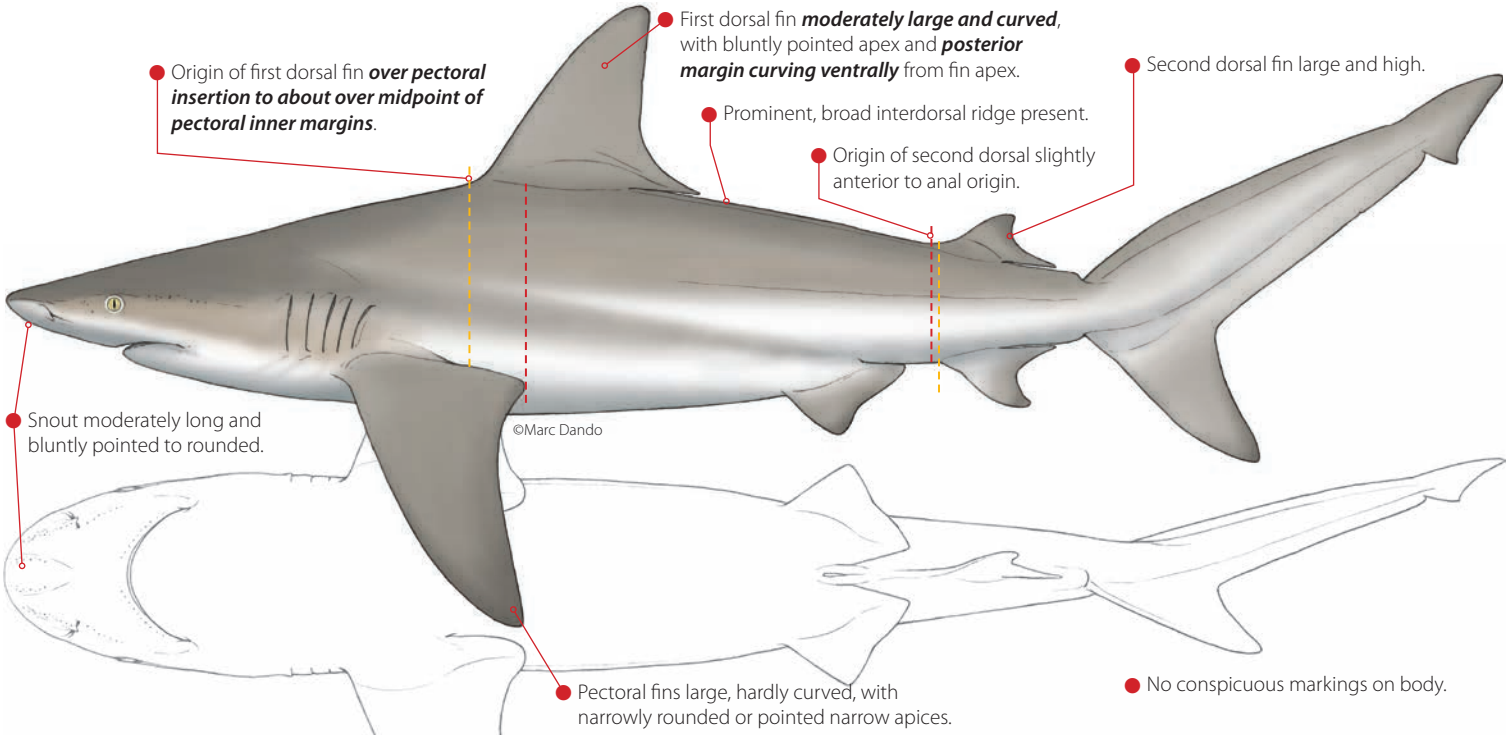
Fin tips and margins coloration | **Second dorsal & anal fins** | **Ventral view of head**



Carcharhinus altimus
(Springer 1950)

Bignose shark
Requin babosse

DD LL



Dentition

Teeth approximately actual size.

Upper jaw with high, triangular, serrated teeth without cusplets; lower jaw with erect narrow-cusped serrated teeth.

Tooth counts: upper jaw 28–30, lower jaw 28–30.

Description

A large, deep-benthic grey shark with a long rounded or bluntly pointed snout; a high interdorsal ridge; moderately high first dorsal fin; moderately high second dorsal fin with a short rear tip; long nearly straight pectoral fins; no conspicuous marking on body.

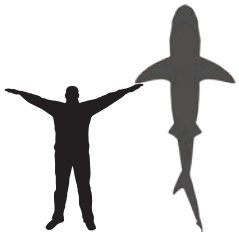
© NOAA Fisheries, USA

Colour

Light grey above, sometimes bronzy, white below, with dusky fin tips (except for pelvics) but no conspicuous markings; white marking on flanks inconspicuous

Size

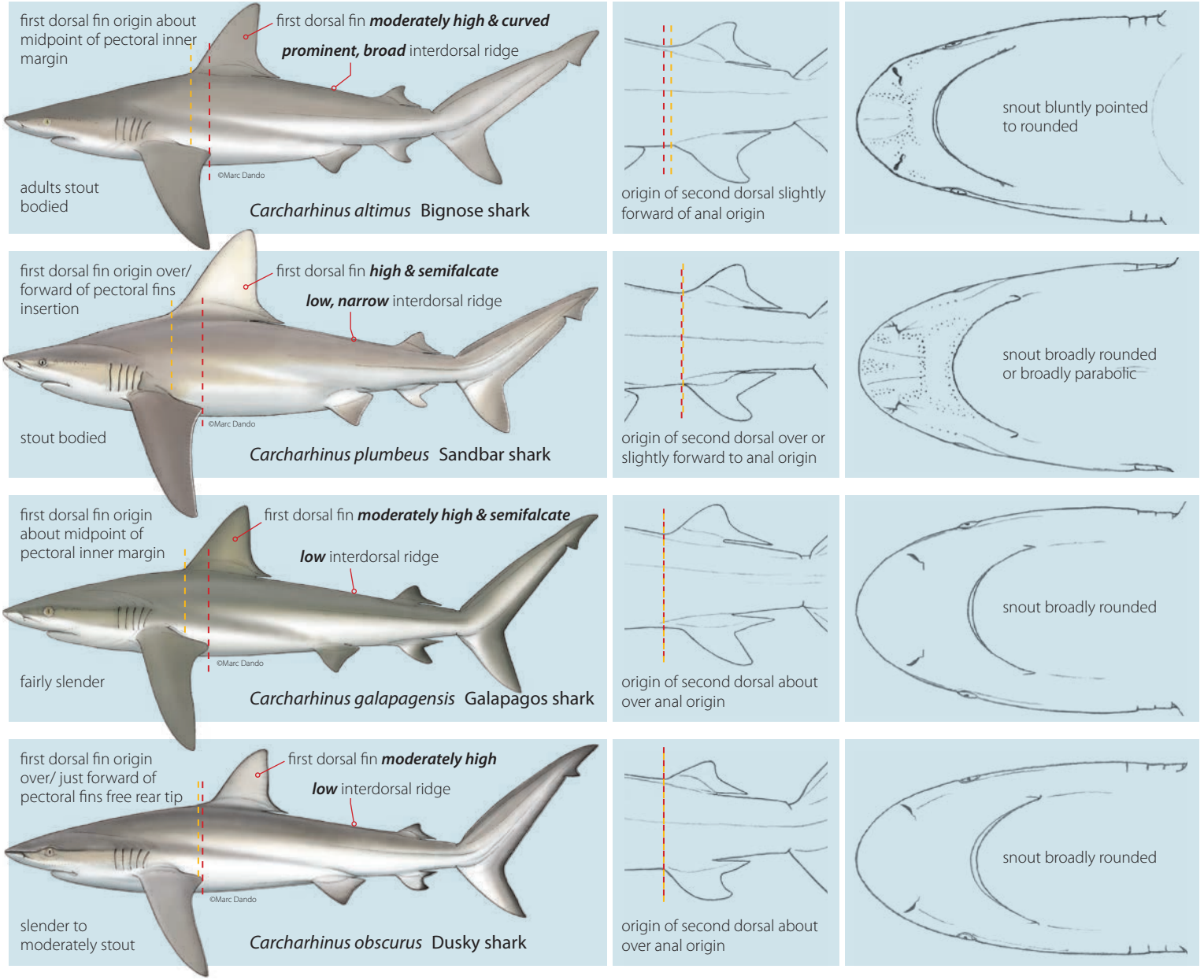
Males mature: 215–270cm
Females mature: 225–280cm.
Maximum size: 300cm.
Birth size: 60–90cm.



SIMILAR SPECIES

Snout moderately long and bluntly pointed to rounded; prominent interdorsal ridge present; first dorsal fin moderately large and curved with bluntly pointed apex and posterior margin curving ventrally from fin apex with origin over pectoral fins insertion to about over midpoint of pectoral inner margins, second dorsal fin large and high with origin slightly anterior to anal fin origin.

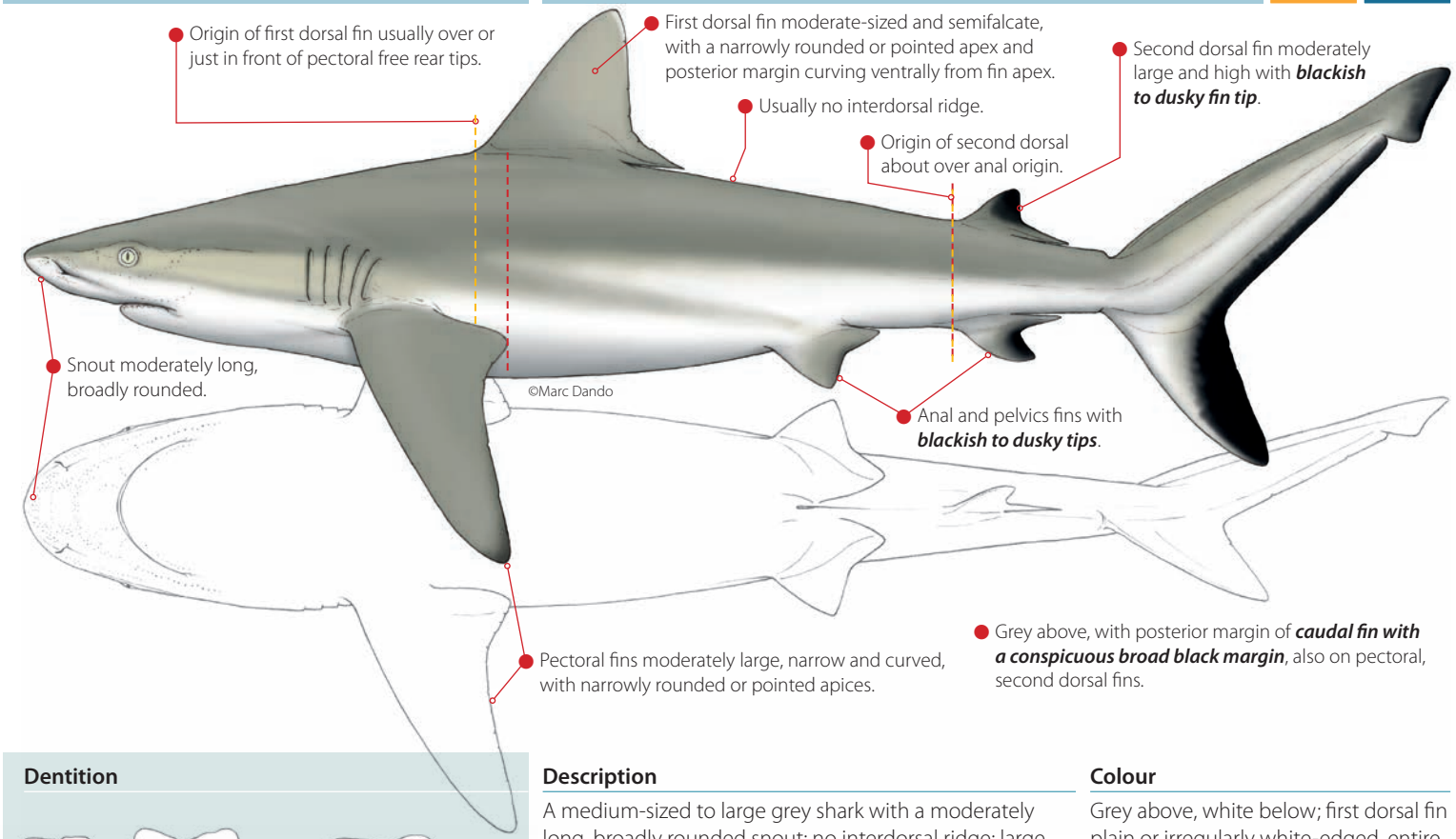
First dorsal fin position | **Second dorsal & anal fins** | **Ventral view of head**



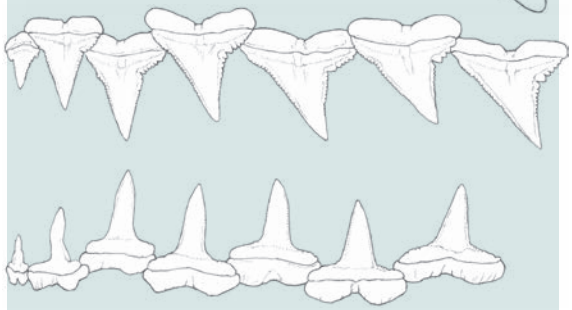
Carcharhinus amblyrhynchos
(Bleeker, 1856)

Grey reef shark
Requin dagsit

NT LL



Dentition



Teeth approximately actual size.

Upper teeth with narrow, strongly serrated, semierect to oblique, high cusps;
lower teeth with erect or semioblique, narrow serrated cusps

Tooth counts: upper jaw 26–28, lower jaw 26–28.

Description

A medium-sized to large grey shark with a moderately long, broadly rounded snout; no interdorsal ridge; large second dorsal fin with a short rear tip; a broad black band on the posterior margin of the caudal fin.

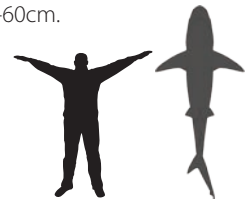
© Lindsay Marshall (Stick Figure Fish, Australia)

Colour

Grey above, white below; first dorsal fin plain or irregularly white-edged, entire posterior margin of caudal fin (terminal, pre- and postventral margins) with a conspicuous broad black margin, pectorals, second dorsal, anal, and pelvic fins with blackish or dusky tips.

Size

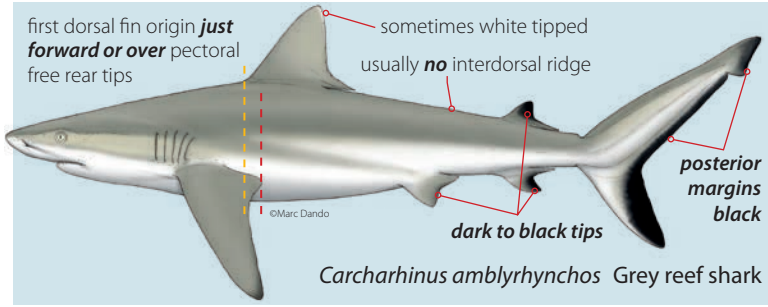
Males mature: 130–145cm.
Females mature: 120–140cm.
Maximum size: 230–255cm.
Birth size: 45–60cm.

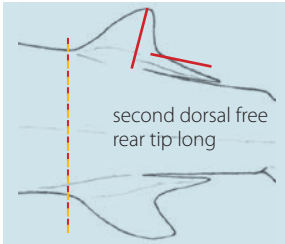


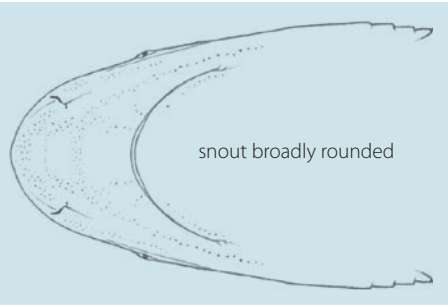
SIMILAR SPECIES

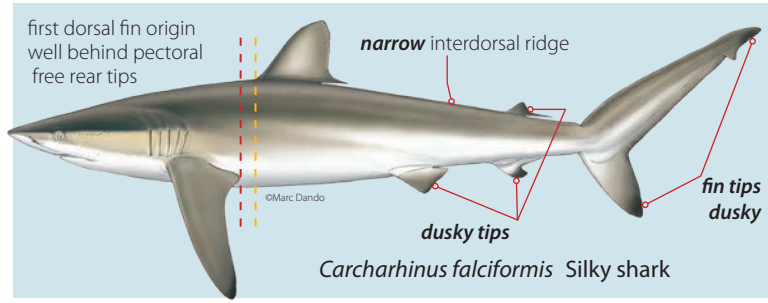
Usually no interdorsal ridge. First dorsal fin moderate-sized with posterior margin curving ventrally from fin apex. Origin of first dorsal fin usually over or just in front of pectoral free rear tips. Second dorsal fin moderately large and high. Origin of second dorsal about over anal origin. Posterior margin of caudal fin with a conspicuous broad black margin; also pectoral, second dorsal, anal, and pelvics fins with blackish to dusky tips.

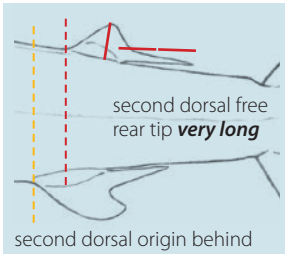
Fin tips and margins coloration | **Second dorsal & anal fins** | **Ventral view of head**

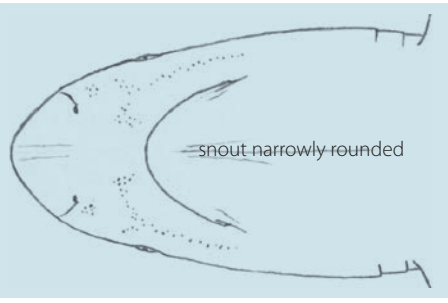


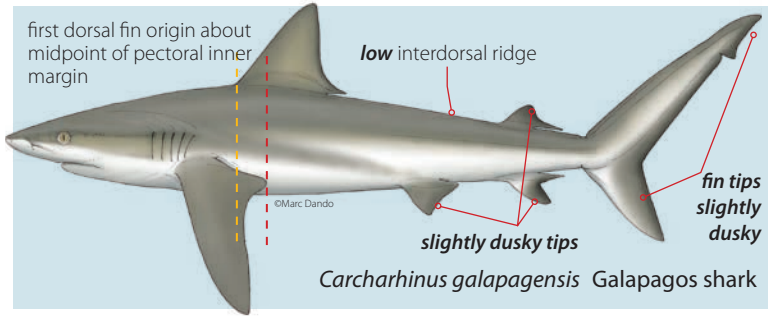


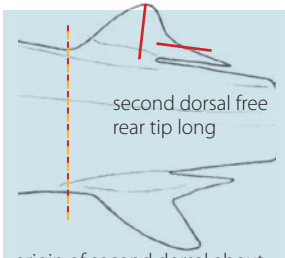


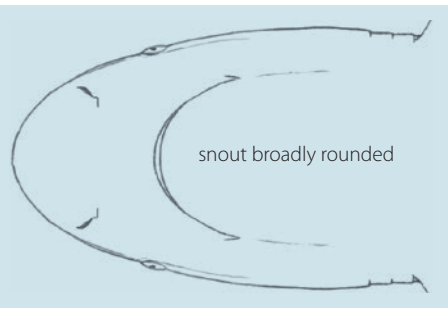


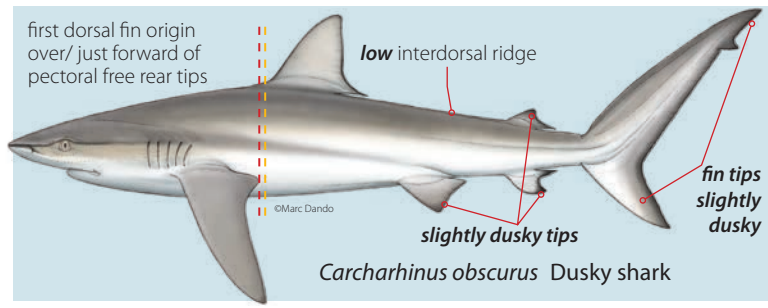


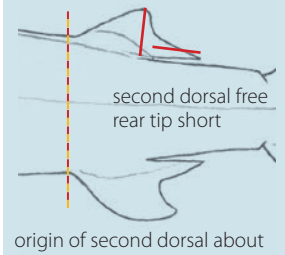


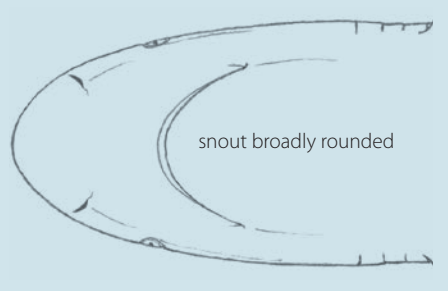








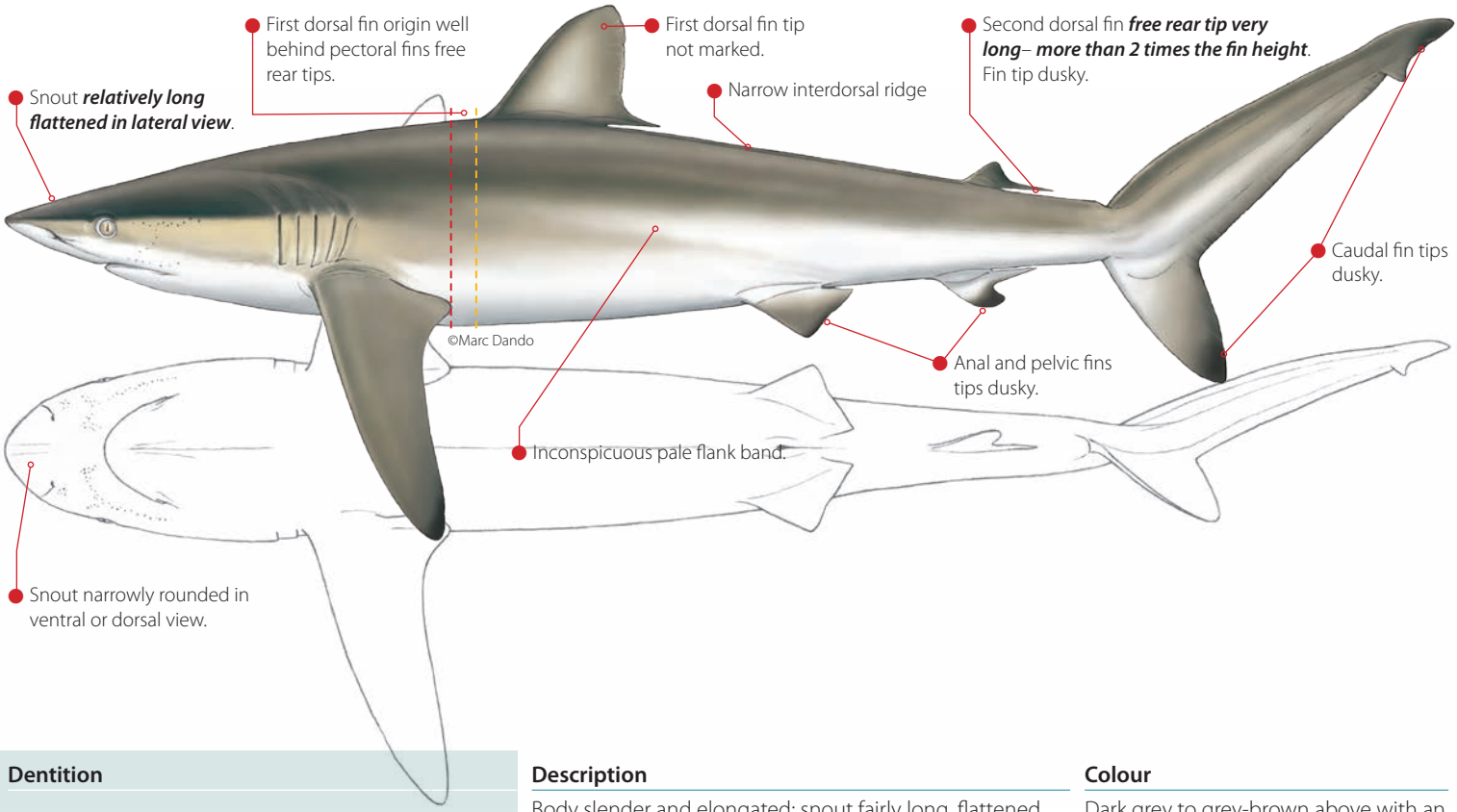




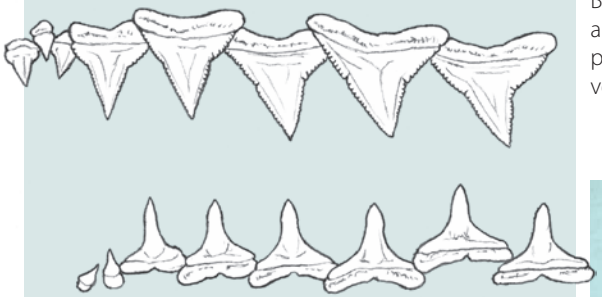
Carcharhinus falciformis
(Müller & Henle, 1839)

Silky shark
Requin soyeux

VU LL



Dentition



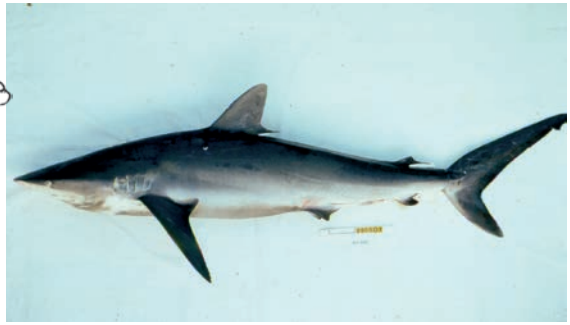
Teeth approximately actual size.

Upper teeth with fairly narrow, strongly serrated, erect to moderately oblique cusps; lower teeth with erect, narrow, smooth-edged cusps.

Tooth counts: upper jaw 29–35, lower jaw 27–37.

Description

Body slender and elongated; snout fairly long, flattened and rounded in dorsal view; first dorsal fin well behind pectoral-free rear tips; inner margin of second dorsal fin very long, usually more than 2 times fin height.



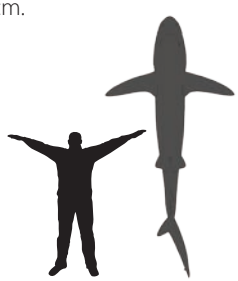
© NOAA Fisheries, USA

Colour

Dark grey to grey-brown above with an inconspicuous pale flank band, white below; fin marking inconspicuous, fin tips dusky except for first dorsal.

Size

Males mature: 187–217cm.
Females mature: 213–230cm.
Maximum size: about 330cm.
Birth size: ??–??cm.

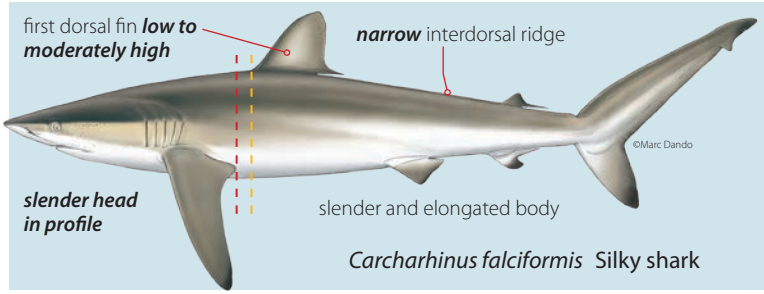


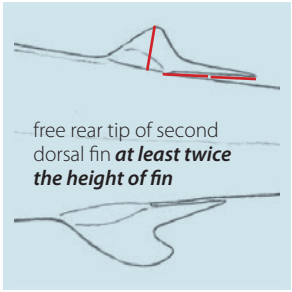
SIMILAR SPECIES

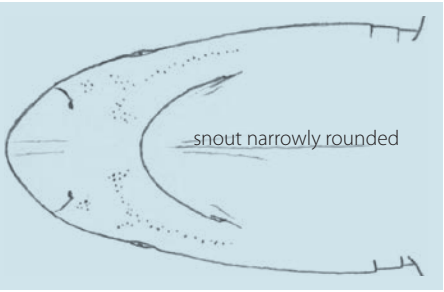
Carcharhinus altimus (page 31), ***C. plumbeus*** (page 41), and ***C. obscurus*** (page 43) are most similar, but the first dorsal fin of these sharks originate over or slightly anterior to pectoral-fin free-rear tips.

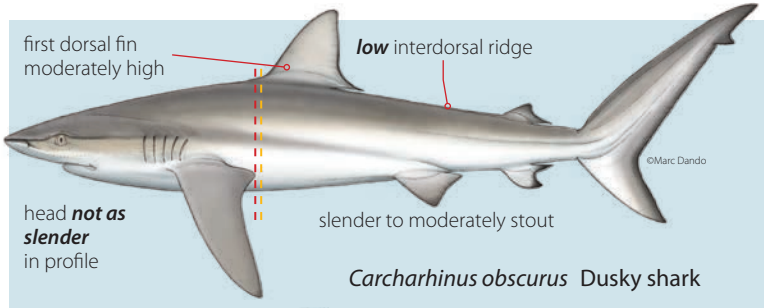
The second dorsal fins are also shorter, length less than 2 times the height.

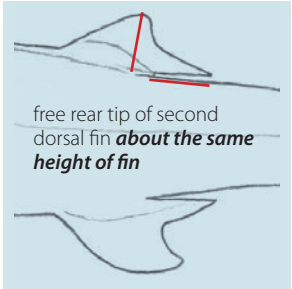
Pectoral fins free rear tip and first dorsal fin origin positions | **Second dorsal fin** | **Ventral view of head**

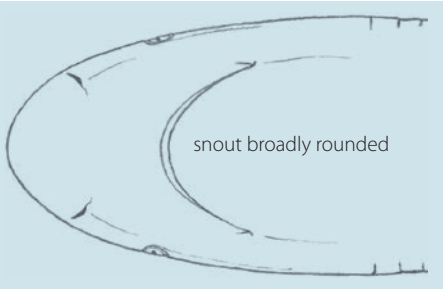


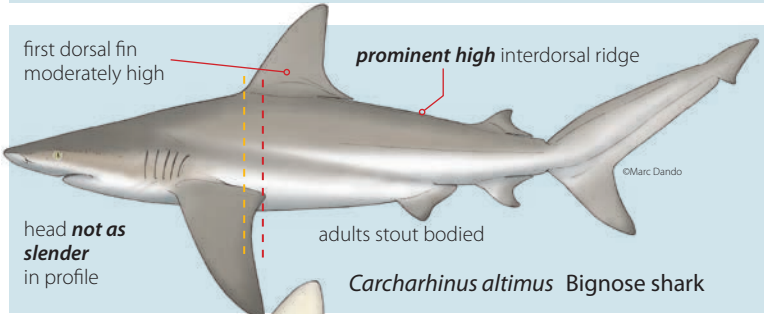


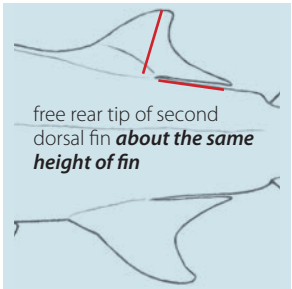


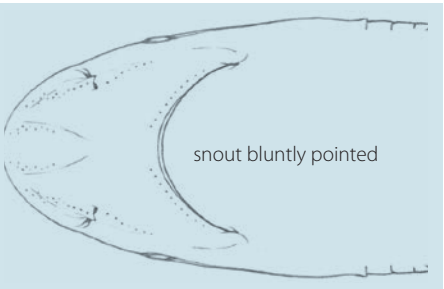


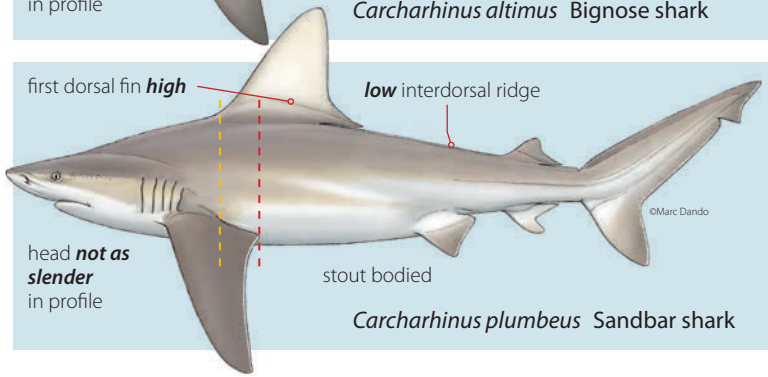


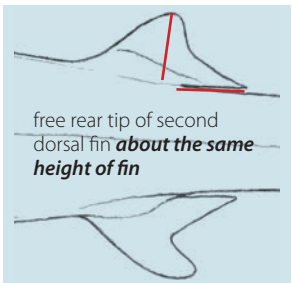


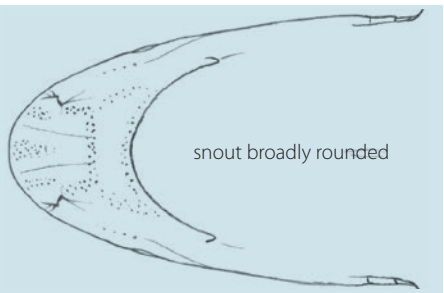








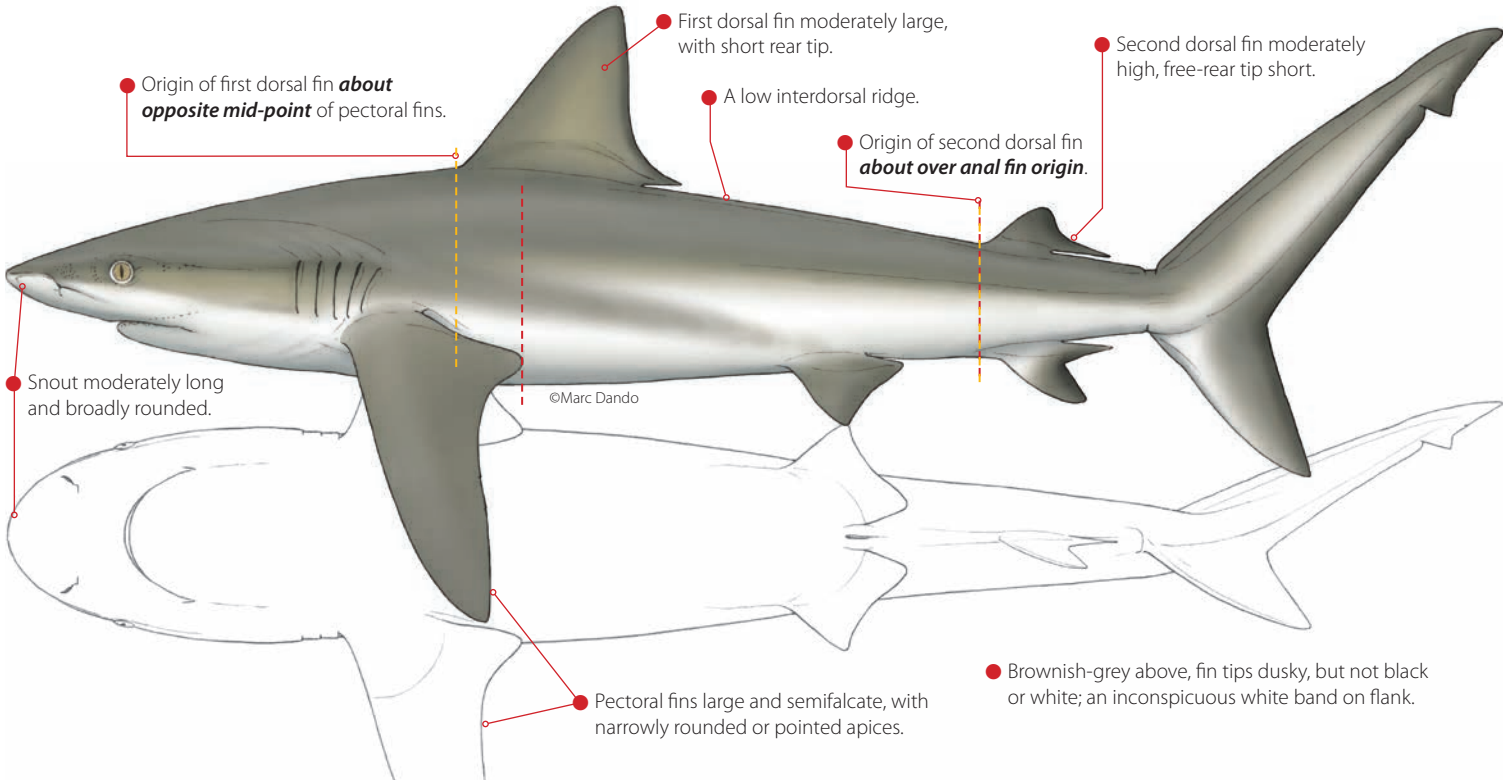




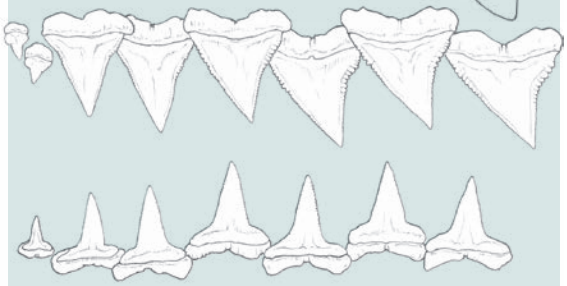
Carcharhinus galapagensis
(Snodgrass & Heller, 1905)

Galapagos shark
Requin des galapagos

NT LL



Dentition



Teeth approximately actual size.

Upper jaw with triangular, high, erect and semioblique-cusped serrated anterolateral teeth without cusplets; lower teeth erect and narrow-cusped.

Tooth counts: usually upper jaw 27–33, lower jaw 27–33 rows.

Description

Very large, fairly slender bodied shark,with a moderately long, broadly rounded snout; a low interdorsal ridge; large semi-curved pectoral fins, with narrowly rounded or pointed apices; no conspicuous markings except white band on flank.

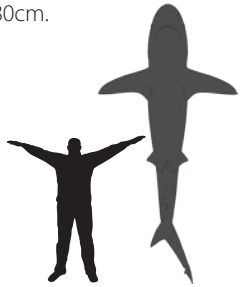
© Malcolm Francis (NIWA, New Zealand)

Colour

Brownish-grey above, white below; tips of most fins dusky but not black or white; an inconspicuous white band on flank.

Size

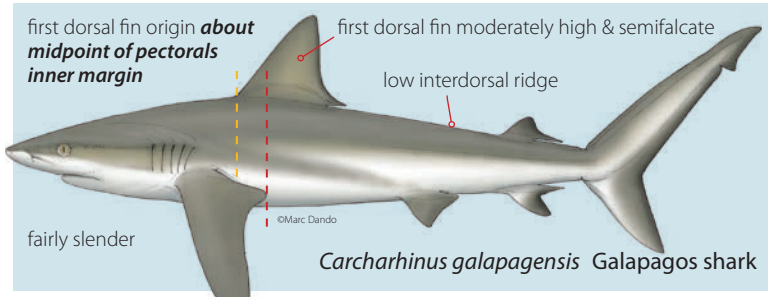
Male mature: 170–235cm.
Female mature: 235cm.
Maximum size: 370cm.
Birth: 55–80cm.

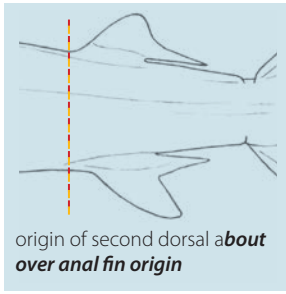


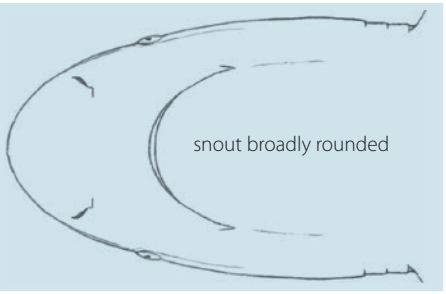
SIMILAR SPECIES

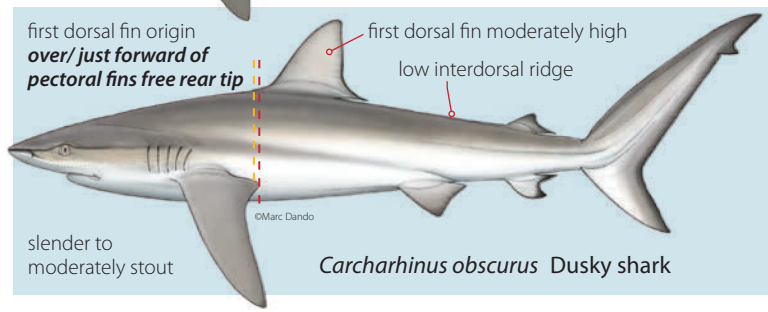
A low interdorsal ridge. pectoral fins large and semifalcate, with narrowly rounded or pointed apices. First dorsal fin moderately large, with short rear tip. Origin of first dorsal fin about opposite mid-point of pectoral fins. Second dorsal fin moderately high, free-rear tip short. Origin of second dorsal fin about over anal fin origin. Snout moderately long and broadly rounded. Fin tips dusky, but not black or white.

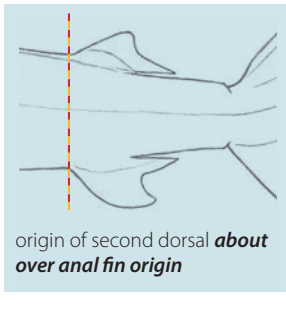
First dorsal fin nearer to pelvic fins than pectoral fins | **Second dorsal & anal fins** | **Ventral view of head**

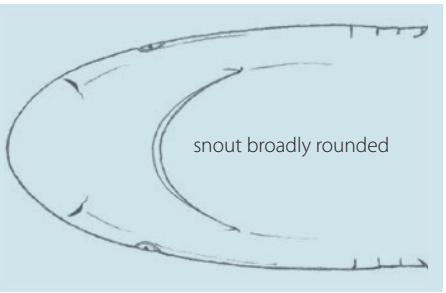


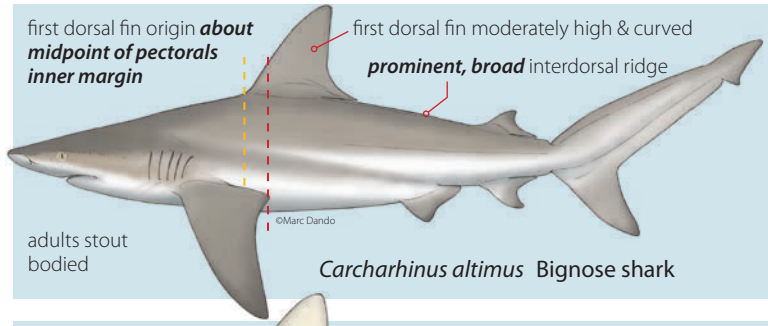


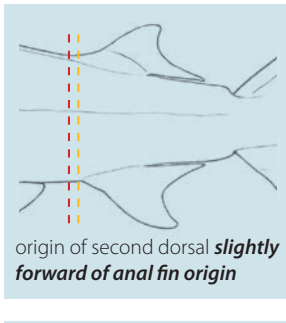


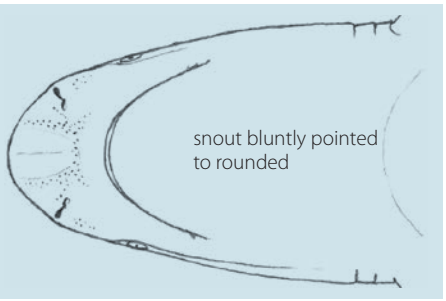


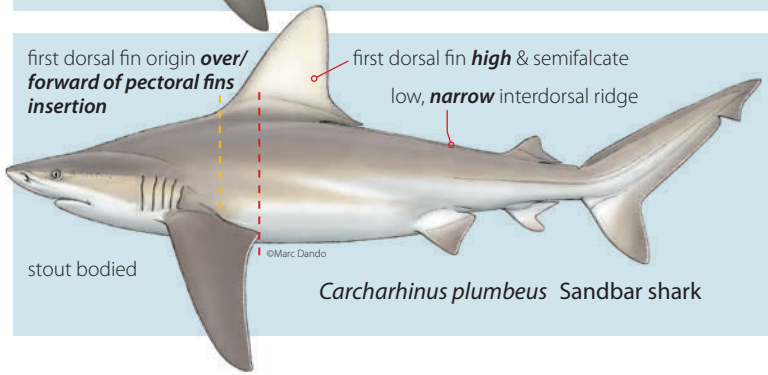


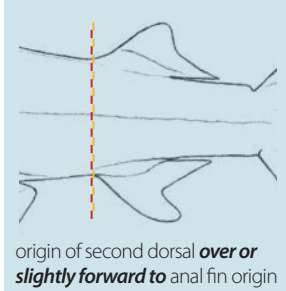


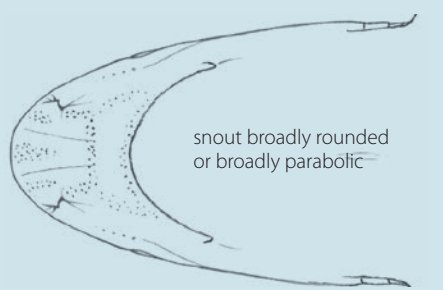








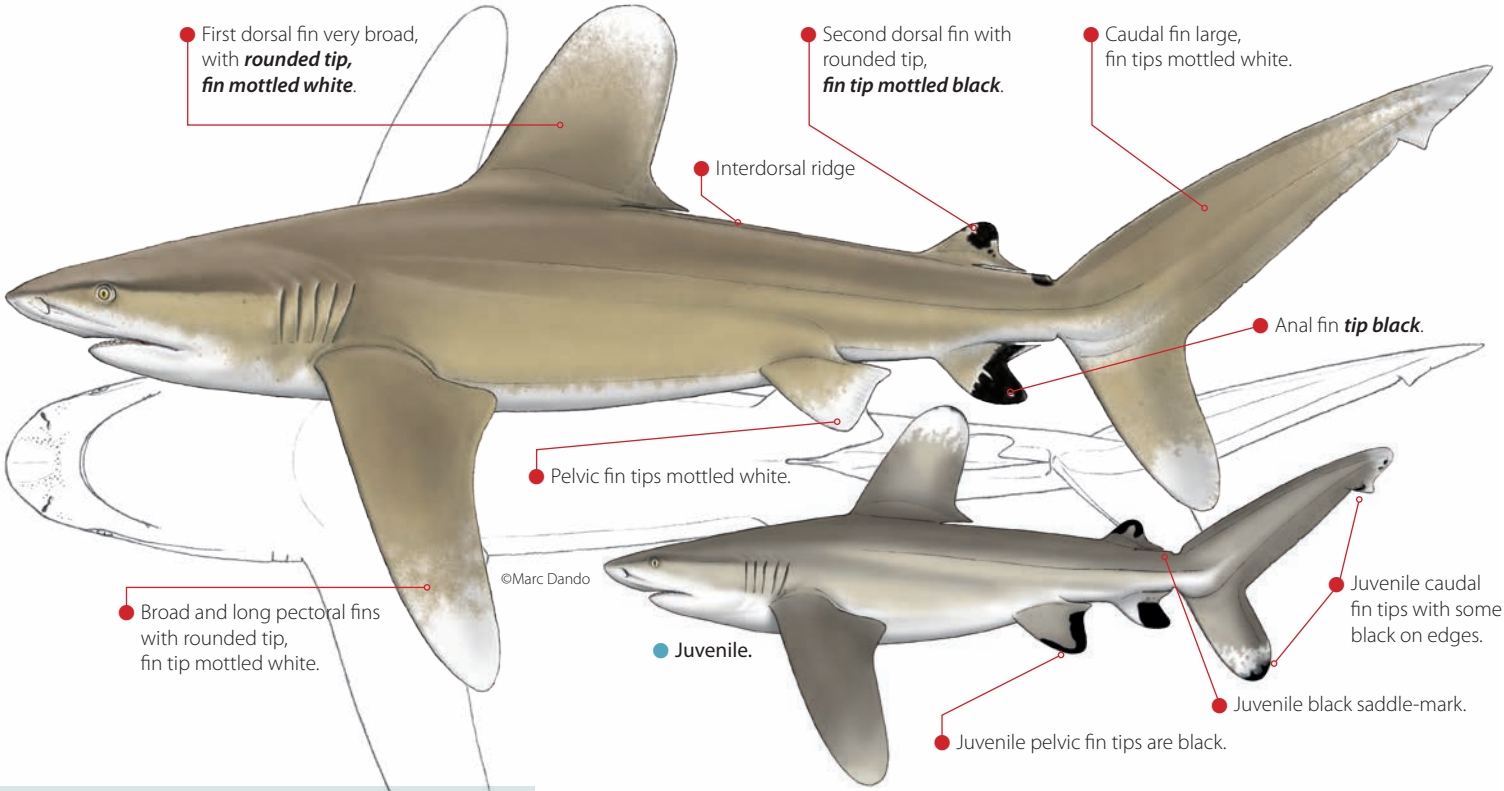




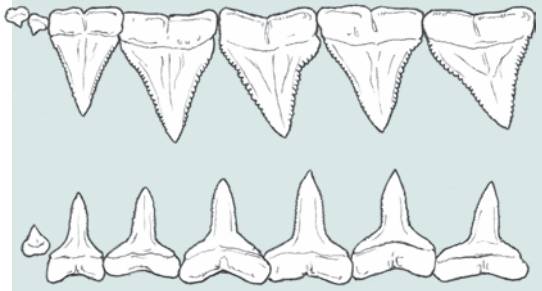
Carcharhinus longimanus
(Poey, 1861)

Oceanic whitetip shark
Requin océanique

VU LL



Dentition

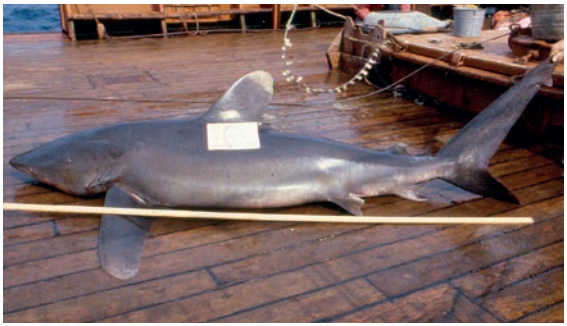


Teeth approximately actual size.

Tooth counts: upper jaw 27–32, lower jaw 27–33.

Description

Large stocky-bodied shark, prominent white fin tips on first dorsal, pectoral, and pelvic fins, and at tip of upper and lower tail fin; second dorsal and anal fins black; pectoral fins long and paddle-shaped; first dorsal fin very broadly rounded at tip.



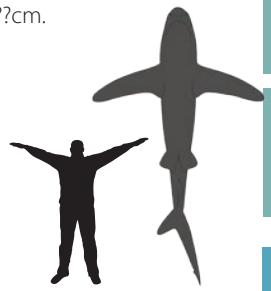
© NOAA Fisheries, USA

Colour

Juveniles similar in colour, but with black tips on some fins and black saddle-marks on caudal peduncle in specimens less than1.5 m TL.

Size

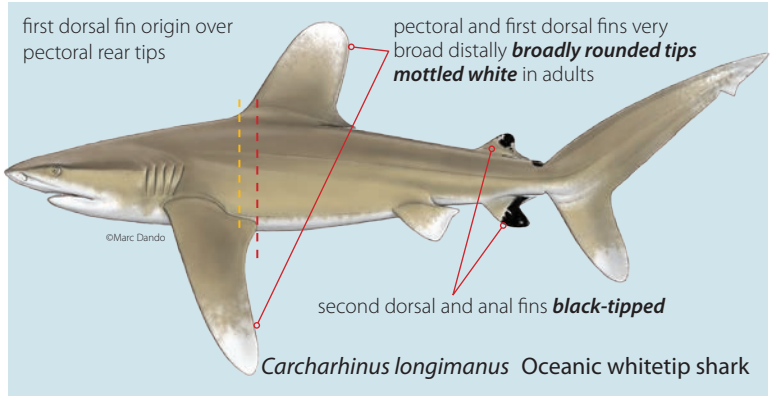
Males mature: 168–198cm.
Females mature: 175–200cm.
Maximum size: 350cm or more.
Birth size: ??–??cm.



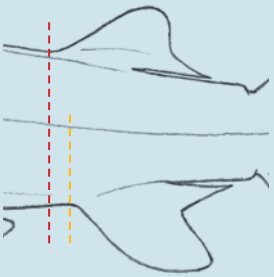
SIMILAR SPECIES

No other *Carcharhinus* species has the combination of white mottled fins, and the first dorsal and pectorals in all other *Carcharinus* species are usually pointed or tapered posteriorly.

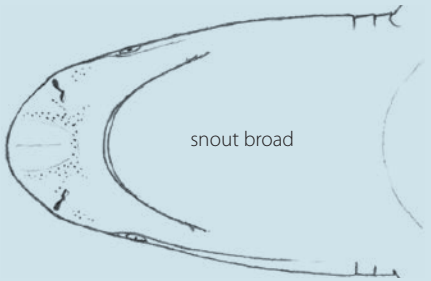
First dorsal fin nearer to pelvic fins than pectoral fins | **Second dorsal & anal fins** | **Ventral view of head**

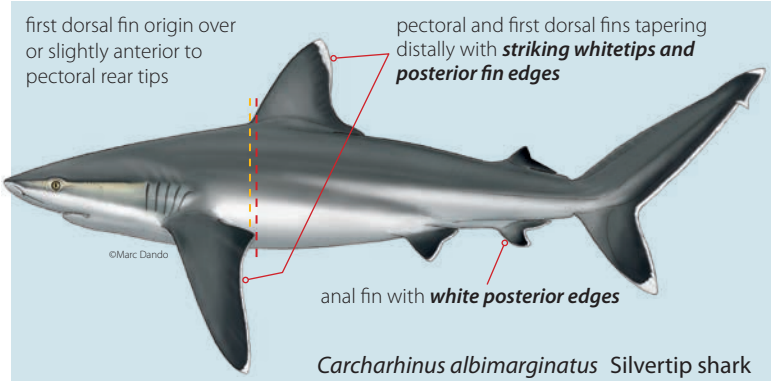


Carcharhinus longimanus Oceanic whitetip shark

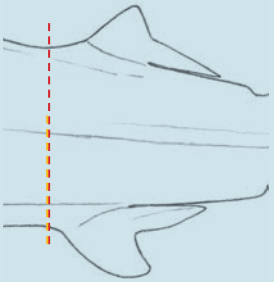


second dorsal origin ahead of anal origin

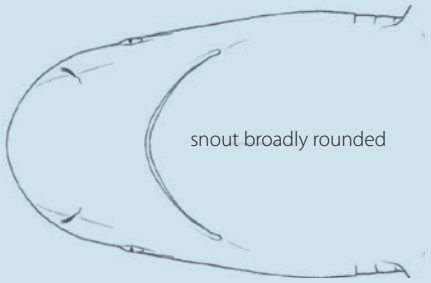


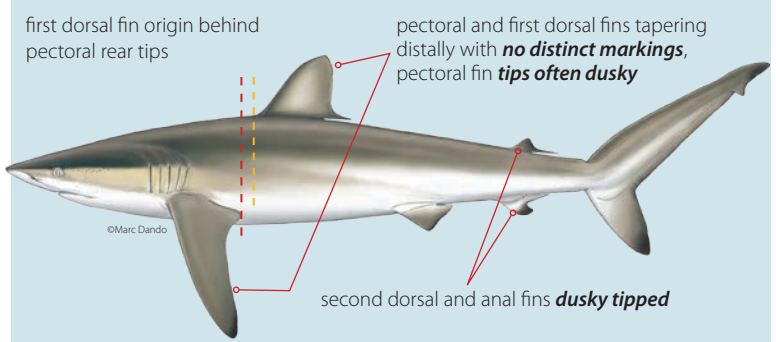


Carcharhinus albimarginatus Silvertip shark

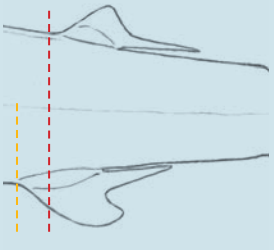


second dorsal origin over/ slightly behind anal origin

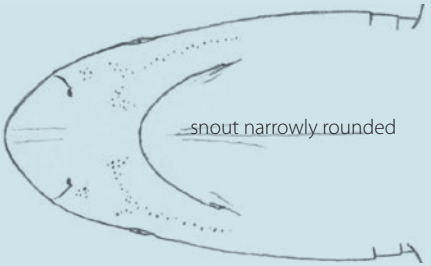




Carcharhinus falciformis Silky shark



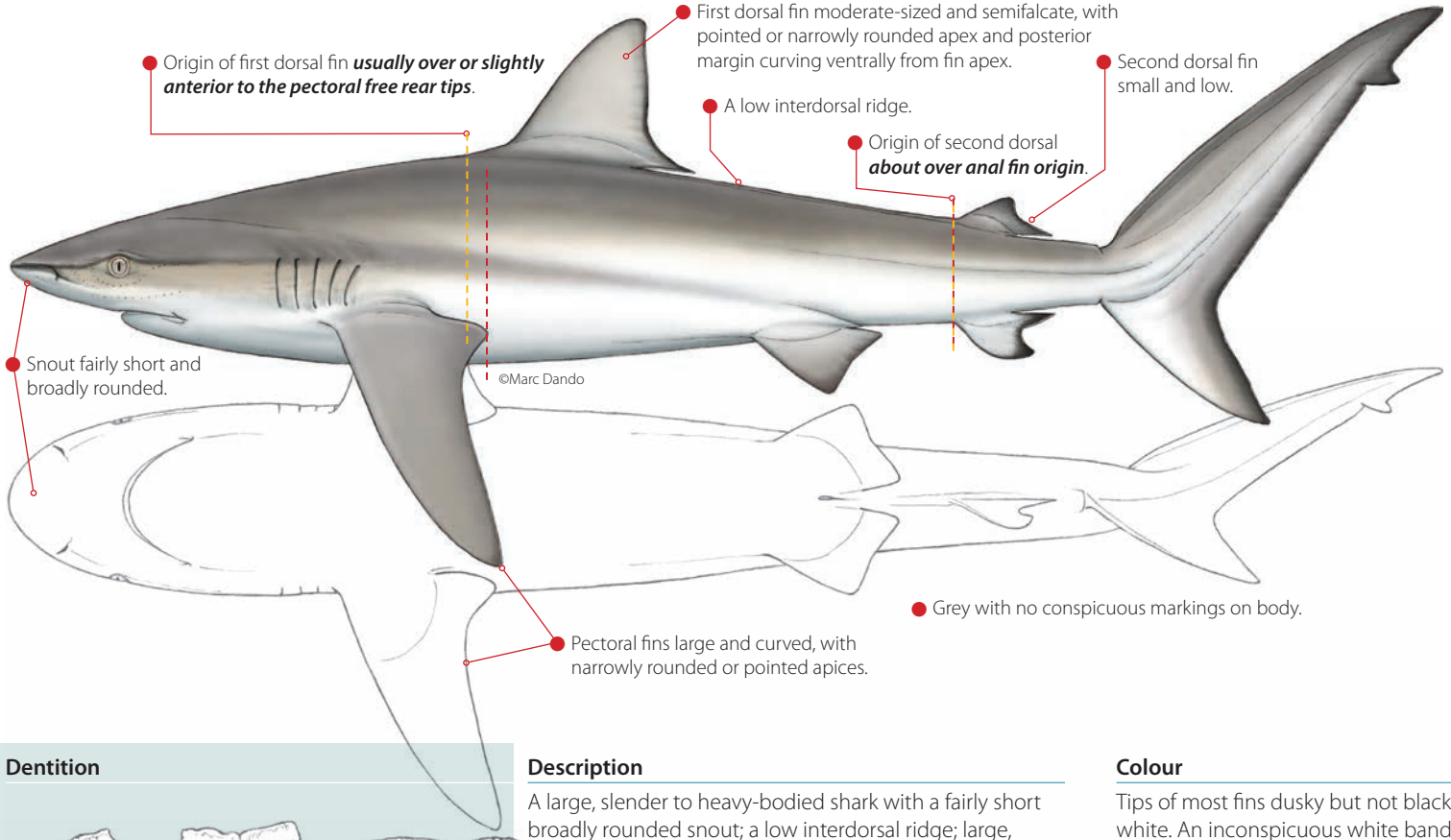
second dorsal origin behind anal origin



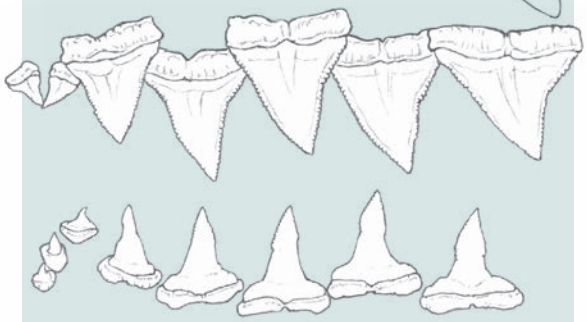
Carcharhinus obscurus
(Lesueur, 1818)

Dusky shark
Requin de sable

VU LL



Dentition



Teeth approximately actual size.

Upper jaw with triangular, rather low, erect and semioblique-cusped serrated anterolateral teeth without cusplets; lower teeth erect and narrow-cusped.
Tooth counts: upper jaw 29–33, lower jaw 27–32.

Description

A large, slender to heavy-bodied shark with a fairly short broadly rounded snout; a low interdorsal ridge; large, curved pectoral fins; a moderate-sized first dorsal; a small, low second dorsal, and no conspicuous markings on fins.

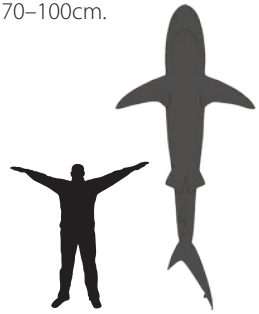
© Clinton Duffy (Dept of Conservation, New Zealand)

Colour

Tips of most fins dusky but not black or white. An inconspicuous white band on flank.

Size

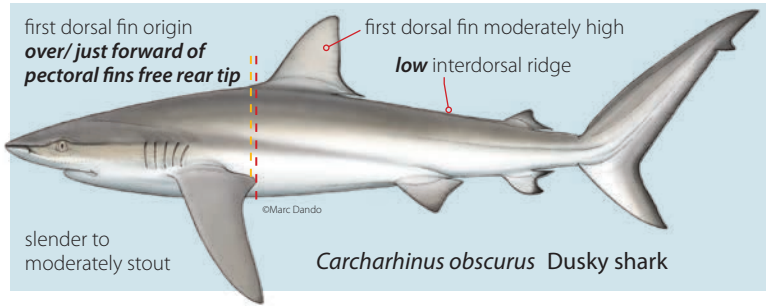
Males mature: 280–290cm.
Females mature: 255–300cm.
Maximum size: 400cm.
Birth size: 70–100cm.

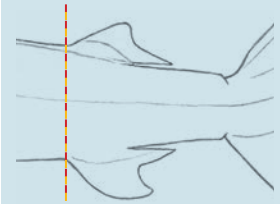


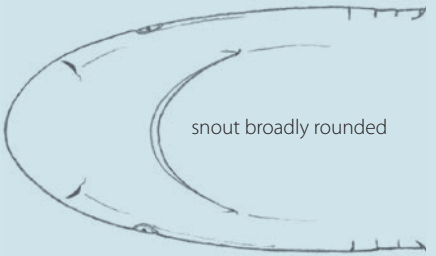
SIMILAR SPECIES

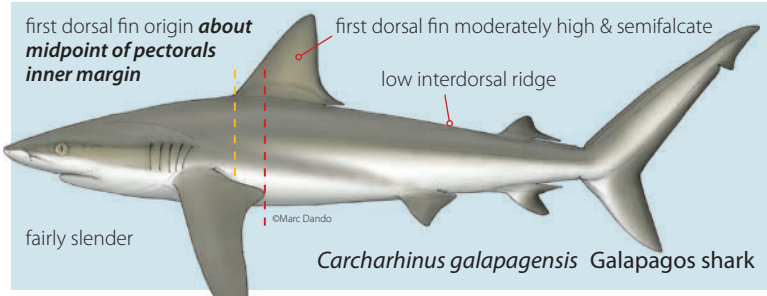
A low interdorsal ridge. First dorsal fin moderate-sized and semifalcate, with pointed or narrowly rounded apex and posterior margin curving ventrally from fin apex. Origin of first dorsal fin usually over or slightly anterior to the pectoral free rear tips. Second dorsal fin small and low. Origin of second dorsal about over anal fin origin. Snout fairly short and broadly rounded.

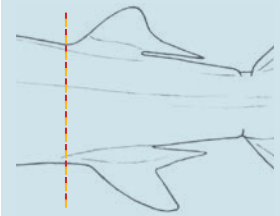
First dorsal fin nearer to pelvic fins than pectoral fins | **Second dorsal & anal fins** | **Ventral view of head**

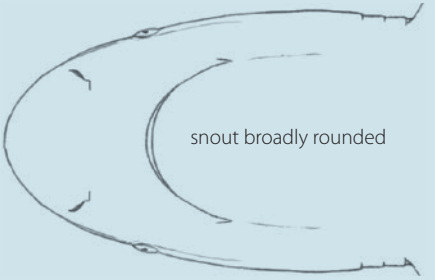


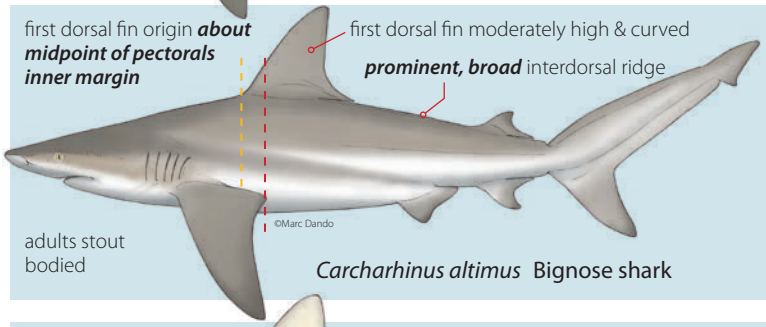

origin of second dorsal ***about over anal origin***

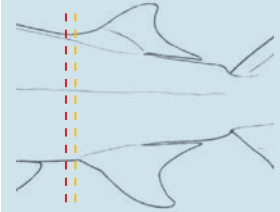


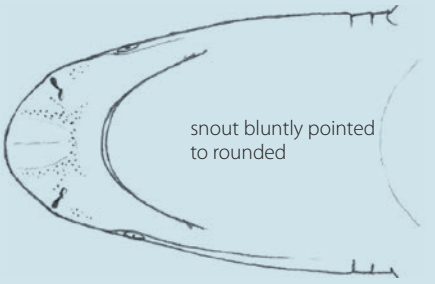


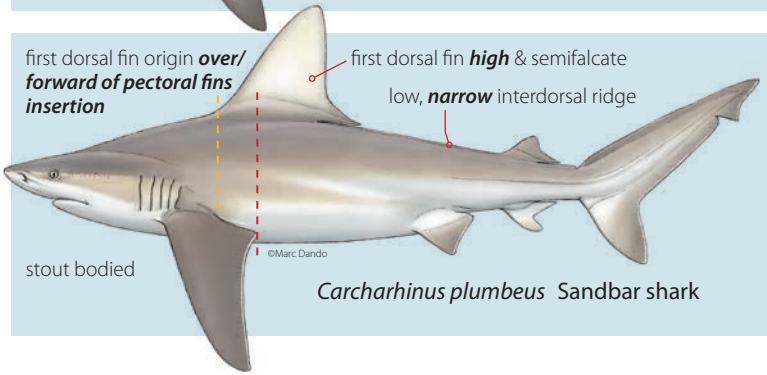

origin of second dorsal ***about over anal origin***

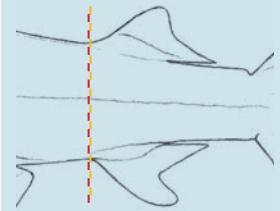


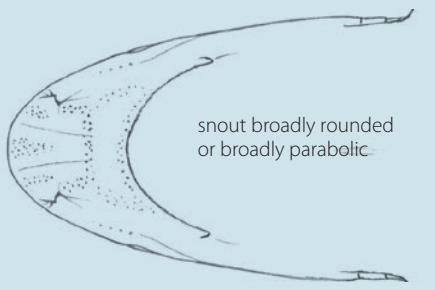



origin of second dorsal ***slightly forward of anal origin***





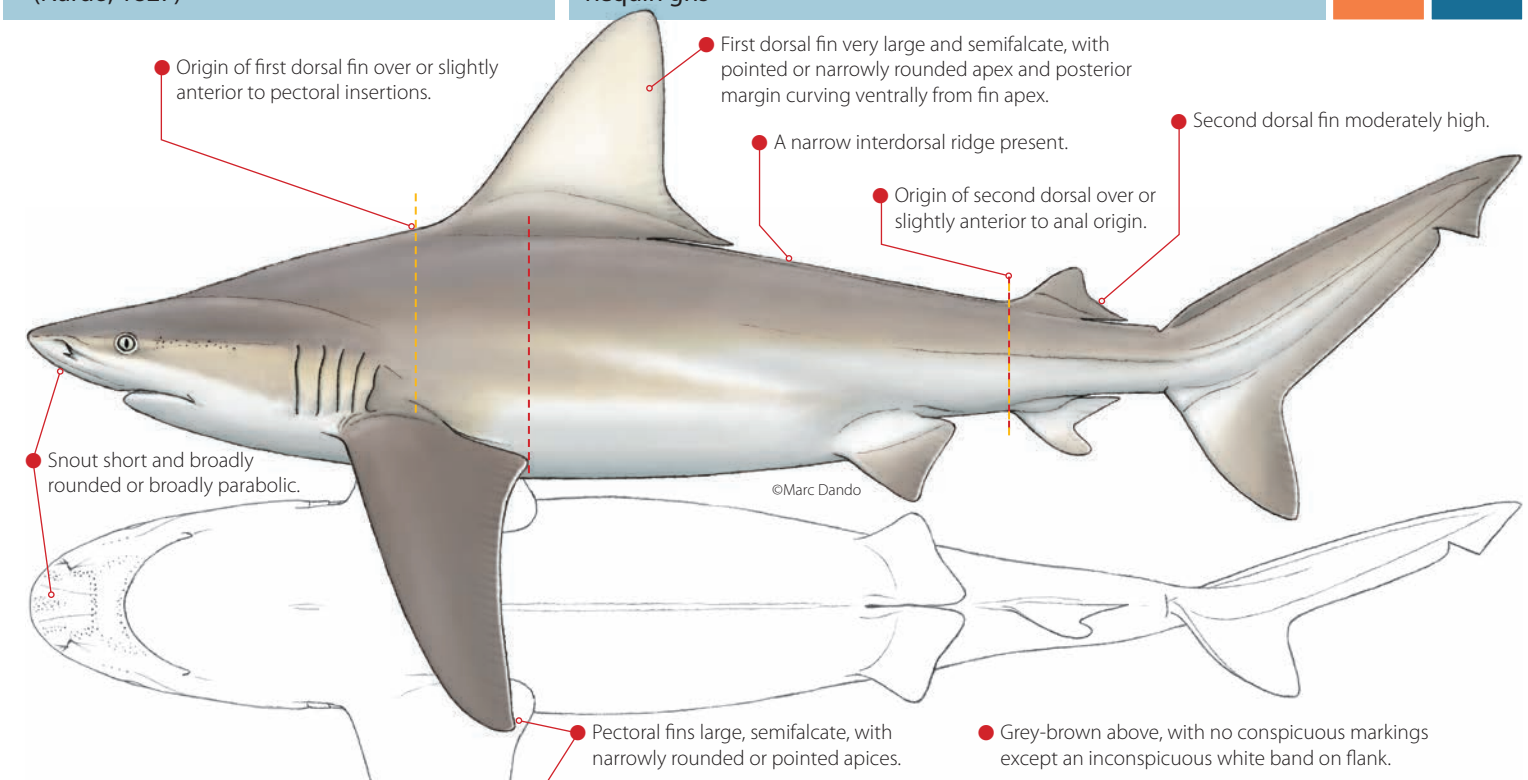

origin of second dorsal ***over or slightly forward to anal origin***



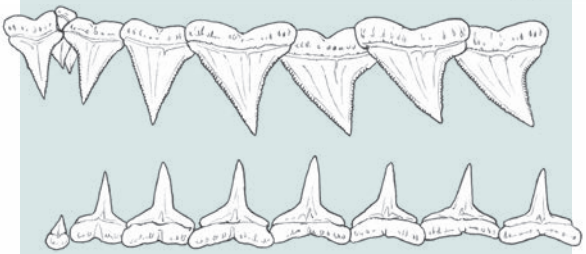
Carcharhinus plumbeus
(Nardo, 1827)

Sandbar shark
Requin gris

VU LL



Dentition



Teeth approximately actual size.

Upper and lower jaw broad- and high-cusped, triangular serrated upper teeth without cusplets

Tooth counts: upper jaw 27–32, lower jaw 25–32.

Description

A medium-sized grey shark with short rounded snout; an extremely tall triangular first dorsal fin with its origin over or anterior to the pectoral insertions; a narrow interdorsal ridge; large pectoral fins, a moderately large second dorsal fin with a short rear tip, and no conspicuous markings on fins.

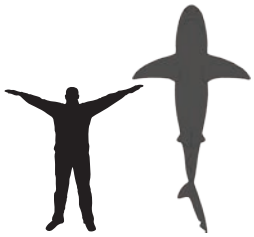
© NOAA Fisheries, USA

Colour

Grey-brown above, white below; tips and posterior edges of fins often dusky, but no conspicuous markings; an inconspicuous white band on flank.

Size

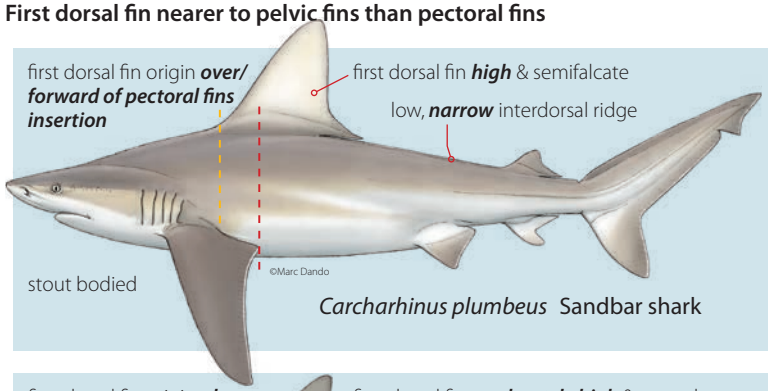
Males mature: 130–180cm.
Females mature 145–185cm.
Maximum size: 300cm.
Birth size: 55–75cm.

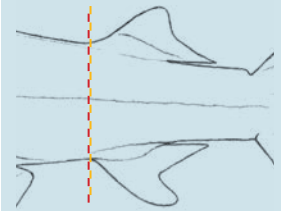


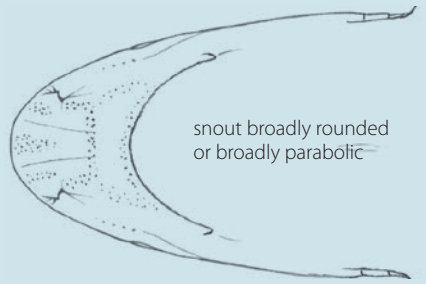
SIMILAR SPECIES

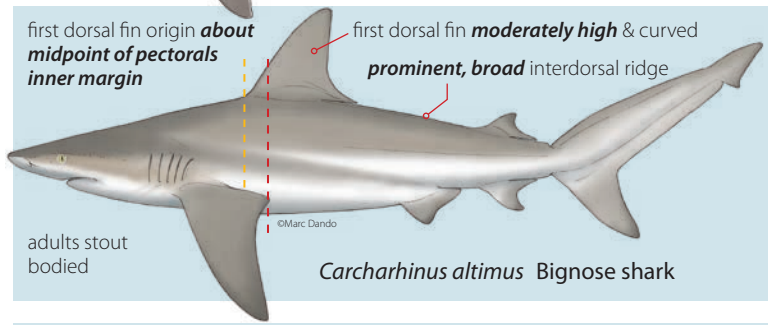
A narrow interdorsal ridge present. Pectoral fins large. First dorsal fin very large with posterior margin curving ventrally from fin apex. Origin of first dorsal fin over or slightly anterior to pectoral insertions. Second dorsal fin moderately high. Origin of second dorsal over or slightly anterior to anal origin. Snout short and broadly rounded or broadly parabolic.

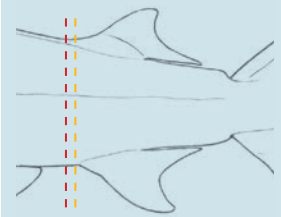
First dorsal fin nearer to pelvic fins than pectoral fins | **Second dorsal & anal fins** | **Ventral view of head**

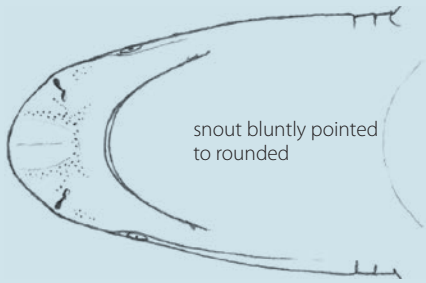


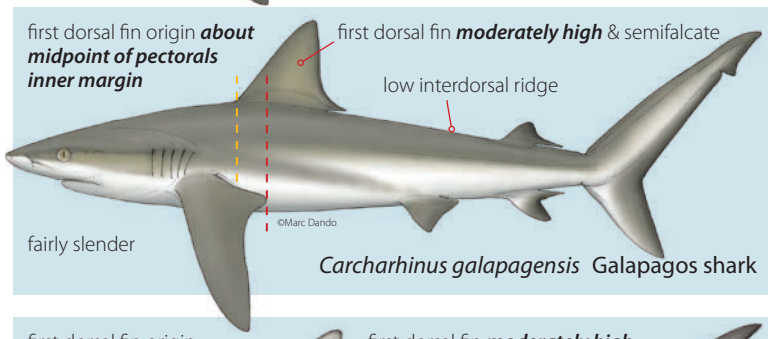

origin of second dorsal ***over or slightly forward to anal origin***

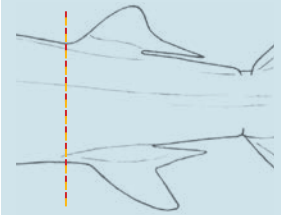


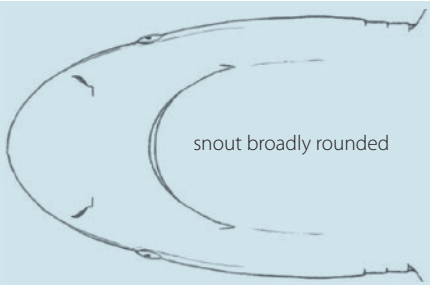


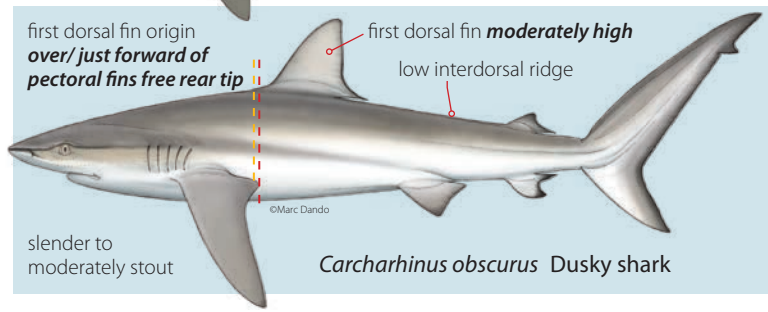

origin of second dorsal ***slightly forward of anal origin***

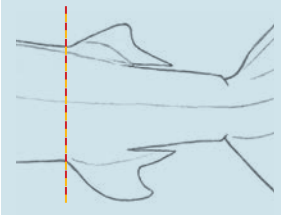


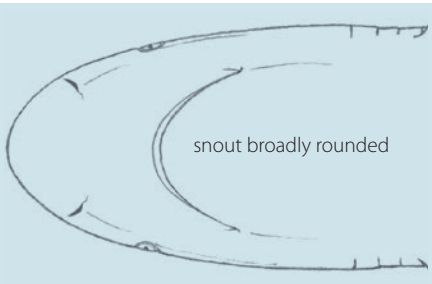



origin of second dorsal ***about over anal origin***



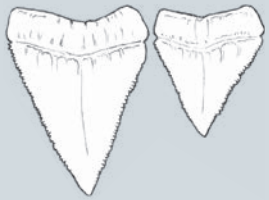



origin of second dorsal ***about over anal origin***



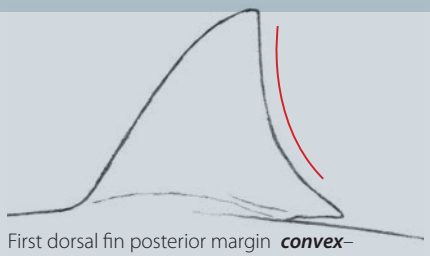
1a Upper teeth broadly triangular and serrated. First dorsal fin posterior margin convex ➔ *Carcharodon carcharias,* p.47

1b Upper teeth long, narrow, and without serrations. First dorsal fin posterior margin concave ➔ **2**

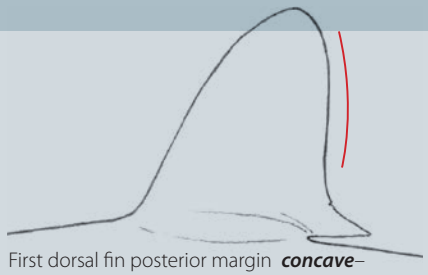


Upper teeth ***broad, triangular*** & ***serrated***– *C. carcharias,* p.47

Upper teeth ***long*** & ***narrow***– Go to **2**



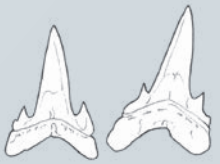
First dorsal fin posterior margin ***convex***– *C. carcharias,* p.47



First dorsal fin posterior margin ***concave***– Go to **2**

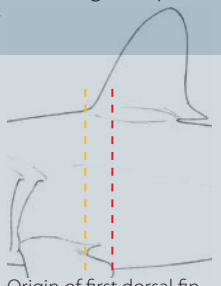
2a Origin of first dorsal fin over base or inner margin of pectoral fins. Caudal peduncle with two keels. Teeth with small lateral cusplets ➔ *Lamna nasus* p.53

2b Origin of first dorsal fin posterior to rear tip of inner margin of pectoral fins. No secondary keel on caudal peduncle. Teeth without small lateral cusplets➔ **3,** *Isurus*



Teeth with ***small lateral cusplets***– *L. nasus,* p.53

Teeth ***without*** small lateral cusplets– Go to **3**



Origin of first dorsal fin– *L. nasus,* p.53

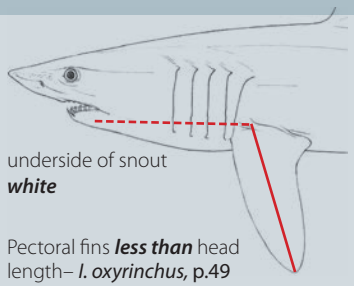
Origin of first dorsal fin– Go to **3**

Two keels– *L. nasus,* p.53

One keel– Go to **3**

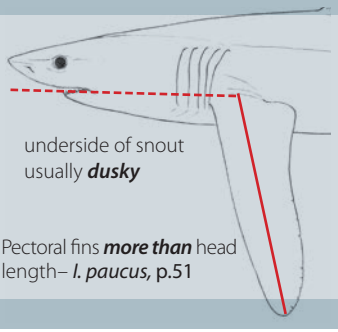
3a Pectoral fins length considerably less than head length. Anal fin origin under midbase of second dorsal fin ➔ *Isurus oxyrinchus,* p.49

3b Pectoral fins length equal to or greater than head length. Anal fin origin slightly behind second dorsal fin insertion ➔ *Isurus paucus,* p.51



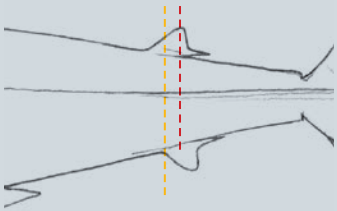
underside of snout ***white***

Pectoral fins ***less than*** head length– *I. oxyrinchus,* p.49

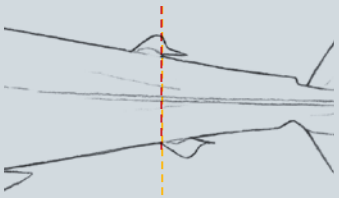


underside of snout usually ***dusky***

Pectoral fins ***more than*** head length– *I. paucus,* p.51

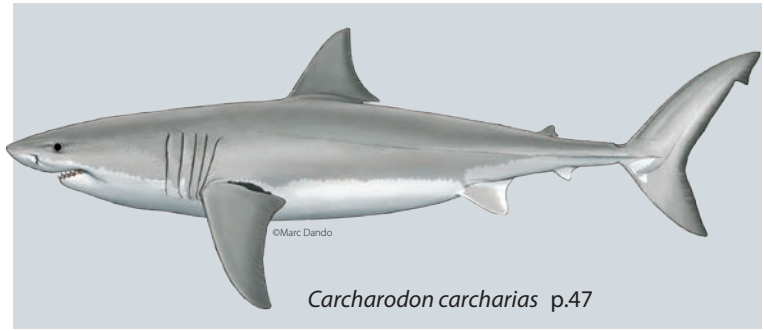


Anal fin origin under ***midbase*** of second dorsal– *I. oxyrinchus,* p.49



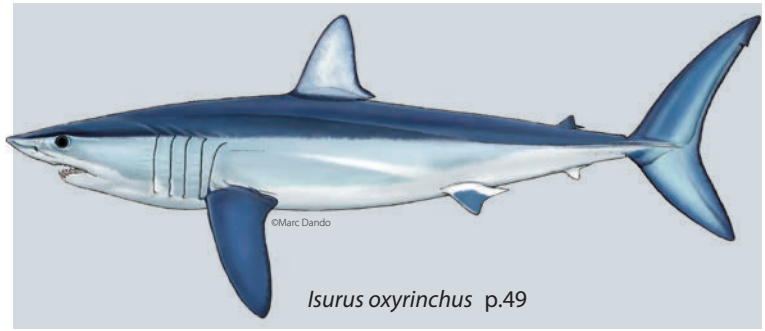
Anal fin origin slightly ***behind*** second dorsal insertion– *I. paucus,* p.51

Lamnidae species comparison and look alikes

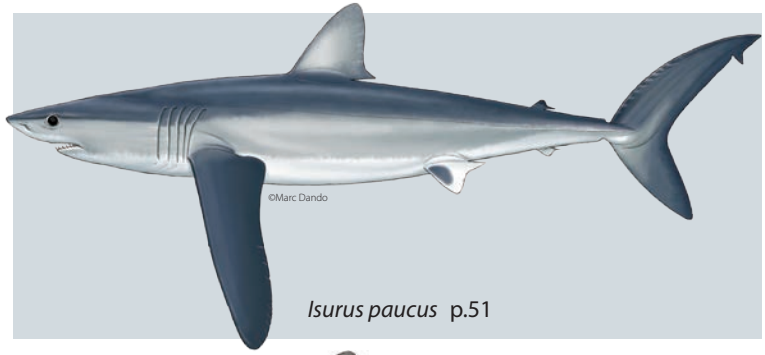


Carcharodon carcharias p.47

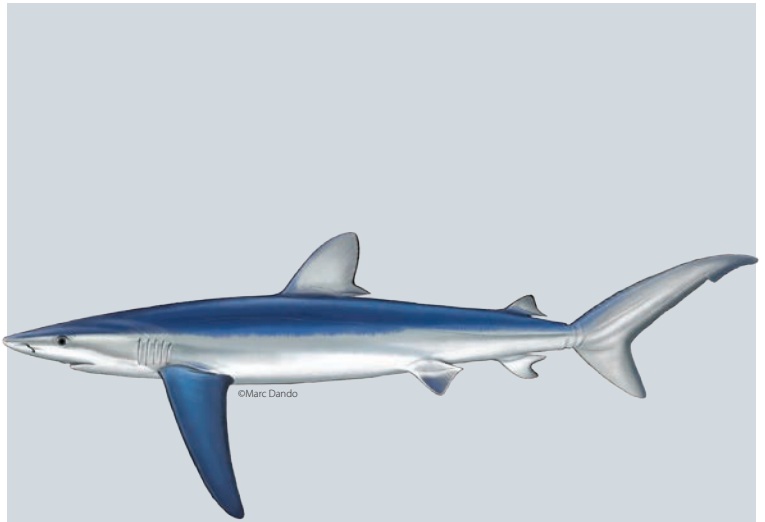
Galeocerdo cuvier p.25



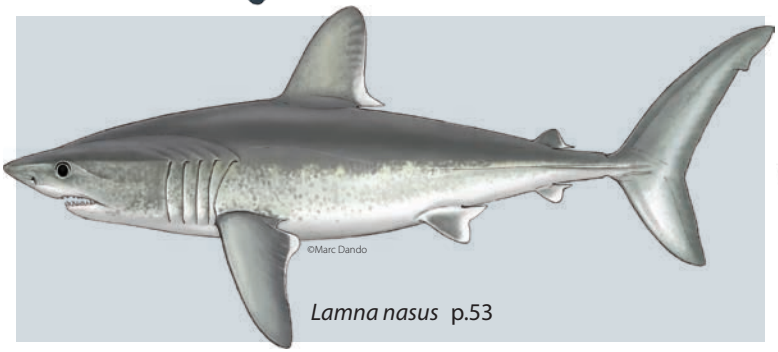
Isurus oxyrinchus p.49



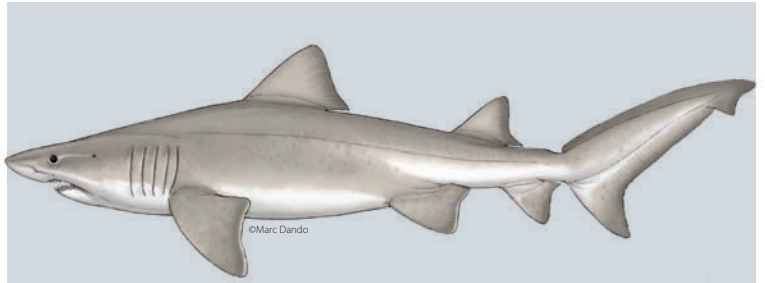
Isurus paucus p.51



Prionace glauca p.27



Lamna nasus p.53

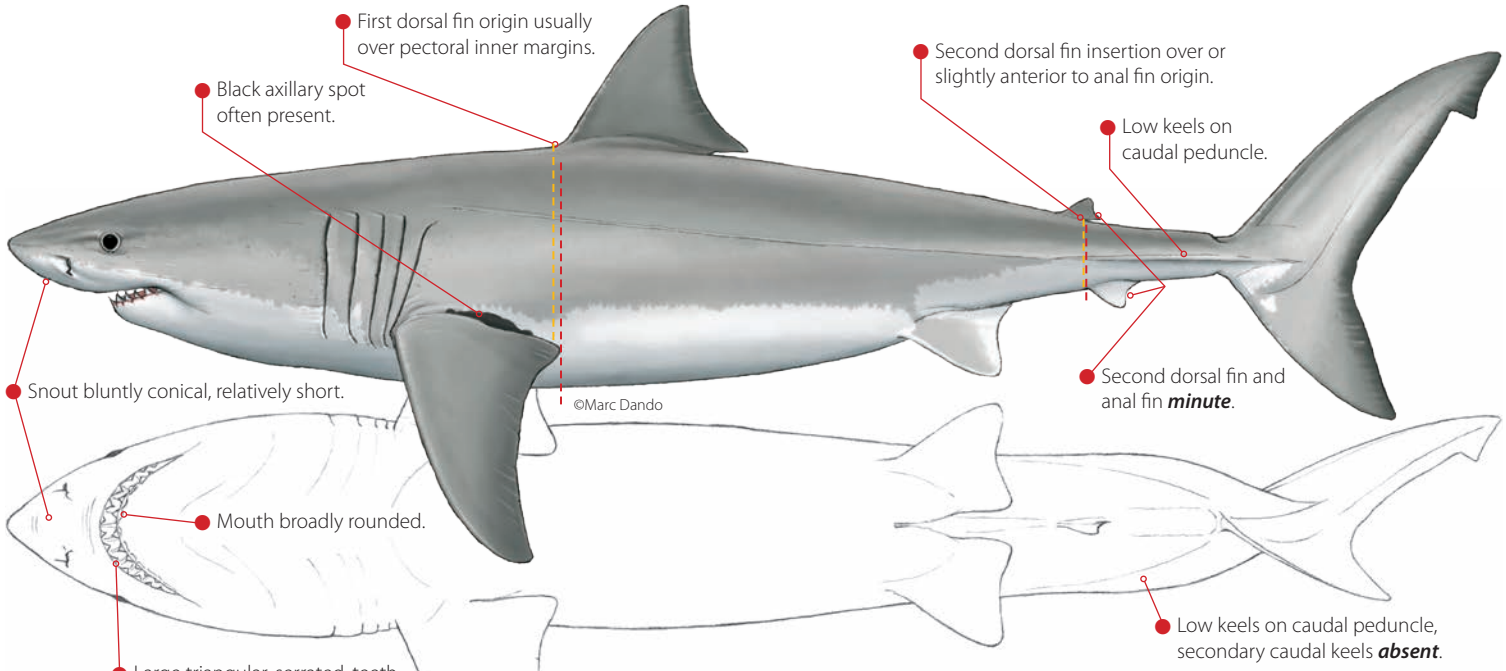


Odantaspis ferox p.63

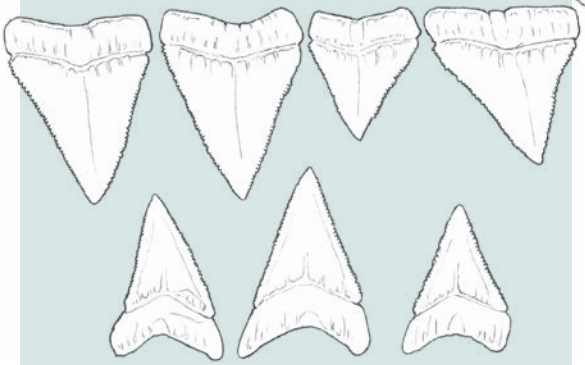
Carcharodon carcharias
(Linnaeus, 1758)

White shark
Grand requin blanc

VU LL



Dentition



Teeth approximately actual size.

Teeth very large, erect, subtriangular, with edges coarsely serrated; similar in both jaws except lowers more slender than uppers.

Tooth counts: upper jaw 23–29, lower jaw 21–25.

Description

A stout spindle-shaped body, with a conical snout, a large erect, triangular first dorsal fin, minute second dorsal and anal fins, no secondary caudal keel, and a large crescent-shaped caudal fin.

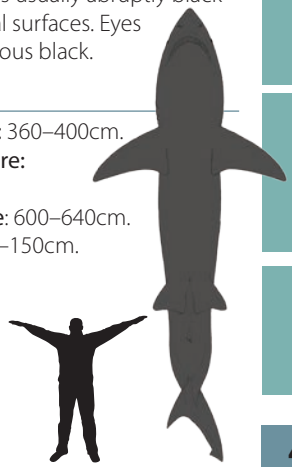
© NOAA Fisheries, USA

Colour

Grey, brownish-grey, to blue-grey above, becoming white below; transition from dorsal to ventral colour sharply demarcated. A black axillary spot often at pectoral fins insertion; pectoral fin tips usually abruptly black on their ventral surfaces. Eyes are a conspicuous black.

Size

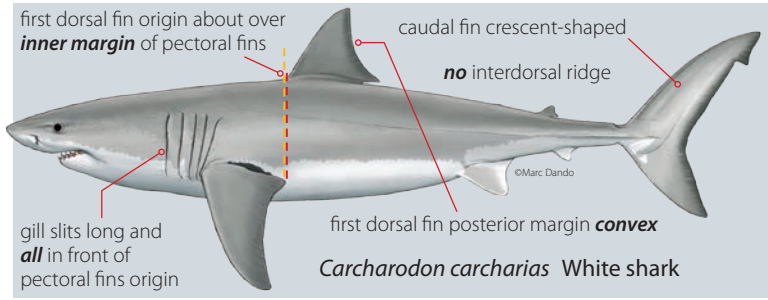
Males mature: 360–400cm.
Females mature: 450–500cm.
Maximum size: 600–640cm.
Birth size: 120–150cm.

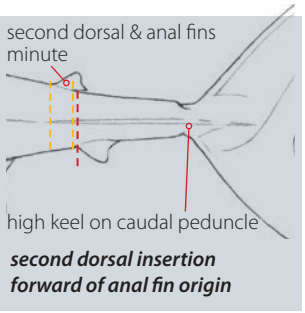


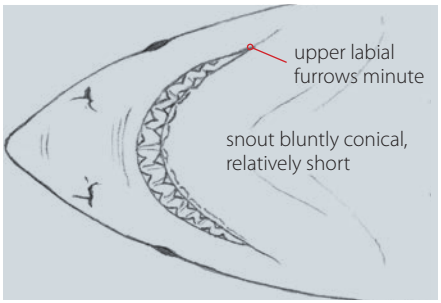
SIMILAR SPECIES

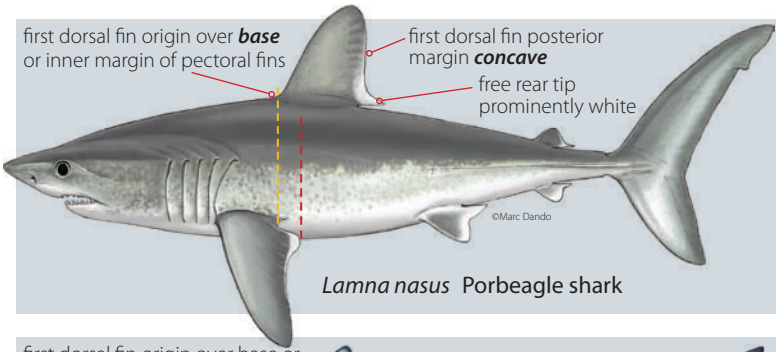
A relatively short conical snout; large erect first dorsal fin with convex posterior margin, one high keel either side of caudal peduncle; back and sides grey, white below usually with a black axillary spot at pectoral fins insertion; large, coarsely serrated, triangular teeth.

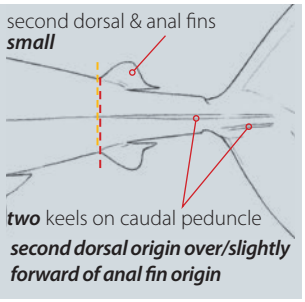
First dorsal and caudal fins, interdorsal and caudal | **Second dorsal & anal fins** | **Ventral view of head**

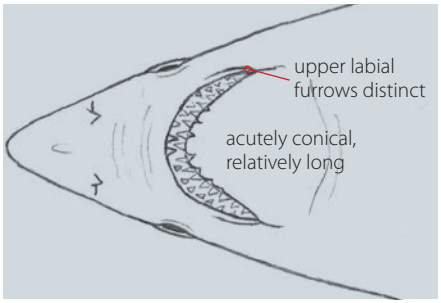


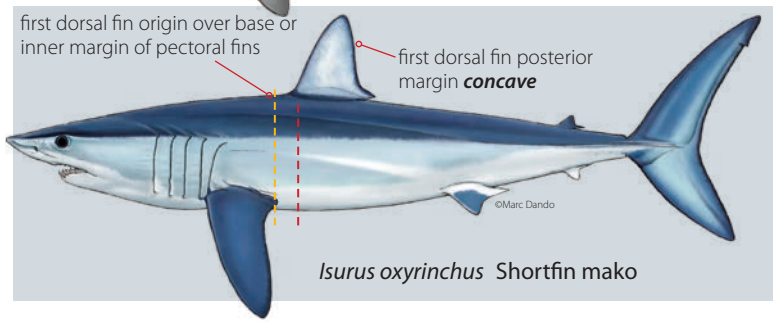


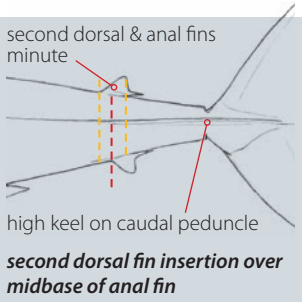


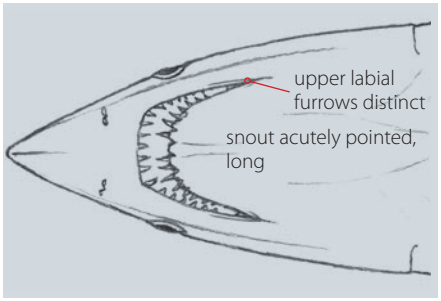


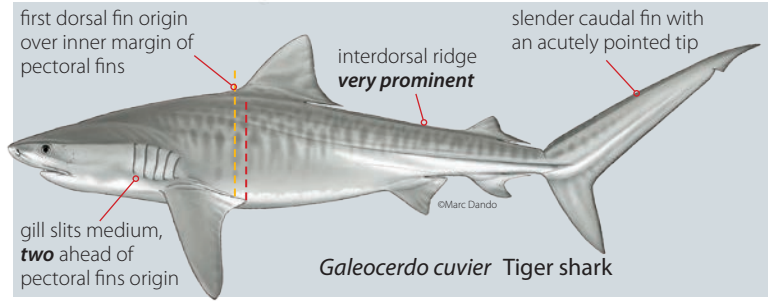


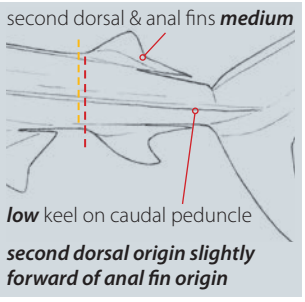


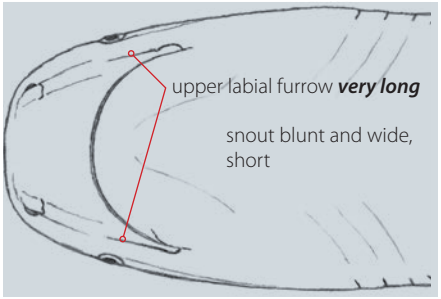








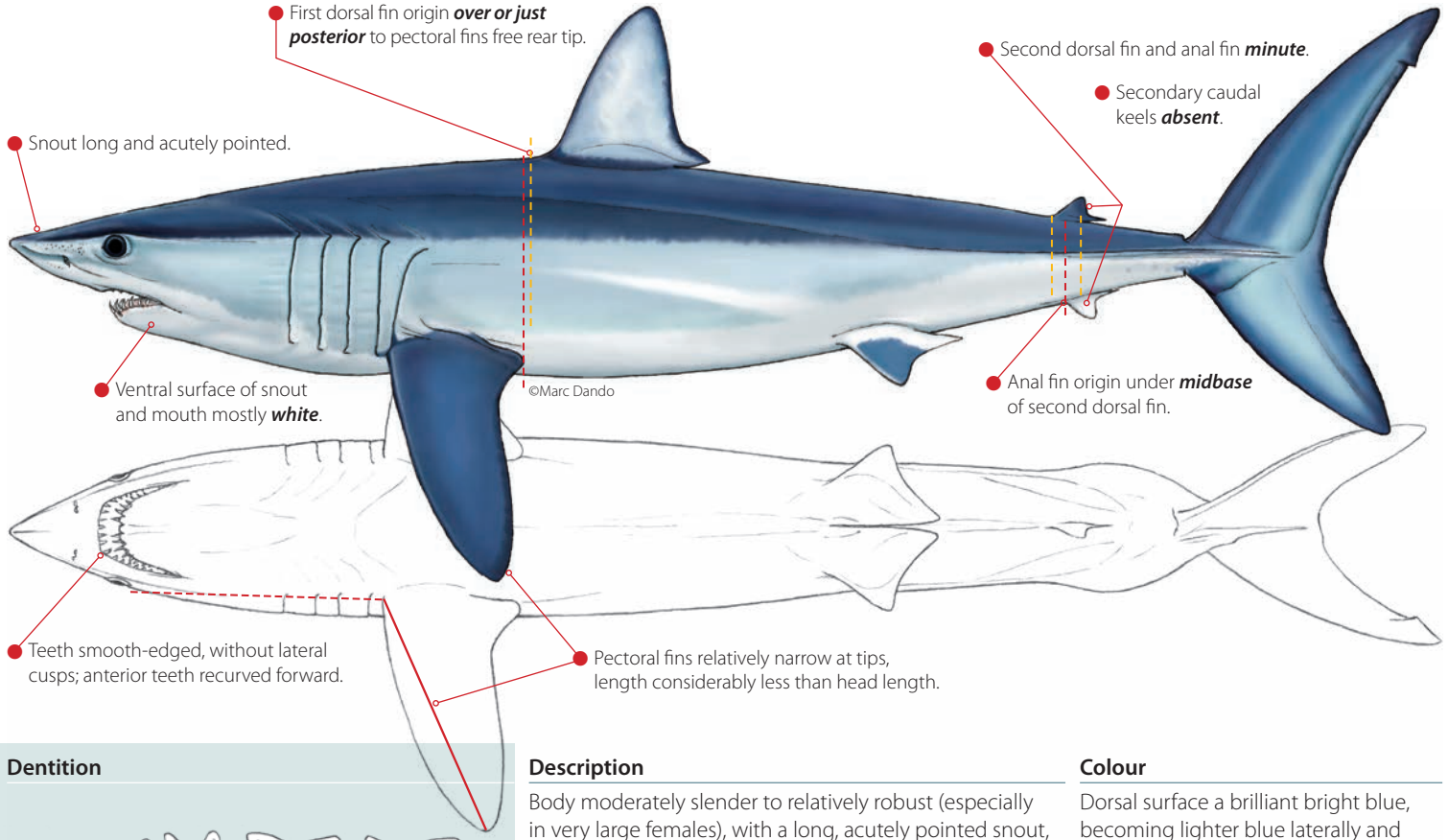




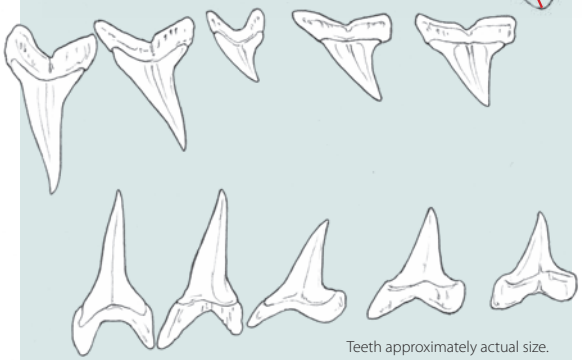
Isurus oxyrinchus
Rafinesque, 1810

Shortfin mako shark
Taupe bleue

VU LL



Dentition



Teeth approximately actual size.

Teeth similar in both jaws, narrow, slender, ***recurved*** and more oblique.

Tooth counts: upper jaw 24–26, lower jaw 22–32.

Description

Body moderately slender to relatively robust (especially in very large females), with a long, acutely pointed snout, eyes less than 33% snout length, pectoral fins less than head length, a high, erect first dorsal fin, an anal fin originating under midbase of second dorsal fin, and a crescent-shaped caudal fin.

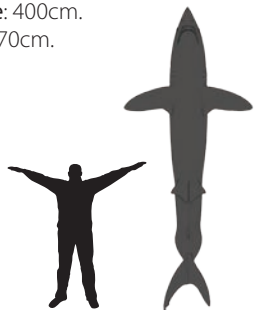
© Charlene Da Silva (Department Agriculture, Forestry, and Fisheries, South Africa)

Colour

Dorsal surface a brilliant bright blue, becoming lighter blue laterally and white on ventral surface; **ventral surface of snout usually white**.

Size

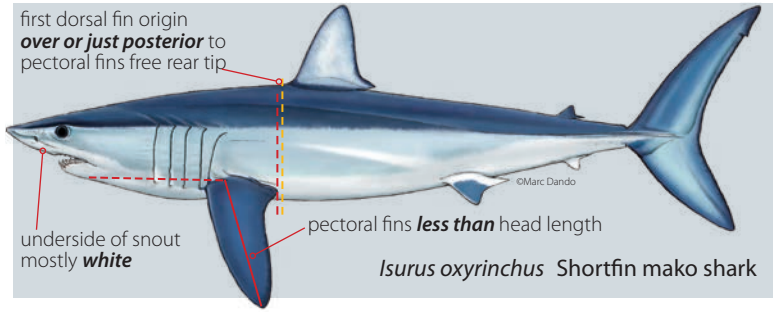
Males mature: about 200.
Females mature: 270–300cm.
Maximum size: 400cm.
Birth size: 60–70cm.



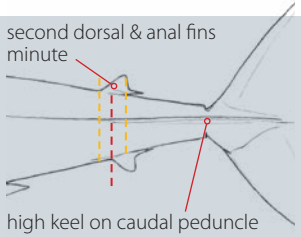
SIMILAR SPECIES

A relatively long pointed snout; pectoral fins moderately long, but less than head length, one high keel either side of the caudal peduncle; back and sides brilliantly blue, underside of snout usually white; long, smooth edged, blade-like teeth which are recurved.

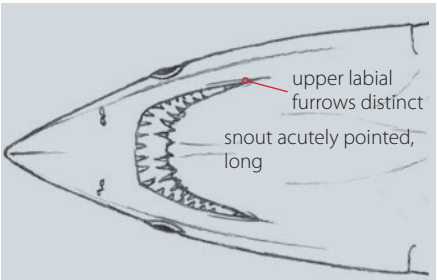
First dorsal and caudal fins, interdorsal and caudal | **Second dorsal & anal fins** | **Ventral view of head**

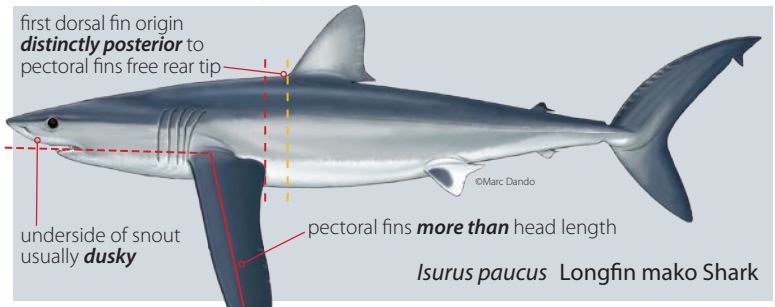


Isurus oxyrinchus Shortfin mako shark

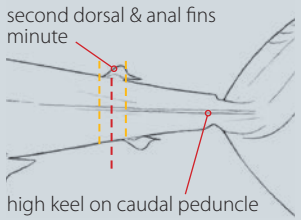


second dorsal fin insertion over midbase of anal fin

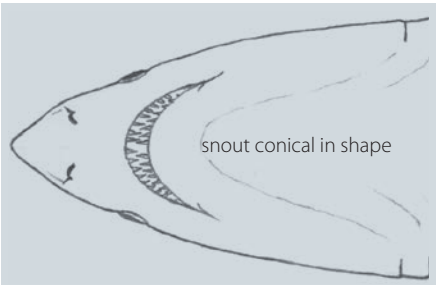


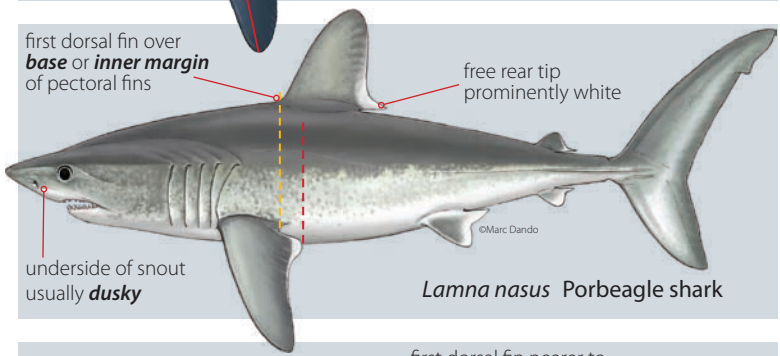


Isurus paucus Longfin mako Shark

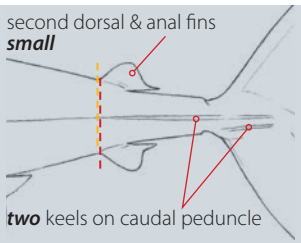


second dorsal fin insertion over midbase of anal fin

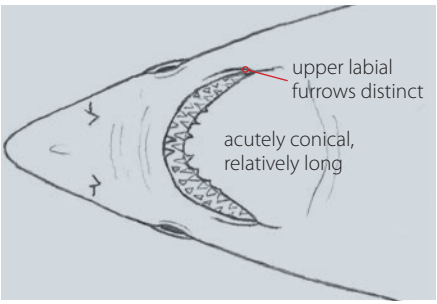


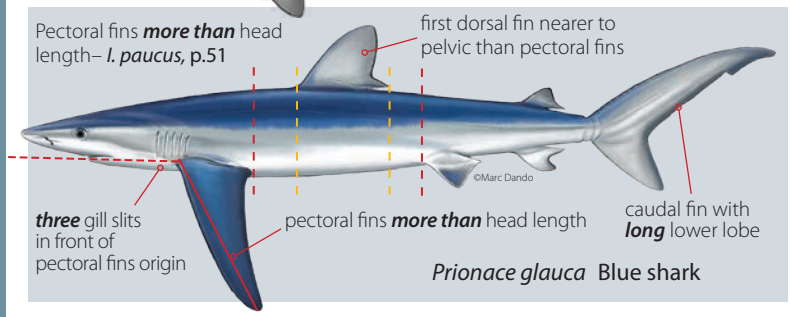


Lamna nasus Porbeagle shark

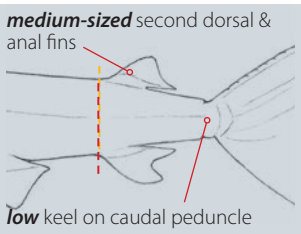


second dorsal origin over/slightly forward of anal fin origin

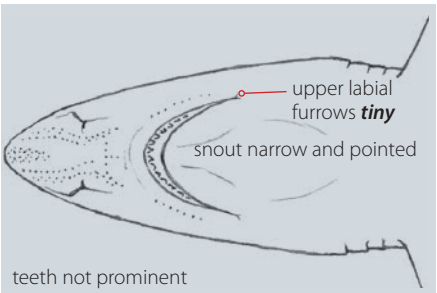




Prionace glauca Blue shark



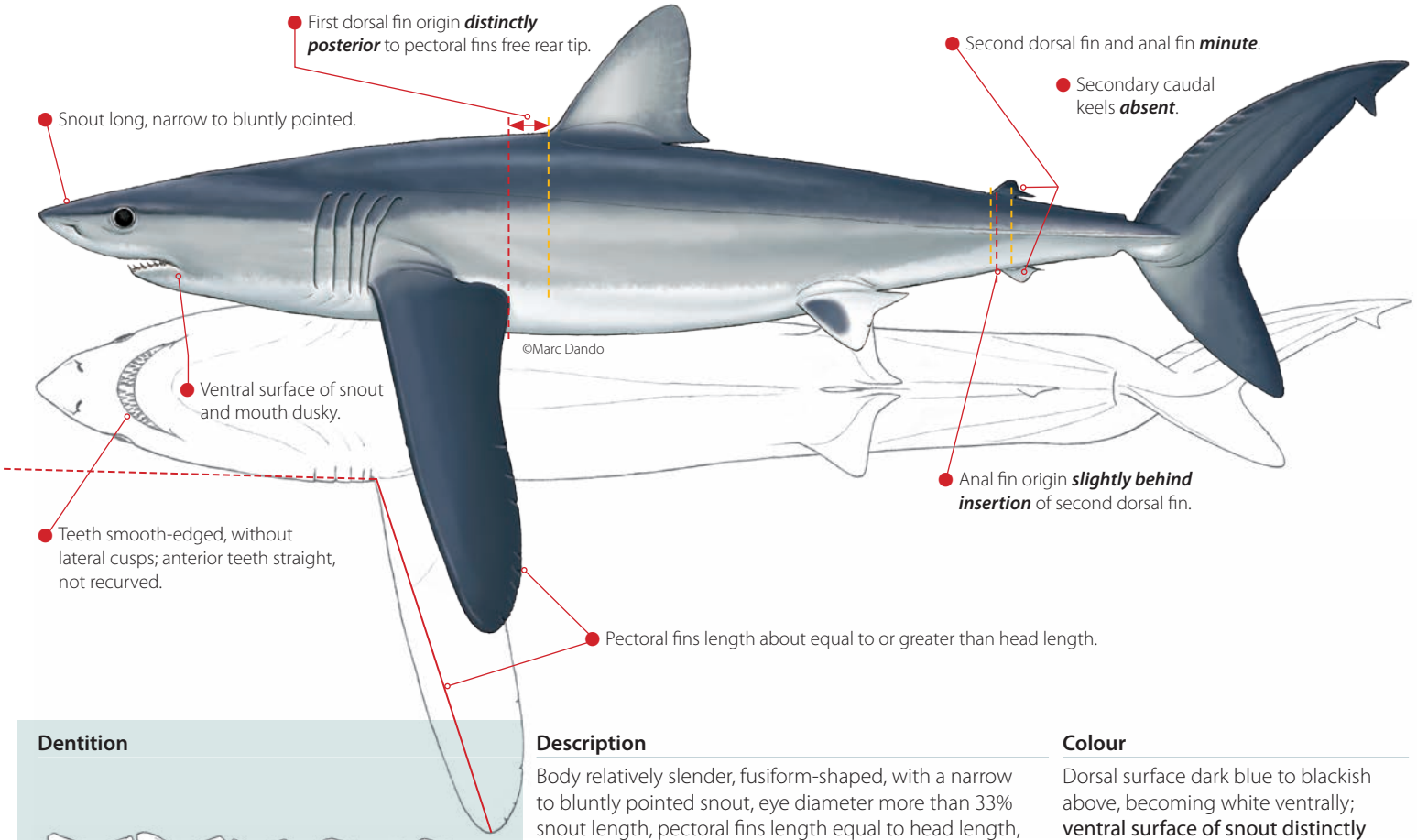
second dorsal fin origin over anal fin origin



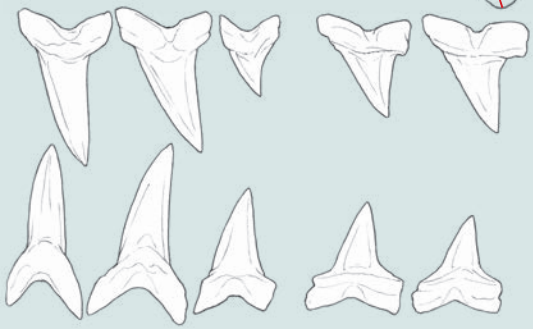
Isurus paucus
Guitart, 1966

Longfin mako shark
Petite taupe

VU LL



Dentition



Teeth approximately actual size.

Teeth similar in both jaws, broad, robust, ***less recurved***, and less oblique.

Tooth counts: upper jaw 24–26, lower jaw 22–24.

Description

Body relatively slender, fusiform-shaped, with a narrow to bluntly pointed snout, eye diameter more than 33% snout length, pectoral fins length equal to head length, high, erect first dorsal fin, an anal fin originating slightly posterior to second dorsal fin insertion, and a crescent shaped caudal fin.

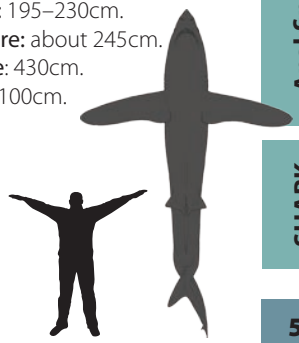
© NOAA Fisheries, USA

Colour

Dorsal surface dark blue to blackish above, becoming white ventrally; **ventral surface of snout distinctly dusky or dark**, except in small juveniles.

Size

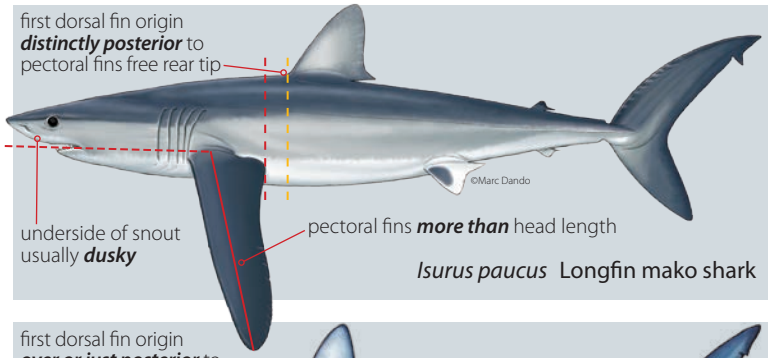
Males mature: 195–230cm.
Females mature: about 245cm.
Maximum size: 430cm.
Birth size: 90–100cm.

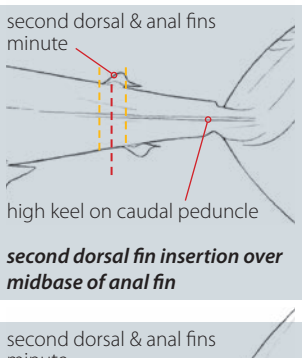


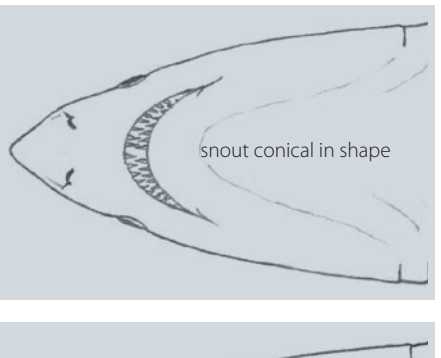
SIMILAR SPECIES

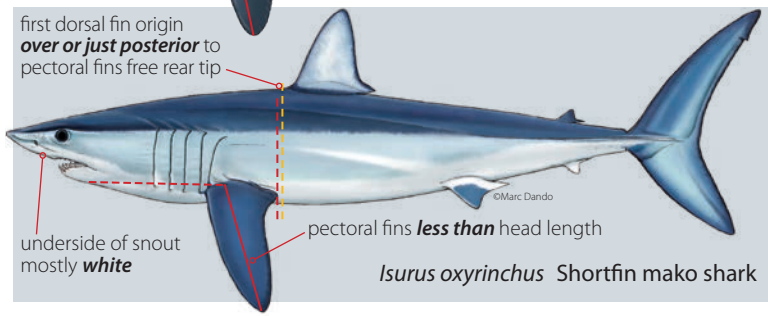
Snout is not as pointed as in Shortfin Mako; pectoral fins are very long and broadly tipped, length about equal to or longer than head length, one high keel either side of the caudal peduncle; back and sides greyish-black, underside of snout dusky; teeth smooth-edged, blade-like, but not recurved.

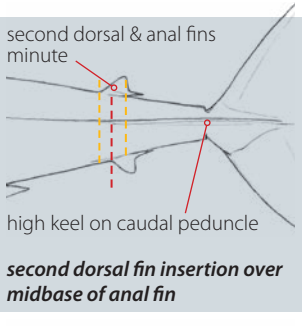
First dorsal and caudal fins, interdorsal and caudal | **Second dorsal & anal fins** | **Ventral view of head**

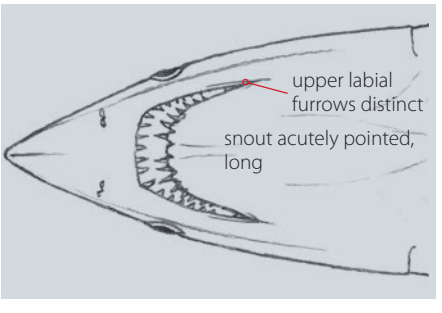


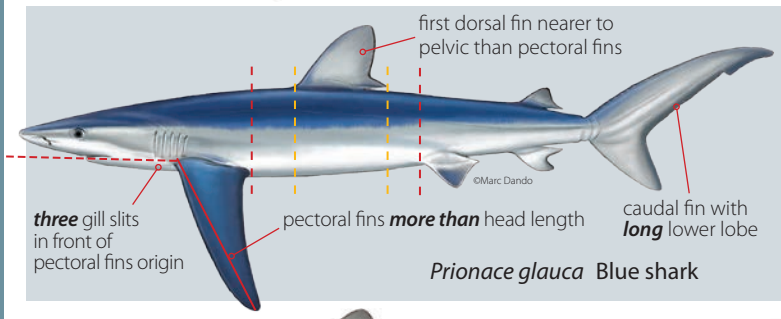


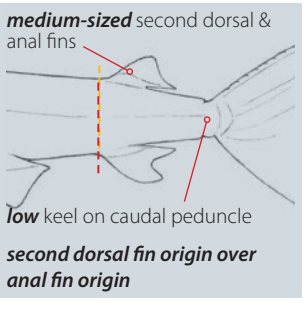


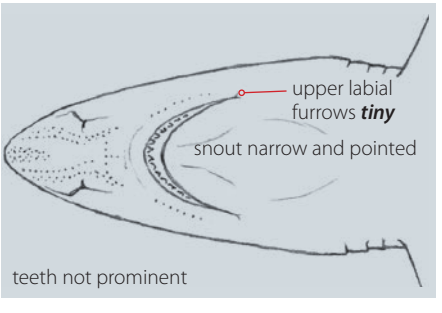


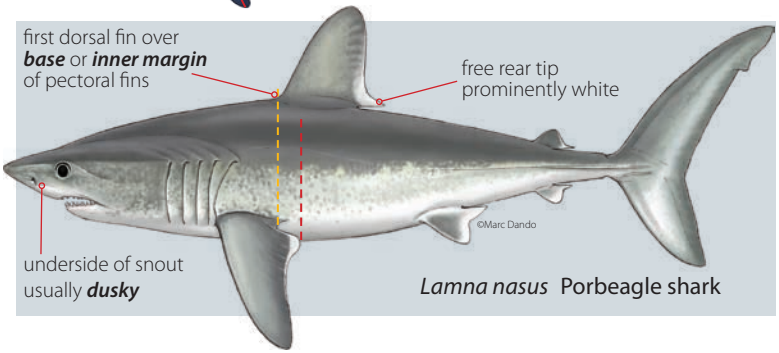


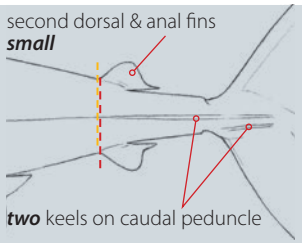


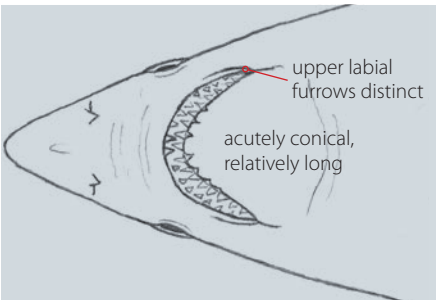








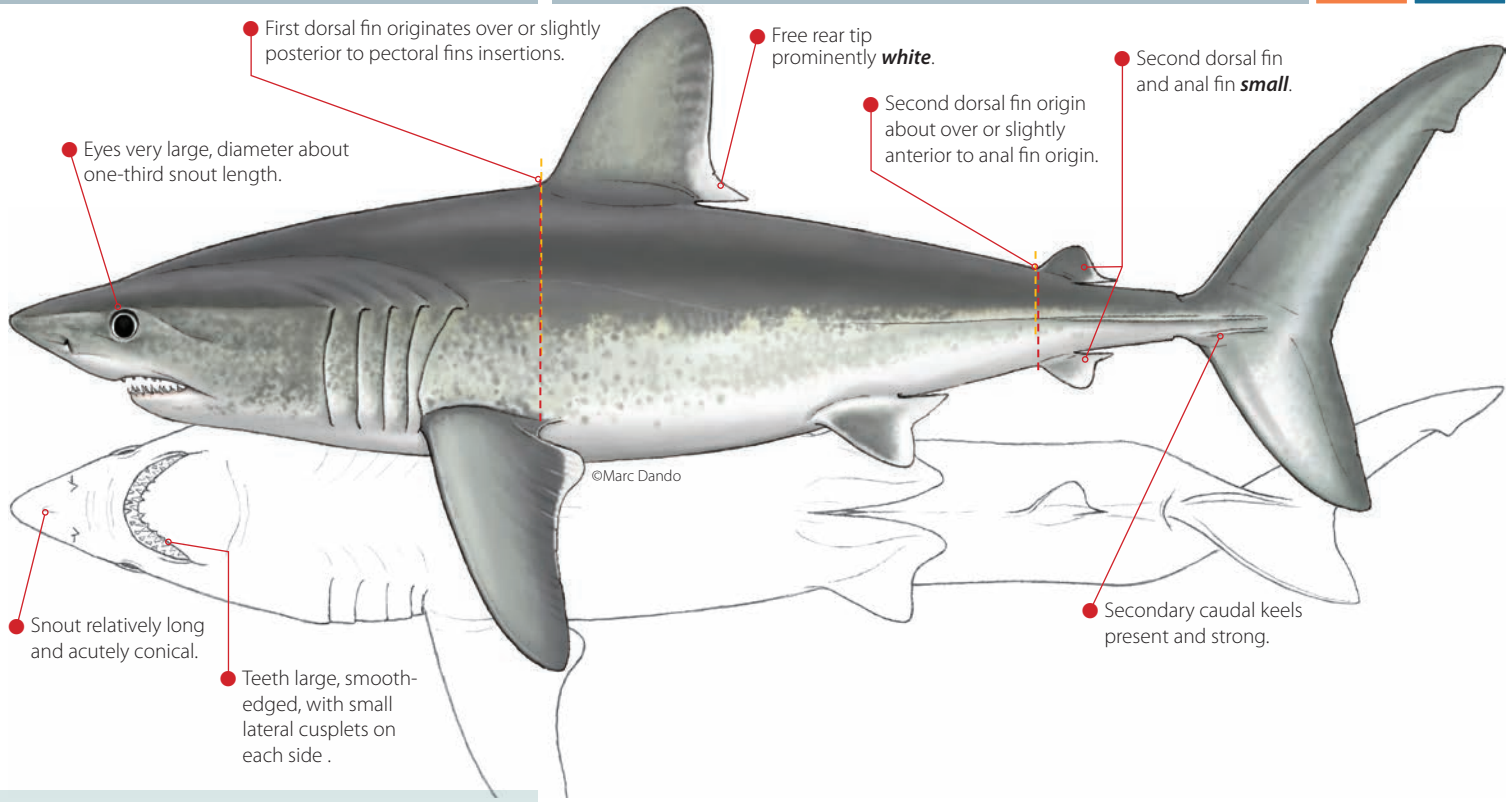




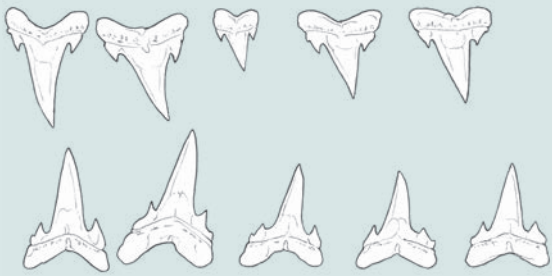
Lamna nasus
(Bonnaterre, 1788)

Porbeagle shark
Requin-taupe commun

VU LL



Dentition



Teeth approximately actual size.

Teeth with long narrow, smooth-edged cusp, flanked by a single lateral cusplet on each side.

Tooth counts: upper jaw 28–32, lower jaw 26–30.

Description

Stout fusiform-shaped body, with a relatively long, conical snout, teeth with large smooth-edged cusp and small lateral cusplets either side, first dorsal fin erect, high, free rear tip abruptly white, second dorsal and anal fins comparatively small, and prominent secondary caudal keels on crescent-shaped caudal fin.

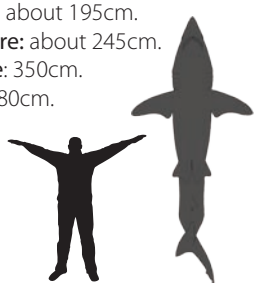
© Malcolm Francis (NIWA, New Zealand)

Colour

Dorsal surface colour dark bluish-grey, becoming white on ventral surface of body white; free rear tip of first dorsal fin prominently white; underside of head dusky and abdomen blotched in some adults of Southern Hemisphere population.

Size

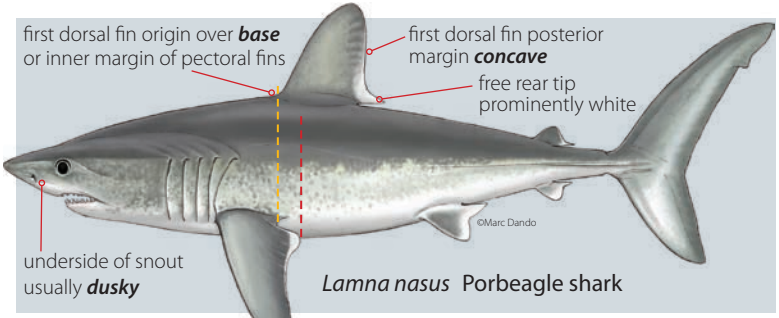
Males mature: about 195cm.
Females mature: about 245cm.
Maximum size: 350cm.
Birth size: 70–80cm.



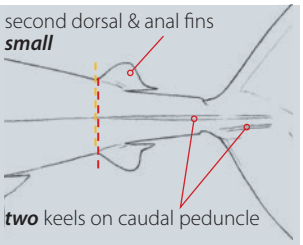
SIMILAR SPECIES

Stout bodied shark; snout relatively long and conical; first dorsal fin high and erect, one high keel either side of the caudal peduncle and one secondary caudal keel either side of caudal fin base; back dark bluish grey, underside of head dusky, free rear tip of first dorsal fin prominently white; teeth long, narrow and smooth-edged cusp with one lateral cusplet either side.

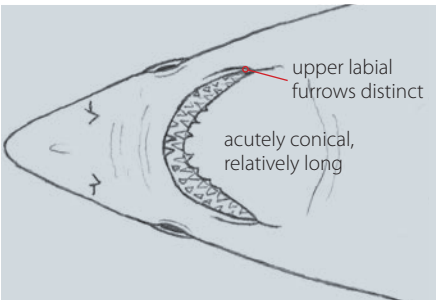
First dorsal and caudal fins, interdorsal and caudal | **Second dorsal & anal fins** | **Ventral view of head**

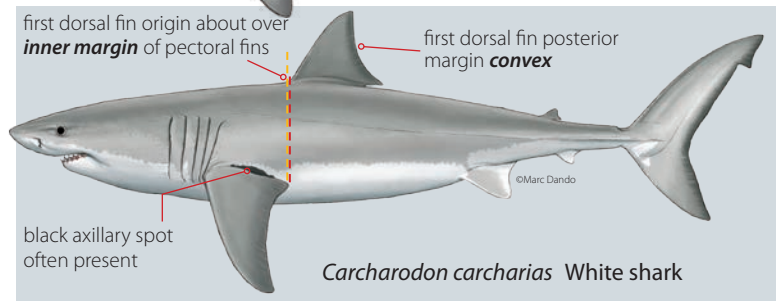


Lamna nasus Porbeagle shark

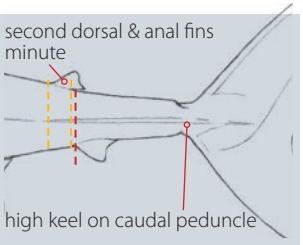


second dorsal origin over/slightly forward of anal fin origin

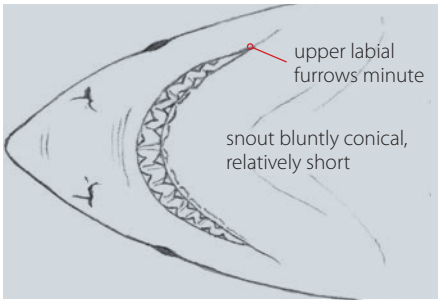


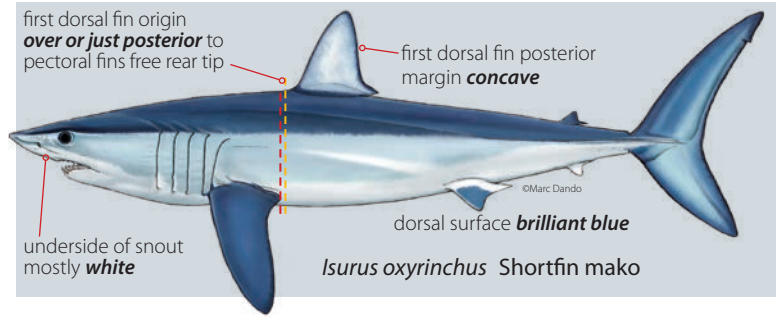


Carcharodon carcharias White shark

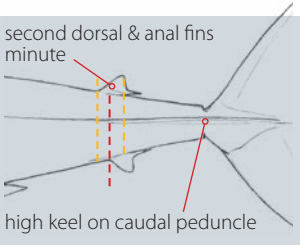


second dorsal insertion forward of anal fin origin

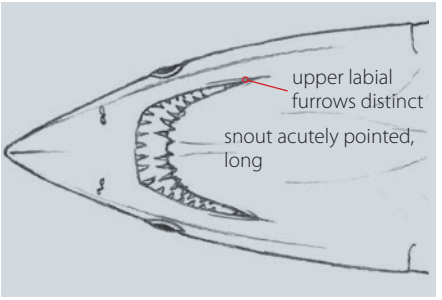


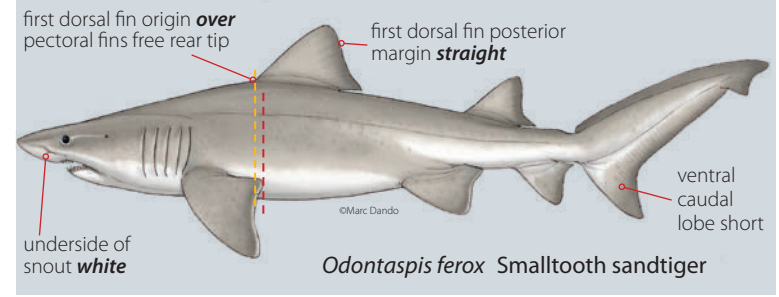


Isurus oxyrinchus Shortfin mako

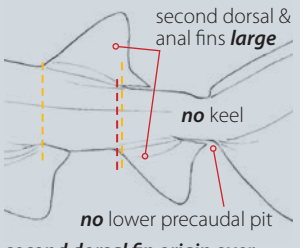


second dorsal fin insertion over midbase of anal fin

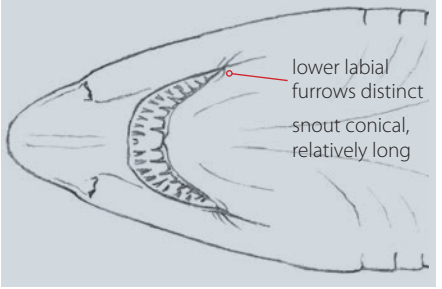




Odontaspis ferox Smalltooth sandtiger

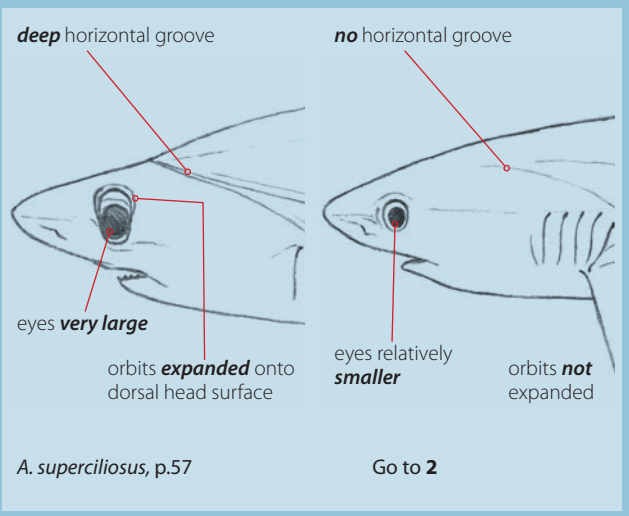


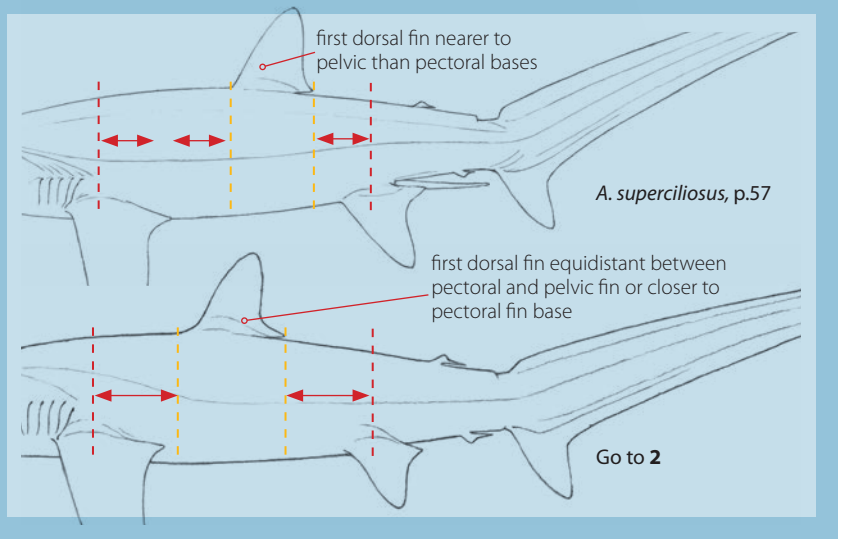
second dorsal fin origin over insertion of pelvic fins



1a Head with a deep horizontal groove extending around each side. Eyes are very large, with orbits expanded onto the dorsal head surface. Base of first dorsal fin closer to pelvic bases than to pectoral bases → *Alopias superciliosus* p.57

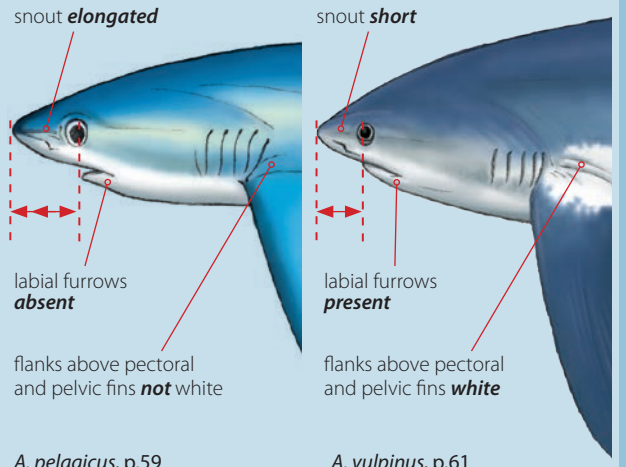
1b Head without a deep horizontal groove extending around each side. Eyes relatively smaller, with orbits not expanded. Base of first dorsal fin about equidistant between pectoral and pelvic fin bases or closer to pectoral fin bases → **2**

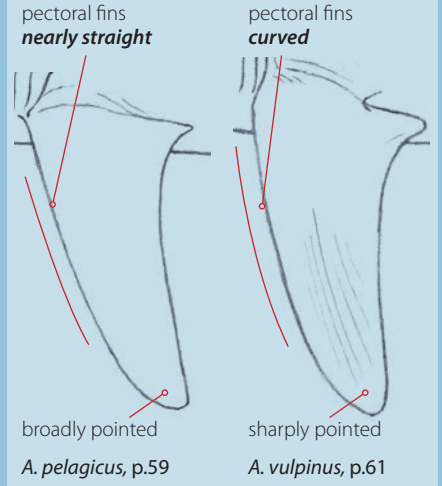


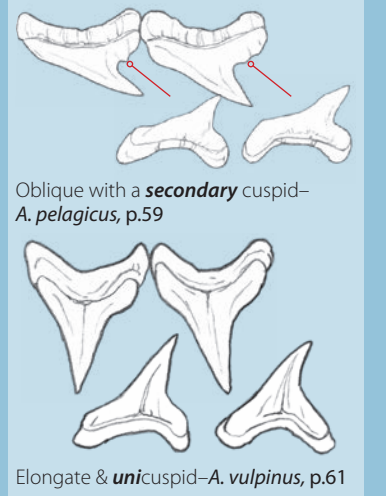


2a Flanks above pectoral and pelvic fins not white; head is narrow and snout is elongated. Labial furrows absent. Pectoral fins nearly straight and broadly pointed; teeth oblique with a secondary cusp → *Alopias pelagicus* p.59

2b Flanks above pectoral and pelvic fins white; head is broad and snout is short. Labial furrows present. Pectoral fins curved and sharply pointed; teeth elongate and unicuspid → *Alopias vulpinus* p.61

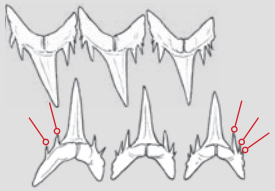




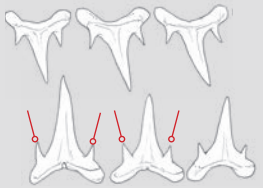


1a Teeth mostly with ***2–3 cusplets*** on each side of cusp. 3–4 rows of small intermediate teeth between upper anterior and lateral rows. Anal fin posterior margin ***strongly concave***. ***Lighter ventral side***, dorsal with faint spots → ***Odontaspis ferox,*** p.63

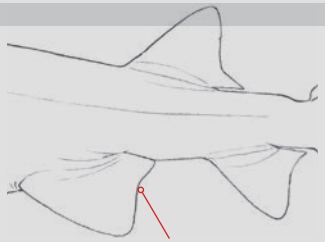
1b Teeth with only ***1 cusplet*** on each side of cusp. 1 row of small intermediate teeth between upper anterior and lateral rows. Anal fin posterior margin is ***straight***. ***Uniform dark colour*** → ***Odontaspis noronhai,*** p.65



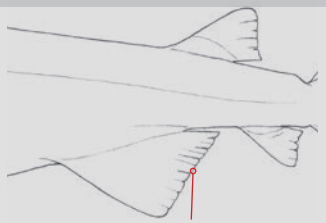
Two to three cusplets on each side– *O. ferox,* p.63



One cusplet on each side– *O. noronhai,* p.65



Anal fin posterior margin ***strongly concave*** – *O. ferox,* p.63



Anal fin posterior margin is ***straight***– *O. noronhai,* p.65

Grey or ***grey-brown*** above, ***lighter below***, often with faint spots, ***no*** white-tipped first dorsal fin– *O. ferox,* p.63

Uniform dark colour– *O. noronhai,* p.65

Pseudocarchariidae

Confusion species comparison → ***P. kamoharai,*** p.67

Five ***long*** gill slits on each side of head
Two dorsal fins, ***first dorsal fin approximately midpoint along body***
Anal fin present, origin behind ***second dorsal fin*** insertion–

Pseudocarcharias kamoharai, p.67

Five ***short*** gill slits on each side of head
Two dorsal fins, ***first dorsal fin set well back just in front of pelvic fins***
No anal fin–

Isistius brasiliensis

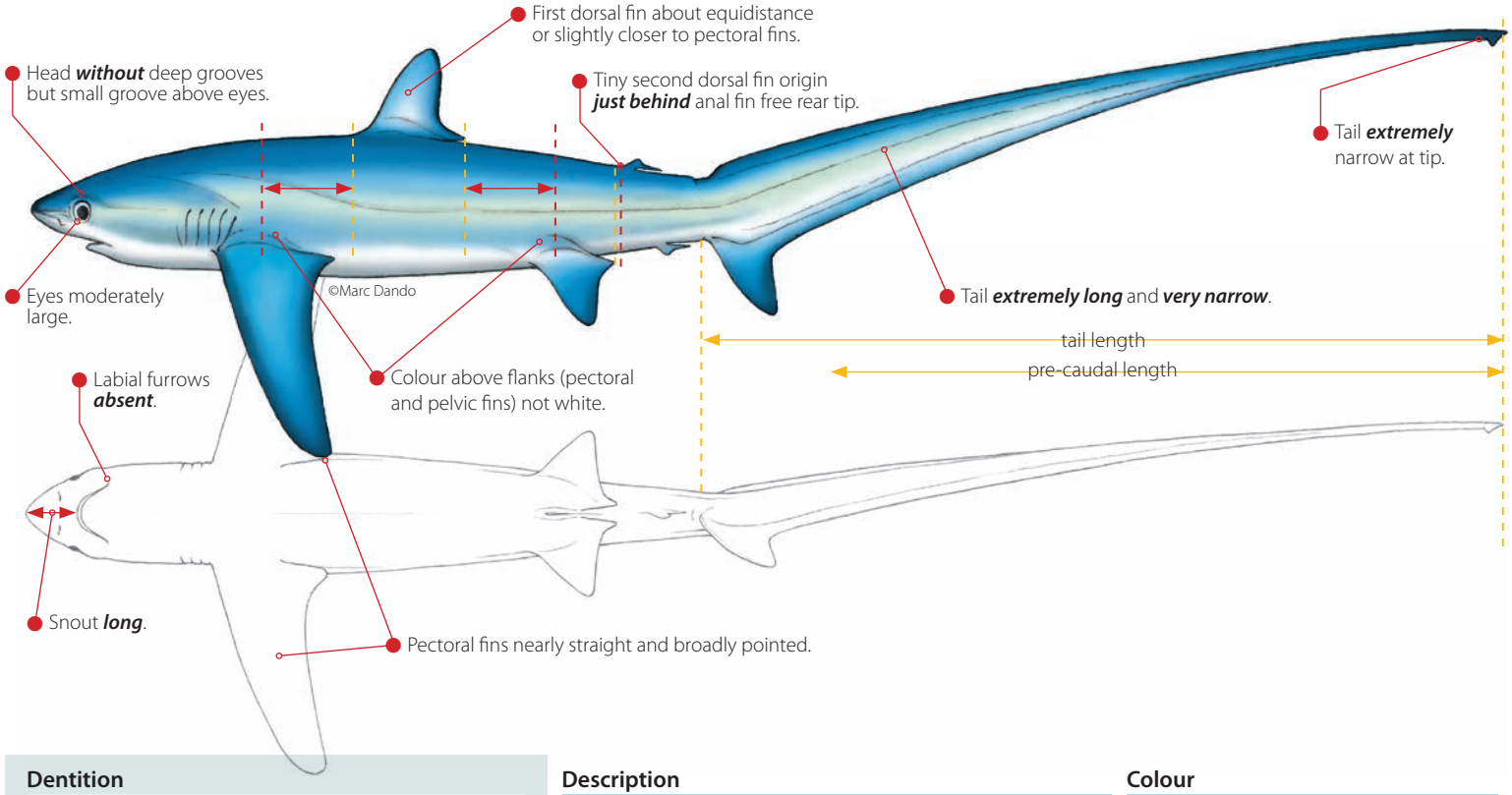
Seven long gill slits on each side of head
One dorsal fins, set well back just behind pelvic fins
Anal fin present, origin behind ***first dorsal fin*** insertion–

Heptranchias perlo

Alopias pelagicus
Nakamura, 1935

Pelagic thresher shark
Renard pélagique

VU LL



Dentition

Teeth approximately actual size.

Teeth oblique with small secondary cusp posterior to the primary cusp, with intermediate teeth.

Tooth counts: upper 41–45, lower 37–48.

Description

Smallest thresher shark, with flanks dark above pectoral and pelvic fins; head narrow and snout elongated; eyes moderately large; labial furrows absent; pectoral fins nearly straight and broadly pointed; tail very thin at tip.

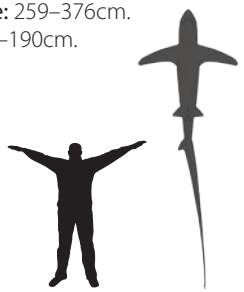
© Reeve/Henderson (Sultan Qaboos University, Muscat, Oman)

Colour

Metallic pale to dark blue, grey, or purplish brown dorsally and on fins, changing to white ventrally at the level of the pectoral and pelvic fins, but not extending over fins.

Size

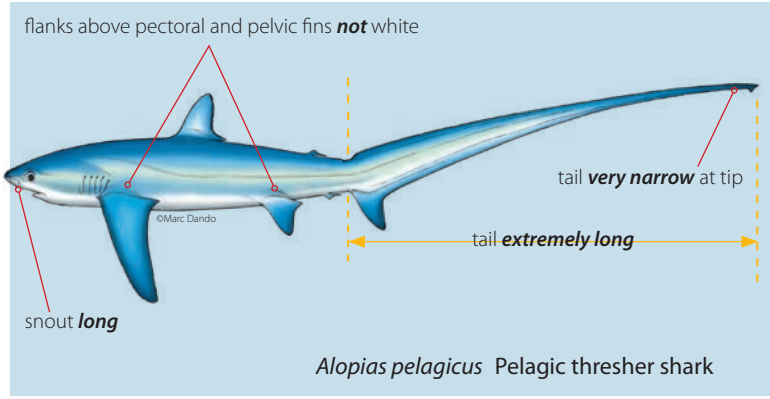
Males mature: 265–275cm.
Females mature: 280–290cm.
Maximum size: 259–376cm.
Birth size: 160–190cm.

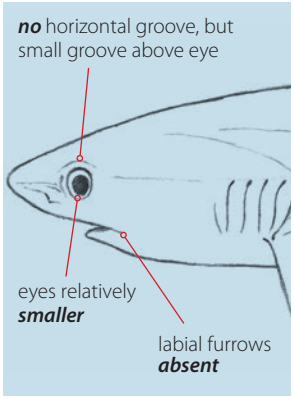


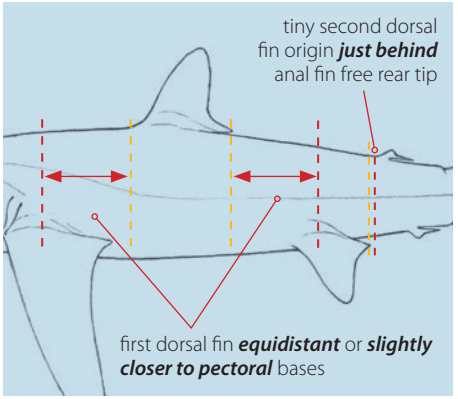
SIMILAR SPECIES

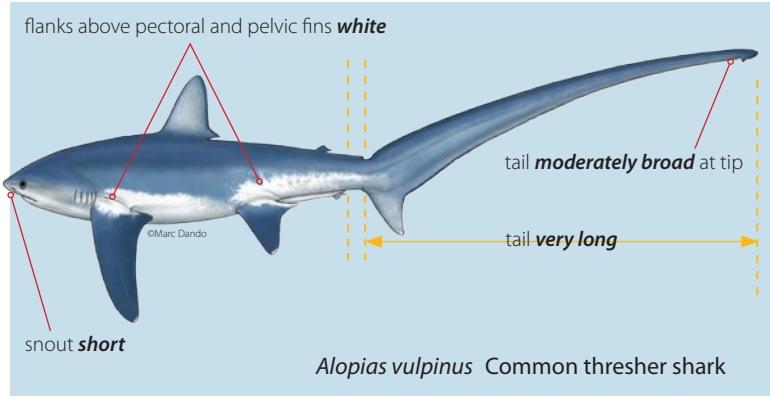
Head without deep grooves extending along each side of head, but small groove only above eye region, eyes moderately large; first dorsal fin about equidistant or slightly closer to pectoral fins, small second dorsal fin just behind free rear tip of anal fin, extremely long tail very narrow at tip; colour above the flanks of the pectoral and pelvic fins, not white.

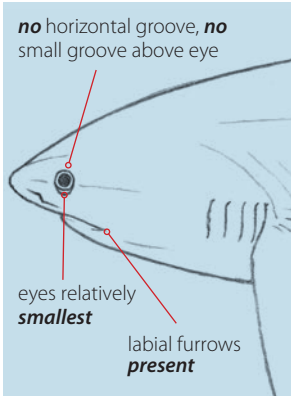
Colour on flanks above pectorals and pelvics and fin shapes | **Lateral view of head** | **Dorsal fins positions**

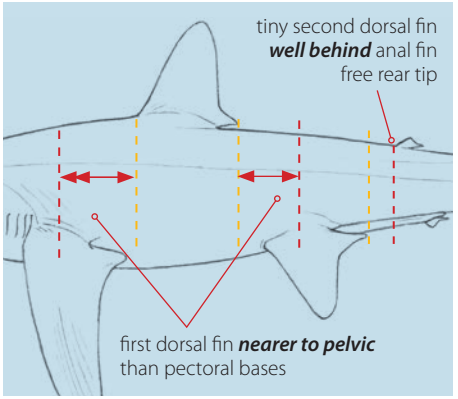


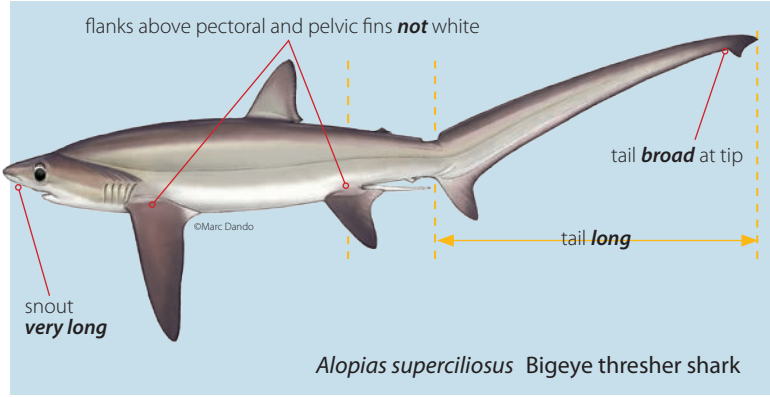


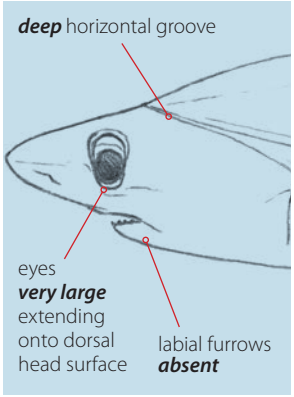


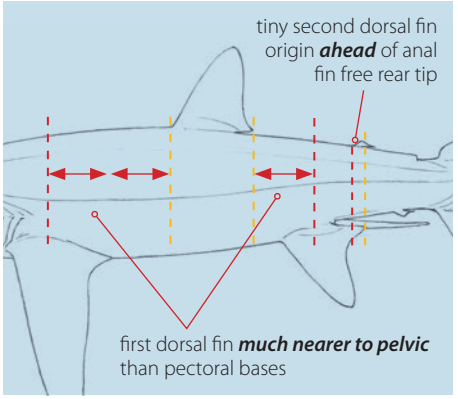








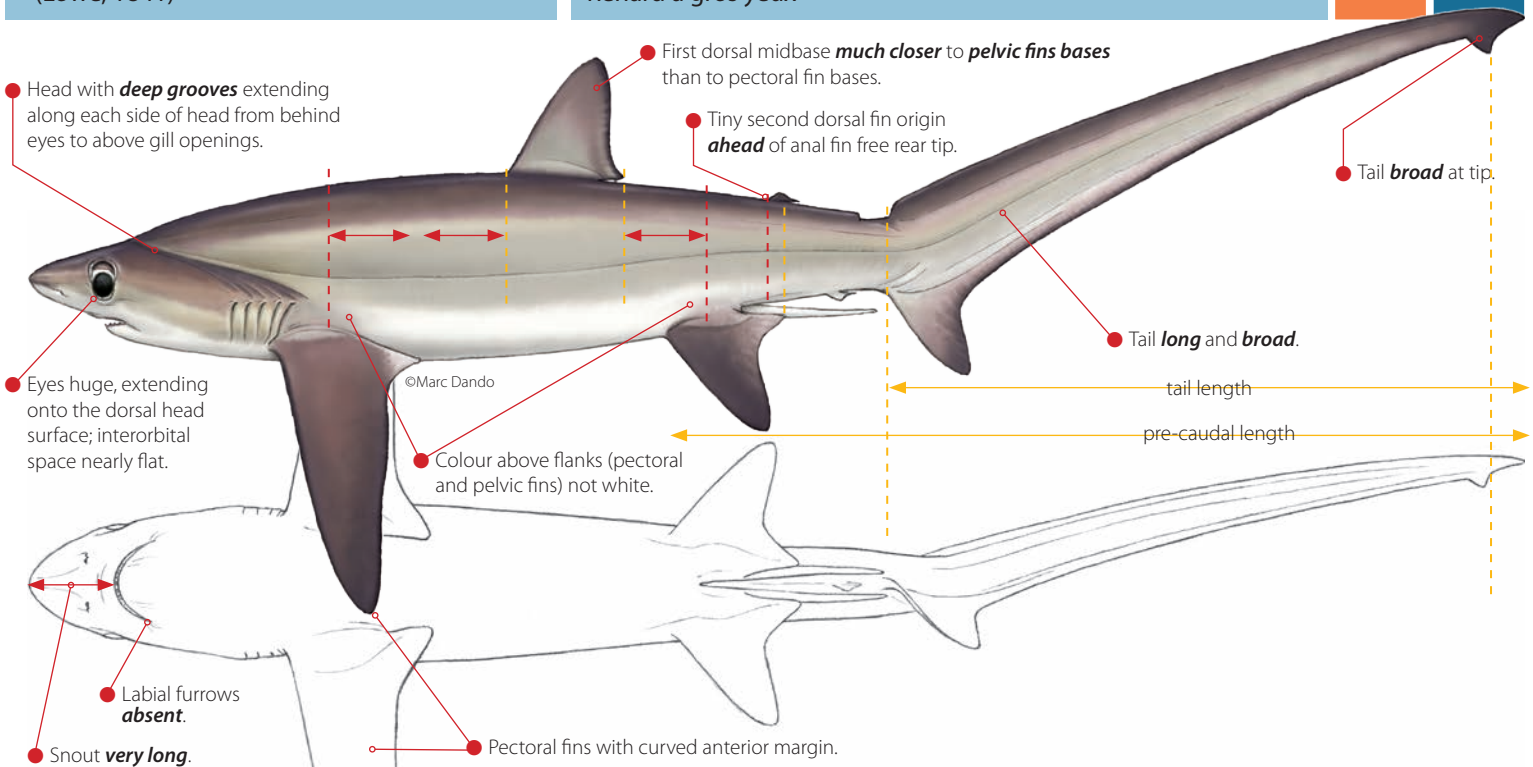




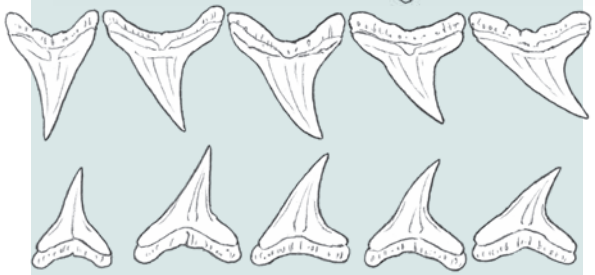
Alopias superciliosus
(Lowe, 1841)

Bigeye thresher shark
Renard à gros yeux

VU LL



Dentition



Teeth approximately actual size.

Teeth large, with a long slender, smooth-edged cusp, no lateral cusplets, similar in both jaws; no intermediate teeth.

Tooth rows: upper 19–27, lower 19–24.

Description

A large thresher shark with extremely large eyes extending onto the dorsal head surface; head with distinct lateral grooves extending from above the eyes to behind the gill slits (appearing helmet-like); labial furrows absent; pectoral fins with curved anterior margin and broadly tipped at the apices; tail broad at fin tip.

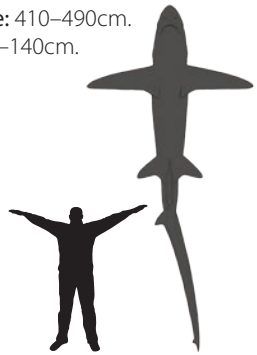
© NOAA Fisheries, USA

Colour

Purplish brown to violet above, light below; without white patches extending above pectoral or pelvic fins.

Size

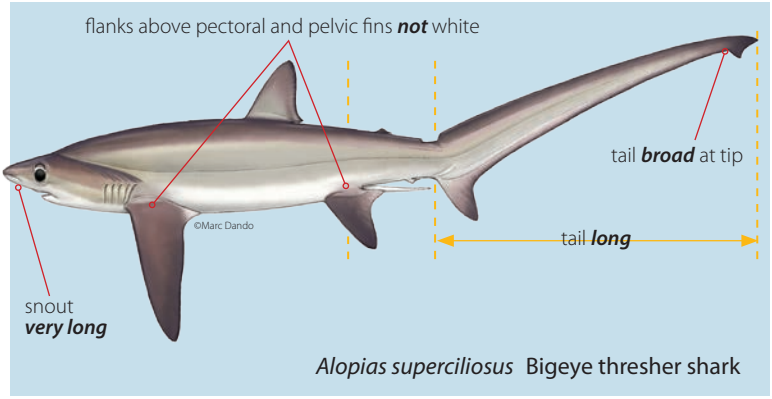
Males mature: 270–290cm.
Females mature: 330–360cm.
Maximum size: 410–490cm.
Birth size: 130–140cm.

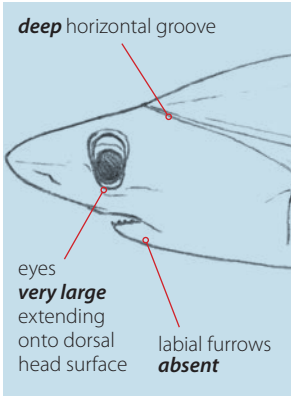


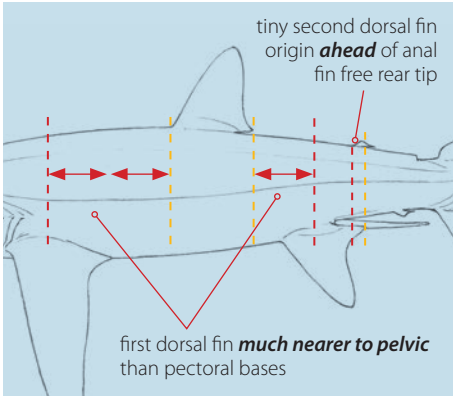
SIMILAR SPECIES

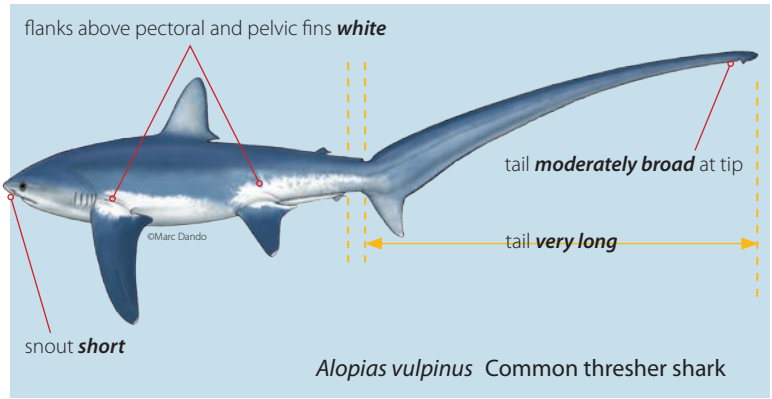
Head with deep grooves extending along each side of head, eyes huge extending onto the dorsal surface of the head; first dorsal fin midbase closer to pelvic fin bases than to pectoral fin bases, small second dorsal fin over free rear tip of anal fin, long tail broad at tip; colour above the flanks of the pectoral and pelvic fins, not white.

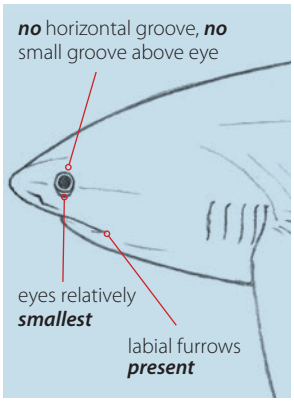
Colour on flanks above pectorals and pelvics and fin shapes | **Lateral view of head** | **Dorsal fins positions**

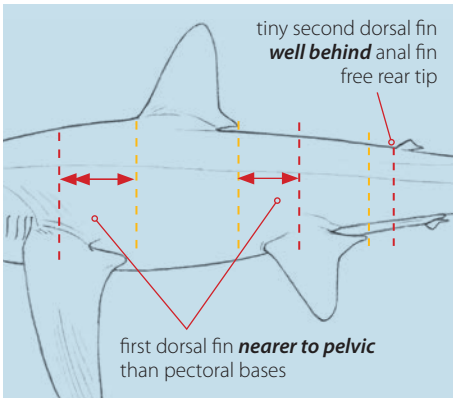


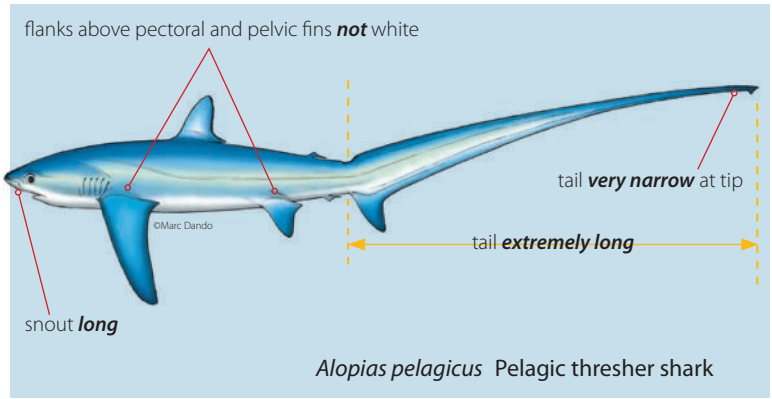


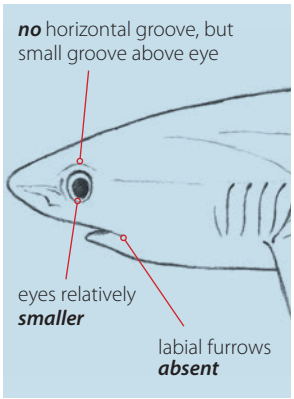


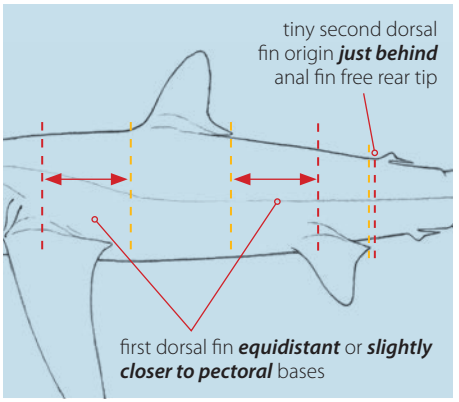








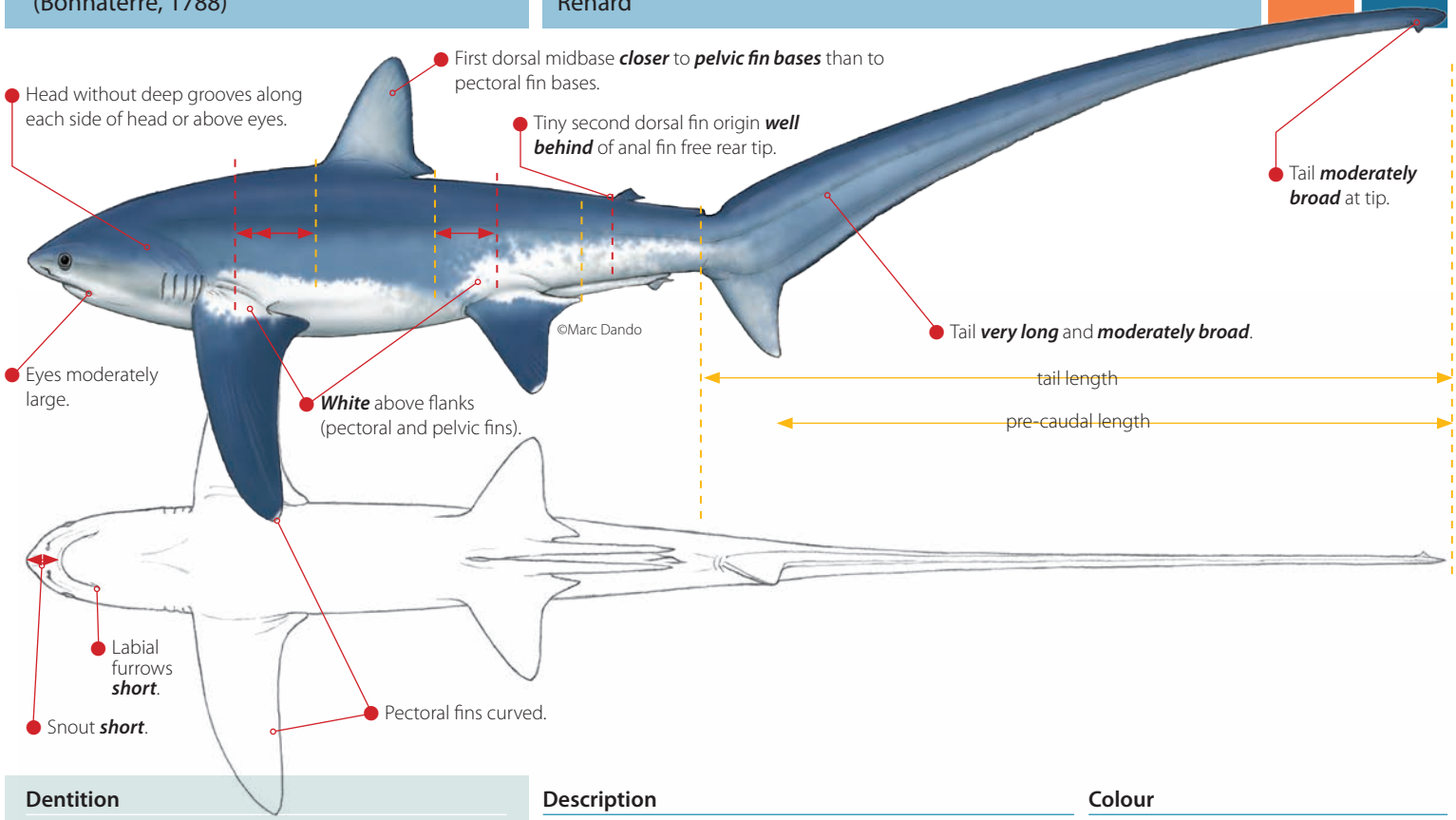




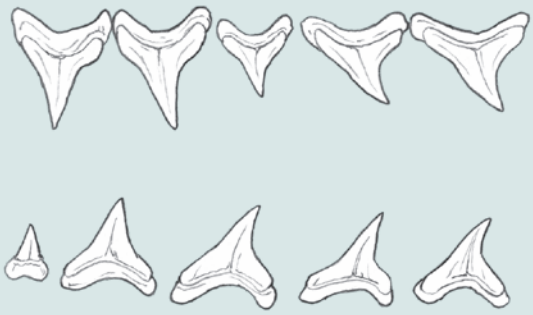
Alopias vulpinus
(Bonnaterre, 1788)

Common thresher shark
Renard

VU LL



Dentition



Teeth approximately actual size.

Teeth relatively small, with a single smooth-edged, slightly oblique, triangular cusp; intermediate tooth rows usually present.

Tooth counts: upper 32–52, lower 25–51.

Description

Largest of the thresher sharks, with distinctive white over pectoral and pelvic fins; head broad, without deep grooves extending along each side; labial furrows present; eye moderately large, but not extending onto head; first dorsal fin closer to pectoral fins; pectoral fins curved, with curved anterior margins and pointed tips; tail tip moderately broad.

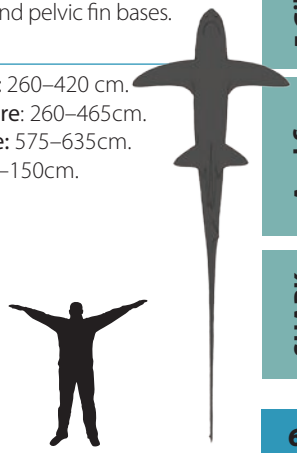
© NOAA Fisheries, USA

Colour

Upper body surface silvery to bluish grey or dark grey, ventral surface white, with conspicuous white patches extending over pectoral and pelvic fin bases.

Size

Males mature: 260–420 cm.
Females mature: 260–465cm.
Maximum size: 575–635cm.
Birth size: 120–150cm.



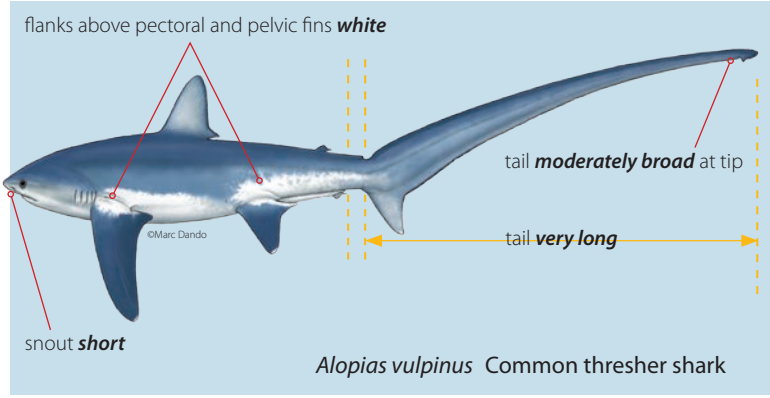
SIMILAR SPECIES

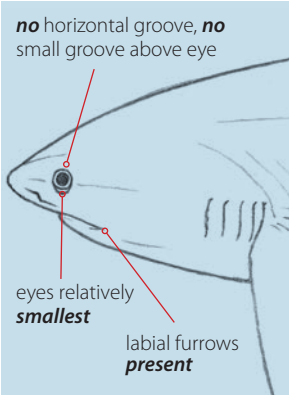
Head without deep grooves along each side; eyes moderately large; first dorsal fin closer to pectoral fins, small second dorsal fin well behind free rear tip of anal fin, very long tail moderately broad at tip; white above the flanks of the pectoral and pelvic fins.

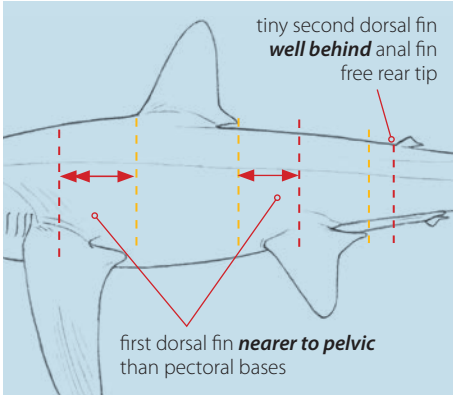
Colour on flanks above pectorals and pelvics and fin shapes

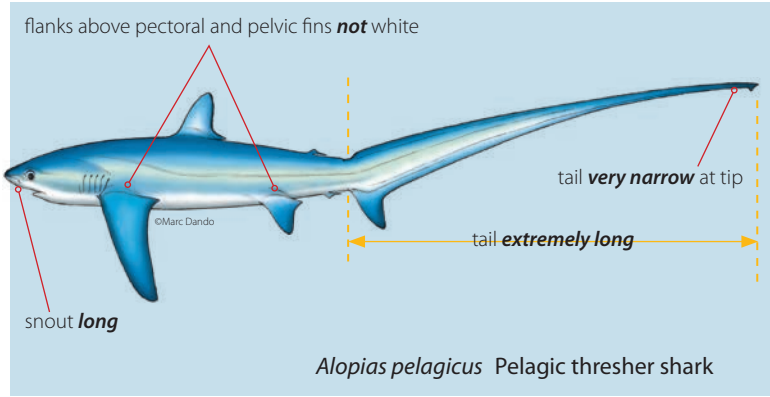
Lateral view of head

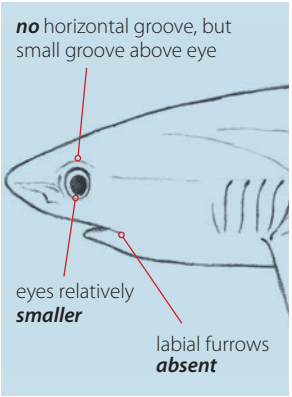
Dorsal fins positions

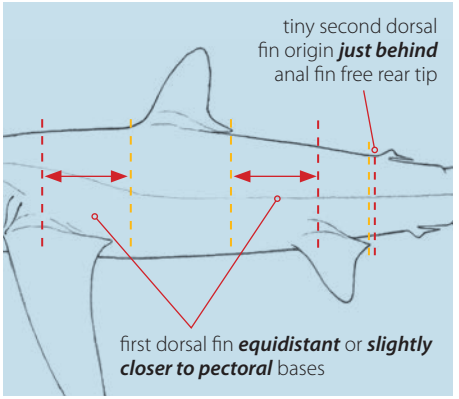


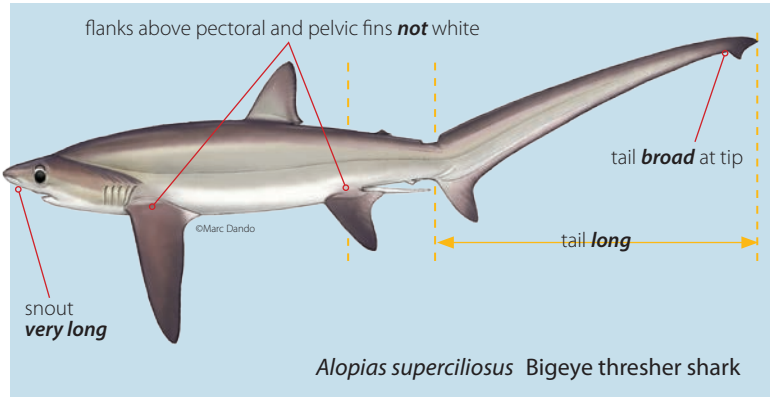


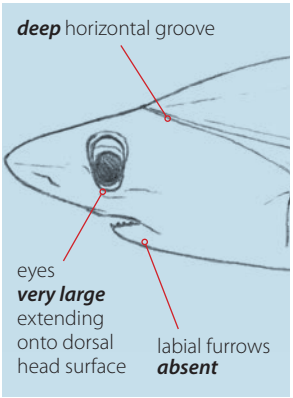


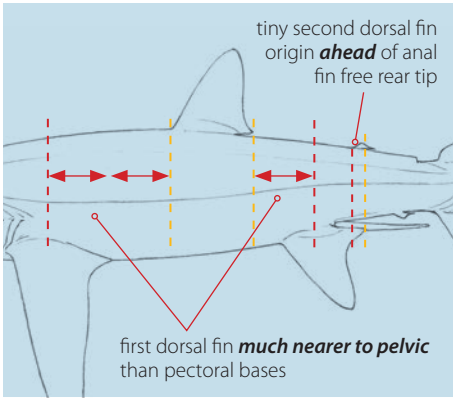








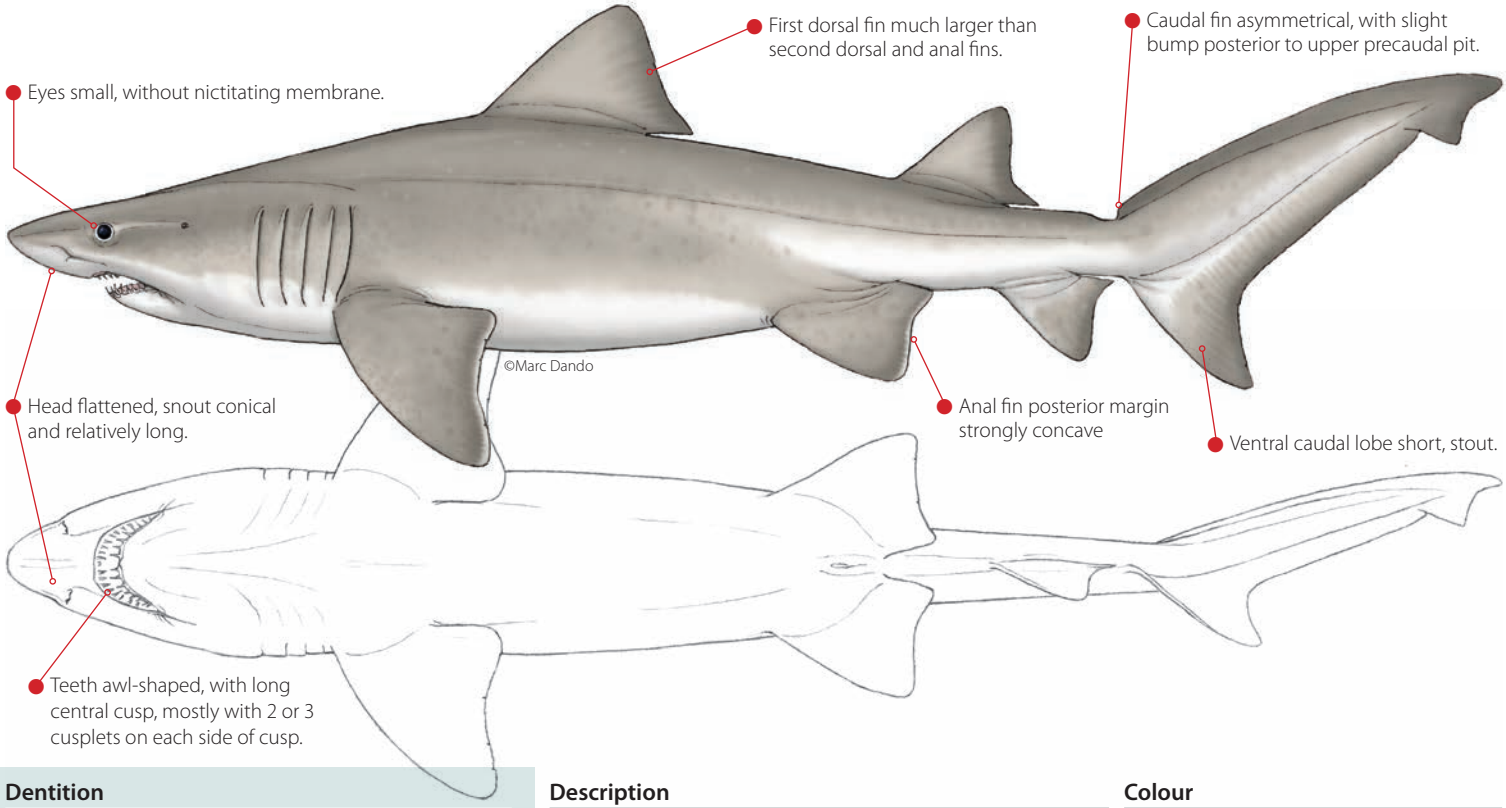




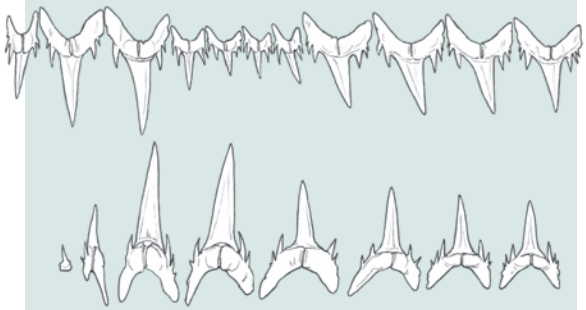
Odontaspis ferox
(Risso, 1810)

Smalltooth sandtiger
Requin féroce

VU LL



Dentition



Teeth approximately actual size.

Teeth are prominent, awl-shaped, long and narrow with a central cusp flanked by two or three smaller cusplets on each side.

Tooth counts: upper jaw 46–56, lower jaw 36–48.

Description

A large, stout-bodied shark with a conical to slightly flattened snout, a long mouth extending past the eyes, a first dorsal fin that originates over the pectoral fins free rear tips, and is much larger than the second dorsal and anal fins.

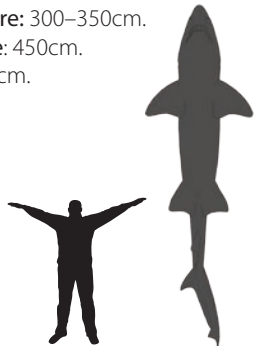
© Hsu Hua Hsun

Colour

Grey or grey-brown above, lighter below, often with darker (reddish) spots on sides but without a white-tipped first dorsal fin.

Size

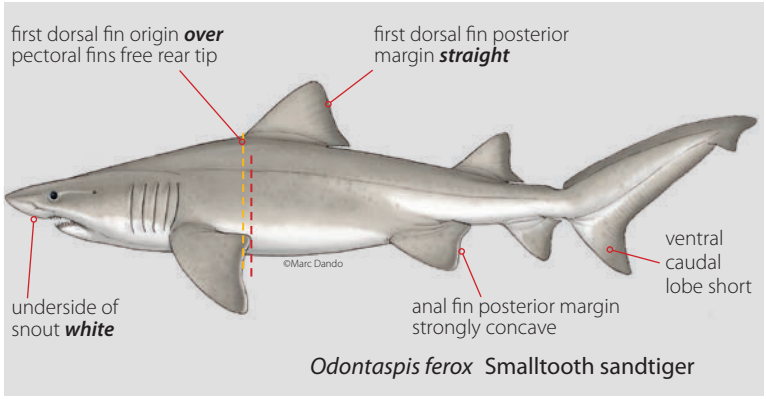
Males mature: 200–250cm.
Females mature: 300–350cm.
Maximum size: 450cm.
Birth size: 100cm.



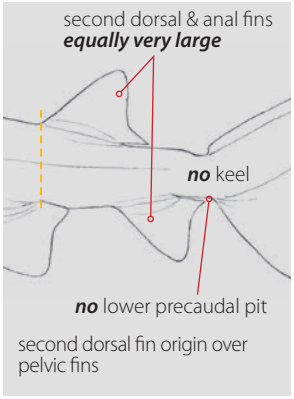
SIMILAR SPECIES

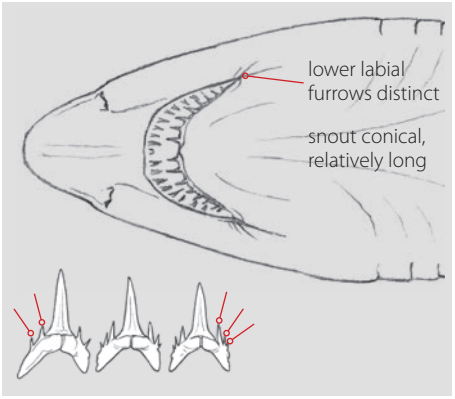
A large, stout-bodied shark; bulbous, conical snout; first dorsal fin closer to pectoral than pelvic fins and much larger than second dorsal and anal fins; a small bump in front of upper caudal pit; greyish, sometimes with red spots on sides; protruding teeth which are awl-shaped.

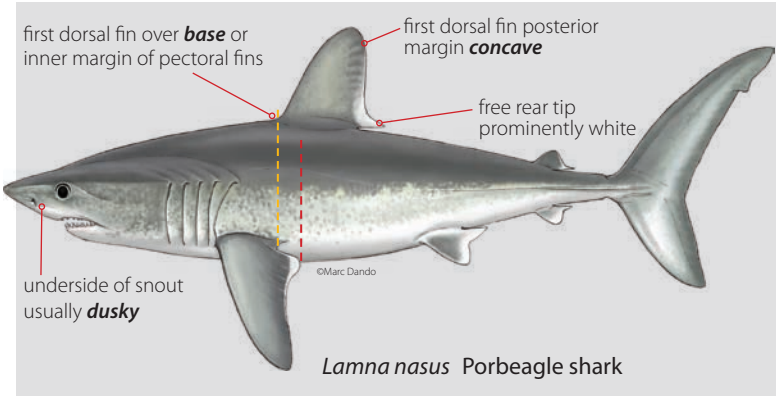
Colour, first dorsal fin position and first dorsal, anal and caudal fins shape | **Second dorsal & pelvic fins** | **Ventral view of heads and teeth**



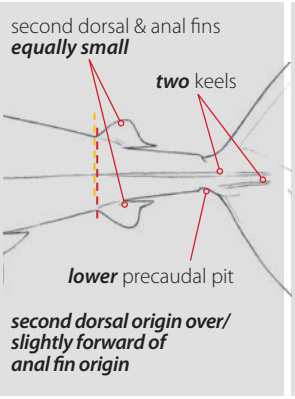
Odontaspis ferox Smalltooth sandtiger

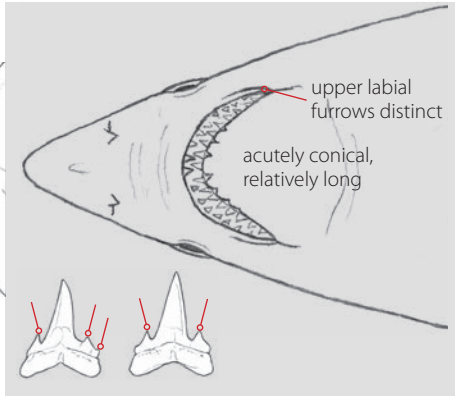


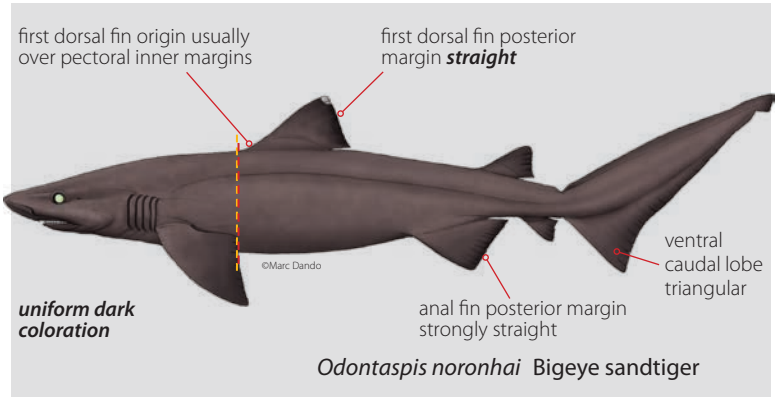




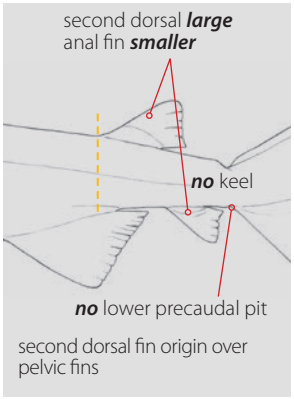
Lamna nasus Porbeagle shark

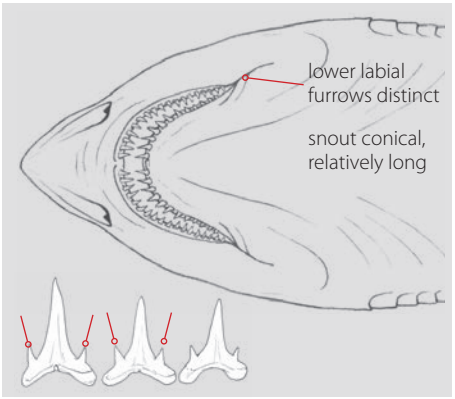






Odontaspis noronhai Bigeye sandtiger

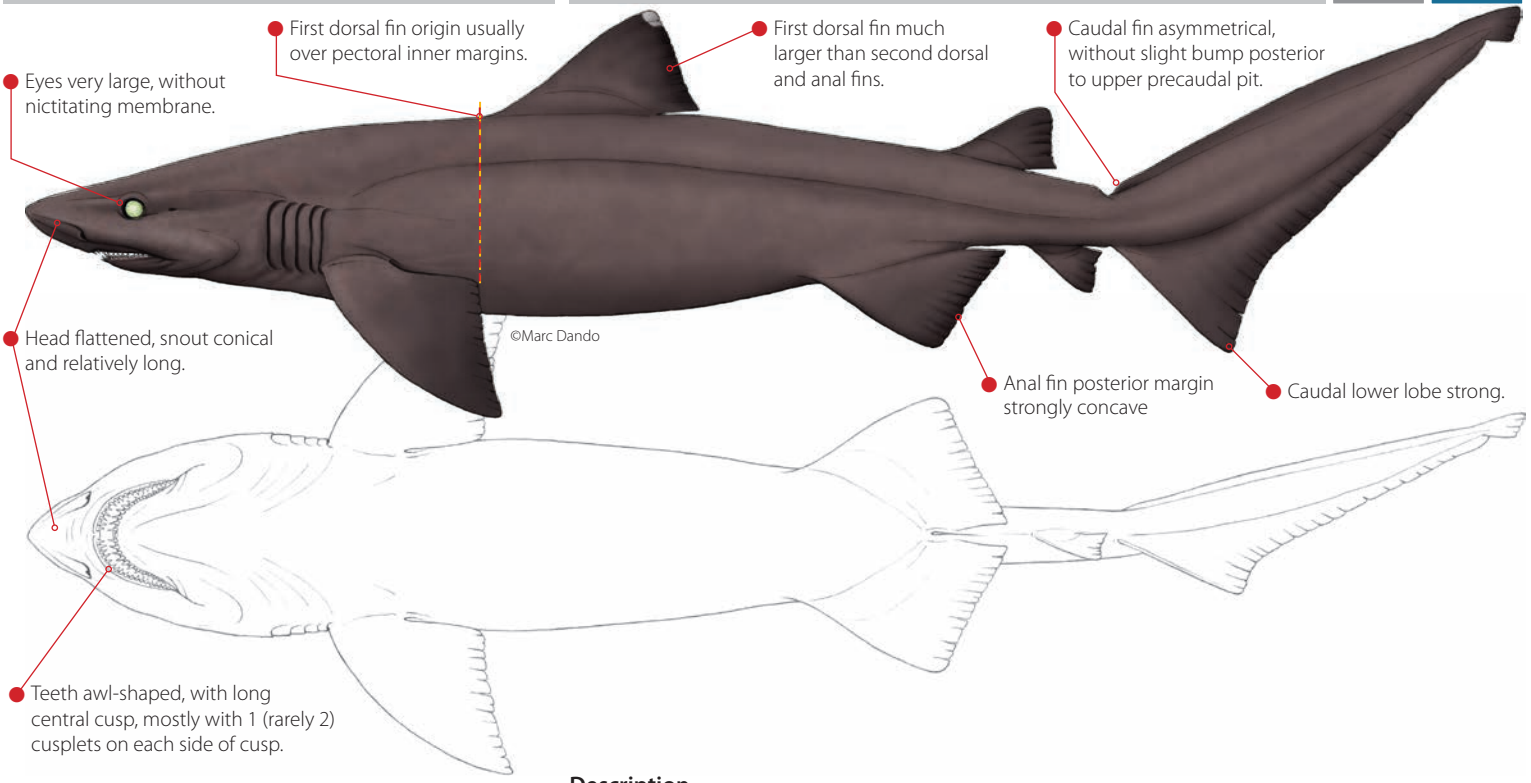




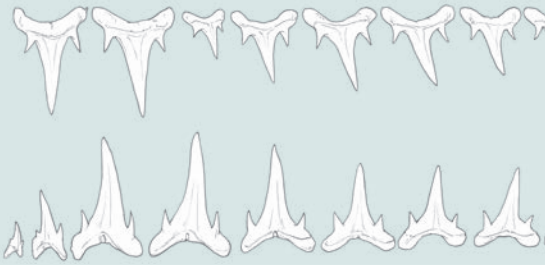
Odontaspis noronhai
Maul, 1955

Bigeye sandtiger shark
Requin noronhai

DD LL



Dentition



Teeth approximately actual size.

Teeth are prominent, awl-shaped, long and narrow with a central cusp flanked by one smaller cusplets on each side.

Tooth counts: upper jaw 34–43, lower jaw 37–46.

Description

A large, bulky shark with a long bulbously conical snout; eyes very large without nictitating eyelids, mouth long and extending behind eyes; anal fin and second dorsal fin smaller than first dorsal fin; first dorsal fin closer to pectoral fins than to pelvic fins, upper precaudal pit present but lateral keels absent from caudal peduncle, caudal fin asymmetrical but with a strong lower lobe.

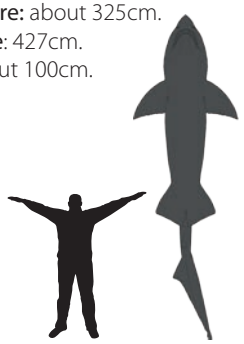
© Ryan Downie, CSIRO.

Colour

Uniformly black, chocolate brown or dark reddish brown, without dark spots on sides of body; fins black, first dorsal fin often with a white blotch at tip.

Size

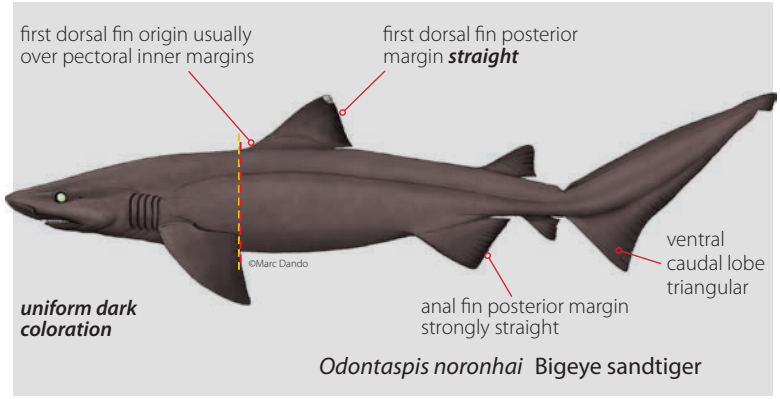
Males mature: 325–340cm.
Females mature: about 325cm.
Maximum size: 427cm.
Birth size: about 100cm.



SIMILAR SPECIES

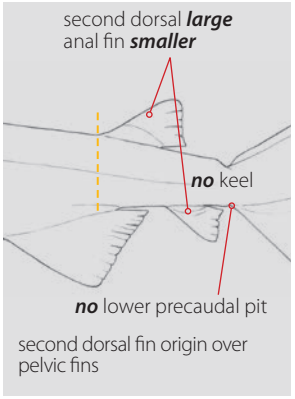
First dorsal fin much larger than second dorsal and anal fins, upper precaudal pit without a bump; uniform black to dark reddish brown without spots on sides, first dorsal fin tip usually white-tipped.

Colour, first dorsal fin position and first dorsal, anal and caudal fins shape

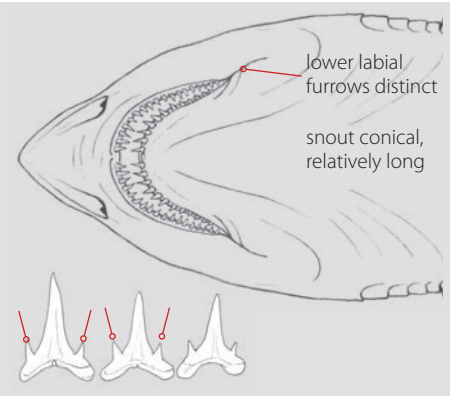


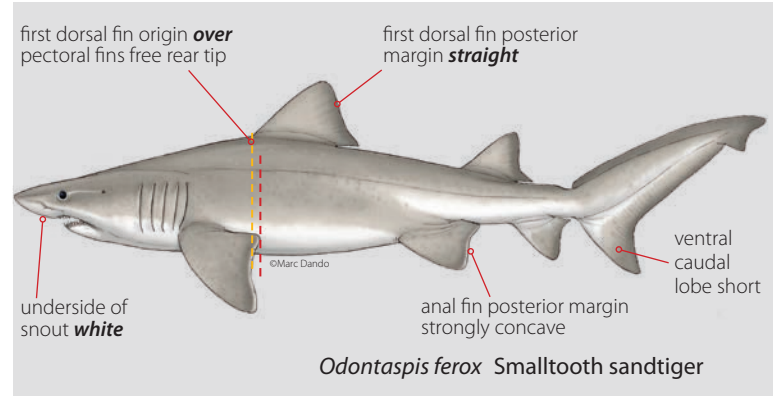
Odontaspis noronhai Bigeye sandtiger

Second dorsal & pelvic fins

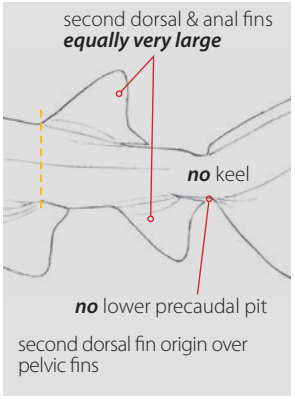


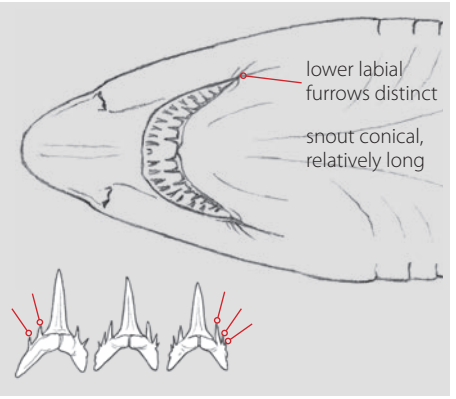
Ventral view of heads and teeth

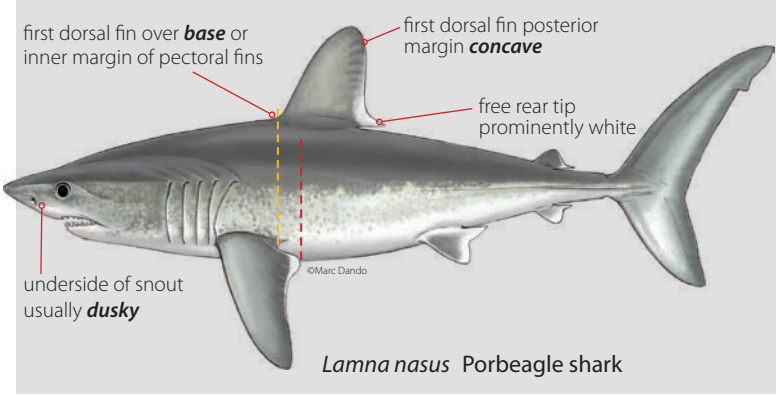




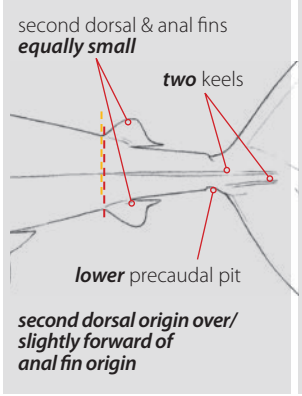
Odontaspis ferox Smalltooth sandtiger

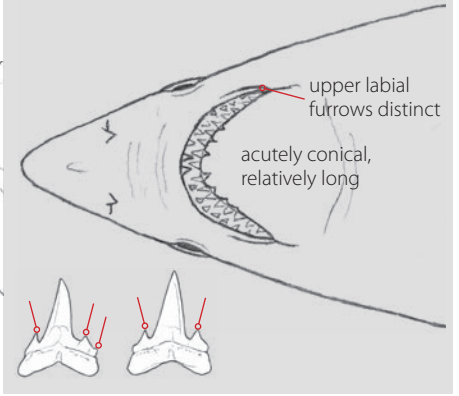






Lamna nasus Porbeagle shark

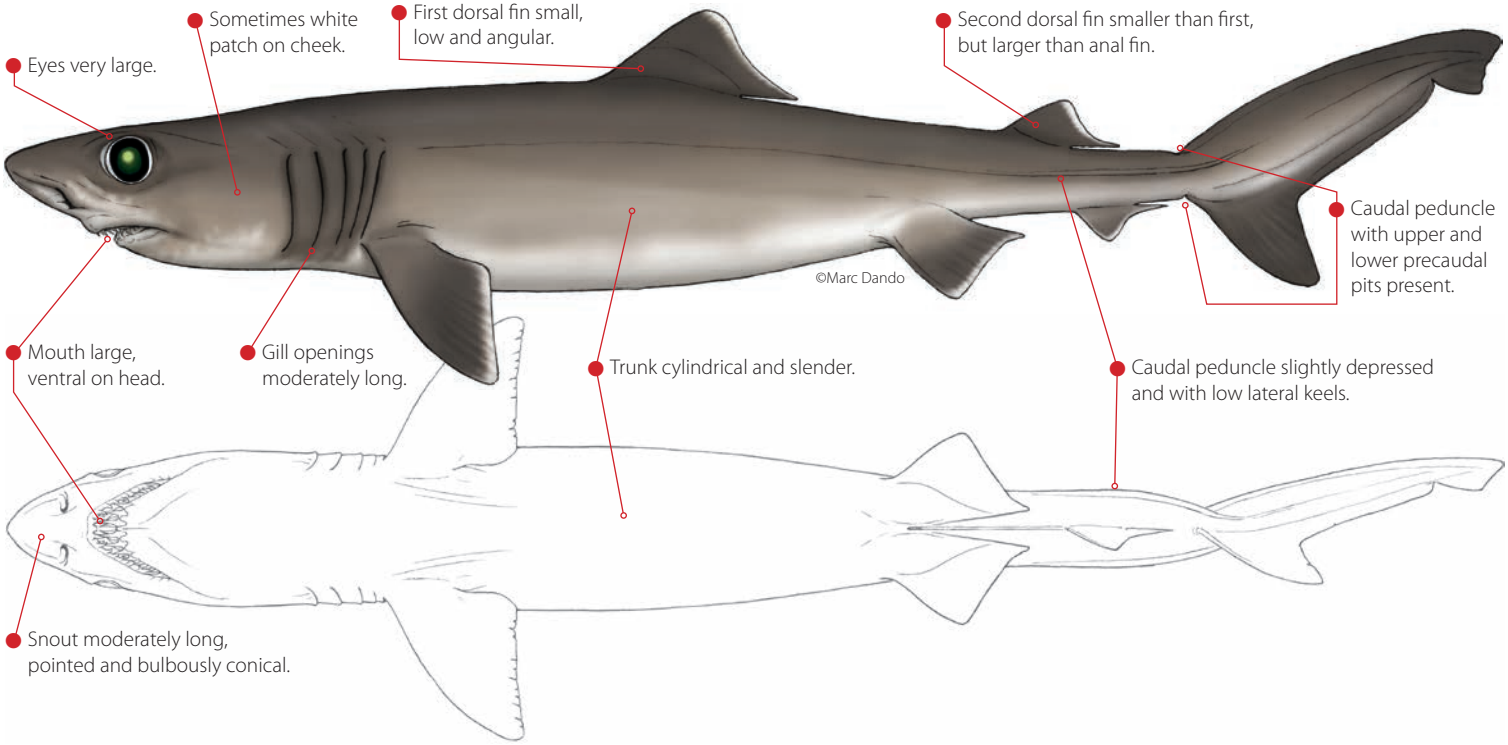




Pseudocarcharias kamoharai
(Matsubara, 1936)

Crocodile shark
Requin crocodile

NT LL



Dentition

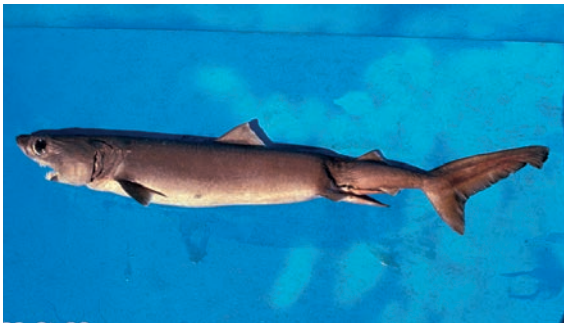
Teeth approximately actual size.

Teeth large, anteriors narrow and awl-like.

Tooth counts: upper jaw 26–29, lower jaw 21–26.

Description

A small, very distinctive oceanic shark, with huge eyes lacking nictitating eyelids, long gill slits, slender, spindle-shaped body, long-cusped prominent teeth in a long angular mouth with highly protrusable jaws, small pectoral fins, two small spineless dorsal fins and an anal fin; low keels and precaudal pits on the caudal peduncle, an asymmetrical caudal fin with a long lower lobe.



© David A. Ebert

Colour

Grey to grey-brown above, lighter ventrally, and with light-edged fins; some individuals with a lighter spot on the cheeks.

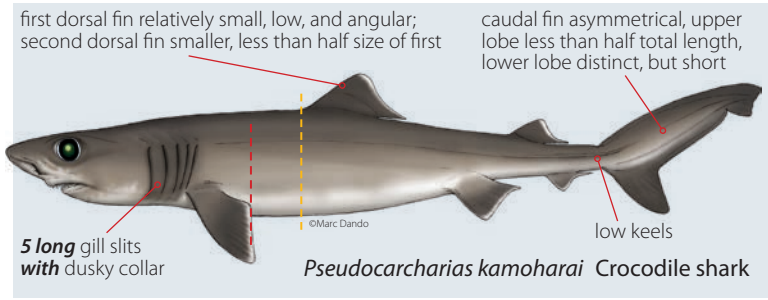
Size

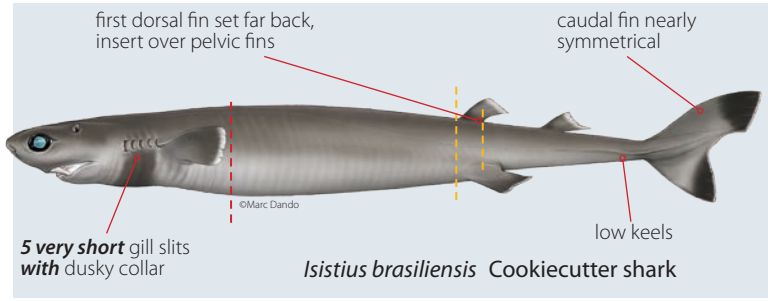
Males mature: 75–80cm.
Females mature: 85–100cm.
Maximum size: 122cm.
Birth size: 40–50cm.

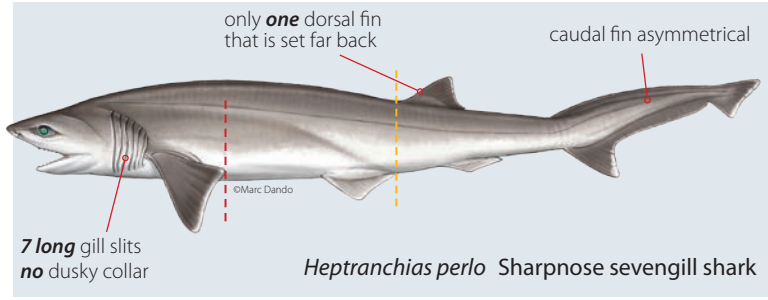
SIMILAR SPECIES

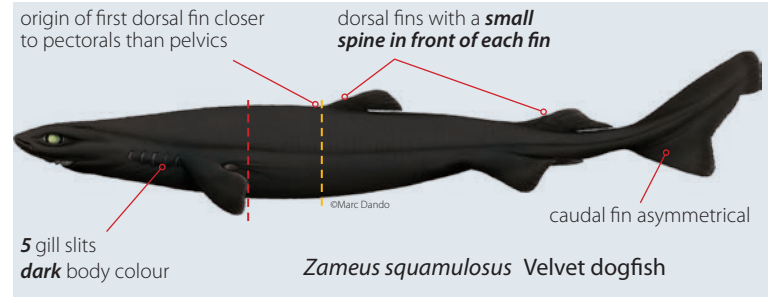
A relatively small, less than 1.3m total length, spindle-shaped shark; large eyes; relatively small pectoral fins, caudal fin is asymmetrical, upper and lower precaudal pits; dark brown or greyish above, lighter below, some with white spots or blotches on cheeks; long spiky teeth.

Colour, first dorsal fin position and first dorsal and caudal fins shape

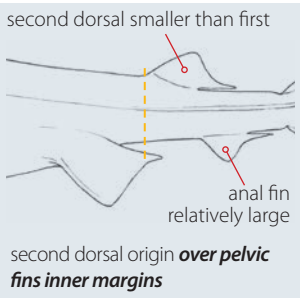


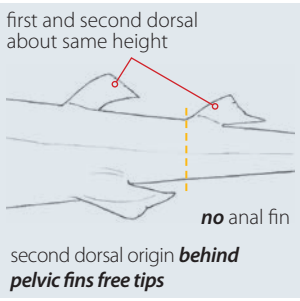


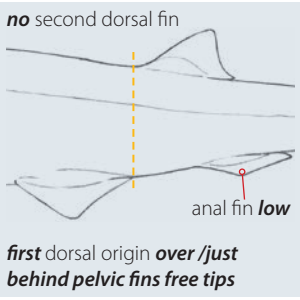


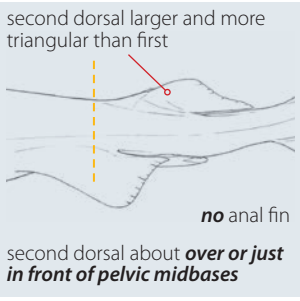


Second dorsal & anal fins

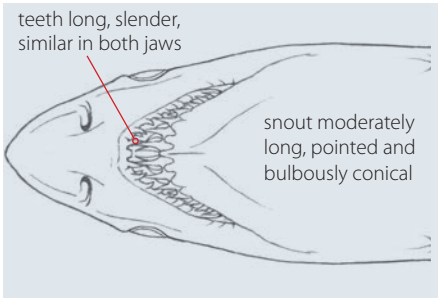


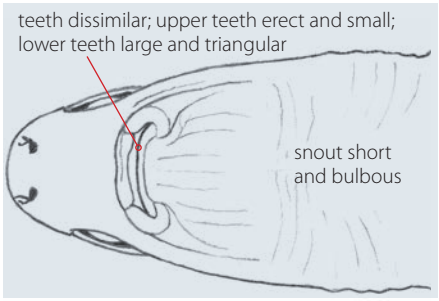


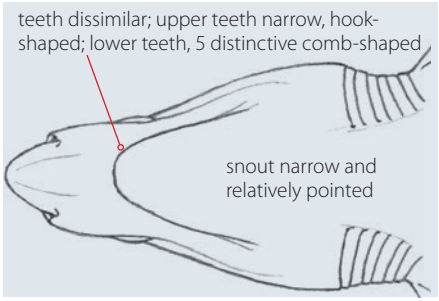


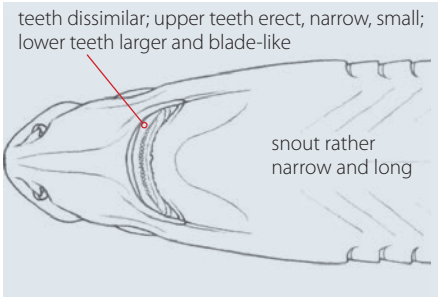


Ventral view of heads and teeth





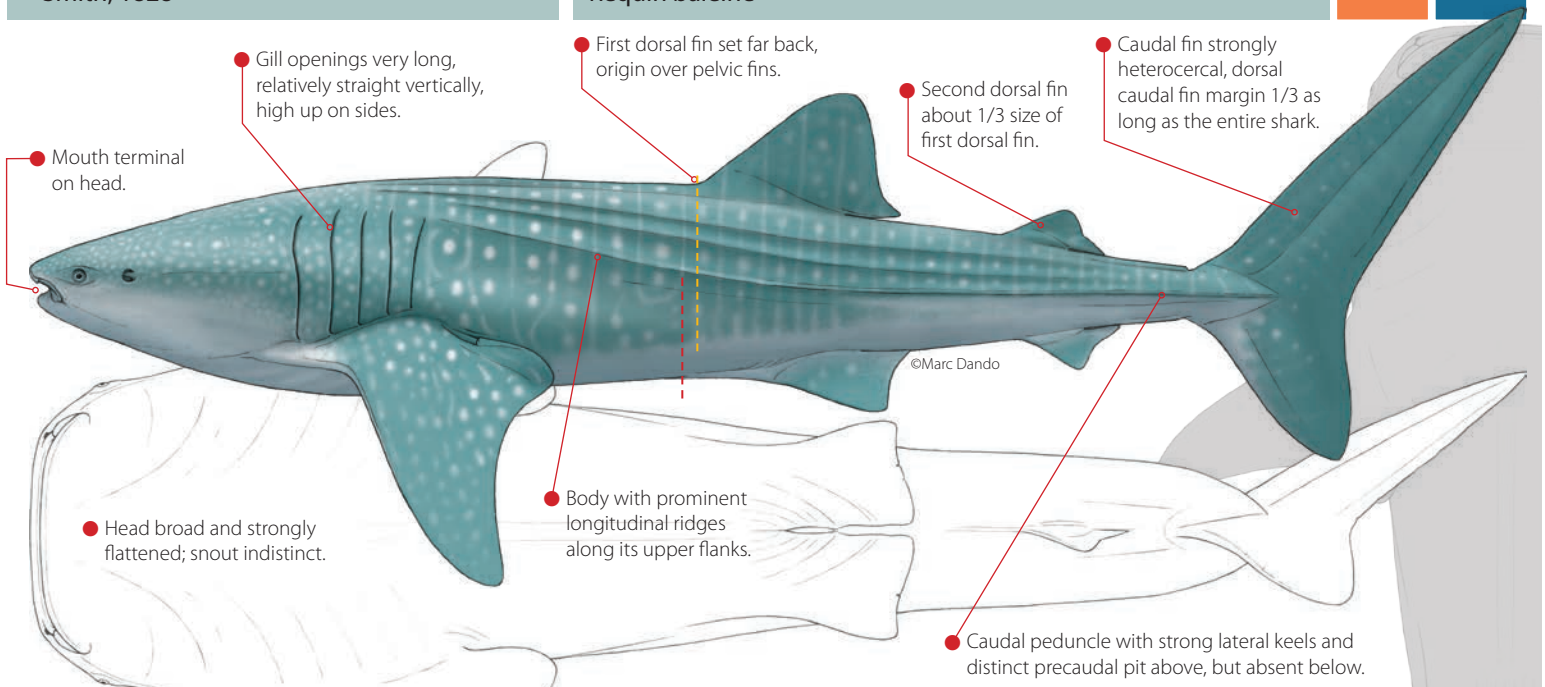




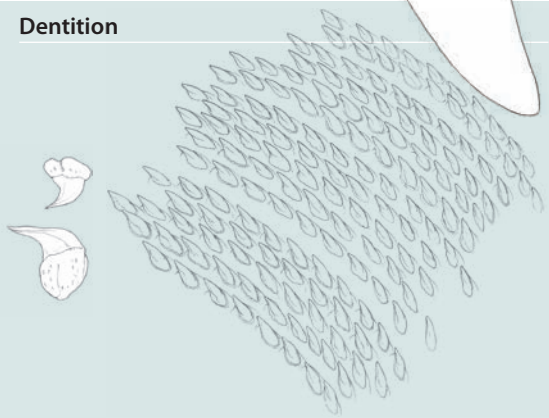
Rhincodon typus
Smith, 1828

Whale shark
Requin baleine

VU LL



Dentition



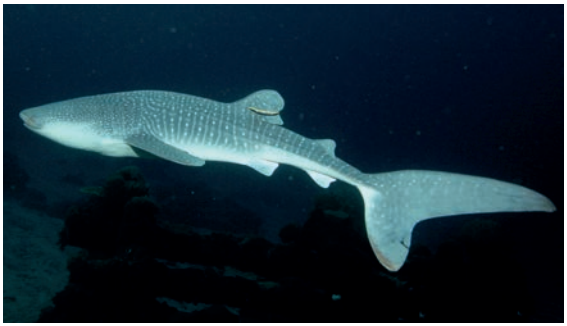
Teeth approximately actual size.

Teeth similar in upper and lower jaws, minute, hook-shaped.

Tooth counts: 300 or more rows on upper and lower jaws.

Description

An unmistakable shark with its unique checkerboard colour pattern of horizontal and vertical stripes with white or yellow spots, offset by a bluish to grey background colour, a broad flattened head, wide terminal mouth, long vertical gill slits, prominent longitudinal ridges on its back and large semi-crescent caudal fin.



© Hong-Ming Yu (AirFish Diving Center, Taiwan)

Colour

Unique checkerboard pattern consisting of prominent white or yellow spots between vertical and horizontal stripes offset by a background colour that ranges from dark grey to bluish or brown above, becoming white below.

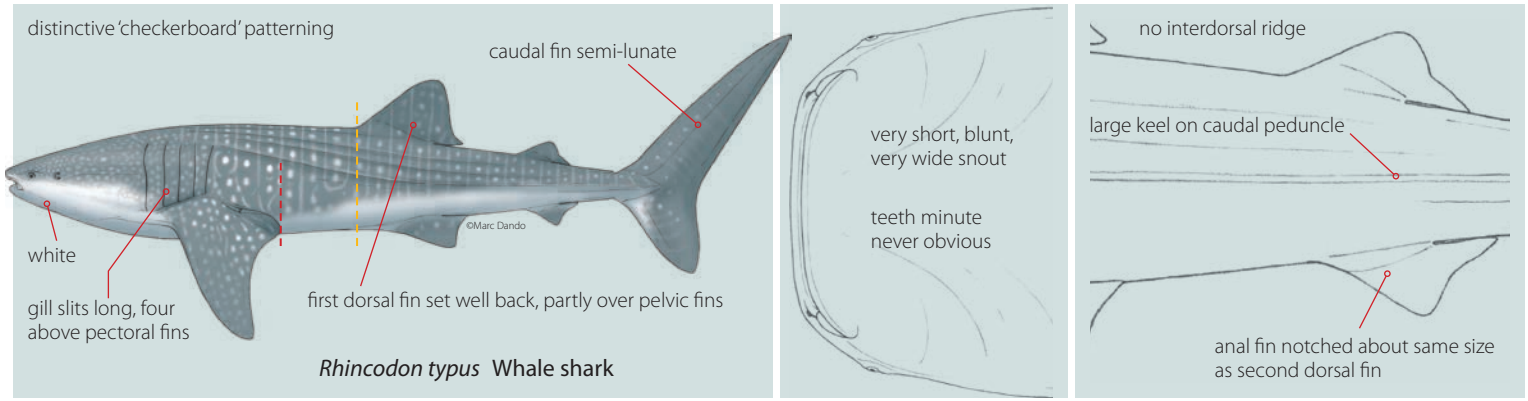
Size

Males mature: 800–900cm.
Females mature: about 1000cm.
Maximum size: 1800cm.
Birth size: 55–65cm.

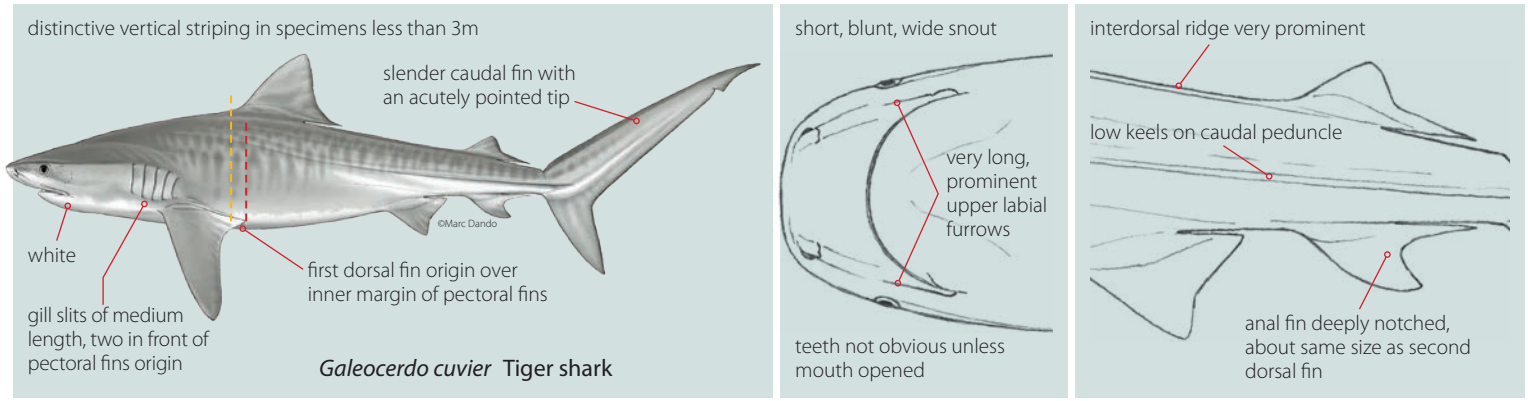
SIMILAR SPECIES

A giant shark, to over 10m total length, with prominent keels along sides of body; large terminal mouth, broad, square-shaped head with very large gill openings that do not extend over head or across throat; prominent checkerboard patterned body colour.

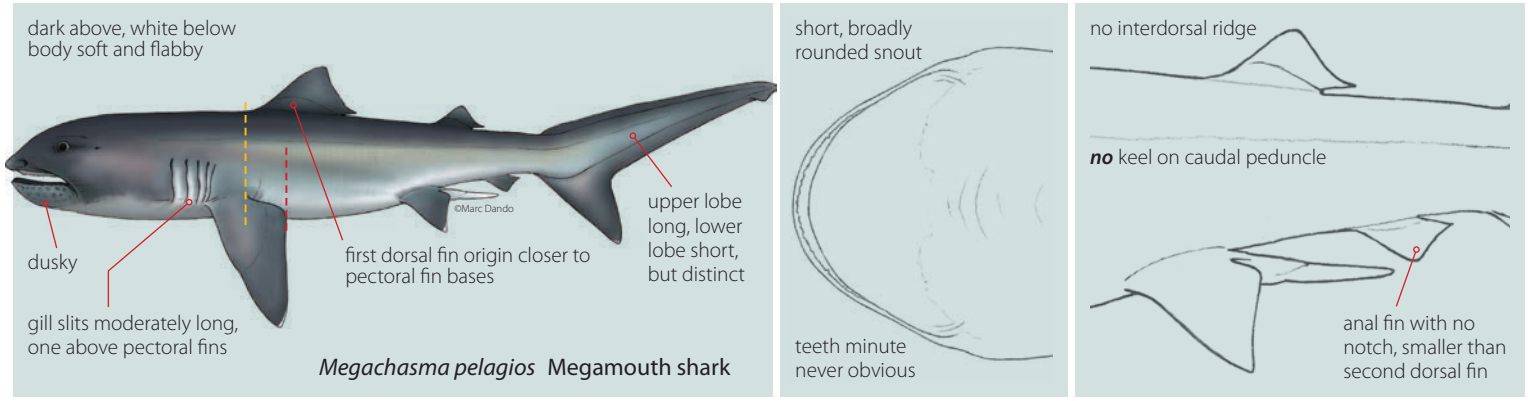
Gill slits, snout coloration, first dorsal and caudal fins | **Ventral view of head** | **Second dorsal and anal fins**



Rhincodon typus Whale shark



Galeocerdo cuvier Tiger shark

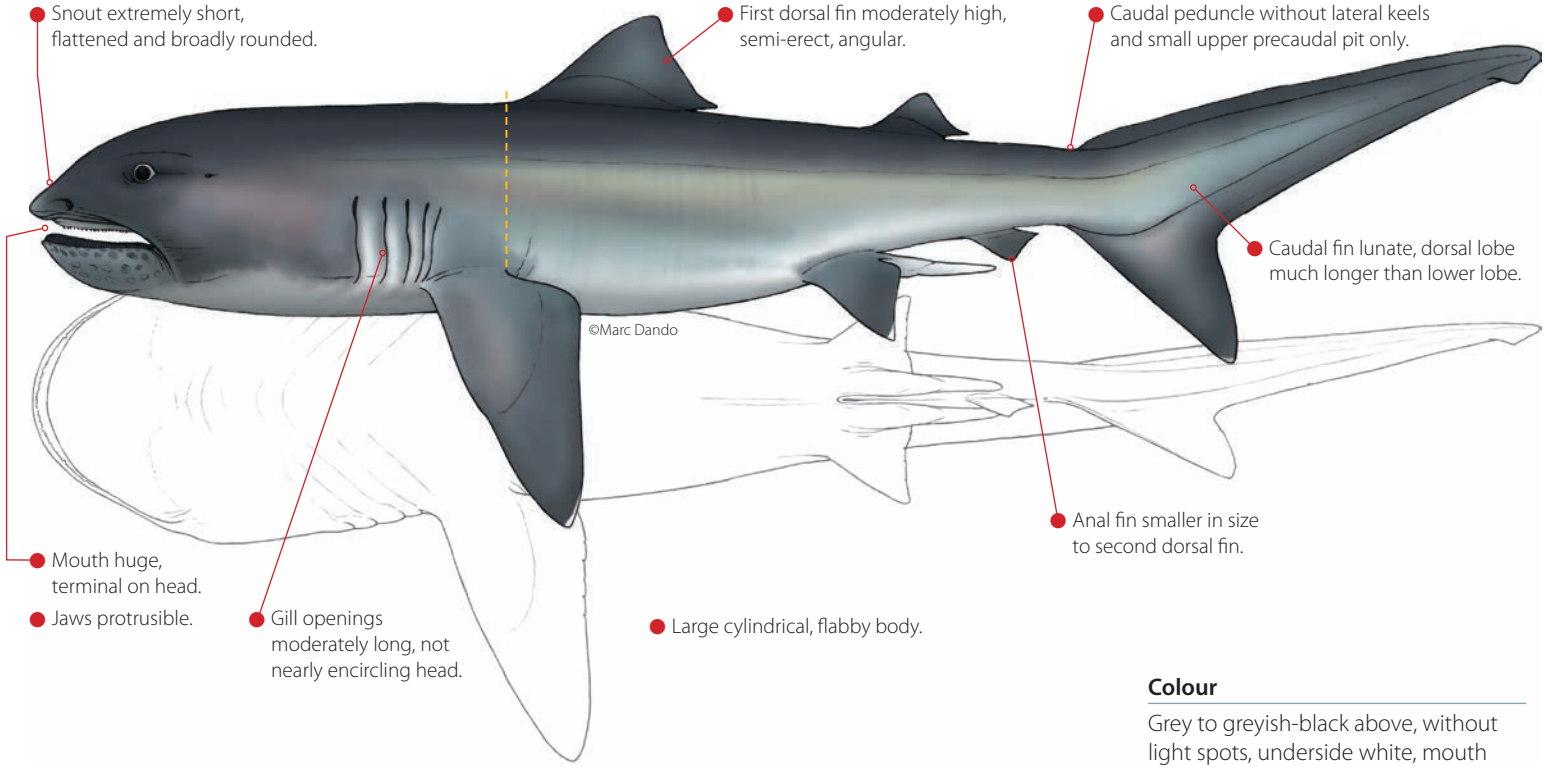


Megachasma pelagios Megamouth shark

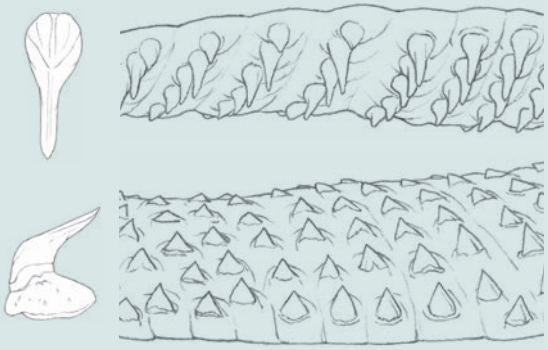
Megachasma pelagios
Taylor, Compagno & Struhsaker, 1983

Megamouth shark
Requin grande guele

DD LL



Dentition



Teeth approximately actual size.

Teeth very small, awl-shaped.

Tooth counts: upper jaw 55–115, lower jaw 75–121.

Description

Extremely short, broadly rounded snout, very long head, huge terminal mouth that extends behind eyes, moderately long gill openings, caudal peduncle without keels, caudal fin asymmetrical; 1 of 3 large filter-feeding sharks.

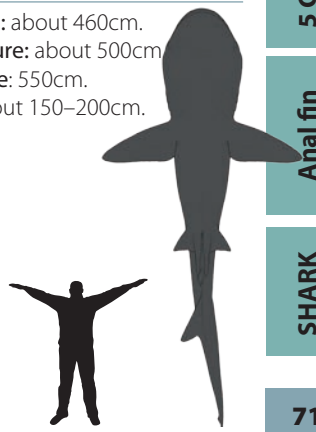
© Hua Hsun Hsu (National Taiwan Ocean University)

Colour

Grey to greyish-black above, without light spots, underside white, mouth dusky blackish with dark spotting on lower jaw; dorsal surfaces of pectoral and pelvic fins blackish with conspicuous light margins.

Size

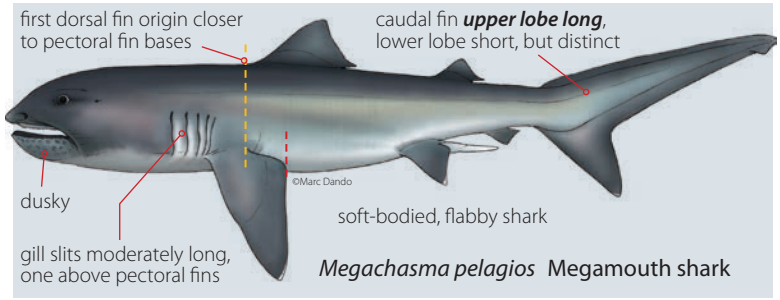
Males mature: about 460cm.
Females mature: about 500cm.
Maximum size: 550cm.
Birth size: about 150–200cm.

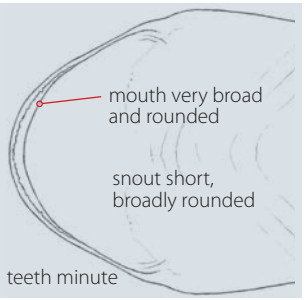


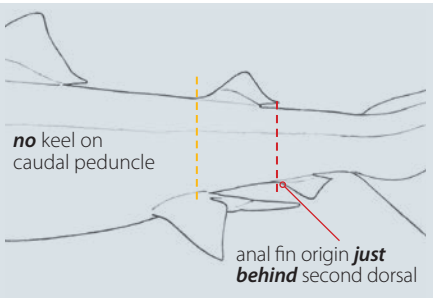
SIMILAR SPECIES

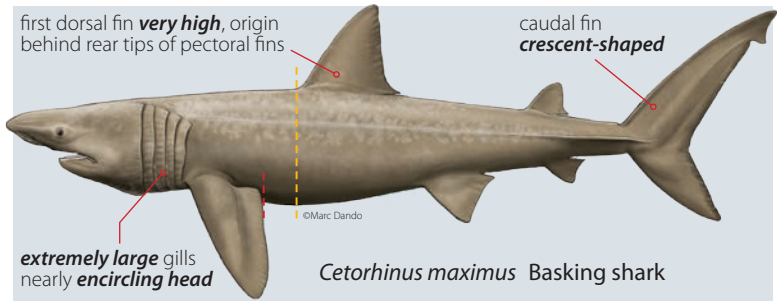
A large, to over 5m total length, soft-bodied shark; very short snout, huge terminal, protrusible mouth, moderate-sized gill openings that do not extend to over head or throat; asymmetrical caudal fin; grey to grey-black above without spots except on lower jaw, inside of mouth dusky coloured.

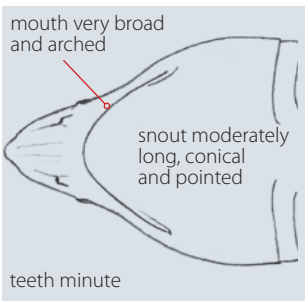
Gill slits, snout coloration, first dorsal and caudal fins | **Ventral view of head** | **Second dorsal and anal fins**

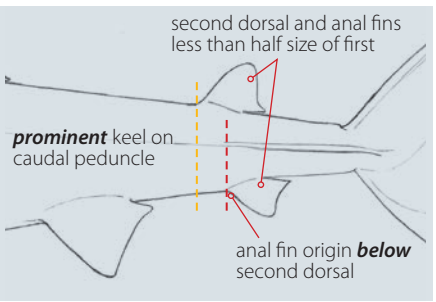


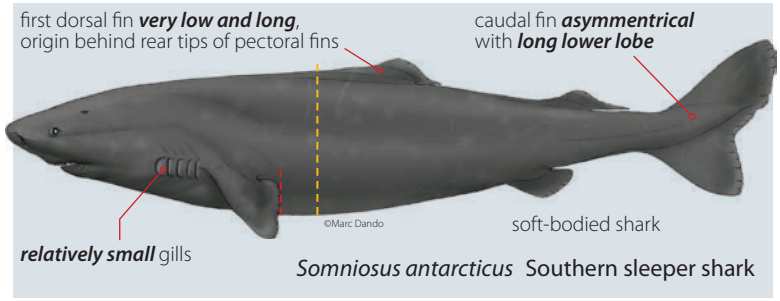


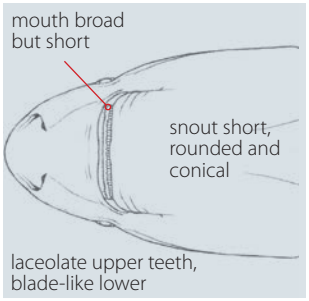


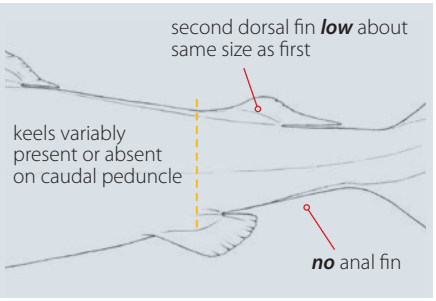


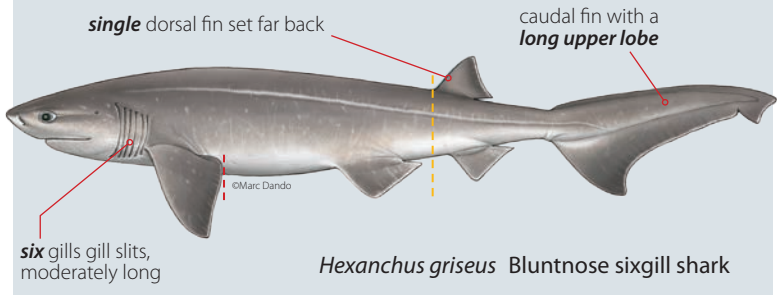


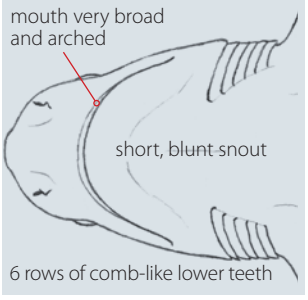


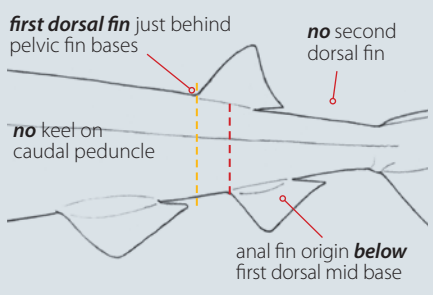








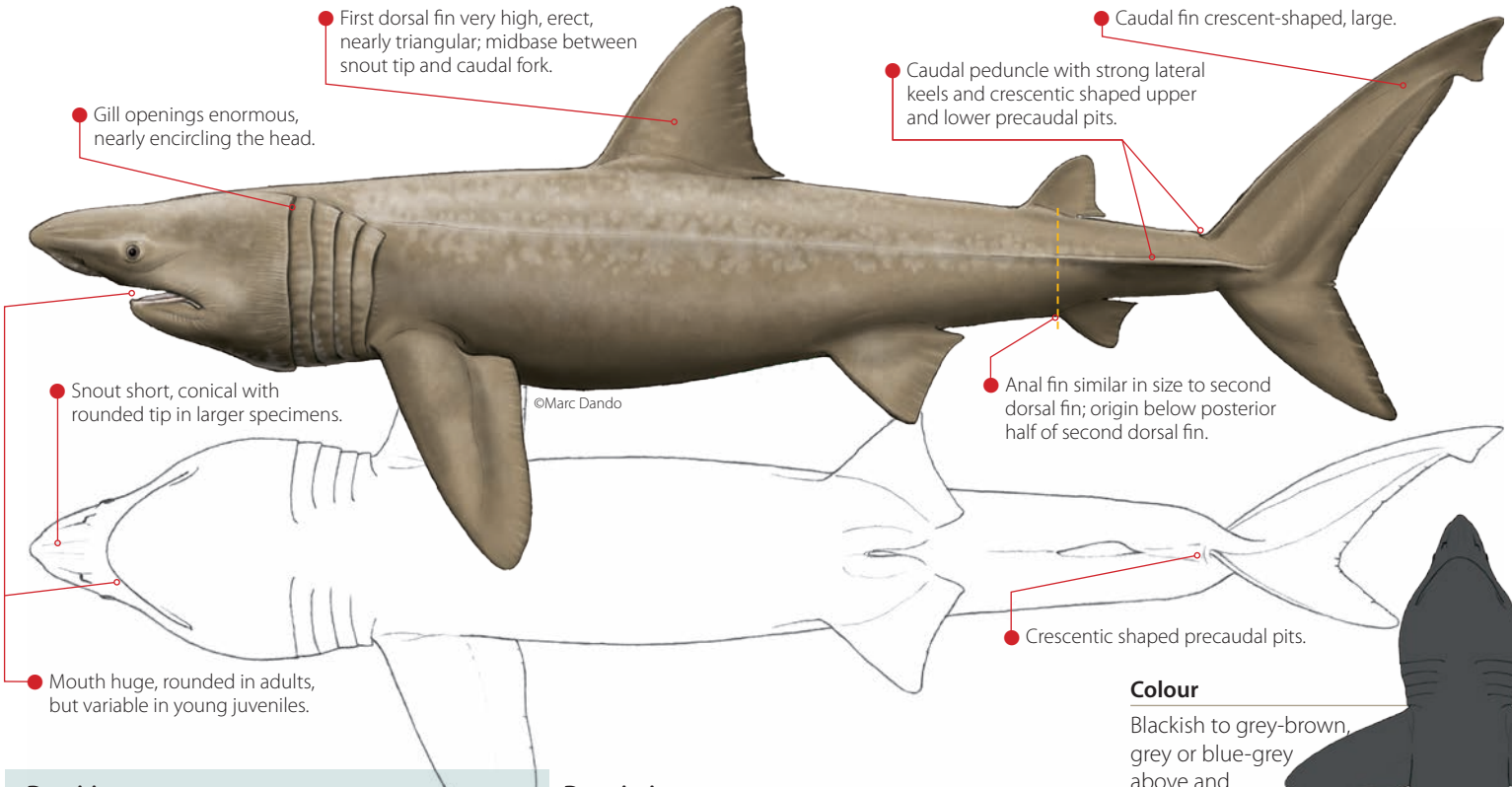




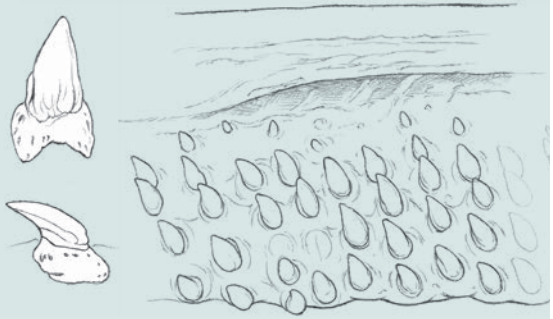
Cetorhinus maximus
(Gunnerus 1765)

Basking shark
Pèlerin

VU LL



Dentition



Teeth approximately actual size.

Teeth minute, with a single smooth-edged, hook-shaped cusp, similar shaped in both jaws.

Tooth counts: upper jaw & lower jaw over 200 rows.

Description

The great size, enormous gill slits that virtually encircle the head, pointed snout, huge, subterminal mouth with minute hooked teeth, caudal peduncle with strong lateral keels, and lunate caudal fin distinguish this shark from all others.

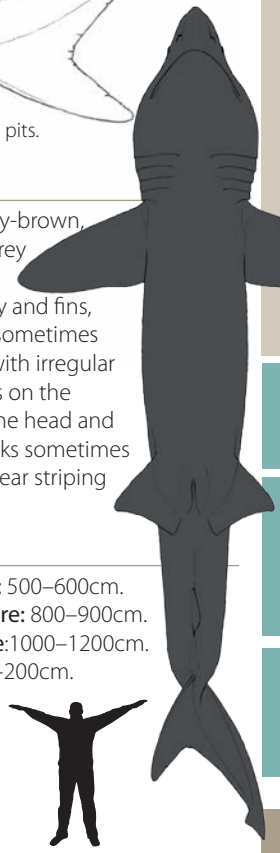
© Greg Skomal (Massachusetts Marine Fisheries)

Colour

Blackish to grey-brown, grey or blue-grey above and below on body and fins, undersurface sometimes lighter, often with irregular white blotches on the underside of the head and abdomen; flanks sometimes with lighter linear striping and spots.

Size

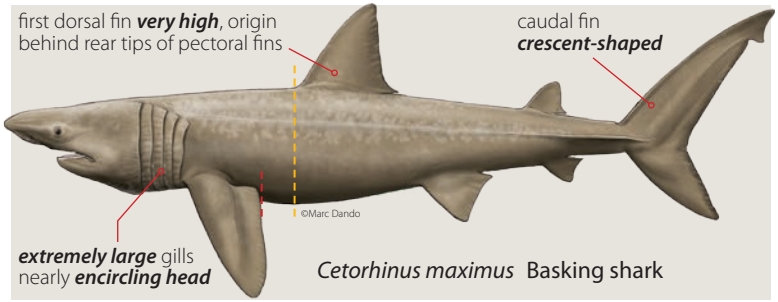
Males mature: 500–600cm.
Females mature: 800–900cm.
Maximum size:1000–1200cm.
Birth size:150–200cm.

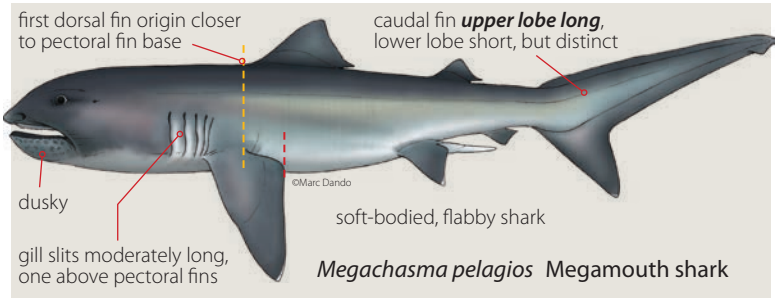


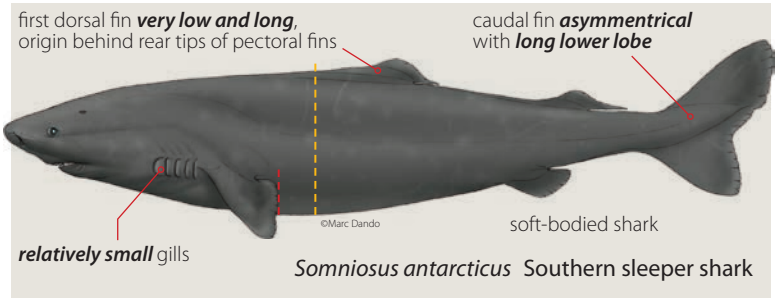
SIMILAR SPECIES

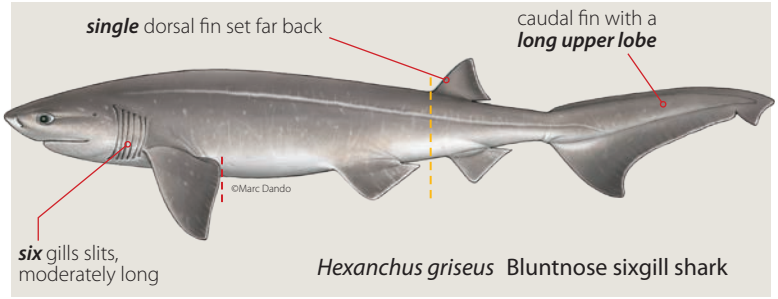
A very large, to over 10m total length, shark; short conical snout, huge subterminal mouth, very large gill openings that extend to over head and under throat nearly encircling the head; crescent-shaped caudal fin; blackish to grey-brown or grey often with irregular blotches spots.

Gill slits, snout coloration, first dorsal and caudal fins

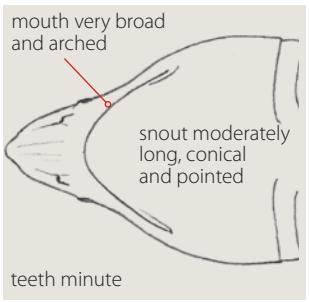


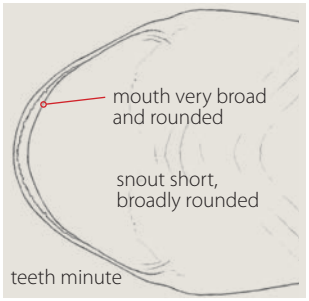


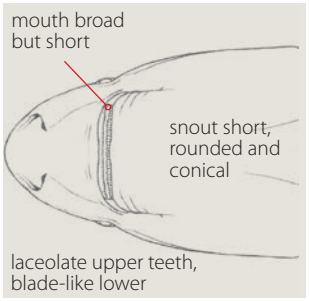


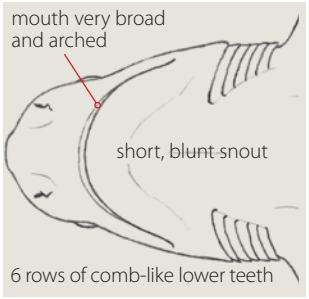


Ventral view of head

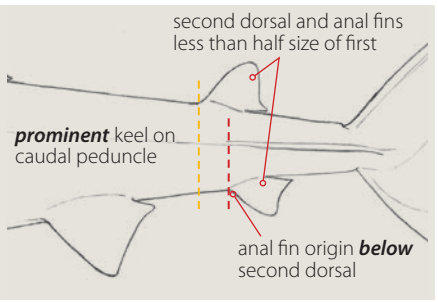


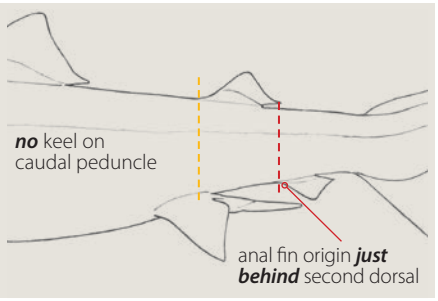


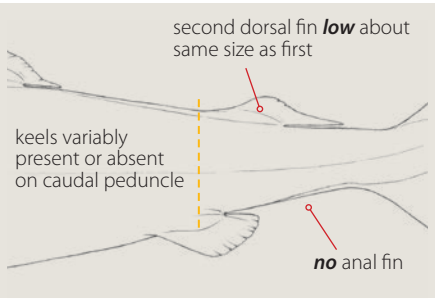


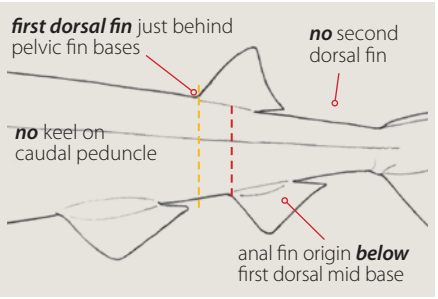


Second dorsal and anal fins



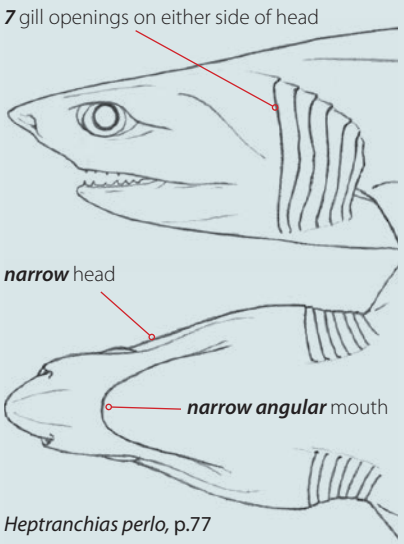




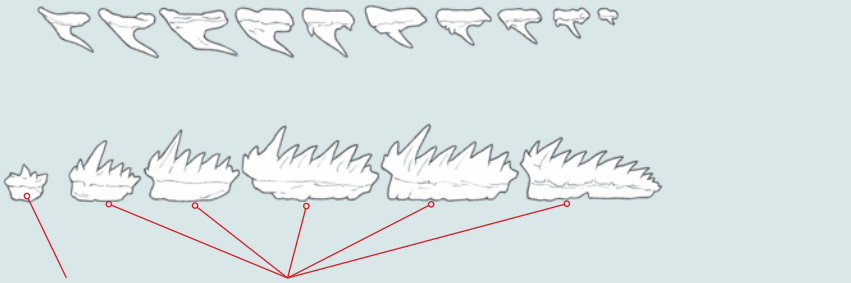


1a Seven gill openings. Narrow head with narrow angular mouth. Five rows of large comb-shaped teeth on each side of lower jaw
→ *Heptranchius perlo,* p.77

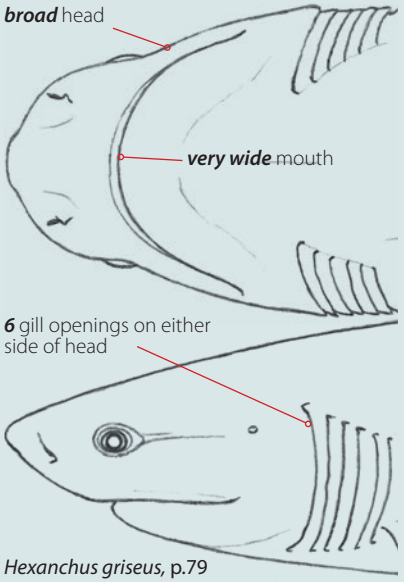
1b Six gill openings. Broad head with very wide mouth. Six rows of large comb-shaped teeth on each side of lower jaw
→ *Hexanchus griseus,* p.79



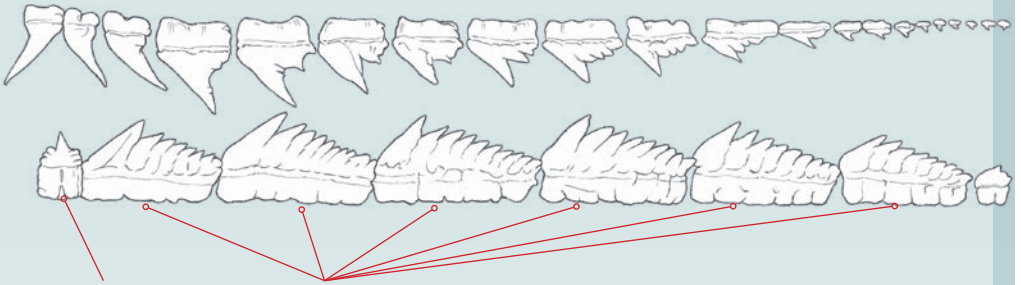
Heptranchias perlo, p.77



Heptranchias perlo, p.77



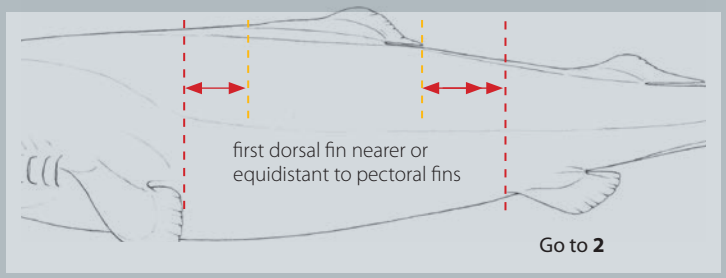
Hexanchus griseus, p.79

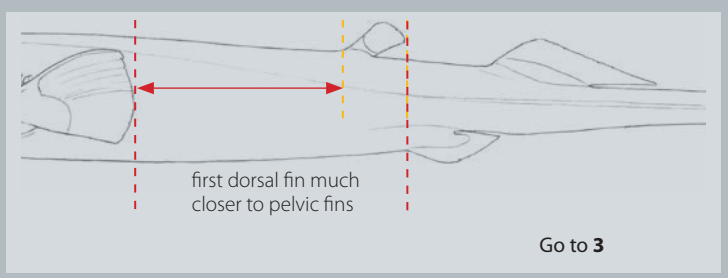


Hexanchus griseus, p.79

1a First dorsal fin equidistance or closer to pectoral fins → **2**

1b First dorsal fin much closer to pelvic fins → **3**

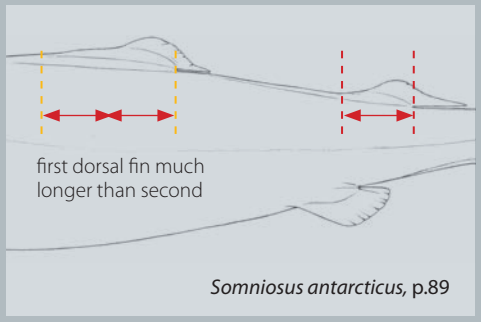


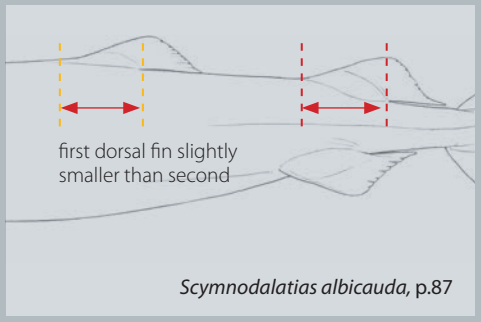


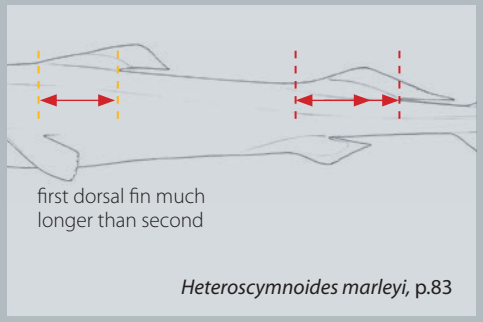
2a First dorsal fin much longer than second. Body colour uniform dark brown, grey to black → *Somniosus antarcticus* p.89

2b First dorsal fin slightly smaller than second. Body colour mottled with light /dark blotches and spots → *Scymnodalatias albicauda* p.87

2c First dorsal fin smaller than second. Body colour uniform dark brown. Small, no more than 40cm → *Heteroscymnoides marleyi* p.83

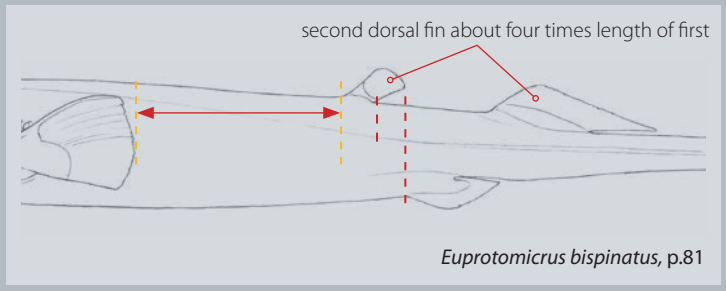


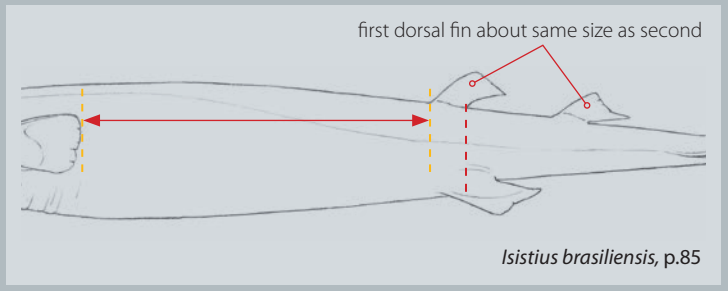




3a First dorsal fin set far back, but distinctly in front of pelvic fins, second dorsal fin about 4 times length of first → *Euprotomicrus bispinatus* p.81

3b First dorsal fin set far back, insertion over pelvic fins, second dorsal fin about equal in size to first → *Isistius brasiliensis* p.85

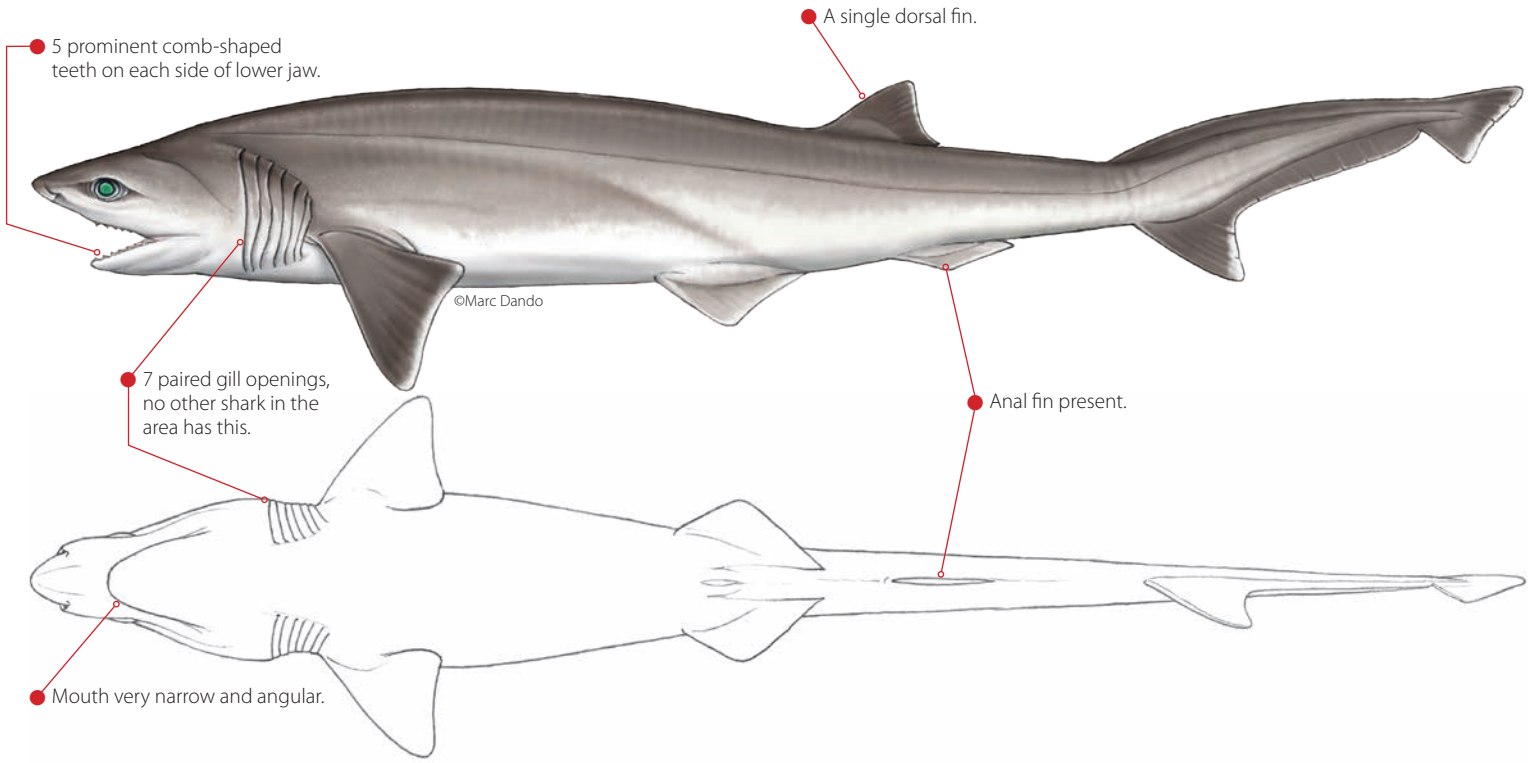




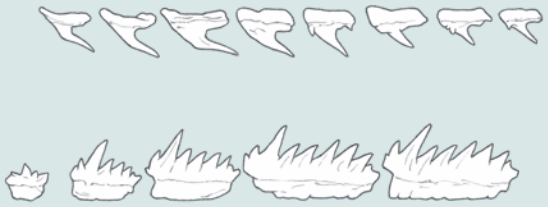
Heptranchias perlo
(Bonnaterre, 1788)

Sharpnose sevengill shark
Requin perlon

NT LL



Dentition



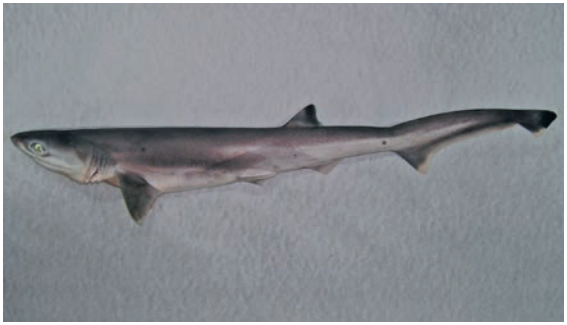
Teeth approximately actual size.

Lower jaw with five rows of distinctly comb-shaped anterolateral teeth on each side of jaw; a high cusp followed by up to 7 or 8 distal cusplets in adults.

Tooth counts (excluding smaller posteriorlateral teeth)**:** upper jaw 7–9, lower jaw 10.

Description

A narrow-headed, big-eyed shark with seven gill openings on each side of head; five rows of lower comb-shaped teeth on each side of jaw; one dorsal fin and an anal fin.



© David A. Ebert

Colour

Uniform pale grey to olive above, lighter to white below; spots absent from body, dorsal fin and upper caudal lobe with black tips, faded or absent in adults but prominent in young.

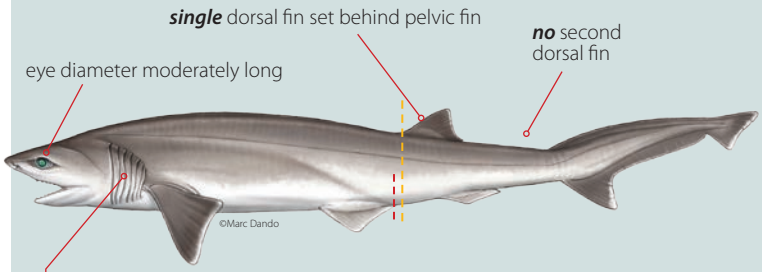
Size

Males mature: 75–100cm.
Females mature: about 100cm.
Maximum size: 140cm.
Birth size: 26–27cm.

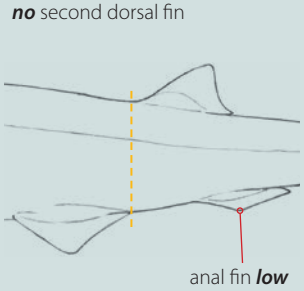
SIMILAR SPECIES

A moderate-sized shark up to 1.4m total length; one dorsal fin, an anal fin and seven paired gill openings separates this shark from all others.

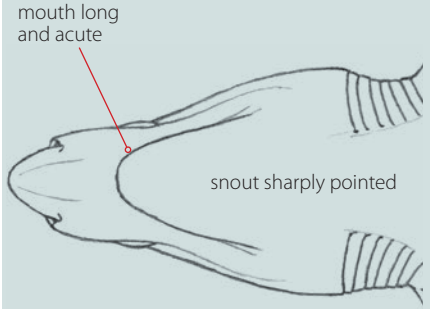
Gill slits, snout coloration, first dorsal and caudal fins | **Second dorsal & anal fins** | **Ventral view of head**



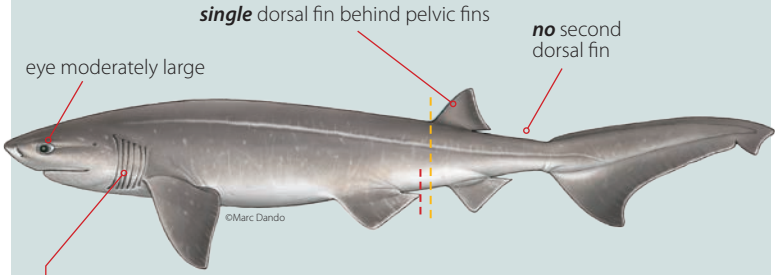
Heptranchias perlo Sharpnose sevengill shark



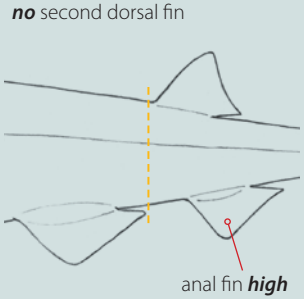
first dorsal origin ***over /just behind*** pelvic fins free tips



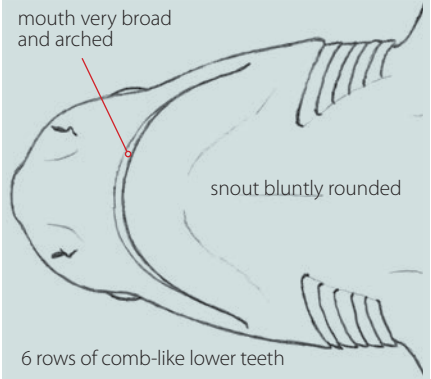
5 rows of comb-like lower teeth



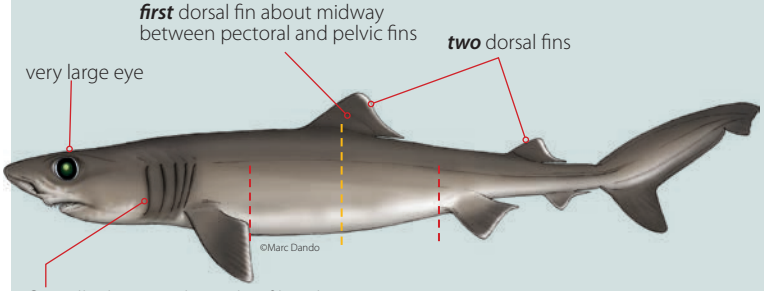
Hexanchus griseus Bluntnose sixgill shark



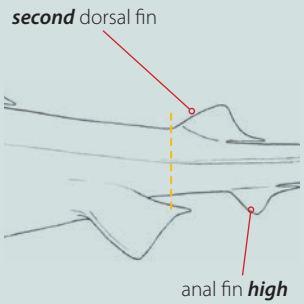
first dorsal origin ***over /just behind*** pelvic fins free tips



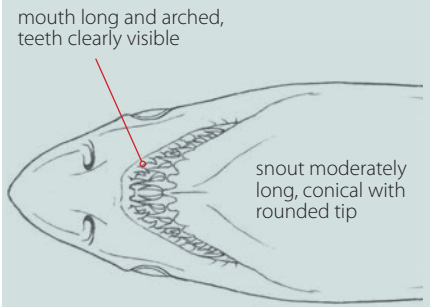
6 rows of comb-like lower teeth



Pseudocarcharias kamoharai Crocodile shark



second dorsal origin ***over*** pelvic fins free tips

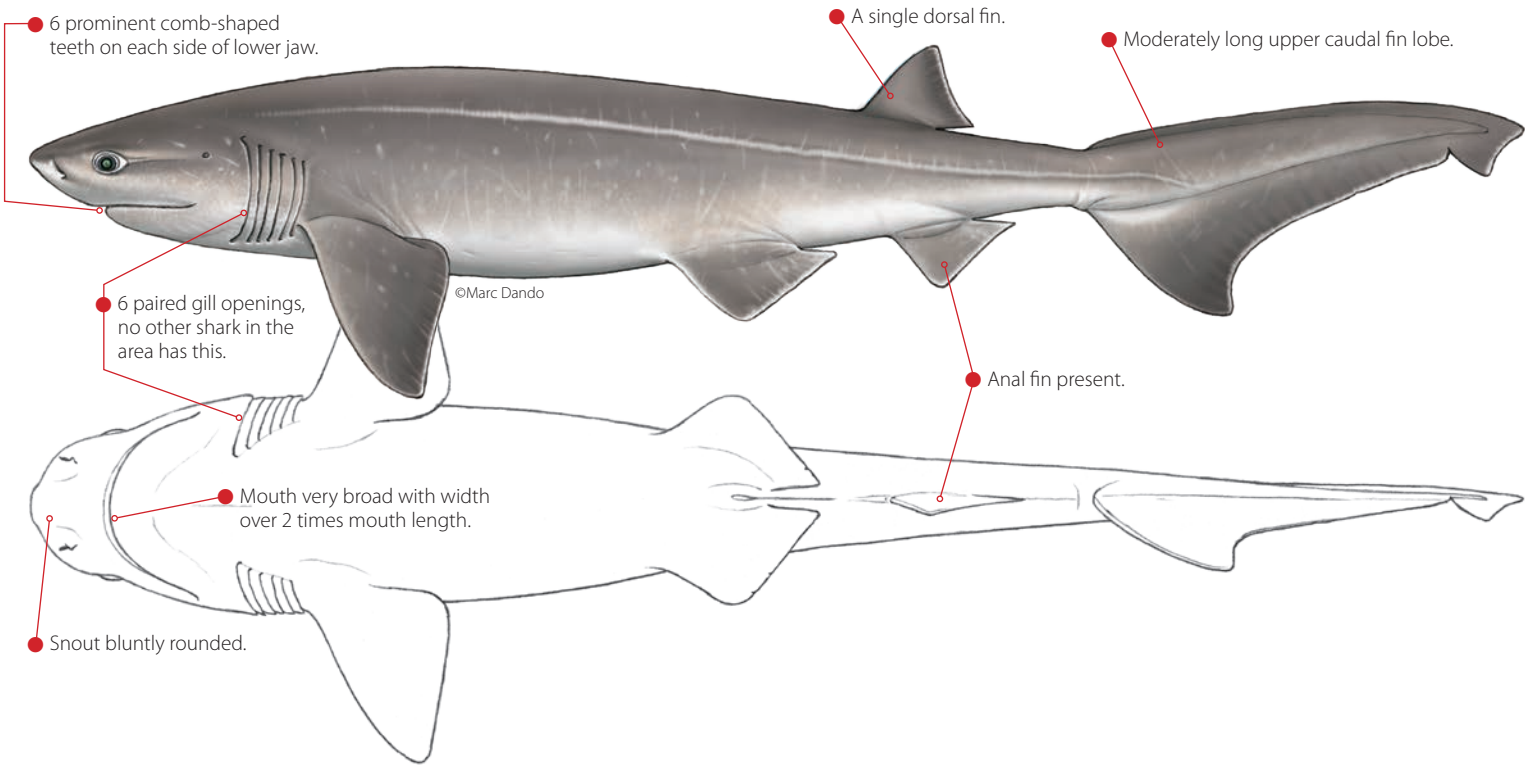


teeth long and slender on upper and lower jaws; similar in shape

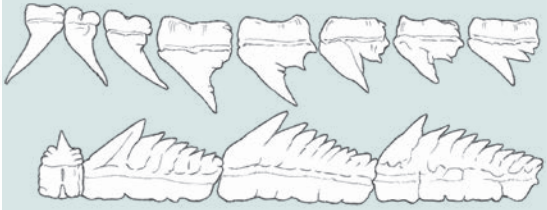
Hexanchus griseus
(Bonnaterre, 1788)

Bluntnose sixgill shark
Requin griset

NT LL



Dentition



Teeth approximately actual size.

Six rows of lower distinctly comb-shaped anterolateral teeth on each side of jaw; a high cusp followed by numerous distal cusplets in adults.

Tooth counts (excluding smaller posteriorlateral teeth)**:** upper jaw 7–9, lower jaw 12.

Description

A large, heavy-bodied, broad-headed shark with six gill openings on each side of head; six rows of lower comb-shaped teeth on each side of jaw; one dorsal fin and an anal fin.

Courtesy of R. Dean Grubbs, Deep-C Consortium

Colour

Grey or tan to blackish with a conspicuous lighter lateral line and sometimes with darker spots on the sides. Underside often lighter than the dorsal surface in newborn young but more uniform in larger juveniles and adults.

Size

Males mature: 310–350cm.
Females mature: about 420cm.
Maximum size: 550cm.
Birth size: 65–80cm.

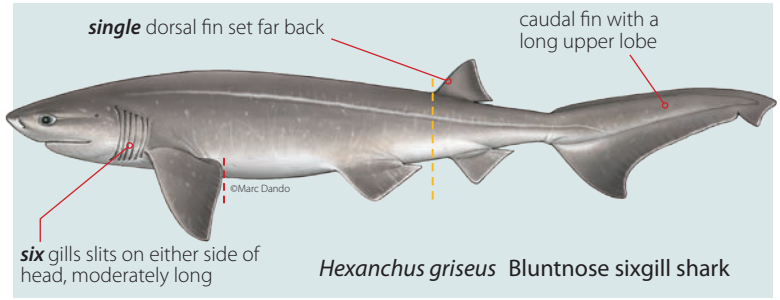
SIMILAR SPECIES

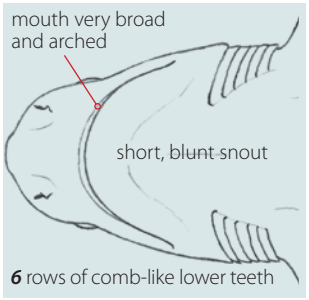
A large shark up to over 5m total length, one dorsal fin, an anal fin and six paired gill openings separates this shark from all others.

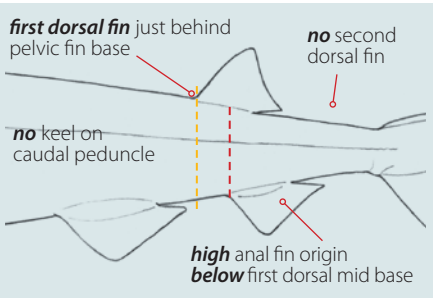
Gill slits, snout coloration, first dorsal and caudal fins

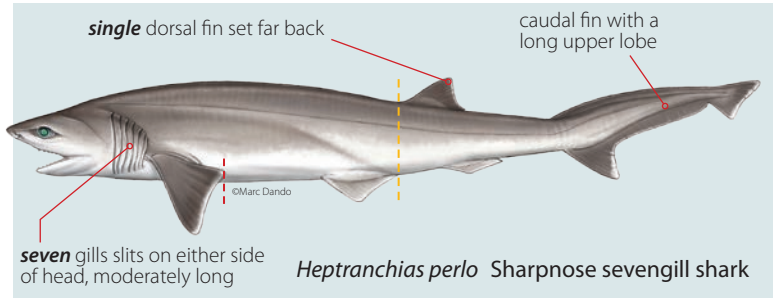
Ventral view of head

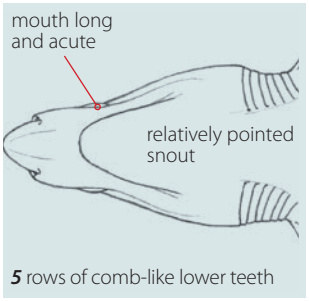
Second dorsal and anal fins

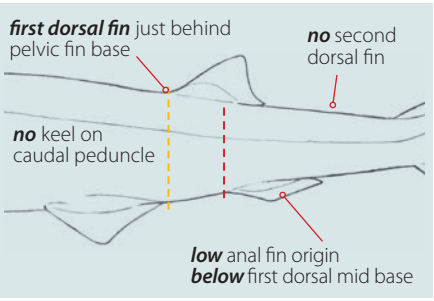


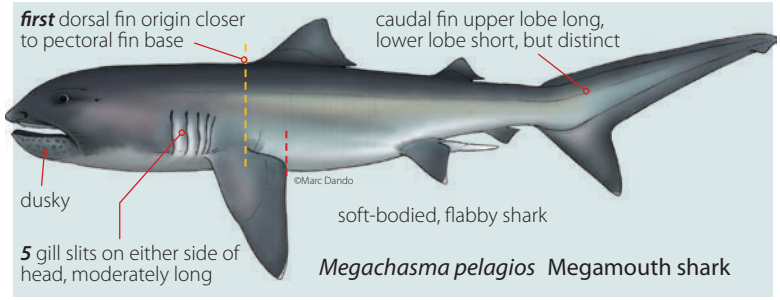


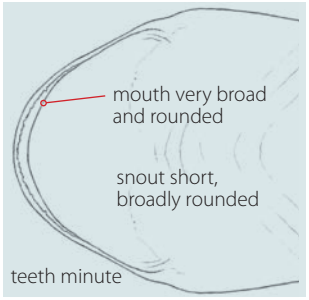


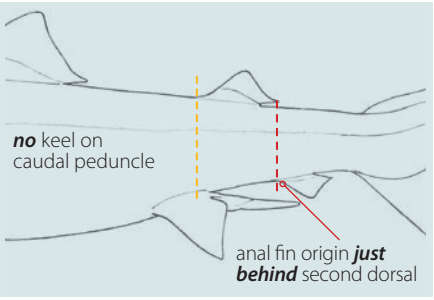


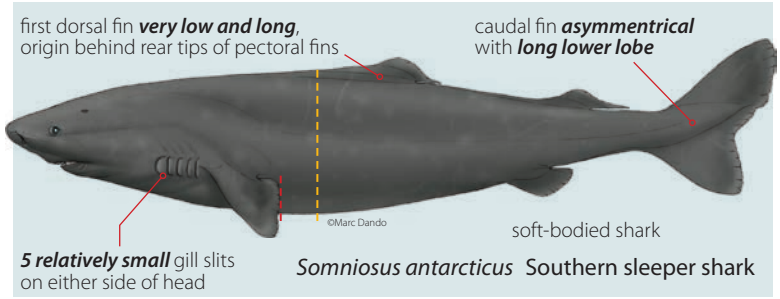


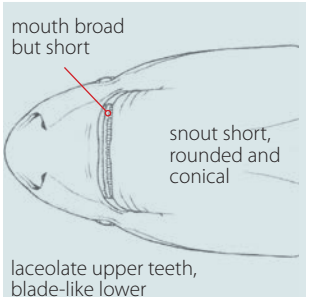


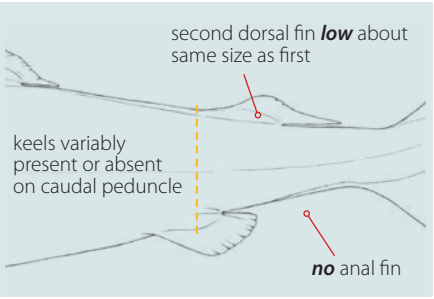








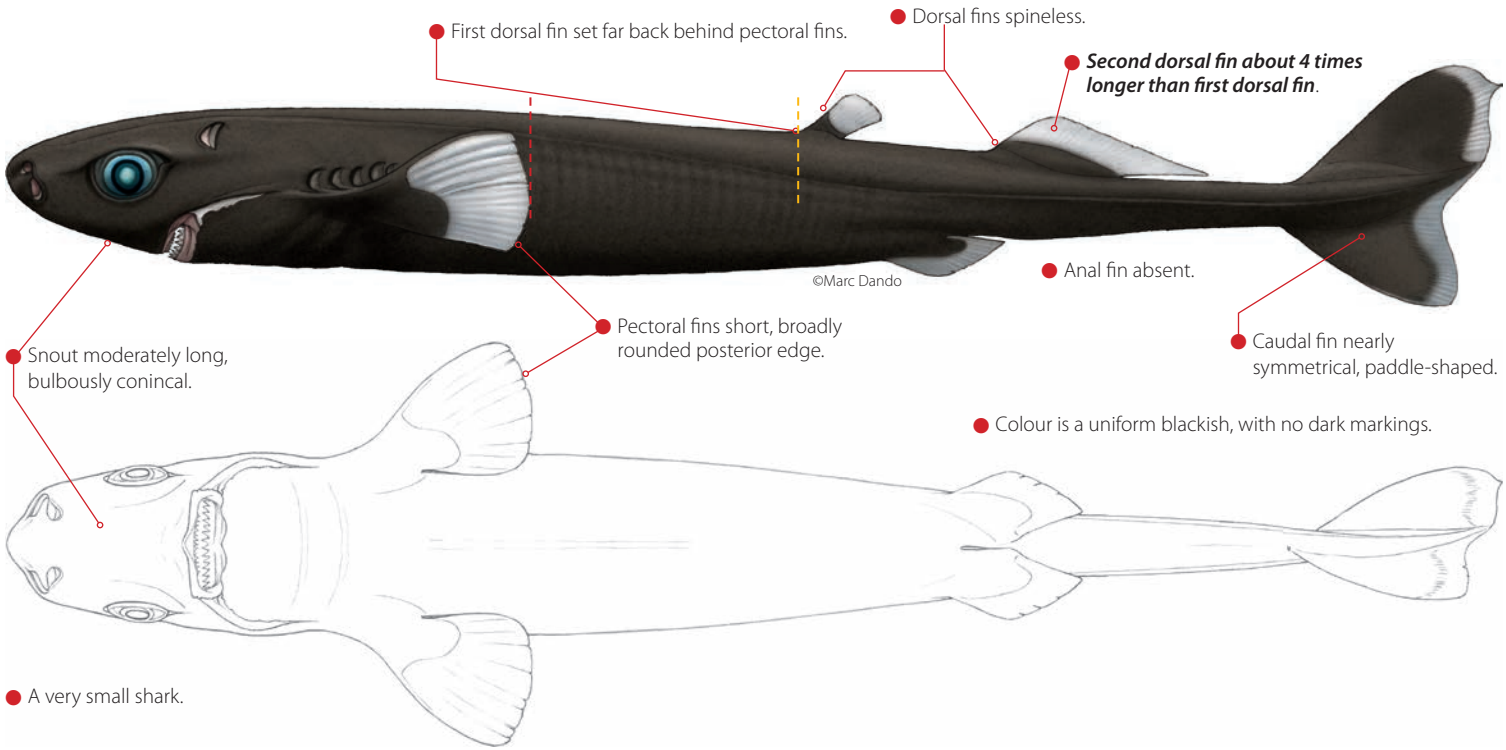




Euprotomicrus bispinatus
(Quoy & Gaimard, 1824)

Pygmy shark
Squale pygmée

LC LL



Dentition

Teeth approximately four times actual size.

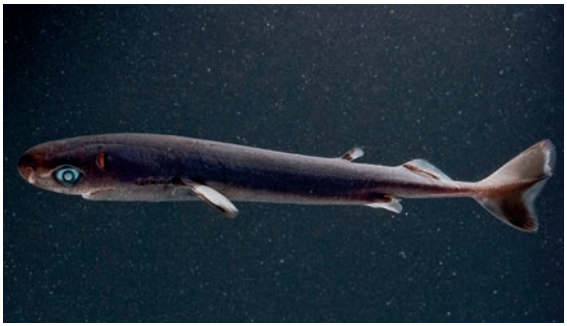
Teeth approximately actual size.

Upper teeth small, with narrow, sharply pointed, erect cusps; lower teeth much larger, bladelike, interlocked, with a high, broad, nearly erect cusp and distal blade, edges not serrated.

Tooth counts: upper jaw 19–21, lower jaw 19–23.

Description

Small size, bulbous snout, cylindrical body, no dorsal fin spines, tiny flag-like first dorsal fin, this over abdomen and closer to pelvic fins than pectoral fins and well behind pectorals, second dorsal base about four times larger than first, no anal fin, blackish colour with conspicuous light-edged fins.



© SeaPics.

Colour

Blackish with conspicuously light-edged fins.

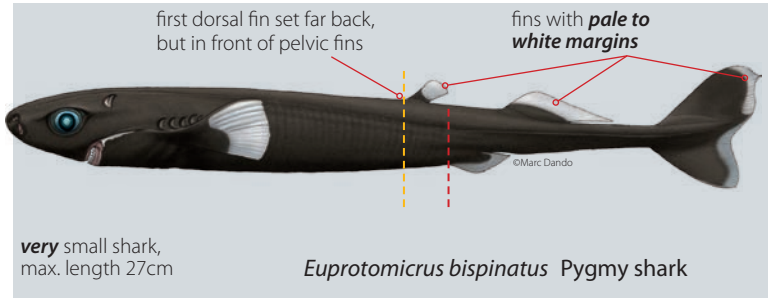
Size

Males mature: about 17–19cm.
Females mature: about 22–23cm.
Maximum size: 27cm.
Birth size: about 6–10cm.

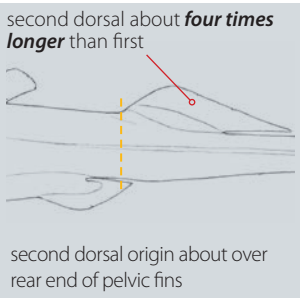
SIMILAR SPECIES

A tiny dogfish; moderately long bulbous snout, large round eyes and tiny equal-sized gill openings; dorsal fins without spines, first dorsal fin much smaller than second fin, first dorsal fin set close to pelvic fins, caudal fin is paddle-shaped; black with conspicuous light-edged fins.

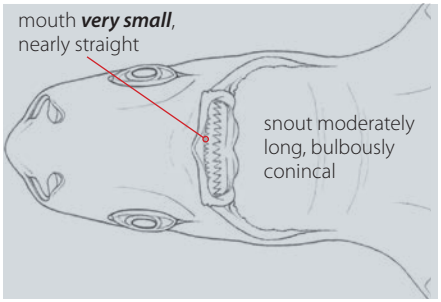
Colour, first dorsal fin position and first dorsal and caudal fins shape

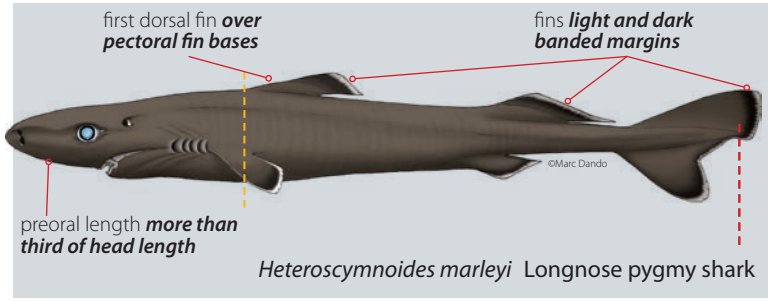


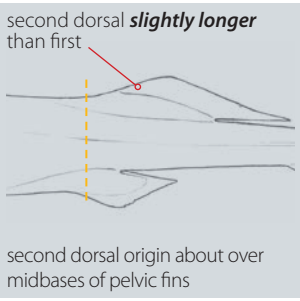
Second dorsal & anal fins

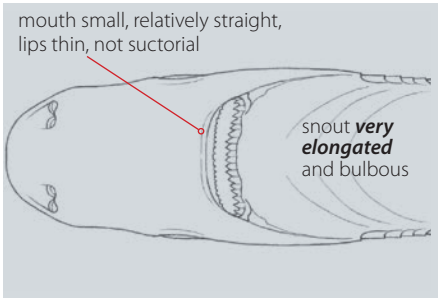


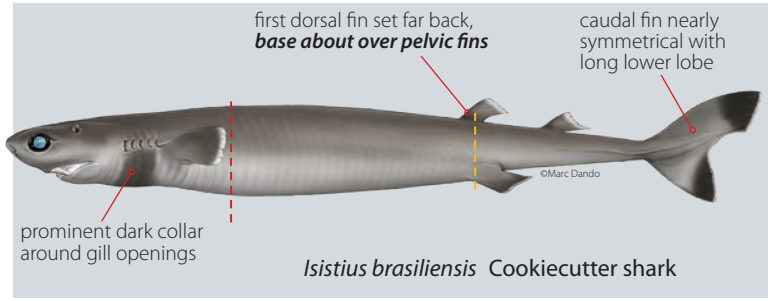
Ventral view of heads and teeth

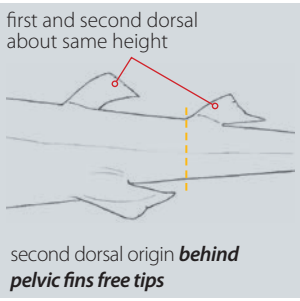


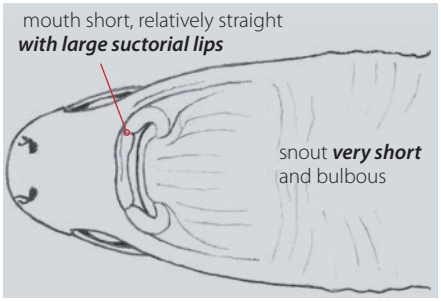


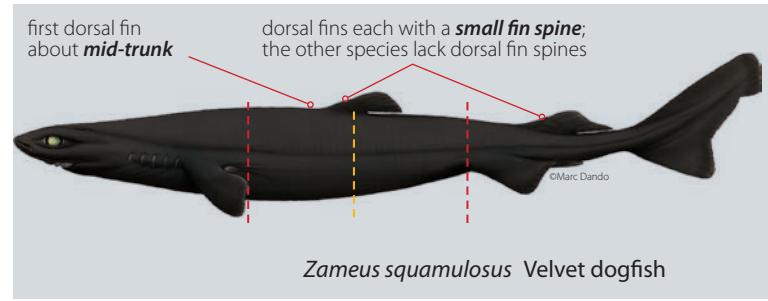


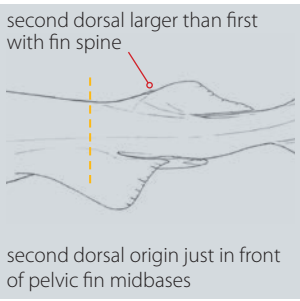


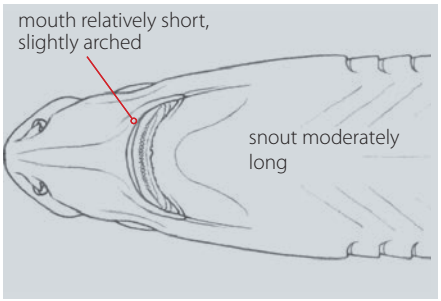








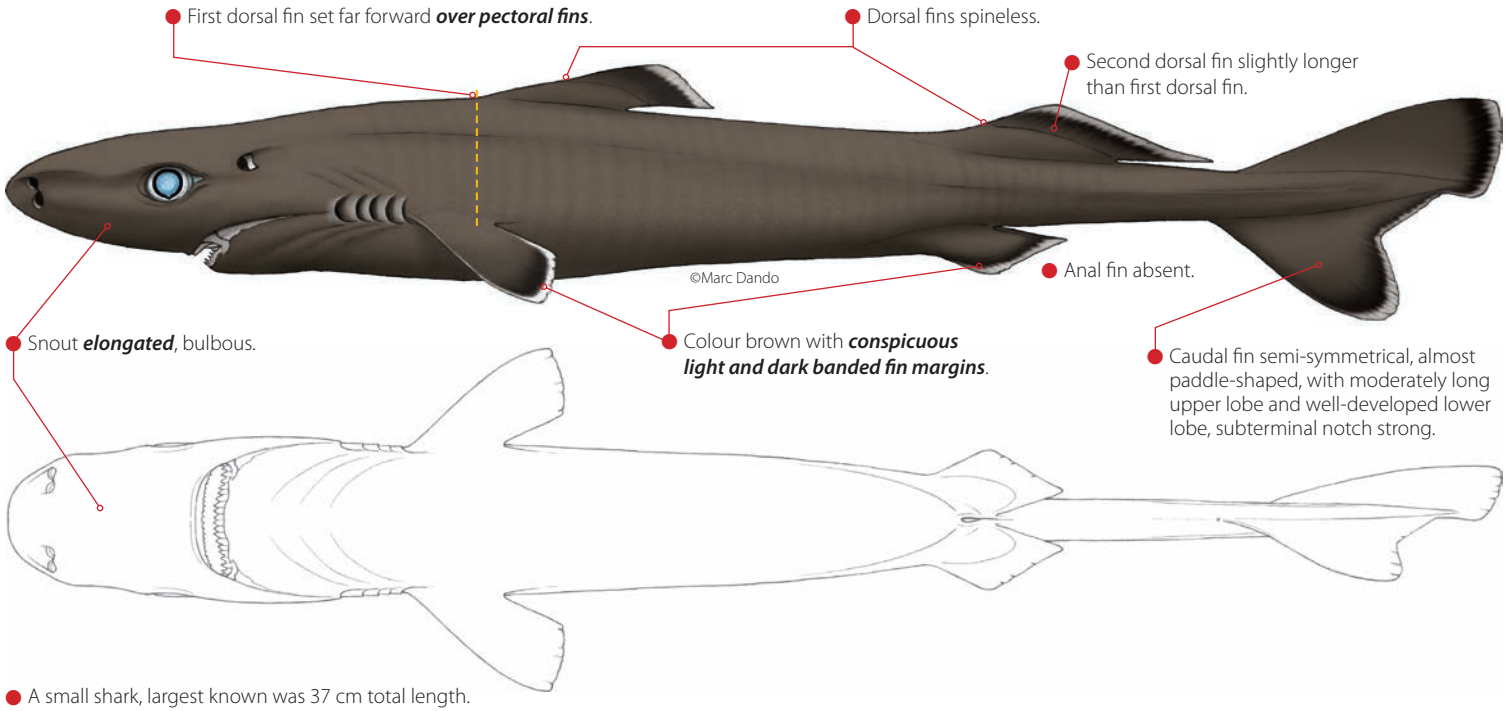




Heteroscymnoides marleyi
Fowler, 1934

Longnose pygmy shark
Squale mignon

LC LL



A small shark, largest known was 37 cm total length.

Dentition

Teeth approximately two times actual size.

Teeth approximately actual size.

Upper teeth small, with narrow, sharply pointed, erect cusps; lower teeth much larger, bladelike, interlocked, with a high, broad, nearly erect cusp and distal blade, edges not serrated.

Tooth counts: upper jaw 22, lower jaw 23.

Description

Small size, bulbous elongated snout, no dorsal fin spines; first dorsal fin far forward, with origin over pectoral bases, second dorsal only slightly larger than first, no anal fin, dark brown colour with light-edged fins.

© Matthias Stehmann

Colour

Brown with conspicuous light and dark banded fin margins.

Size

Males mature: about 36cm.
Females mature: about 33cm.
Maximum size: 37cm.
Birth size: about 12cm.

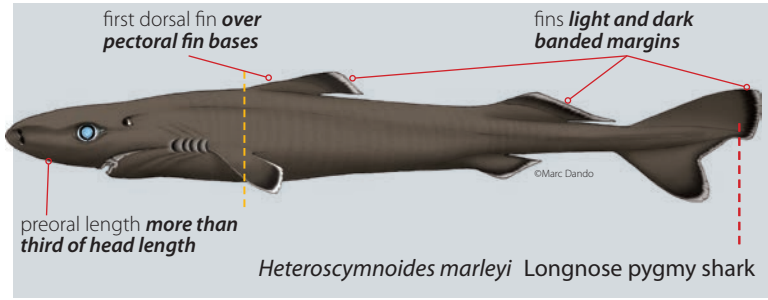
SIMILAR SPECIES

A small dogfish with a cylindrical body; long bulbous snout, small rounded eyes, small gill openings; dorsal fins without spines, first dorsal fin almost as large as second and set over pectoral fins, caudal fin paddle-shaped; dark brown with conspicuous light-edged fins.

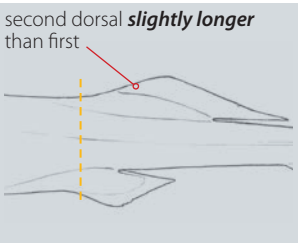
Colour, first dorsal fin position and first dorsal and caudal fins shape

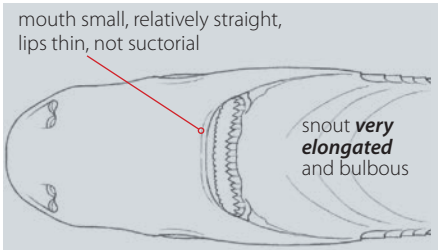
Second dorsal & anal fins

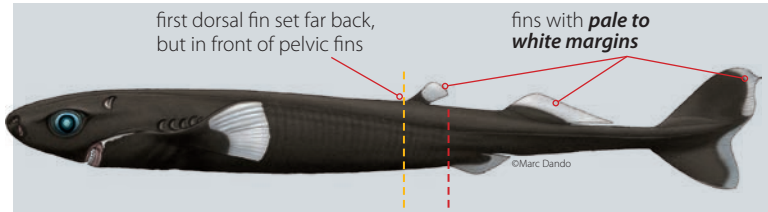
Ventral view of heads and teeth



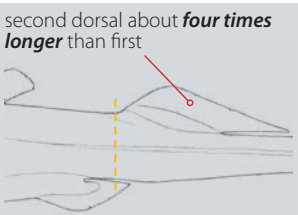
Heteroscymnoides marleyi Longnose pygmy shark

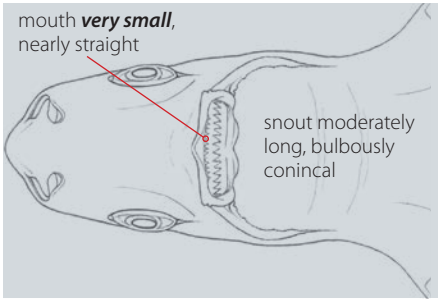


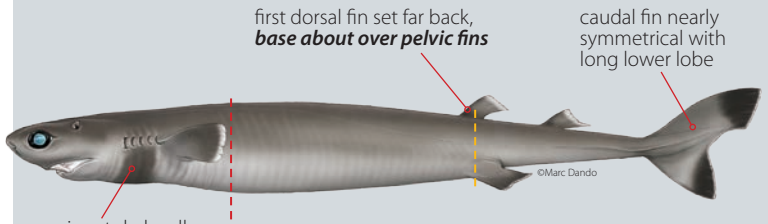




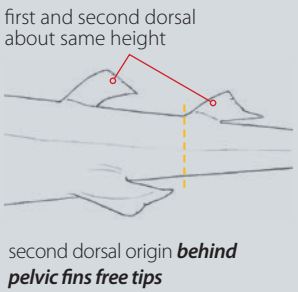
Euprotomicrus bispinatus Pygmy shark

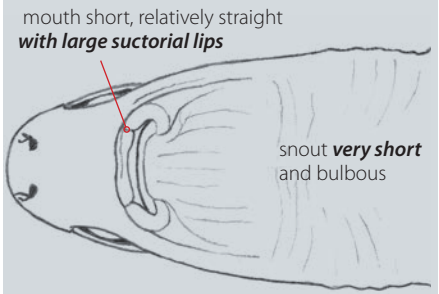


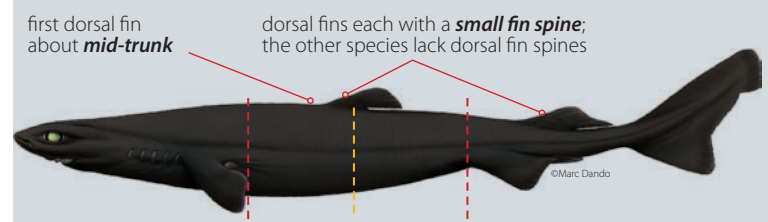




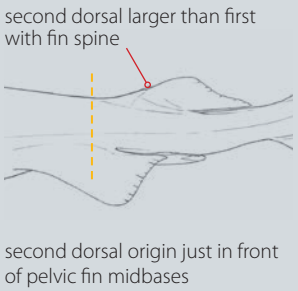
Isistius brasiliensis Cookiecutter shark

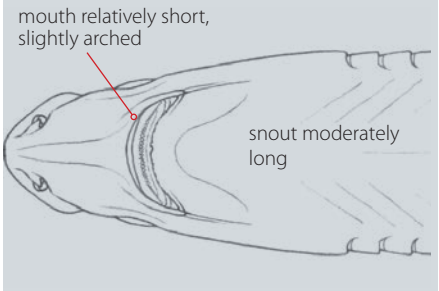






Zameus squamulosus Velvet dogfish

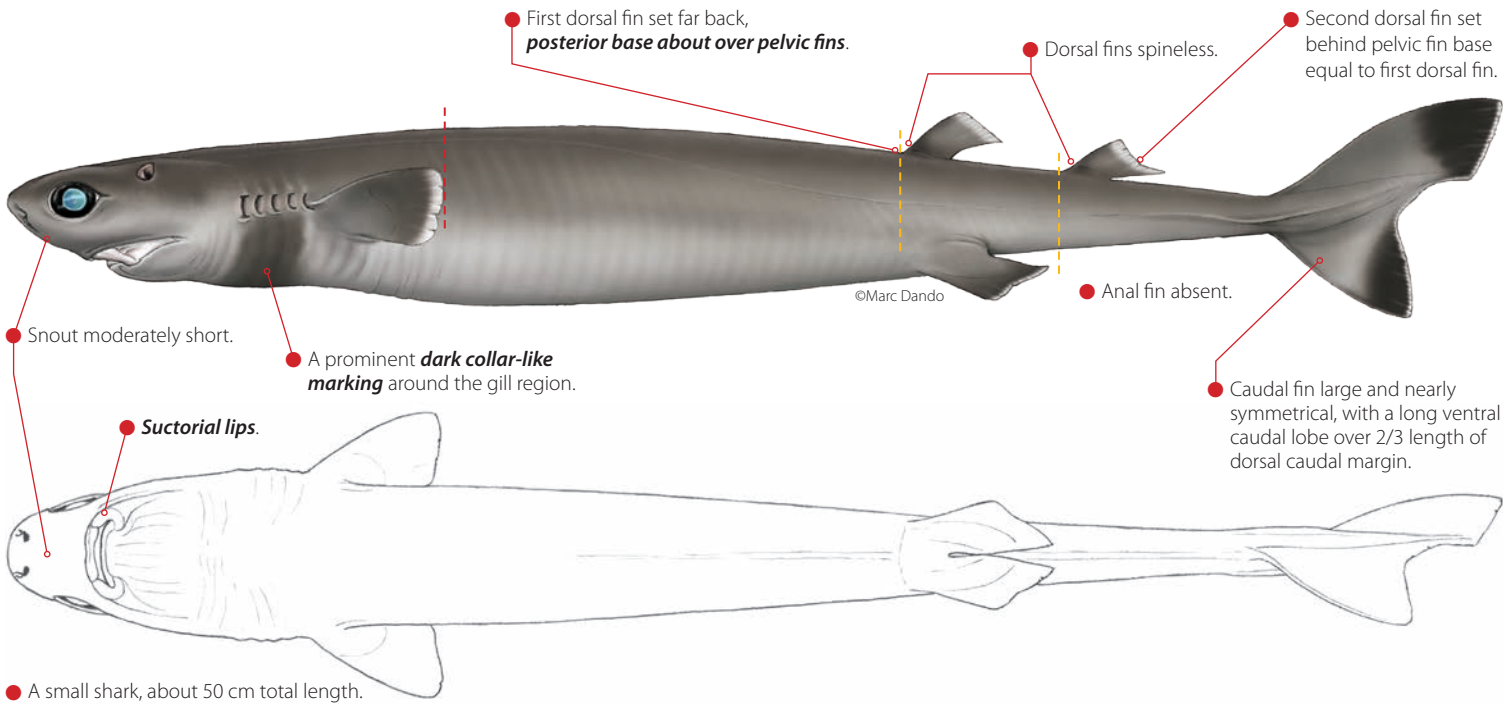




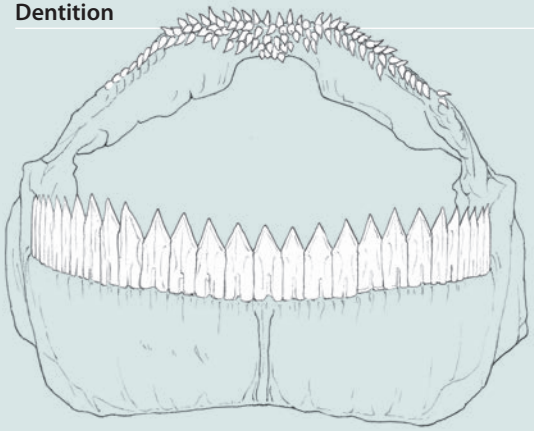
Isistius brasiliensis
(Quoy & Gaimard, 1824)

Cookiecutter shark
Squalelet féroce

LC LL



Dentition



Teeth approximately actual size.

Triangular-cusped lower teeth without blades.

Tooth counts: upper jaw 30–37, lower jaw 25–31.

Description

Small size, cigar-shaped body, small, spineless dorsal fins far posterior on back, no anal fin, suctorial lips, short, bulbous snout, and nearly symmetrical caudal fin with long lower lobe.

© Malcolm Francis (NIWA, New Zealand)

Colour

Pale brown above, becoming lighter below, with a conspicuous dark collar-like marking around the gill region; fins dark, but with pale to translucent edges.

Size

Males mature: about 31–37cm.
Females mature: about 38–44cm.
Maximum size: 50cm.
Birth size: about 14–15cm.

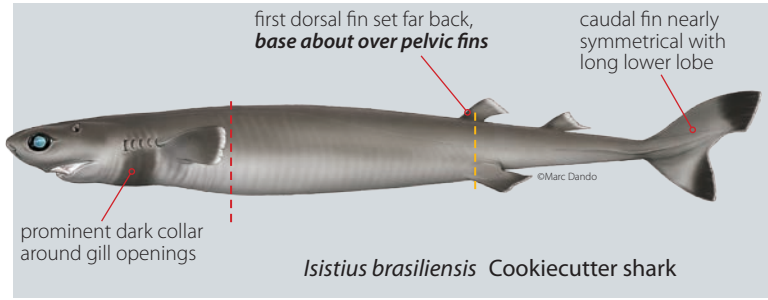
SIMILAR SPECIES

A small, cigar-shaped shark; short bulbous snout; dorsal fins set far back, first dorsal over pelvic fins, no dorsal fin spines, an symmetrical paddle-shaped caudal fin; grey to grey-brown with a prominent dark collar band around its gills and throat.

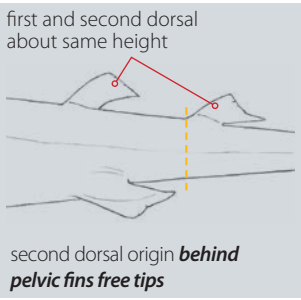
Colour, first dorsal fin position and first dorsal and caudal fins shape

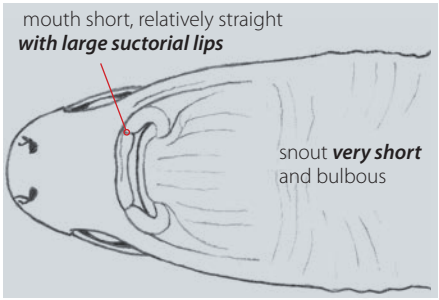
Second dorsal & anal fins

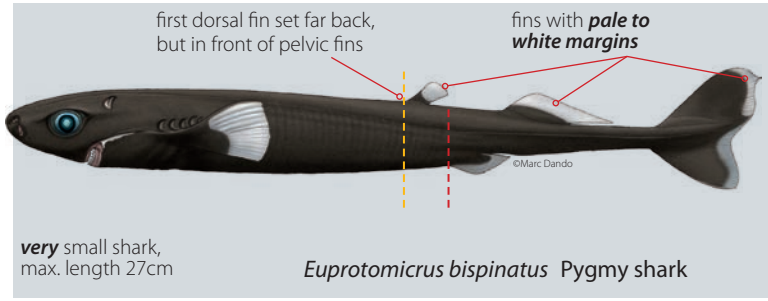
Ventral view of heads and teeth



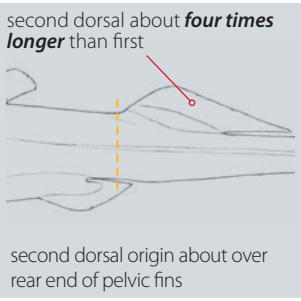
Isistius brasiliensis Cookiecutter shark

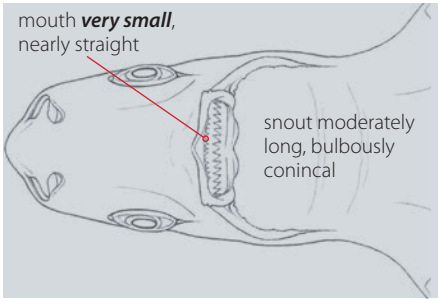


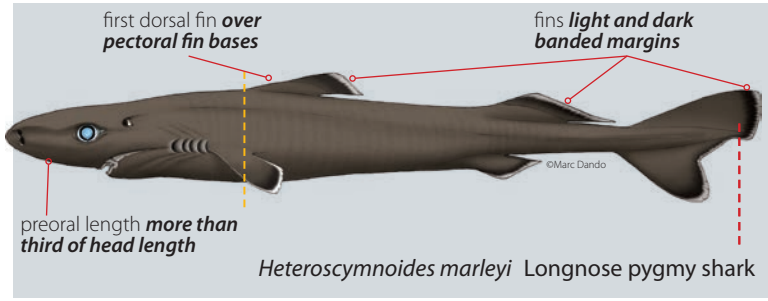




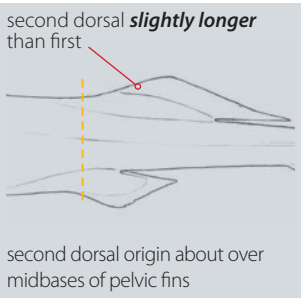
Euprotomicrus bispinatus Pygmy shark

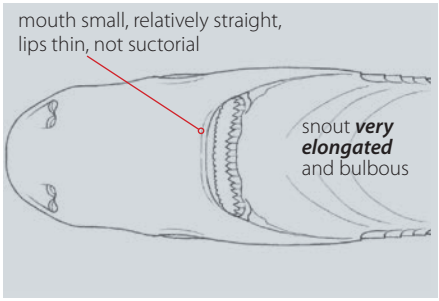


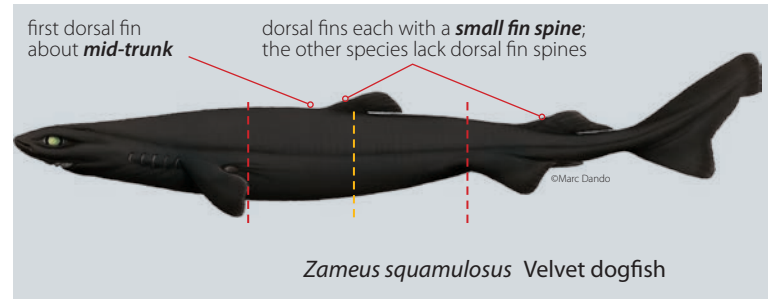




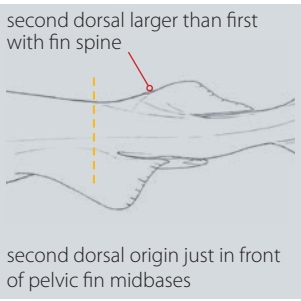
Heteroscymnoides marleyi Longnose pygmy shark

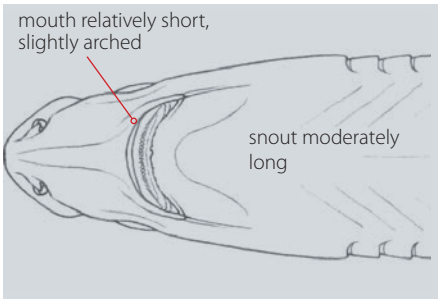






Zameus squamulosus Velvet dogfish

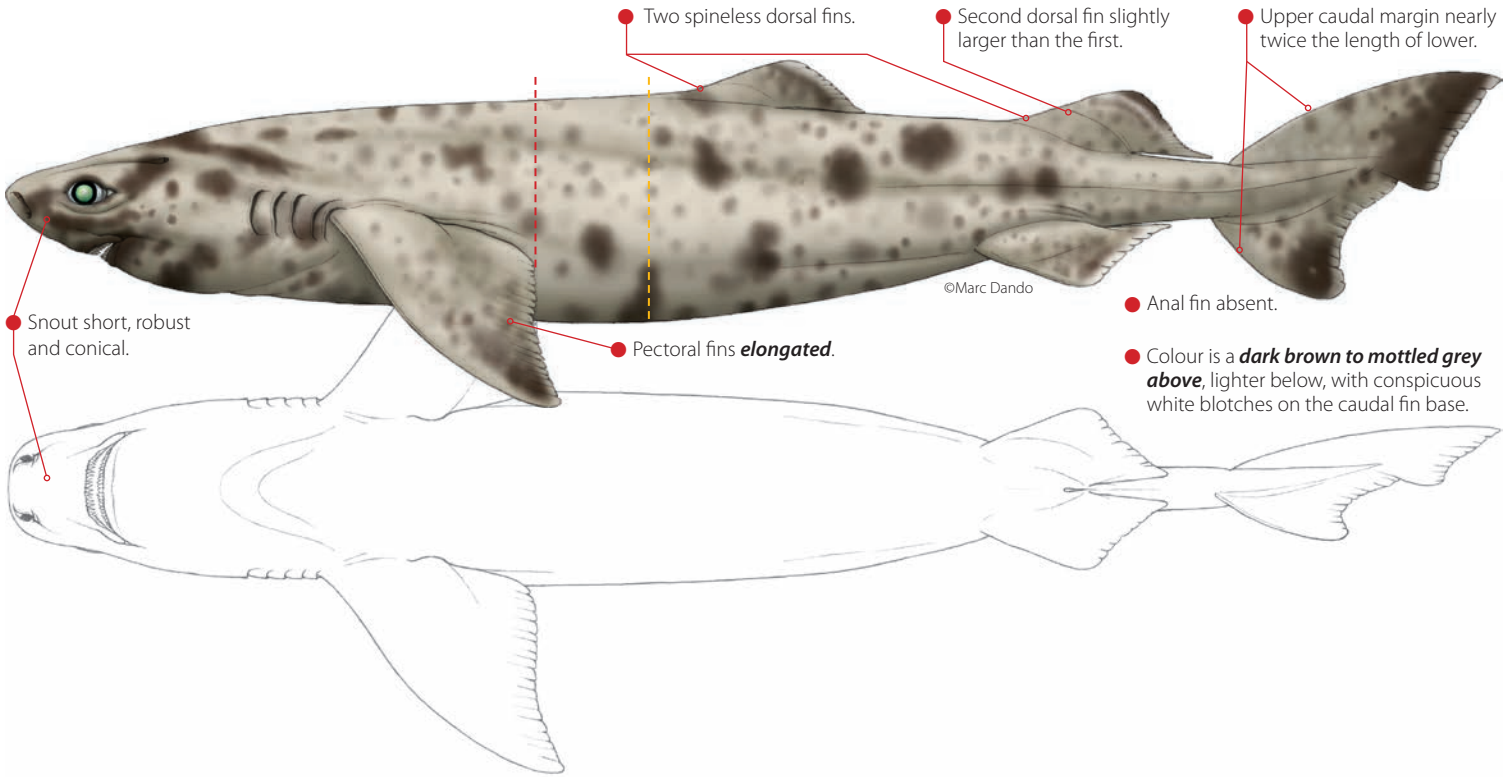




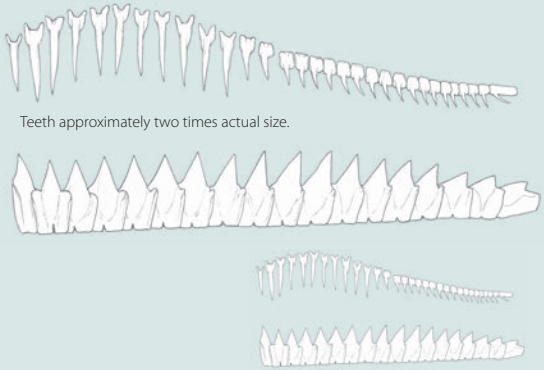
Scymnodalatias albicauda
Taniuchi & Garrick, 1986

Whitefin dogfish
Squale grogneur à queue blanche

DD LL



Dentition



Teeth approximately two times actual size.

Teeth approximately actual size.

Upper teeth small, narrow with acutely erect cusps; lowers large blade-like smooth-edged, imbricate lower teeth with high, erect cusps.

Tooth counts: upper jaw 57–62, lower jaw 35.

Description

Short, broadly rounded snout, eyes horizontally elongated, and a long broadly arched mouth. Pectoral fins elongated. Second dorsal slightly larger than the first. Caudal fin asymmetrical, with upper caudal margin nearly twice the length of the lower caudal margin.

© David A. Ebert

Colour

Dark brown or mottled greyish above, lighter brownish grey below, fins with whitish grey margins, conspicuous white blotches on caudal fin base and web except for dark terminal lobe.

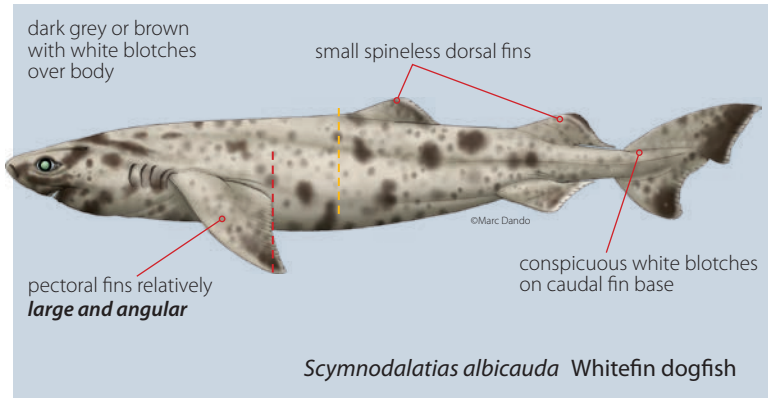
Size

Males mature: unknown.
Females mature: 74–110cm.
Maximum size: 110cm.
Birth size: about 20cm.

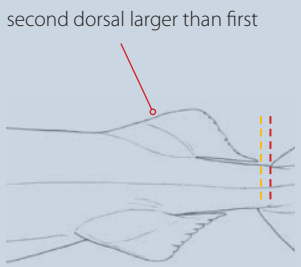
SIMILAR SPECIES

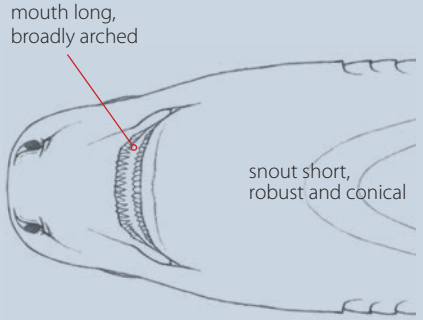
A moderate-sized dogfish; pectoral fins are very elongated, no dorsal fin spines, first dorsal fin about mid-body, second dorsal fin slightly larger than first; dark brown and white to greyish mottling or blotches over body and a dark terminal lobe on caudal fin.

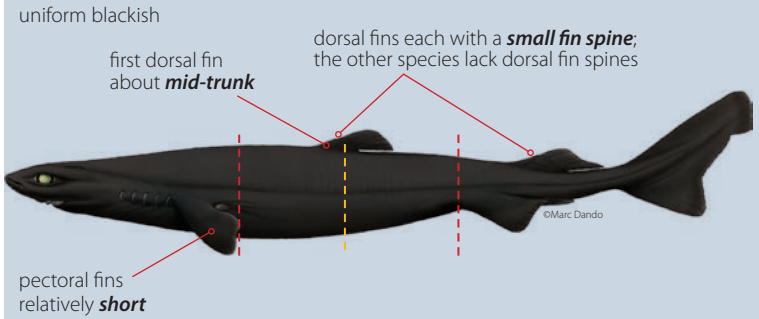
Colour, first dorsal fin position and first dorsal and caudal fins shape | **Second dorsal & anal fins** | **Ventral view of heads and teeth**



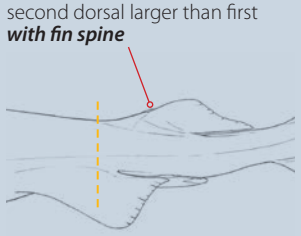
Scymnodalatias albicauda Whitefin dogfish

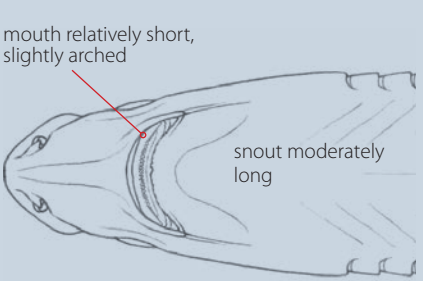


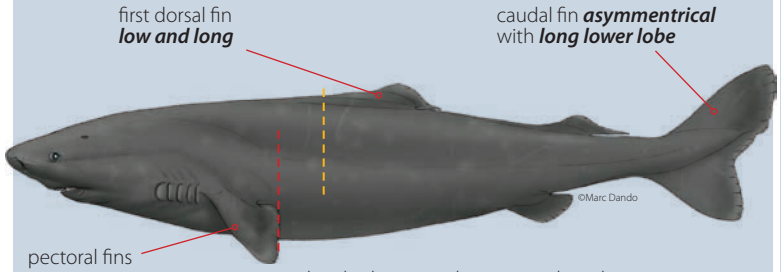




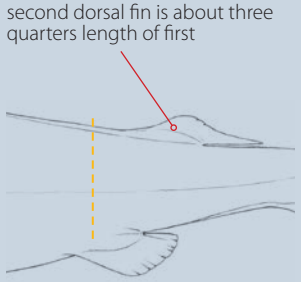
Zameus squamulosus Velvet dogfish

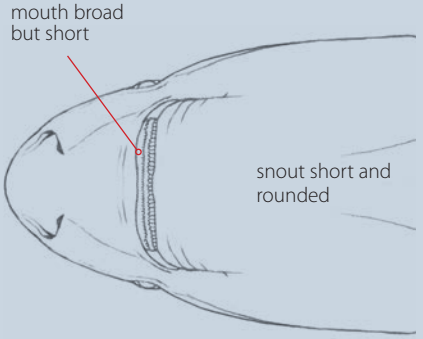






Somniosus antarcticus Southern sleeper shark

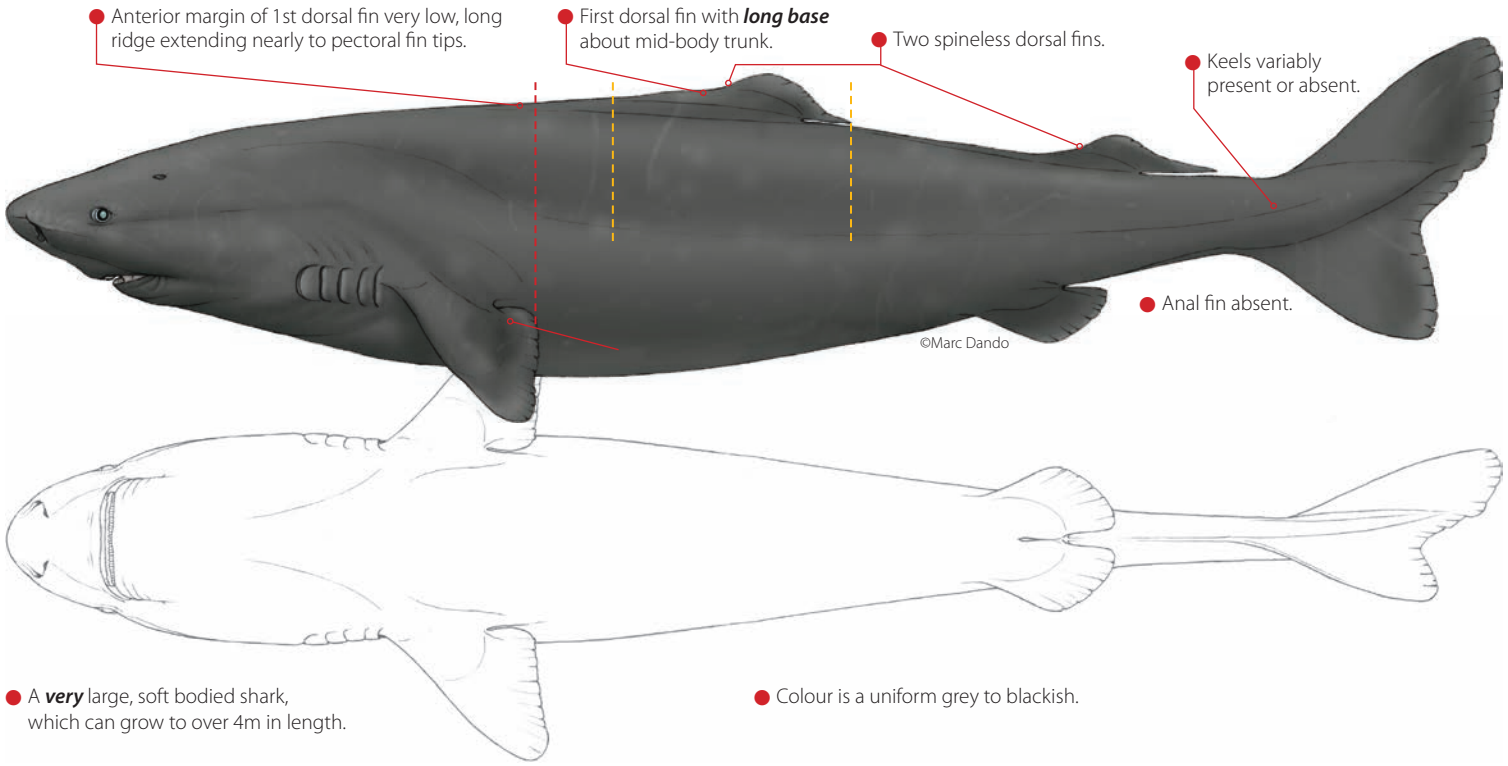




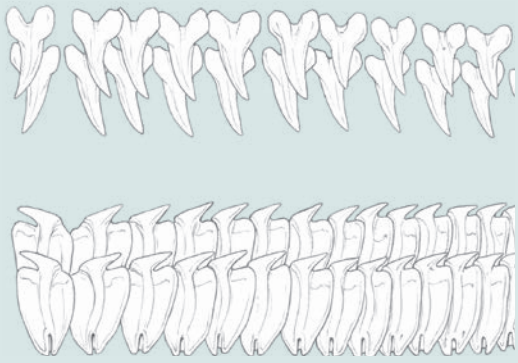
Somniosus antarcticus
Whitley, 1939

Southern sleeper shark
Laimargue de l'Antarctique

DD LL



Dentition



Teeth approximately actual size.

Upper teeth lanceolate, lower teeth with short, low, strongly oblique cusps and high, narrow roots.

Tooth counts: upper jaw 37–48, lower jaw 49–59.

Description

A large heavy, cylindrical bodied shark, with a short, rounded snout, two spineless, equal-sized dorsal fins, no anal fin, relatively small dorsal, pectoral, and pelvic fins, and a large asymmetrical tail fin with a long ventral caudal lobe.

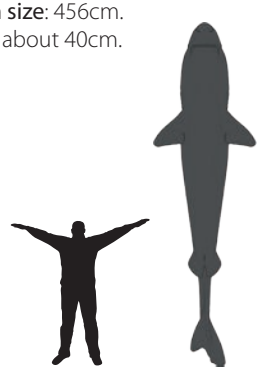
© Malcolm Francis (NIWA, New Zealand)

Colour

Uniformly grey to blackish, without conspicuous light or dark fin edges.

Size

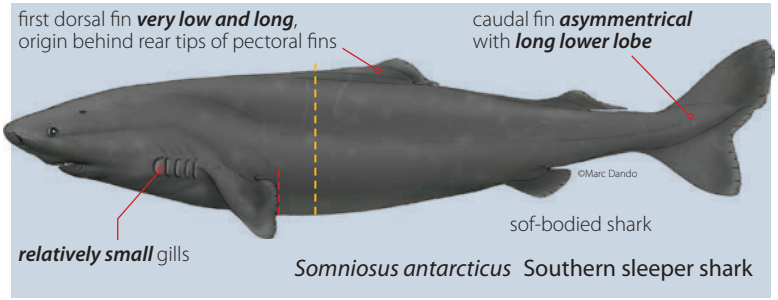
Males mature: about 400cm.
Females mature: about 435cm.
Maximum size: 456cm.
Birth size: about 40cm.

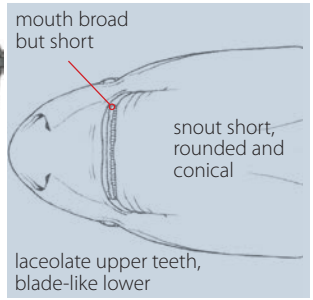


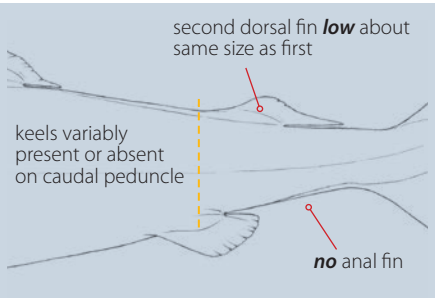
SIMILAR SPECIES

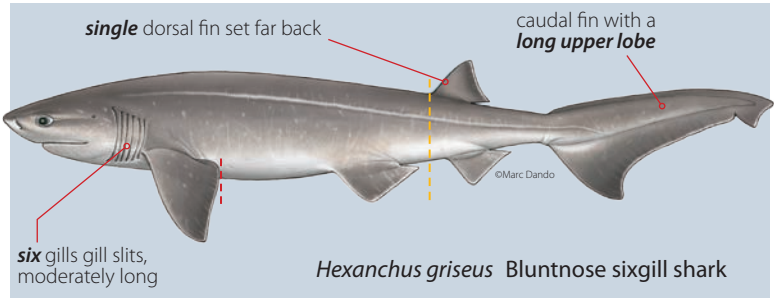
A very large, up to 5m total length, heavy-bodied dogfish; moderately long, rounded snout; dorsal fins spineless, relatively small, first dorsal fin very low and long, lower lobe of caudal fin long; medium grey to brown or blackish.

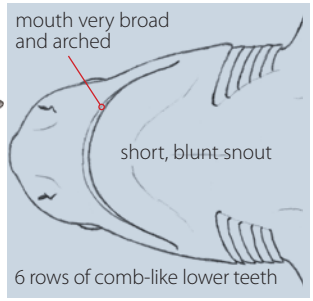
Gill slits, snout coloration, first dorsal and caudal fins | **Ventral view of head** | **Second dorsal and anal fins**

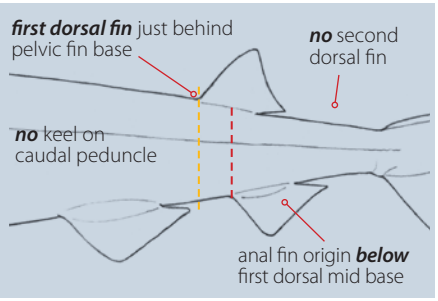


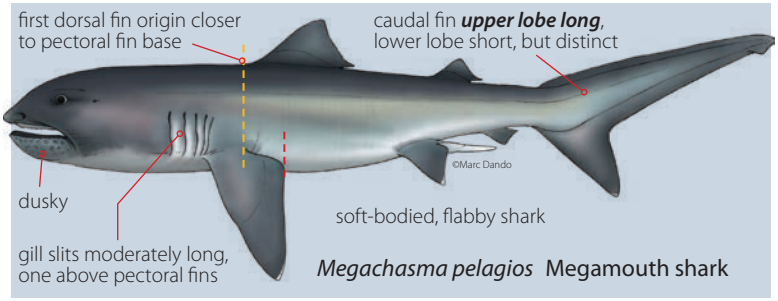


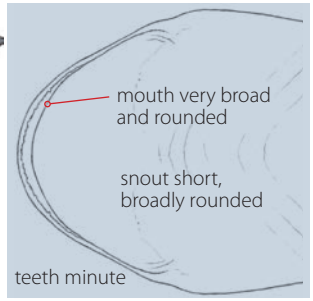


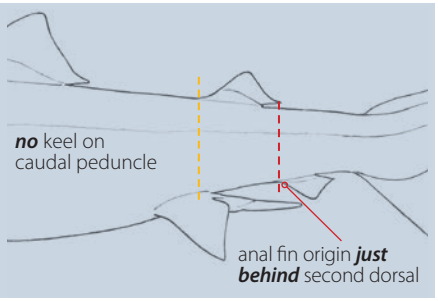


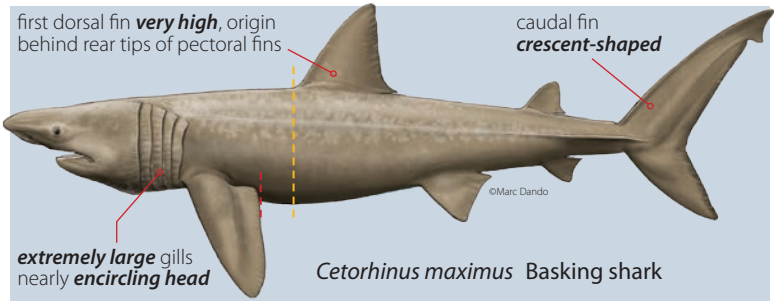


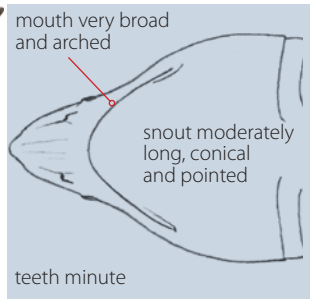


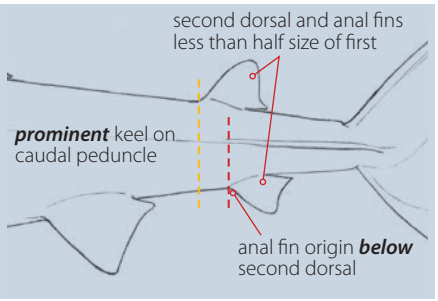








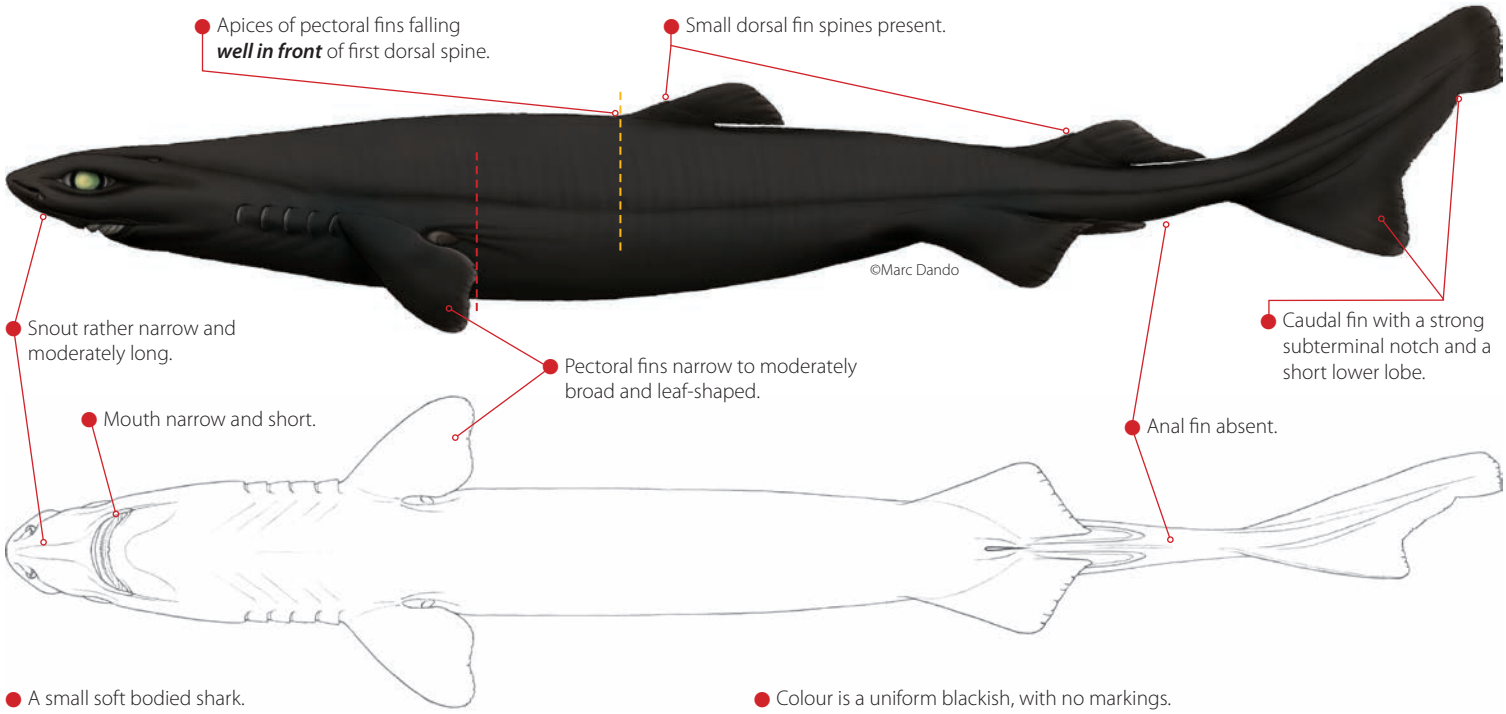




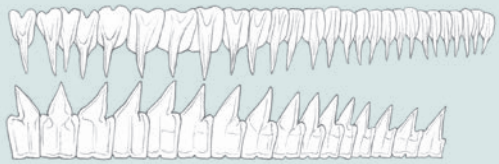
Zameus squamulosus
(Günther, 1877)

Velvet dogfish
Squale-grogneur velouté

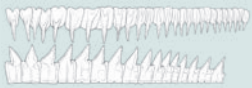
DD LL



Dentition



Teeth approximately two times actual size.



Teeth approximately actual size.

Teeth of upper jaw small, spear-like, lower jaw high-cusped, knife-like.

Tooth counts: upper jaw 47–60, lower jaw 32–38.

Description

A small slender bodied shark, with a low flat head, fairly long snout, short narrow mouth, post oral grooves much longer than the short upper labial furrows. A small fin spine preceding each dorsal fin, no anal fin, small lanceolate teeth without cusplets in upper jaw and large high, knife-cusped cutting teeth in lower jaw, mouth moderately wide and nearly transverse, caudal fin with strong subterminal notch and short lower lobe.

© David A. Ebert

Colour

Uniformly black to dark brownish with no conspicuous markings.

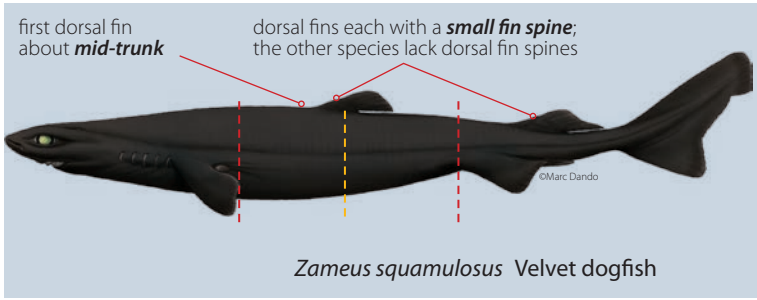
Size

Males mature: about 47–51cm.
Females mature: about 59–69cm.
Maximum size: 84cm.
Birth size: about 20cm.

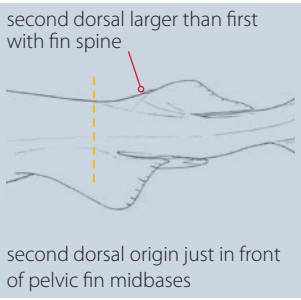
SIMILAR SPECIES

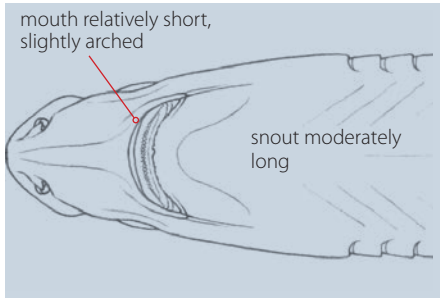
A small, slender dogfish with a moderately long snout, narrow mouth, and a small spine in front of each dorsal fin; second dorsal fin slightly larger than first; upper lobe of caudal fin longer than lower; uniformly black to blackish-brown.

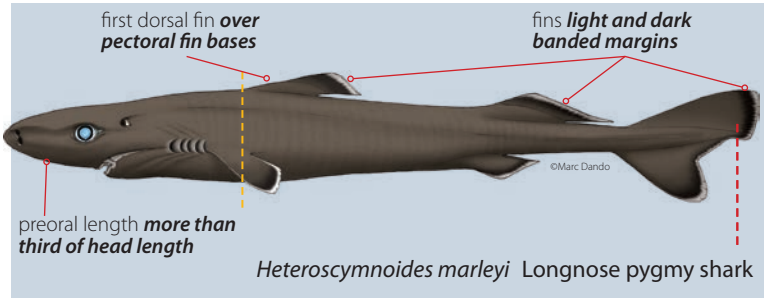
Colour, first dorsal fin position and first dorsal and caudal fins shape | **Second dorsal & anal fins** | **Ventral view of heads and teeth**



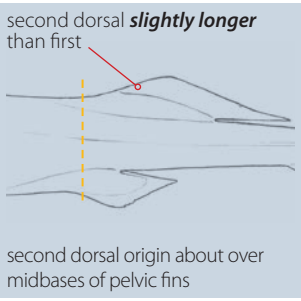
Zameus squamulosus Velvet dogfish

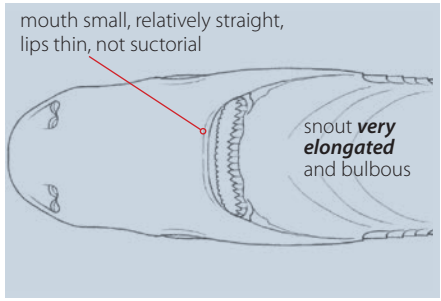


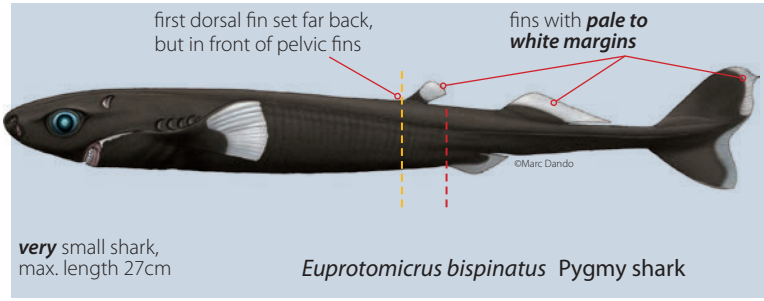




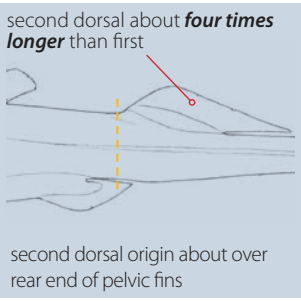
Heteroscymnoides marleyi Longnose pygmy shark

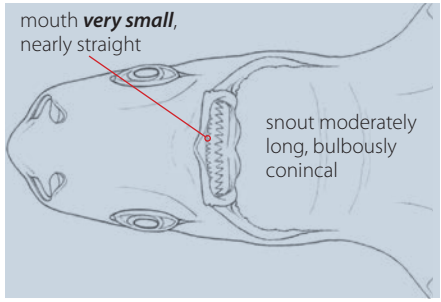


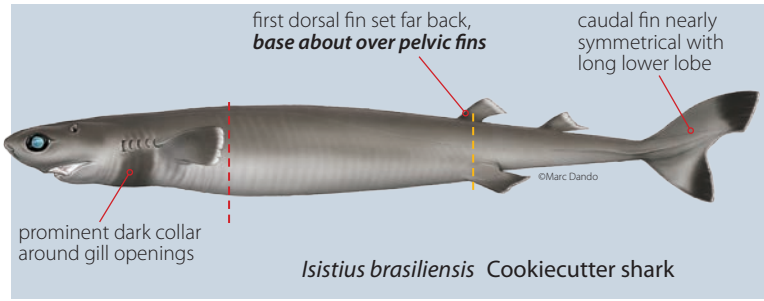




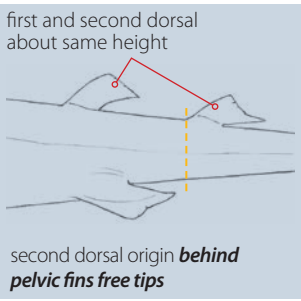
Euprotomicrus bispinatus Pygmy shark

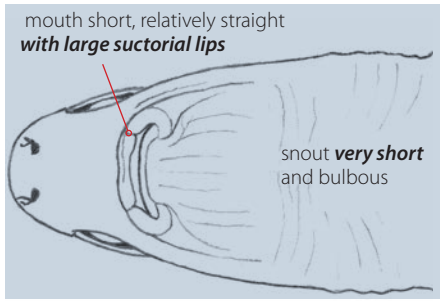






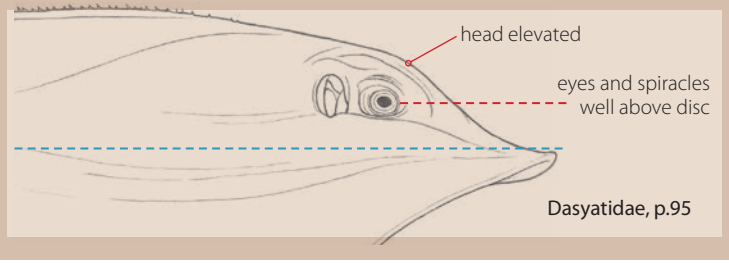
Isistius brasiliensis Cookiecutter shark

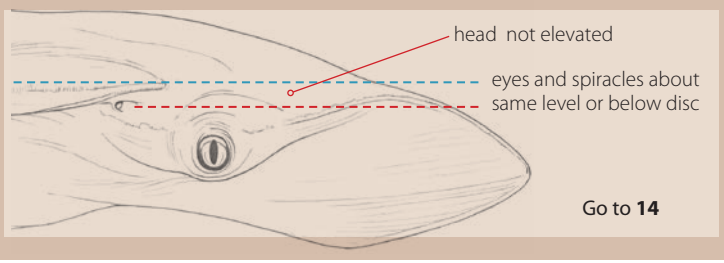




13 a Head elevated above disc; eyes and spiracles well above level of pectoral fins (disc) ➜ ■ **Dasyatidae,** p.95

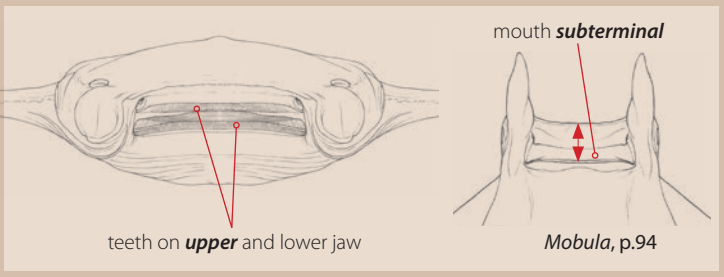
13 b Head not elevated above disc; eyes and spiracles about same level or below level of pectoral fins (disc) ➜ ■ **Mobulidae 14)**





14 a Mouth terminal, teeth only on lower jaw ➜ *Manta*

14b Mouth subterminal, teeth on upper and lower jaw ➜ *Mobula* p.94



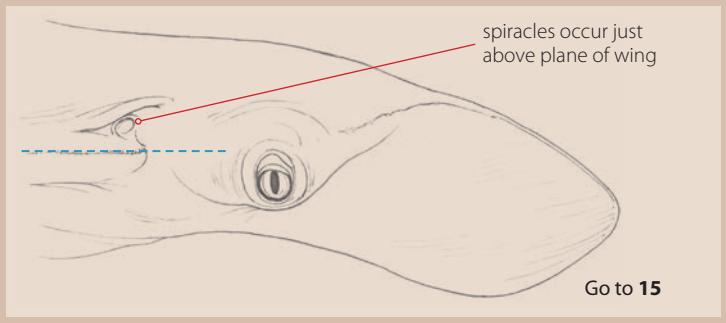
Manta

a) **Shoulder patches** originate posterior from spiracle, with blurred posterior edges, not obviously triangular in shape;
distinct dark spots on ventral surface of disc may be present across posterior half of body and medially between gill slits;
mouth white to light grey in colour;
caudal spine absent, calcified mass absent tail base
➜ *M. alfredi* p.97

b) **Shoulder patches** very distinct and triangular in shape, anterior edge of shoulder patches extends medially from spiracle in about a straight line parallel to upper jaw;
distinct dark spots on ventral surface of disc over abdominal region, no spots between gill slits;
mouth black to charcoal grey in colour;
caudal spine present, but mostly encased in calcified mass spine serrated ➜ *M. birostris* p.99

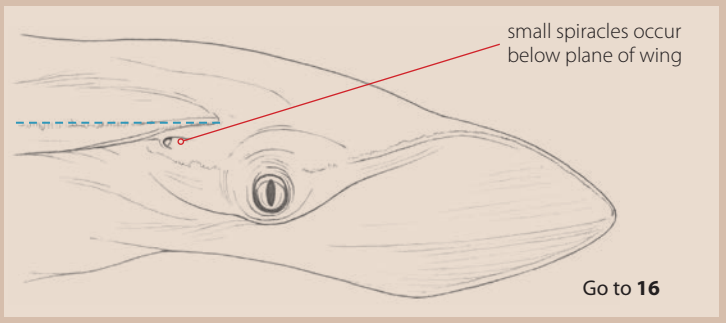
Mobula

a) Spiracles slit-like (or elliptical), occur dorsal to plane of disc wings
Disc width maximum reaching 3.1 m or more ➜15)



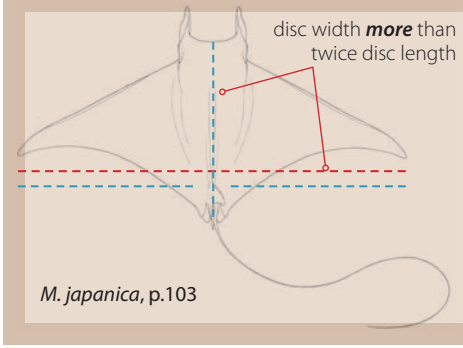
Go to **15**

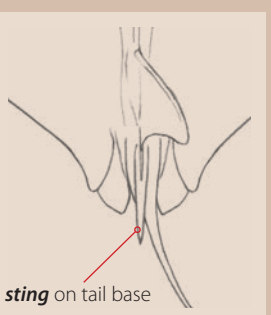
b) Spiracles small, subcircular, occur slightly below plane of disc wings
Disc width maximum 1.8 m or less ➜16)



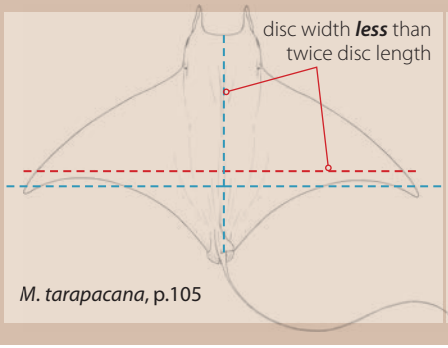
Go to **16**

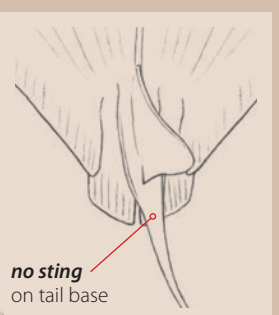
15a A sting on tail base, disc width 2x's or more than length, maximum disc width 3.1 m ➜ ***M. japanica*** p.103



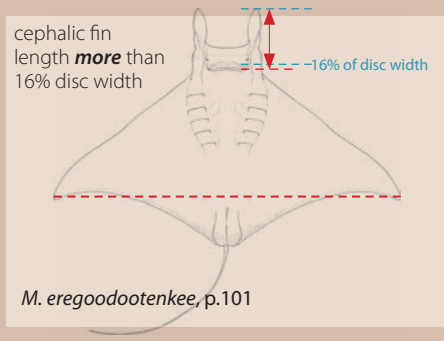


15b No sting on tail base, disc width less than 2x's length, maximum disc width 3.7 m ➜ ***M. tarapacana*** p.105

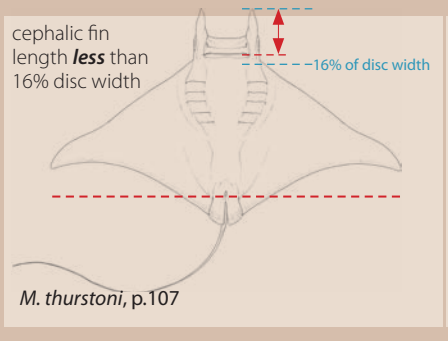


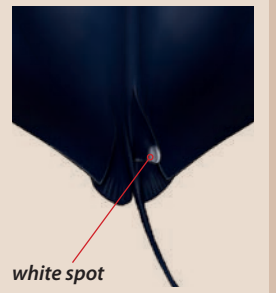


16a Head relatively long, cephalic fin length >16% disc width, dorsal fin black, no white spot ➜ ***M. eregoodootenkee*** p.101



16b Head relatively short, cephalic fin length < 16% disc width, dorsal fin with white spot at tip ➜ ***M. thurstoni*** p.107

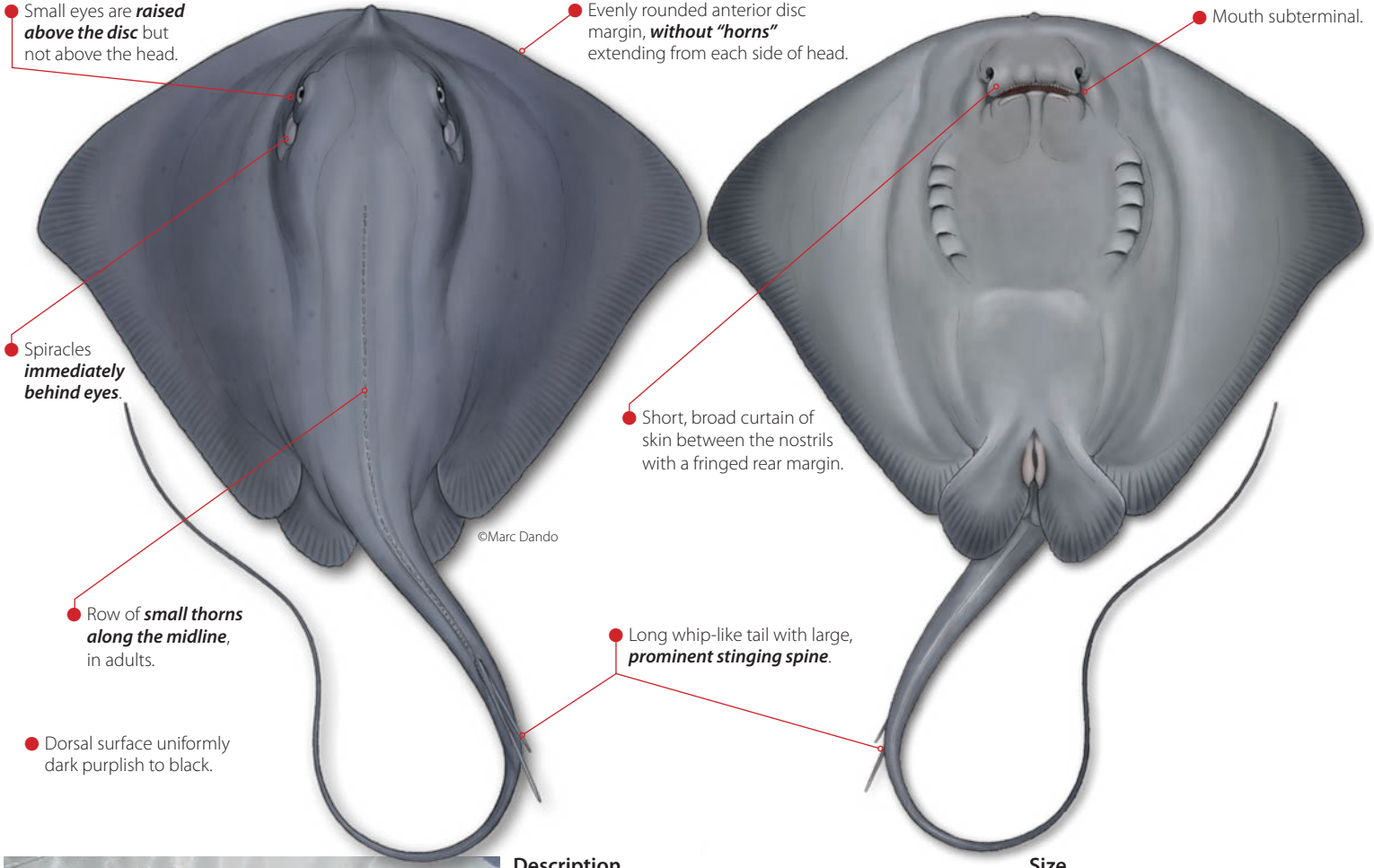




Pteroplatytrygon violacea (Bonaparte, 1832)

Pelagic stingray
Pastenague violette

LC LL



Ventral view. © NOAA Fisheries

Description
A medium-sized stingray with a evenly rounded anterior disc margin, a broad snout, angular pectoral fin "wing-tips" and a long whip-like tail with a very long, prominent stinging spine.

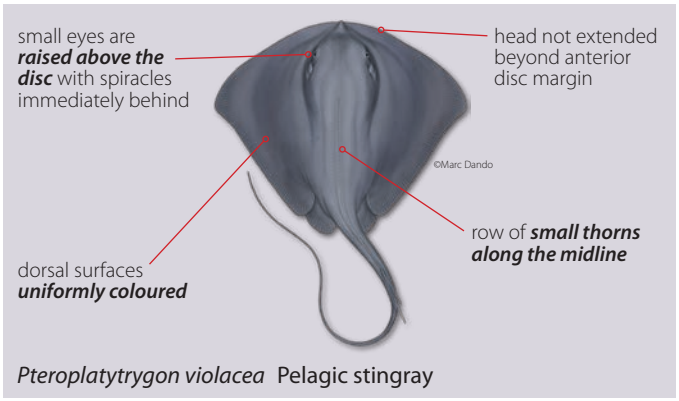
Colour
Dorsal surface a uniform dark purple to black without any patterns of blotches or spots; ventral surface also uniformly coloured, but usually slightly lighter than dorsal surface.

Size
Males mature: 35–40cm DW.
Females mature: 45–50cm DW.
Maximum size: 80cm DW.
Birth size: about 15–20cm DW.

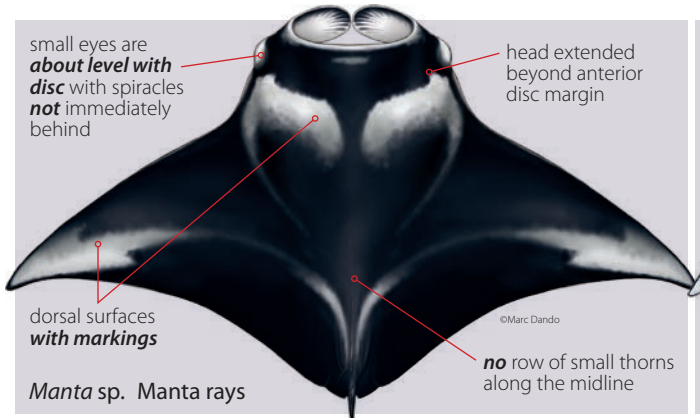
SIMILAR SPECIES

A stingray with a broadly rounded anterior disc margin, no 'horns', a ventral mouth and an angular disc with a tail nearly twice the length of the disc length; a long, prominent stinging spine. Dark uniformly coloured purplish to blackish with no distinctive patterns; ventral surface also uniformly coloured, but lighter than dorsal surface.

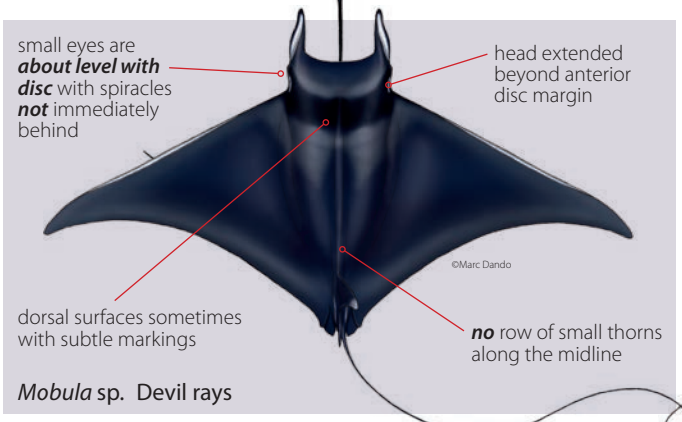
Dorsal colour, eye and spiracle positions, head and wing shape



Pteroplatytrygon violacea Pelagic stingray

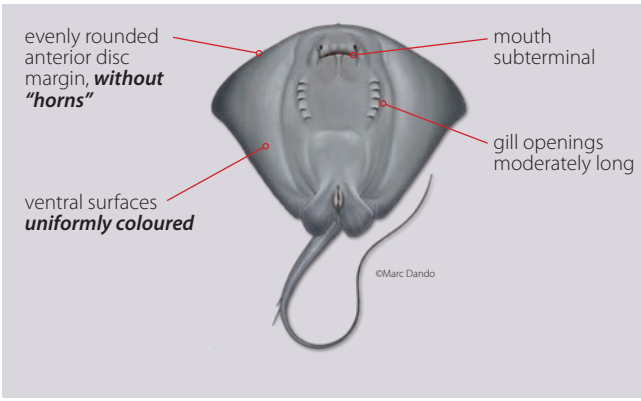


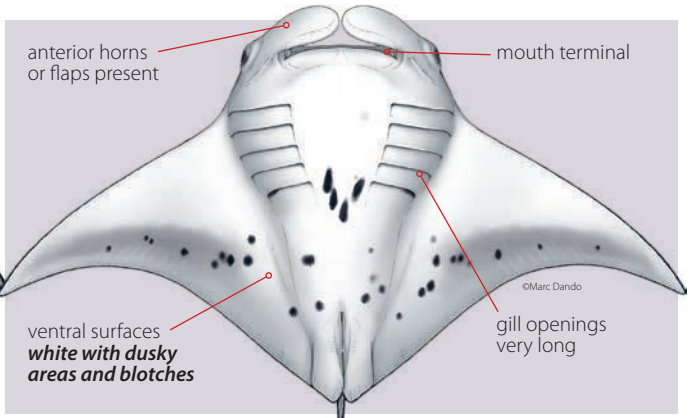
Manta sp. Manta rays

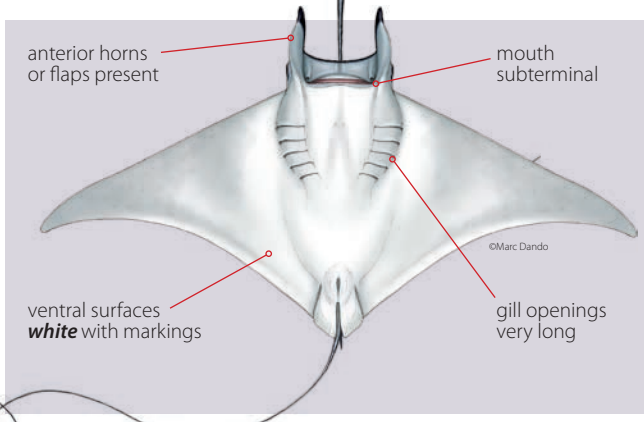


Mobula sp. Devil rays

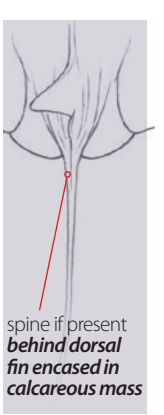
Ventral colour and mouth

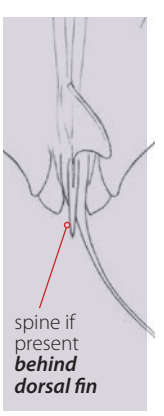






Tail

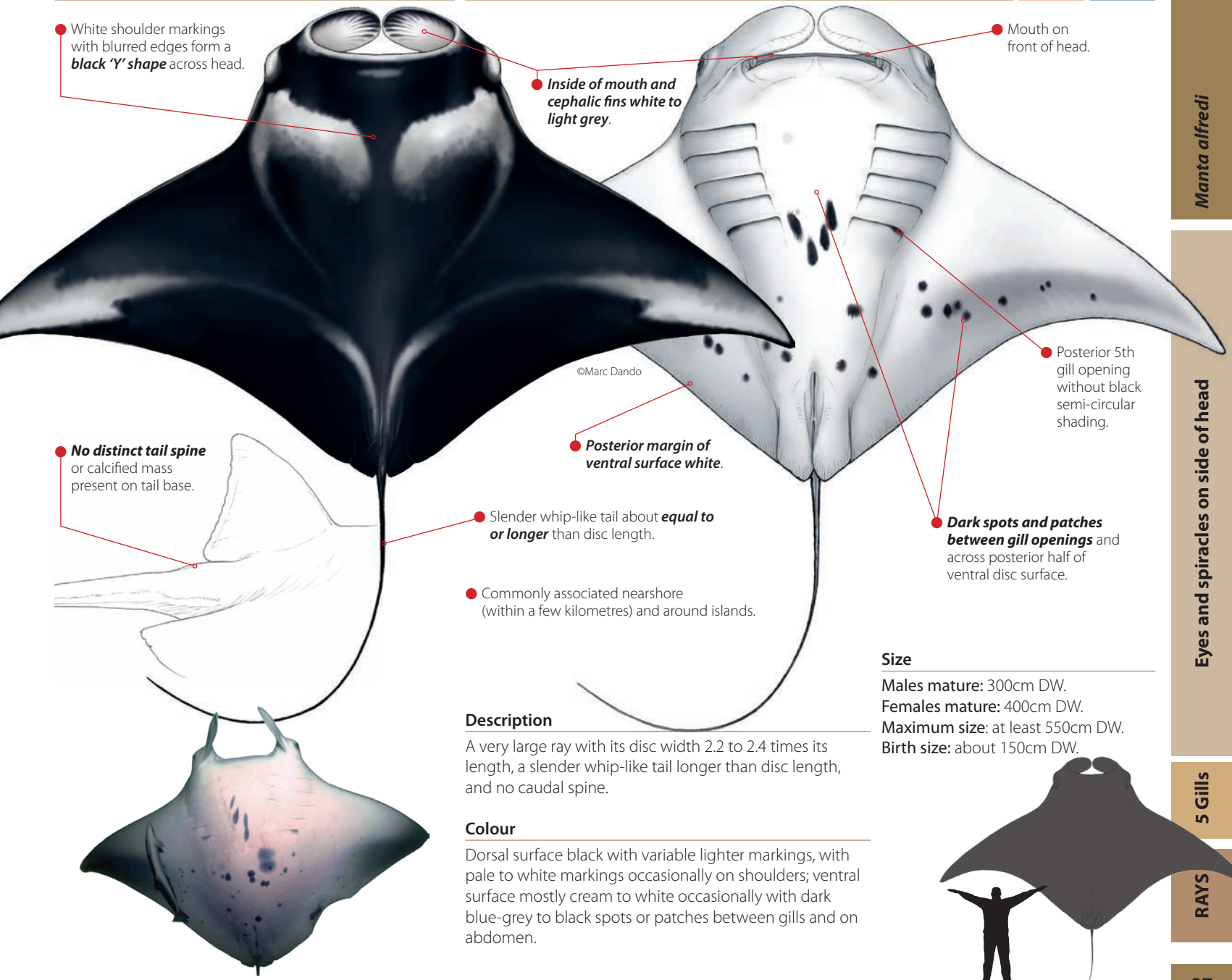




Manta alfredi
(Anonymous [Krefft], 1868)

Reef manta ray
Raie mante des récifs

V LL



Description

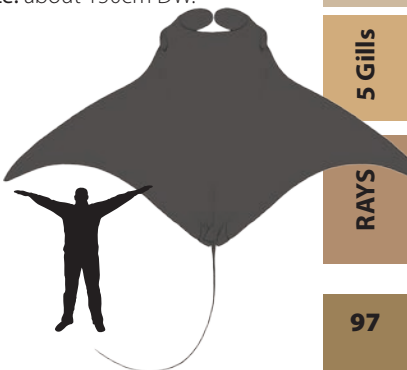
A very large ray with its disc width 2.2 to 2.4 times its length, a slender whip-like tail longer than disc length, and no caudal spine.

Colour

Dorsal surface black with variable lighter markings, with pale to white markings occasionally on shoulders; ventral surface mostly cream to white occasionally with dark blue-grey to black spots or patches between gills and on abdomen.

Size

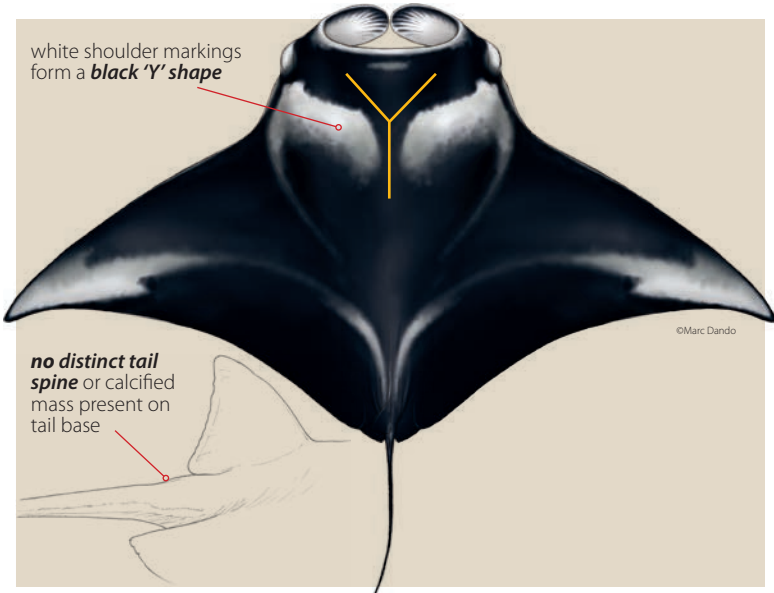
Males mature: 300cm DW.
Females mature: 400cm DW.
Maximum size: at least 550cm DW.
Birth size: about 150cm DW.

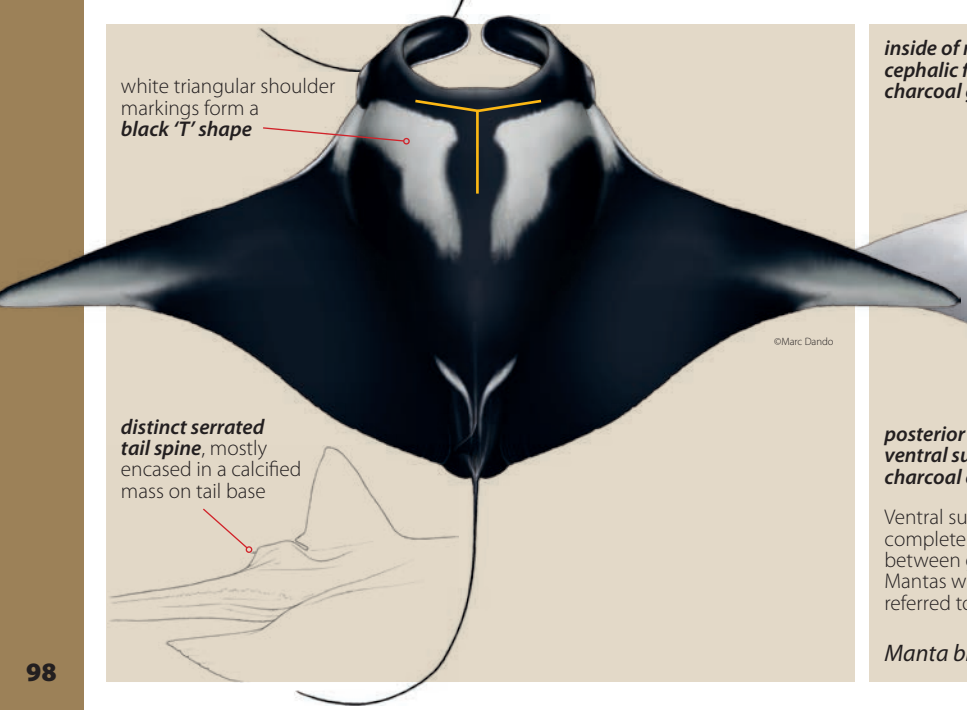


SIMILAR SPECIES

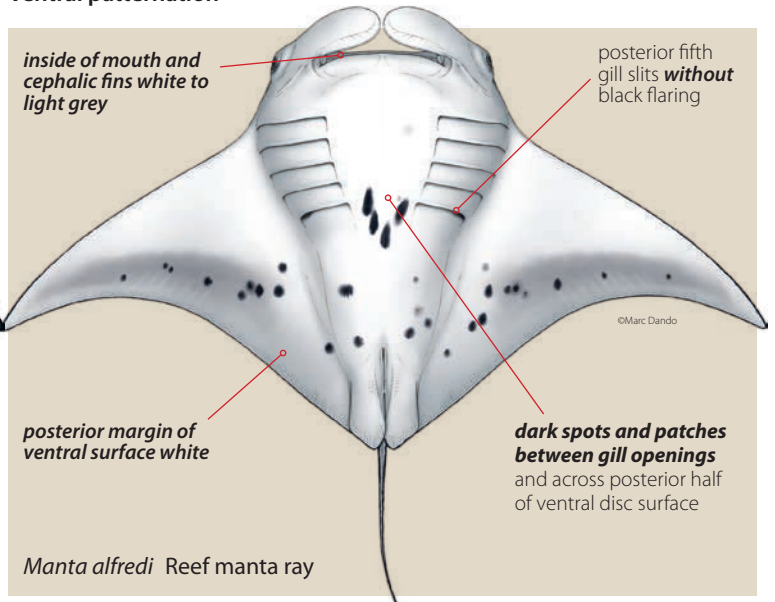
Shoulder patches less distinct, more variable, some with white nearly across dorsal surface while others are completely black; shoulder patch may fade posteriorly forming a "Y" shaped pattern on head and down midback; no dorsal fin spine or calcified mass at tail base. Ventral surface with spots between gills and across trailing edge of disc; fifth gill opening without darker posterior edge.

Dorsal patternation, tail spine and tail length

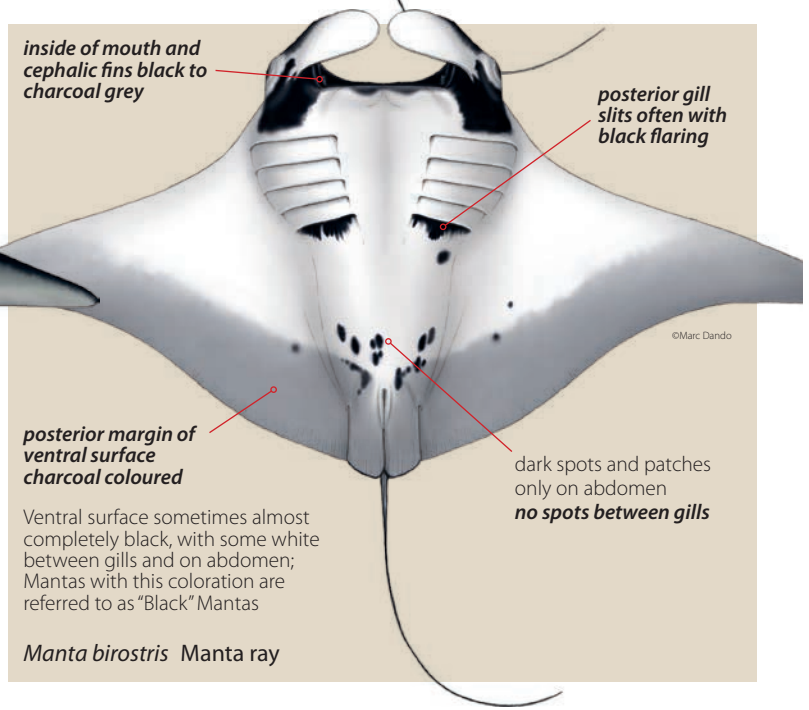




Ventral patternation



Manta alfredi Reef manta ray



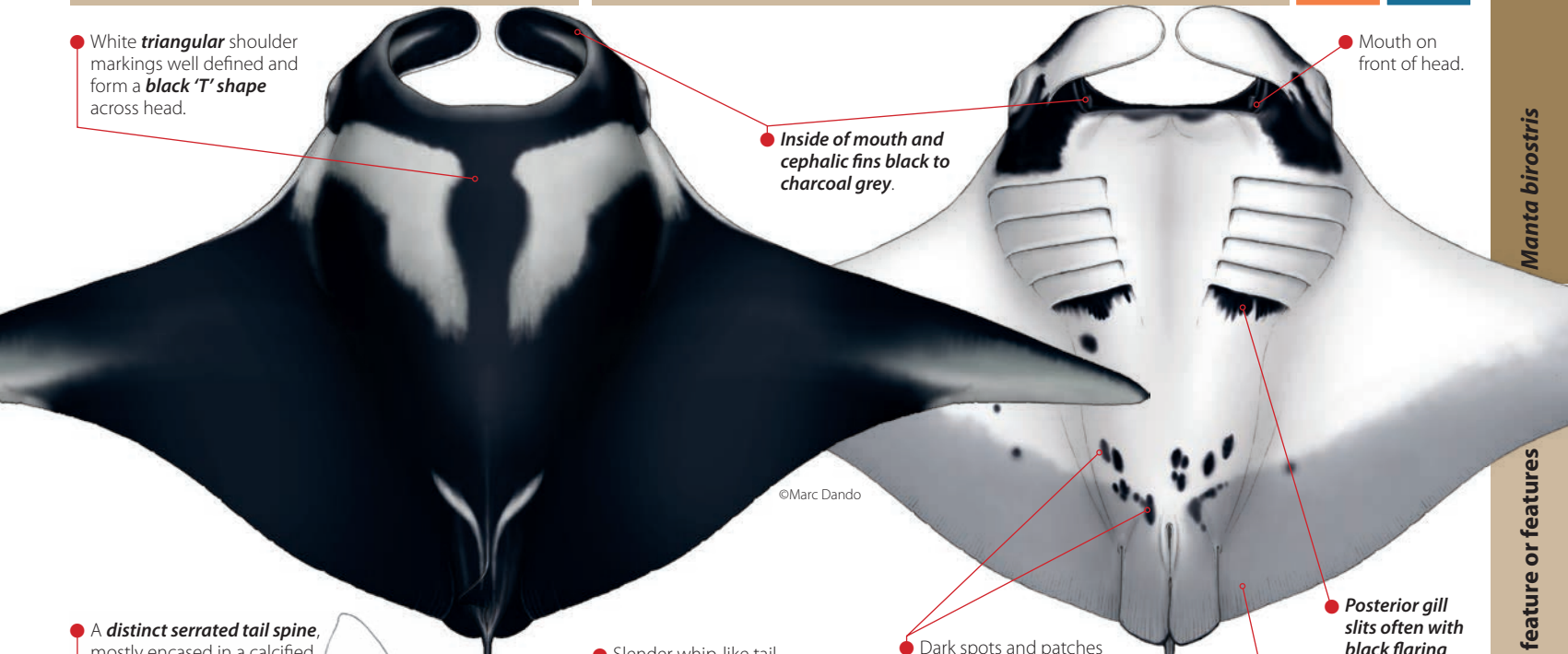
Ventral surface sometimes almost completely black, with some white between gills and on abdomen; Mantas with this coloration are referred to as "Black" Mantas

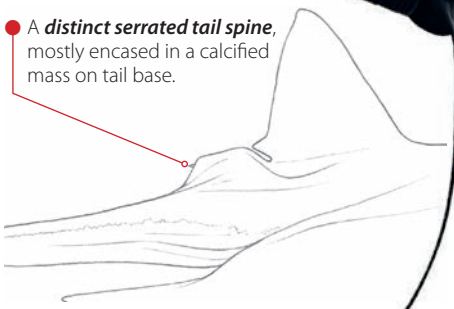
Manta birostris Manta ray

Manta birostris
(Walbaum 1792)

Manta ray
Mante géante

V LL





Slender whip-like tail ***less than*** disc length.

Dark spots and patches only on abdomen, ***no spots between gills***.

Posterior gill slits often with black flaring.

Posterior margin of ventral surface charcoal coloured.

- Ventral surface sometimes almost completely black, with some white between gills and on abdomen; Mantas with this coloration are referred to as "Black" Mantas.
- Commonly associated offshore, around islands and seamounts.

© Daniel Fernando, Manta Trust

Description

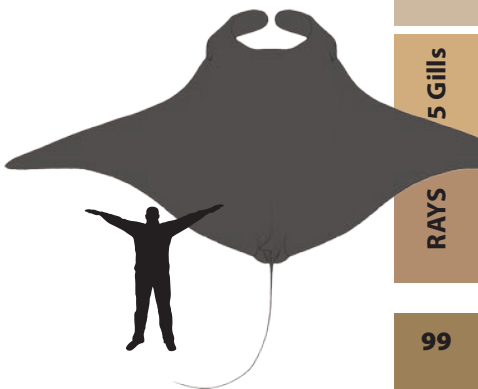
A very large ray, to over 700cm disc width, disc width more than 2.2 times length, a short whip-like tail less than disc length, a reduced caudal spine.

Colour

Dorsal surface black to dark brown, with variable light and dark markings, conspicuous white shoulder patches on gill region; shoulder patches are roughly triangular in shape; ventral surface mostly creamy to white with dark grey to black spots and patches mostly on the abdomen region, but not between the gills; charcoal grey coloured V-shaped margins occur along the posterior edges of disc.

Size

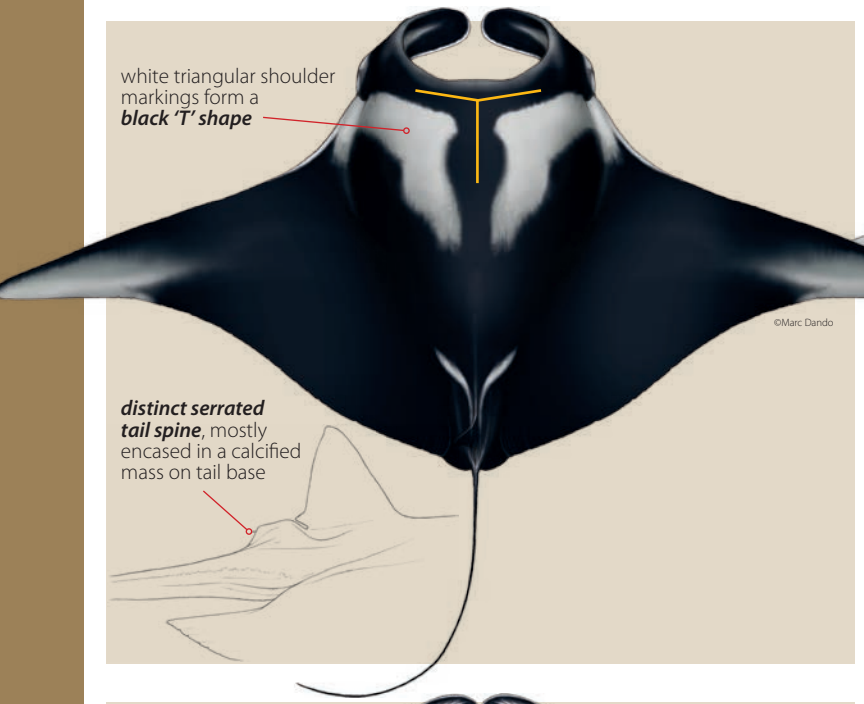
Males mature: 375cm DW.
Females mature: 380–410cm DW.
Maximum size: at least 700cm DW.
Birth size: . about 120–150cm DW.



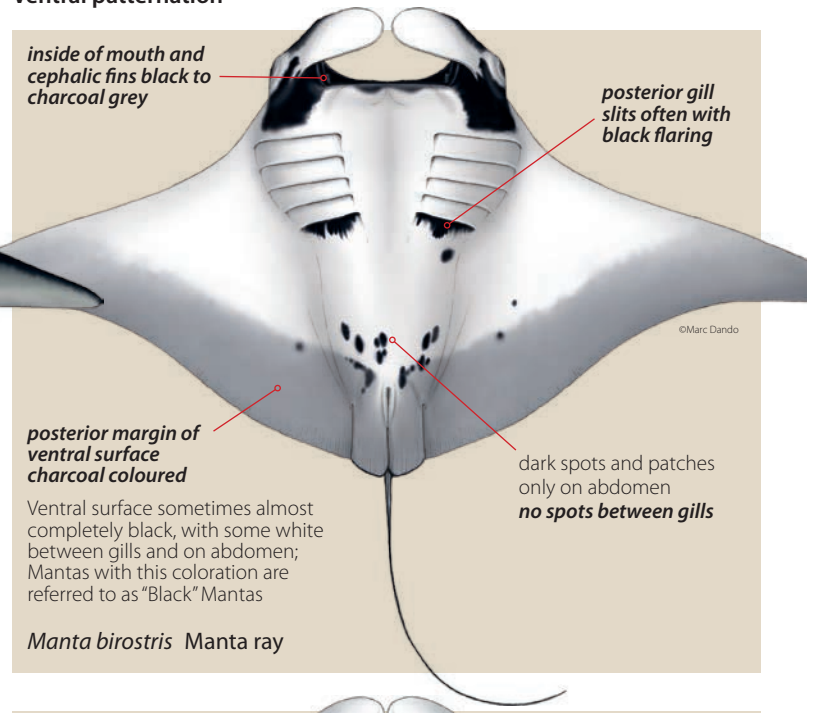
SIMILAR SPECIES

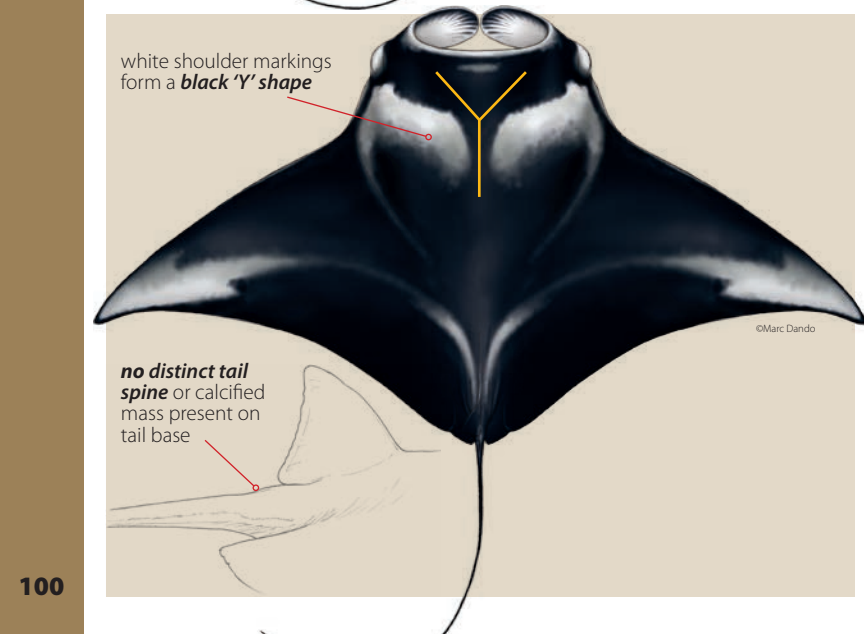
Shoulder patches very distinct "T" shaped with inner anterior margin hooking posteriorly; a small, but distinct serrated tail spine mostly encased in knob-like calcified mass on tail base. Ventral surface with posterior edge of disc shaded charcoal colour, posterior edge of 5th gill opening with black shading, and ventral surface of lower abdomen clustered with spots; ventral surface of some individuals mostly black.

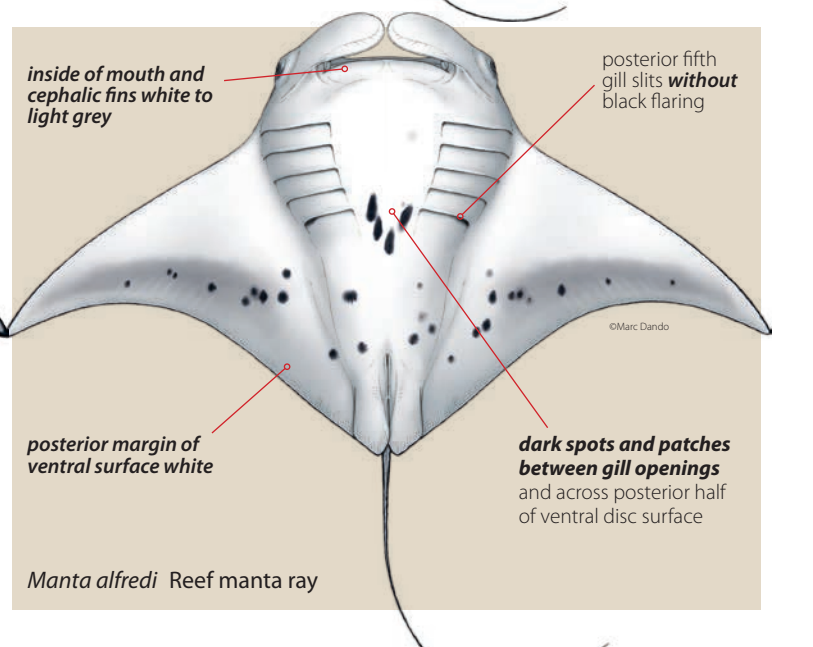
Dorsal patternation, tail spine and tail length



Ventral patternation



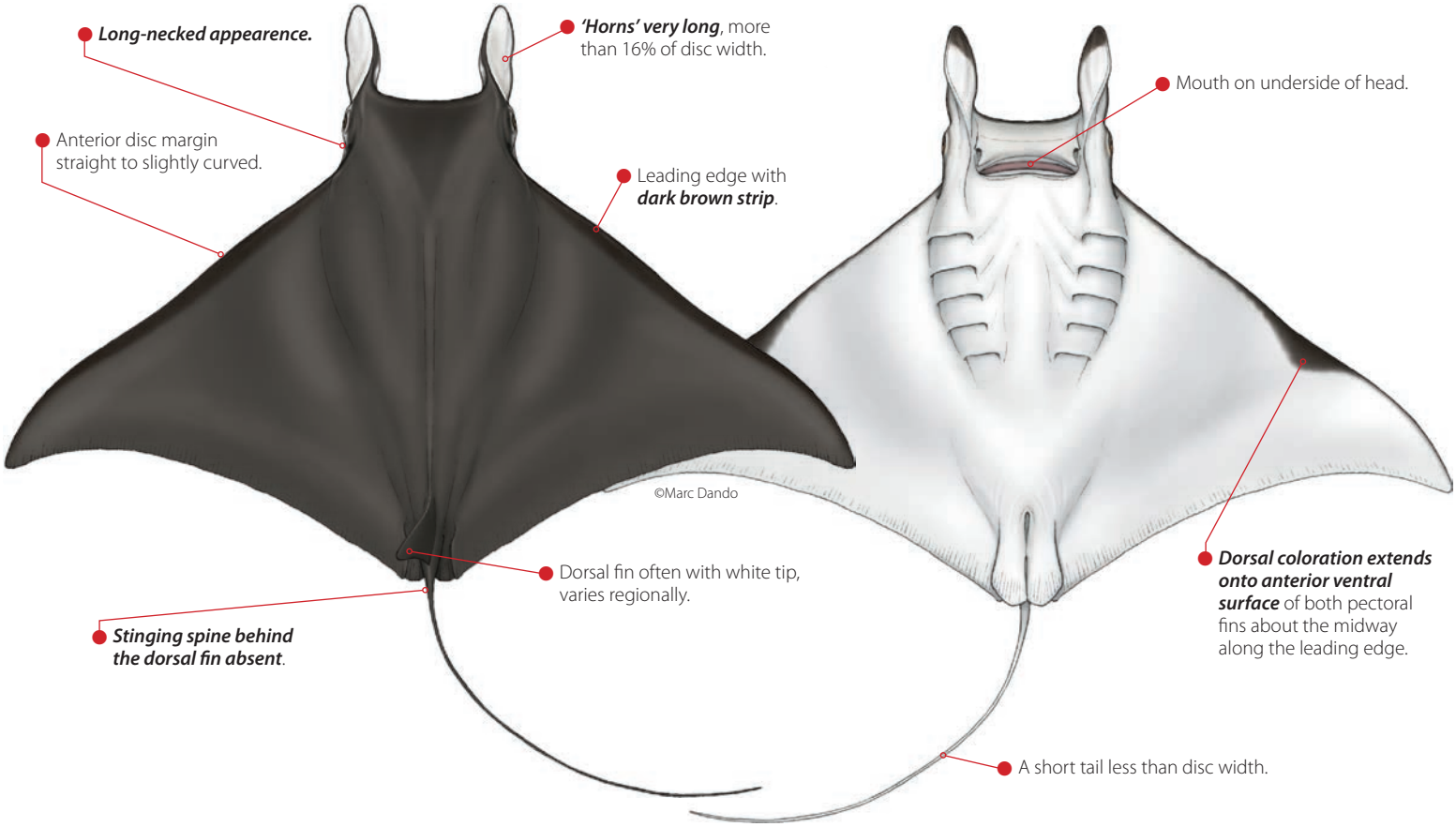




Mobula eregoodootenkee
(Bleeker, 1859)

Longhorned mobula (or Pygmy devilray)
Mobula à longues cornes

NT LL



© Theivasigamani Mohanraaj, Manta Trust

Description
A small devilray with a long head and long, prominent 'horns'; disc broad, but with short length; without a dorsal fin spine; dorsal fin tip may or may not be white; tail length less than disc width.

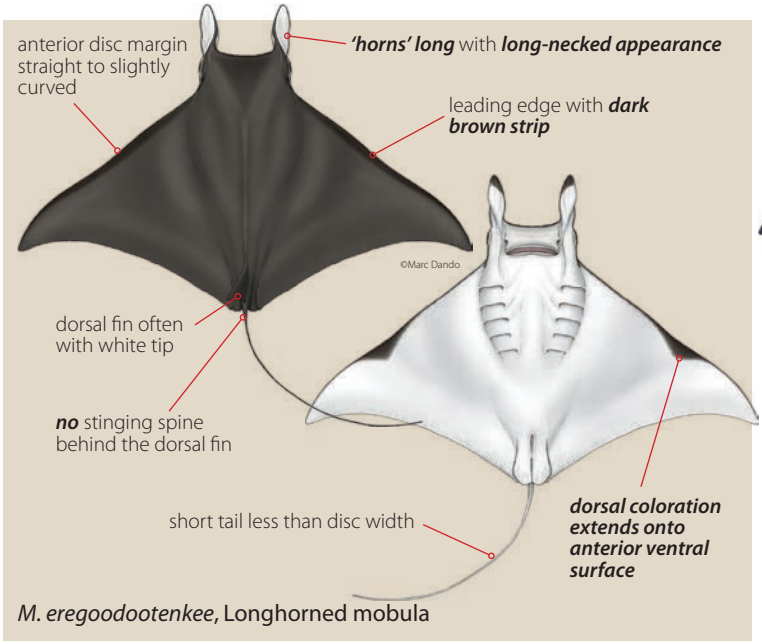
Colour
Dorsal surface uniformly greyish-brown, dorsal fin tip may or may not be white, varies regionally; ventral surface white with dark anterior pectoral fin margins.

Size
Males mature: less than 100cm DW.
Females mature: less than 100cm DW.
Maximum size: about 100 cm DW.
Birth size: uncertain.

SIMILAR SPECIES

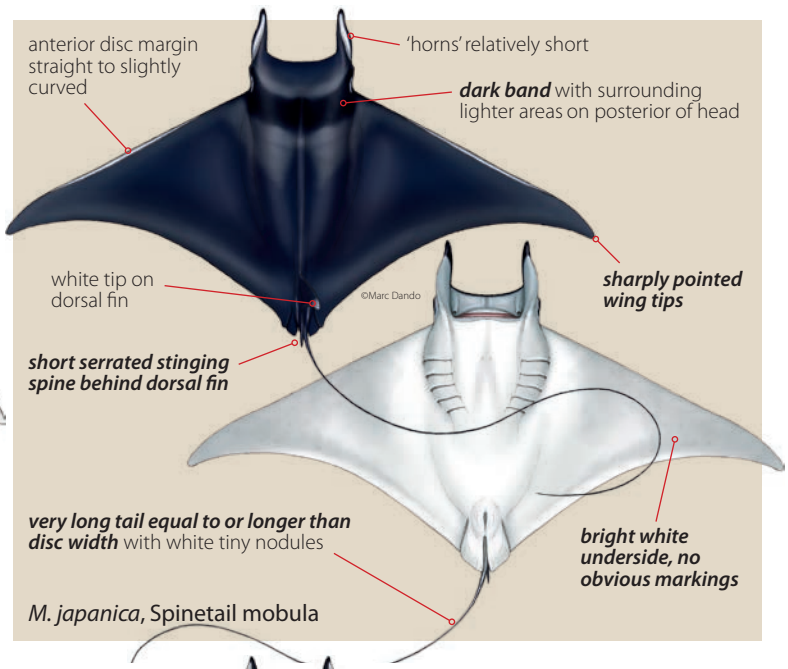
A small, long-necked mobulid with very long prominent 'horns' and no stinging spine. Dorsal surface colour is a uniform grey-brown, with dorsal fin tip with or without white tip. Ventral surface white except for dorsal coloration extending onto anterior edge of disc.

Dorsal and ventral patternation, tail spine and tail length

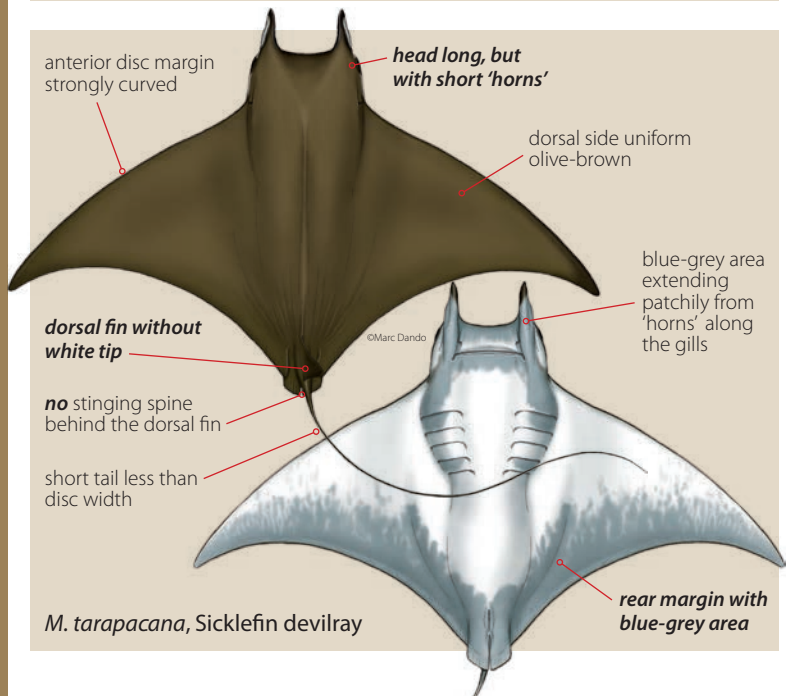


M. eregoodootenkee, Longhorned mobula

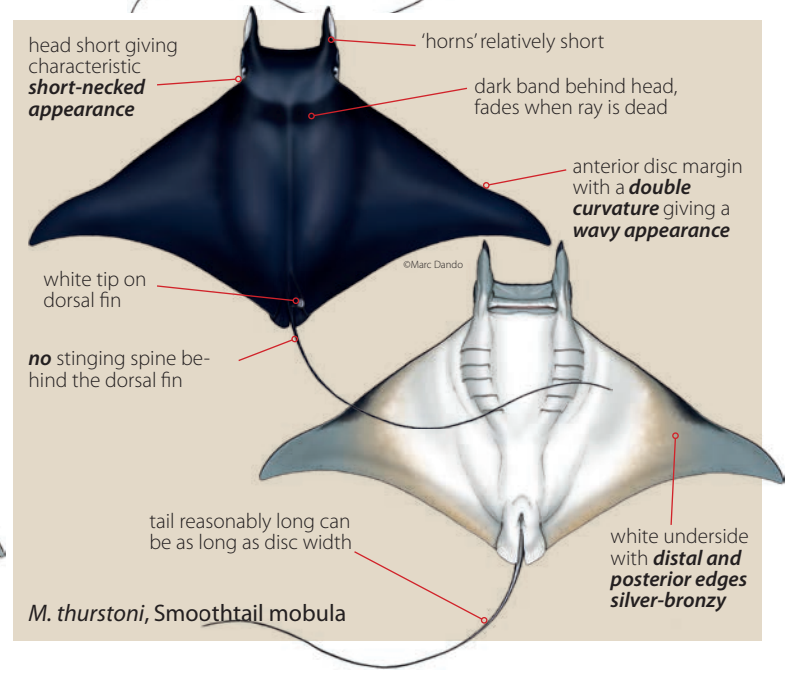
Dorsal and ventral patternation, tail spine and tail length



M. japanica, Spinetail mobula



M. tarapacana, Sicklefin devilray

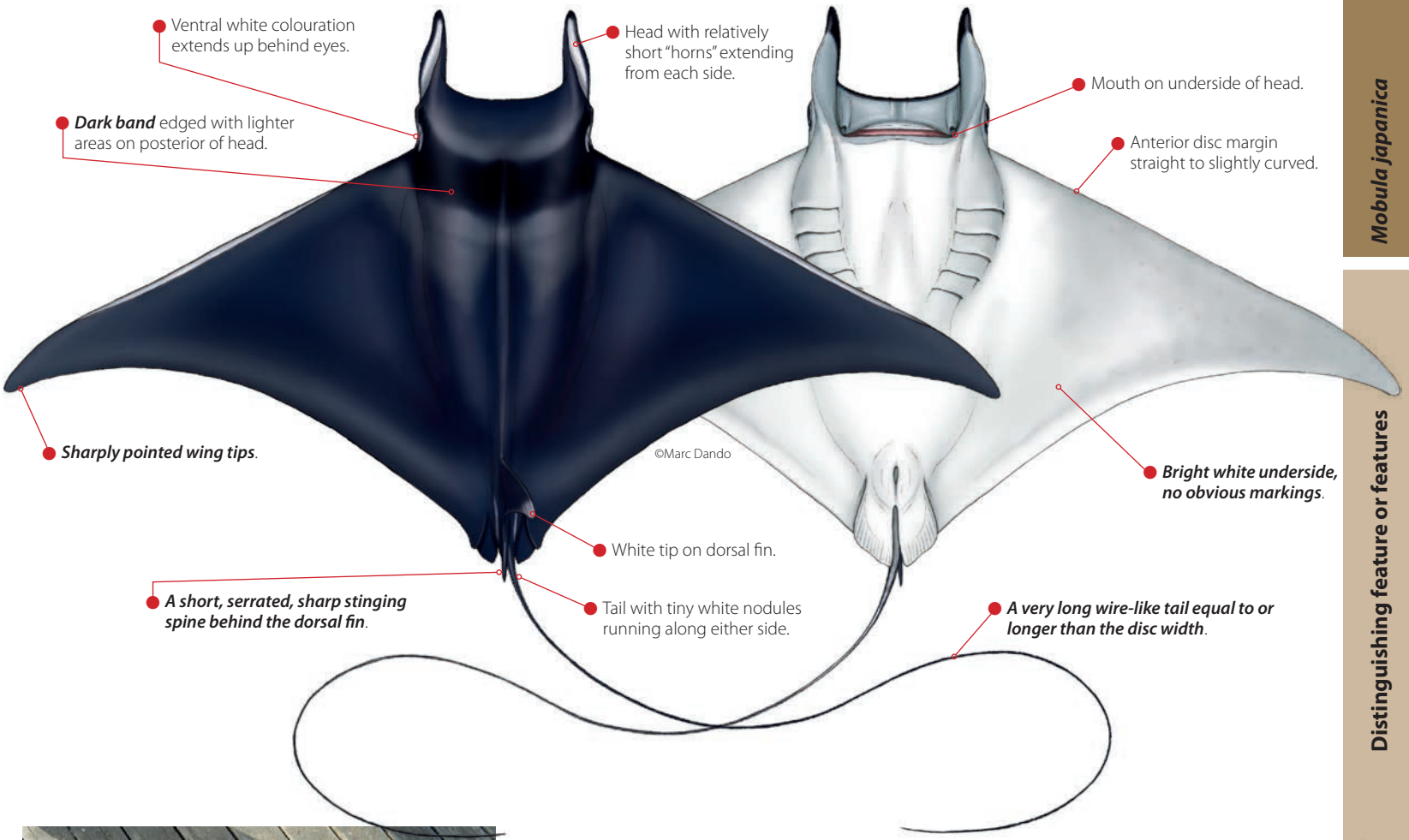


M. thurstoni, Smoothtail mobula

Mobula japanica
(Muller & Henle, 1841)

Spinetail mobula (or Japanese devilray)
Mante aiguillat

NT LL



© Reeve/Henderson (Sultan Qaboos University, Muscat, Oman)

Description

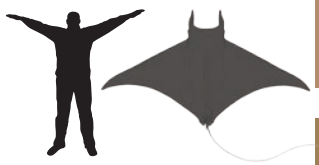
A medium-sized devil ray with a short head and "horns", a very long wiry tail about equal to or longer than the disc width, and a short stinging spine.

Colour

Dorsal surface a bright blue to black, white ventrally on juveniles, but with dark dotted blotches in adults. Dorsal fin with a prominent white tip.

Size

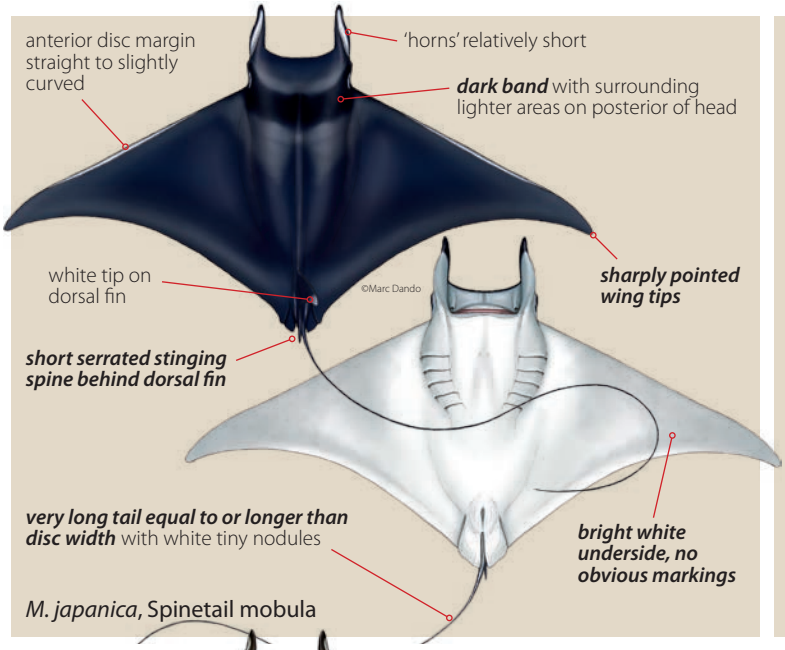
Males mature: about 200–210cm DW.
Females mature: about 200–210cm DW.
Maximum size: 310cm DW.
Birth size: about 85–95cm DW.



SIMILAR SPECIES

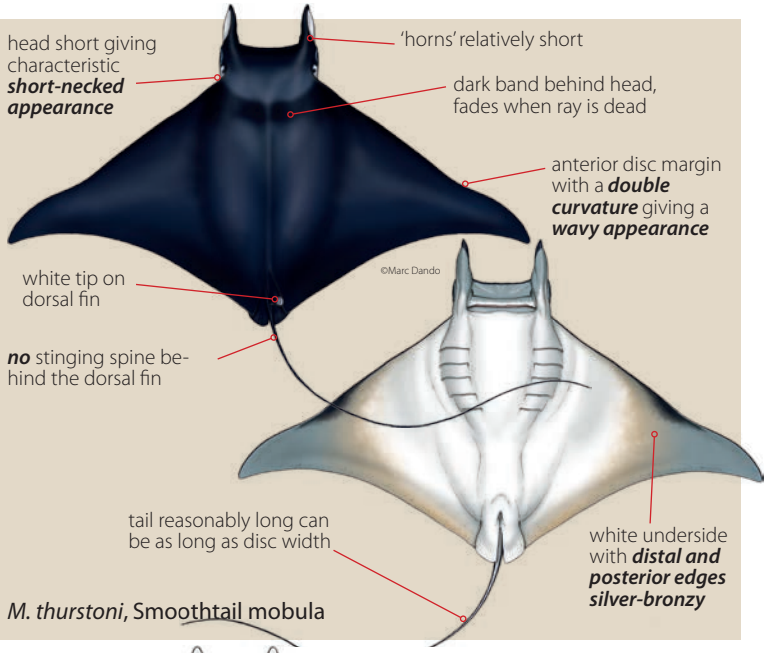
A relatively large mobulid, up to 310 cm disc width, with a short head and horns, a short stinging spine, a dorsal fin mostly with a white tip, and a long wiry tail with prominent white lateral denticles (bumps). Dorsal surface a dark bluish black, with lighter shoulder patches that fade in adults; white ventral surface extends up behind eyes. Ventral surface white with dark patches in adults.

Dorsal and ventral patternation, tail spine and tail length

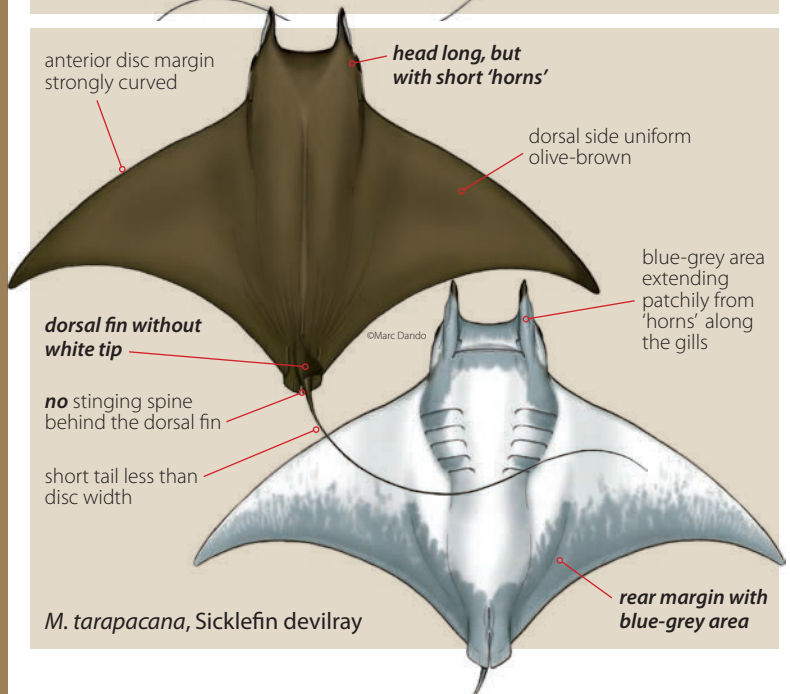


M. japanica, Spinetail mobula

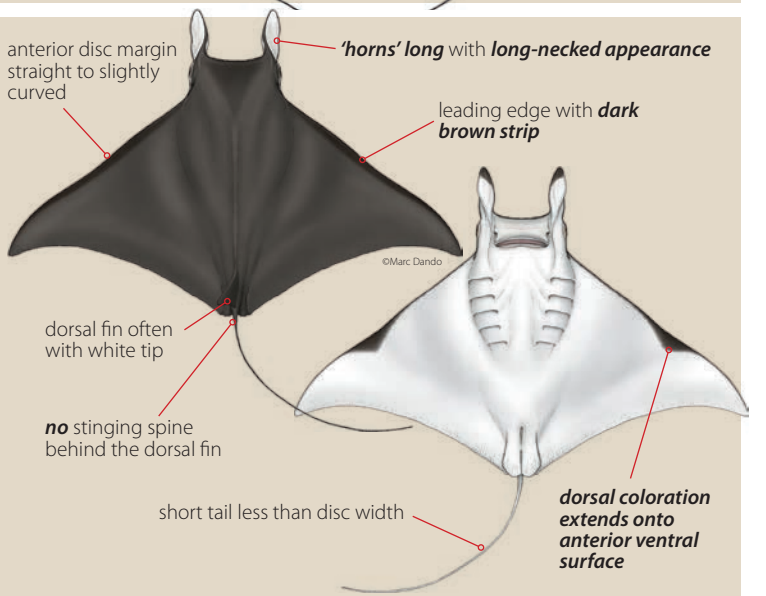
Dorsal and ventral patternation, tail spine and tail length



M. thurstoni, Smoothtail mobula



M. tarapacana, Sicklefin devilray

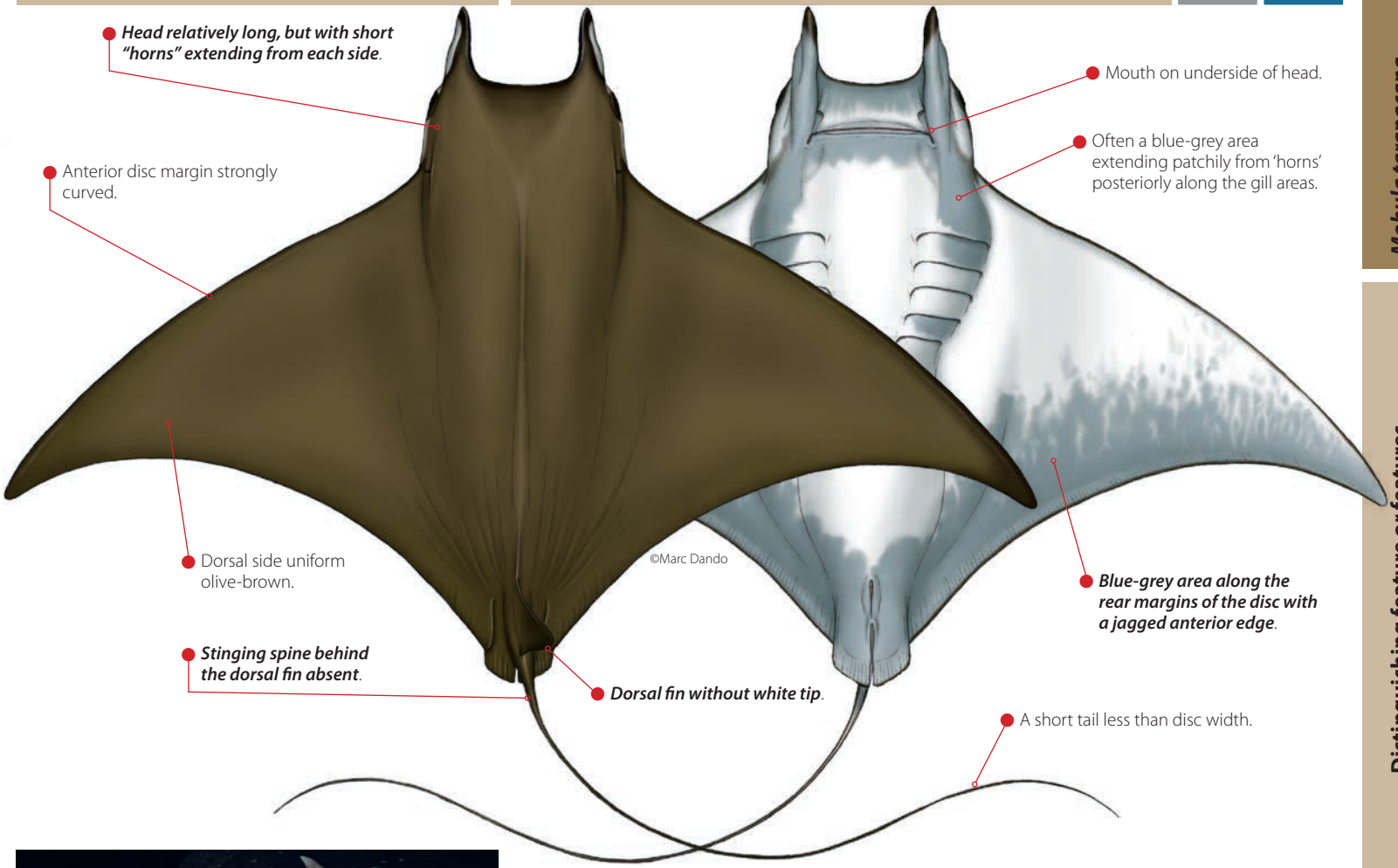


M. eregoodootenkee, Longhorned mobula

Mobula tarapacana
(Philippi, 1892)

Sicklefin devilray
Mante chilienne

DD LL



© Daniel Fernando, Manta Trust

Description

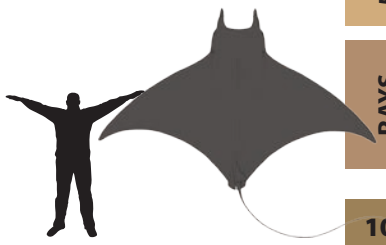
A large devilray with a long head, but short "horns", dorsal fin without a white tip, strongly curved disc "wings" with swept-back tips.

Colour

Uniform olive-brown dorsally, white ventrally with a blue-grey area along the rear margins of disc the distinction between the two is very variegated.

Size

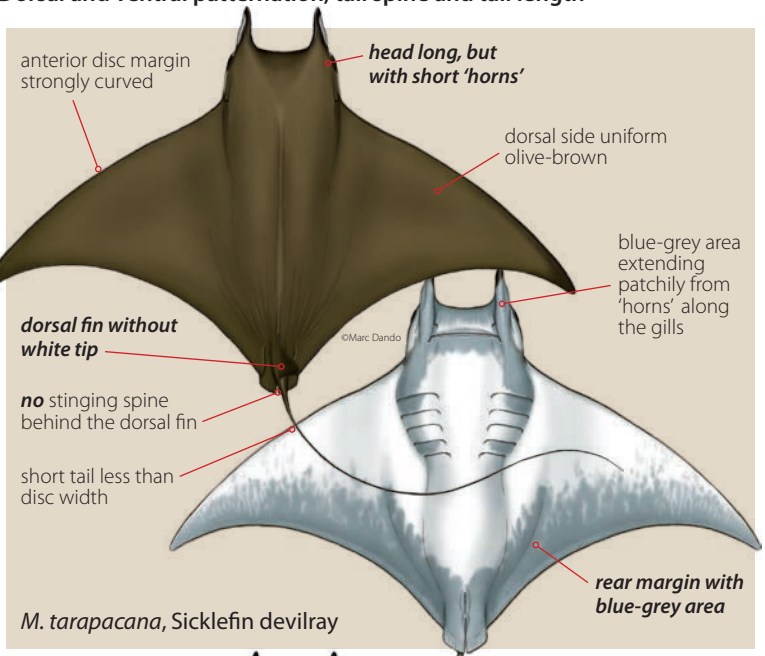
Males mature: 240–250cm DW
Females mature: 270–280cm DW.
Maximum size: 370cm DW.
Birth size: about 100-140cm DW.



SIMILAR SPECIES

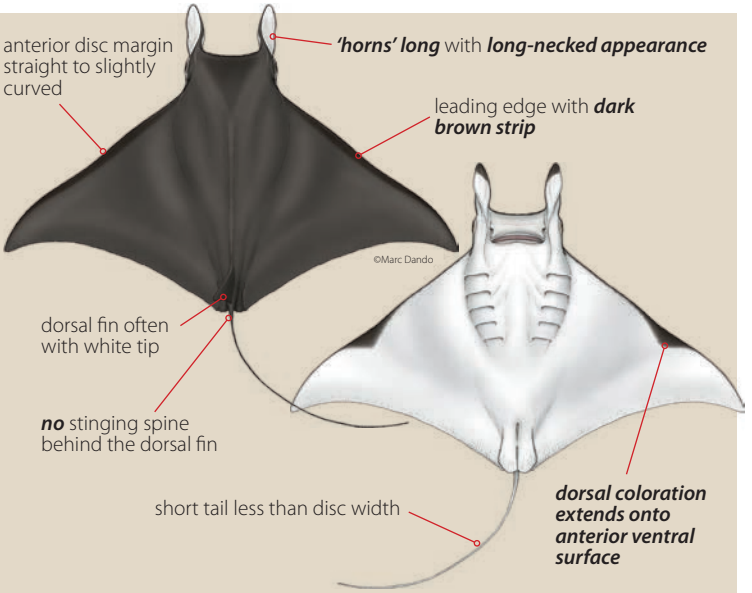
A relatively large mobulid with a long neck and horns, strongly curved disc wings with swept-back tips giving it a "sickle-fin" shape, no tail spine, a tail shorter than disc length, and a distinctive ridge along midback; a uniform olive-brown dorsal coloration; dorsal without white tip; ventral surface white anteriorly, shading to grey on posterior part of disc and on wings; posterior edge of gills with grey shading; margin between white and grey ventral surface irregular.

Dorsal and ventral patternation, tail spine and tail length

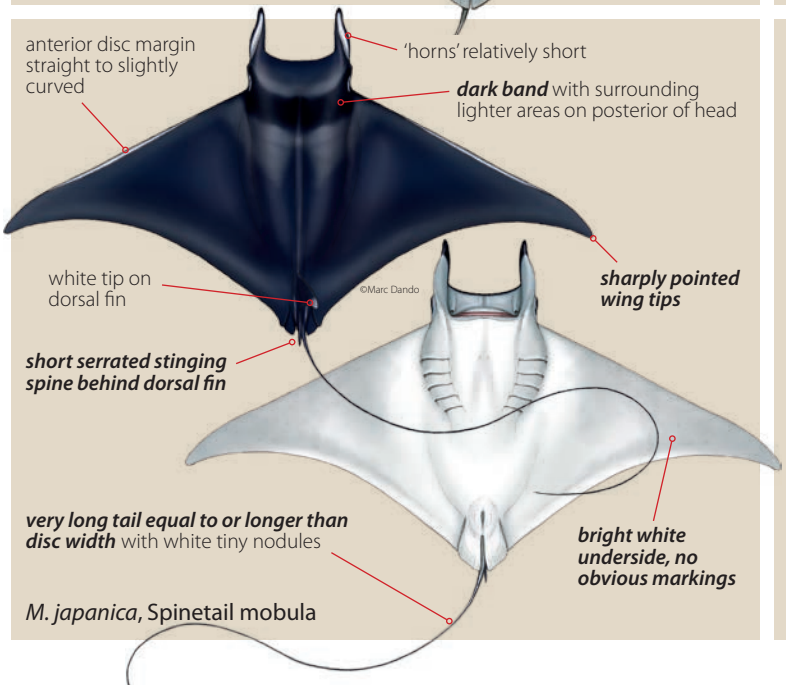


M. tarapacana, Sicklefin devilray

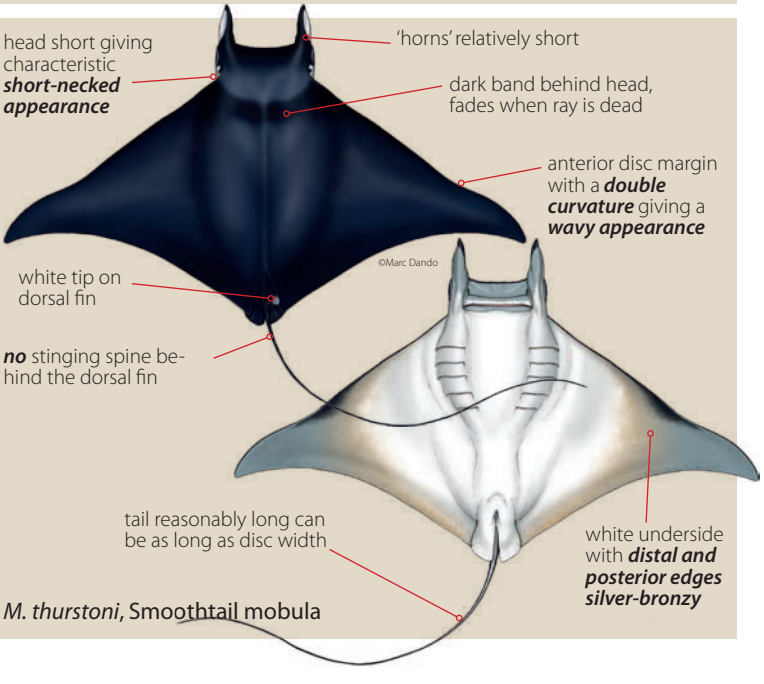
Dorsal and ventral patternation, tail spine and tail length



M. eregoodootenkee, Longhorned mobula



M. japanica, Spinetail mobula

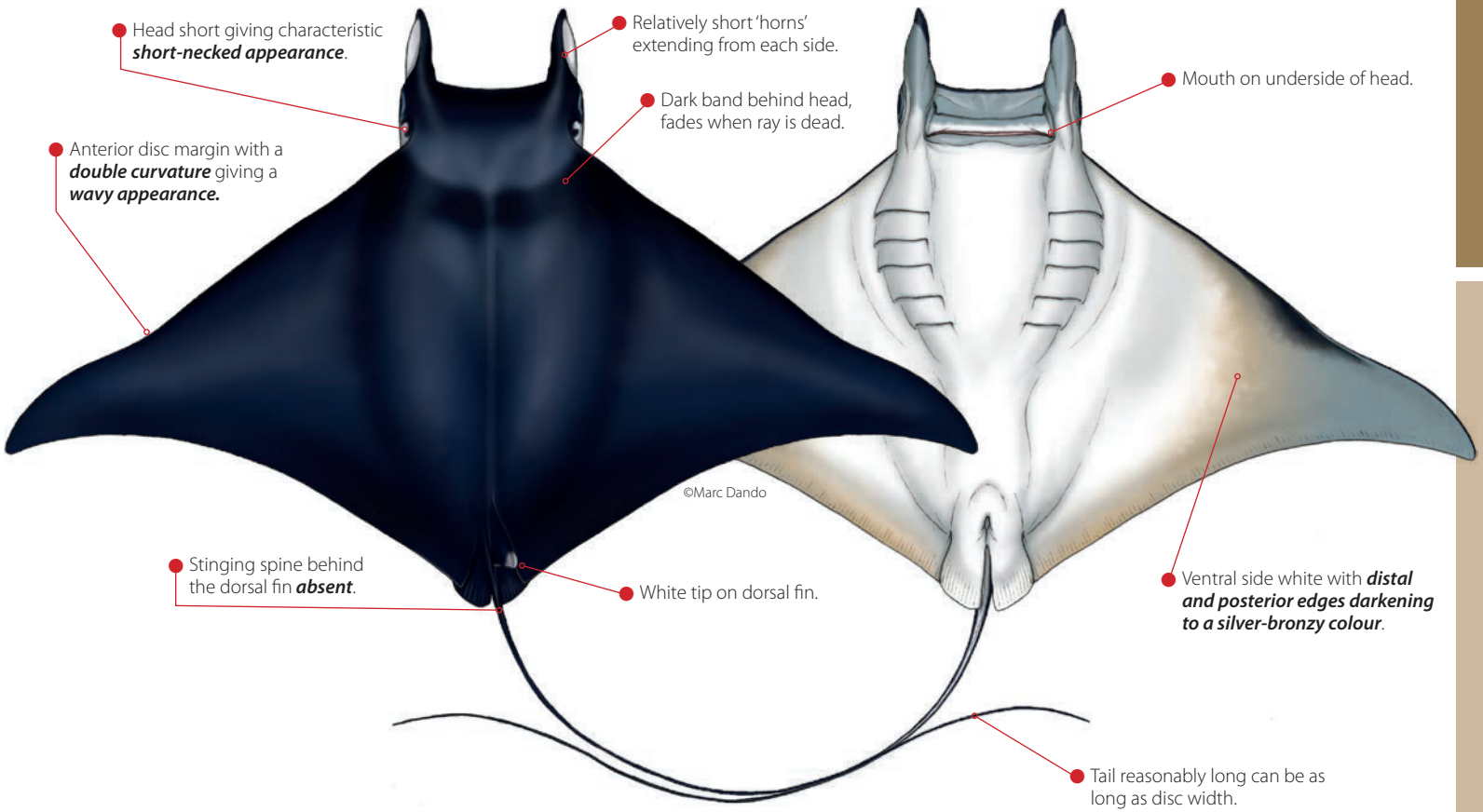


M. thurstoni, Smoothtail mobula

Mobula thurstoni
(Lloyd, 1908)

Smoothtail mobula (=Bentfin devilray)
Mante vampire

NT LL

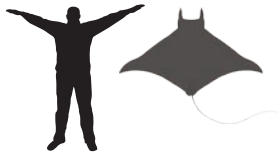


© Guy Stevens, Manta Trust

Description
A moderate sized devilray with a short head and short "horns", a double (wavy) curvature along the anterior disc margin, with swept-back tips and no stinging spine. .

Colour
Dorsal surface dark blue to black, ventral surface white down the middle, with silvery-bronzy fin tips; dorsal fin white tipped.

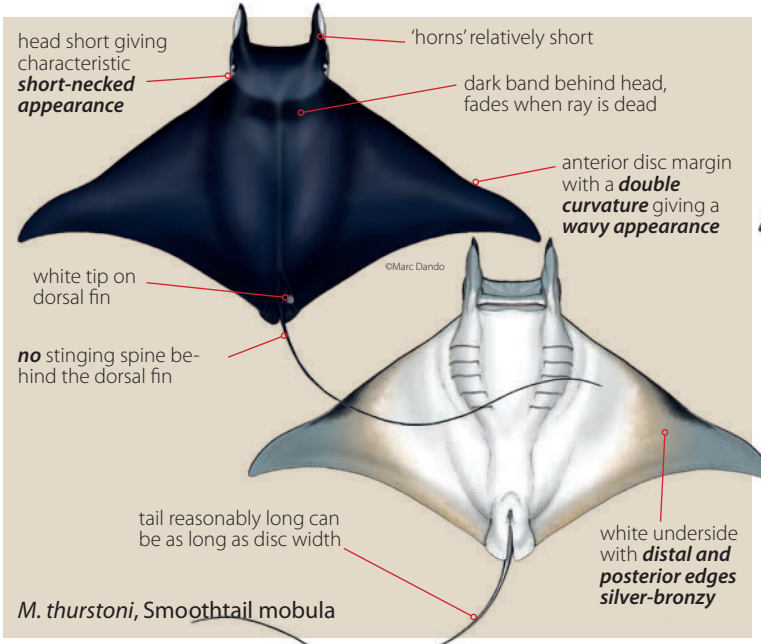
Size
Males mature: about 150cm DW.
Females mature: about 150cm DW.
Maximum size: 180–190cm DW.
Birth size: about 65–85cm DW.



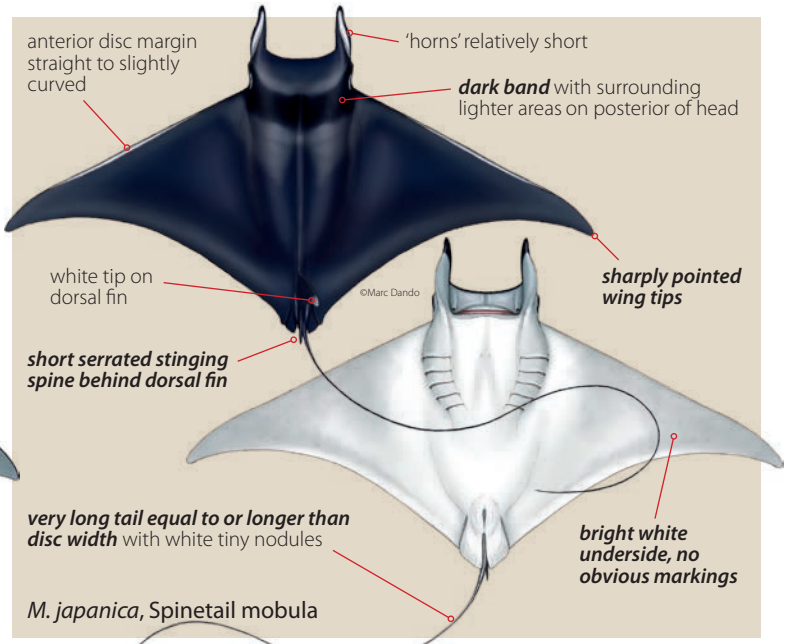
SIMILAR SPECIES

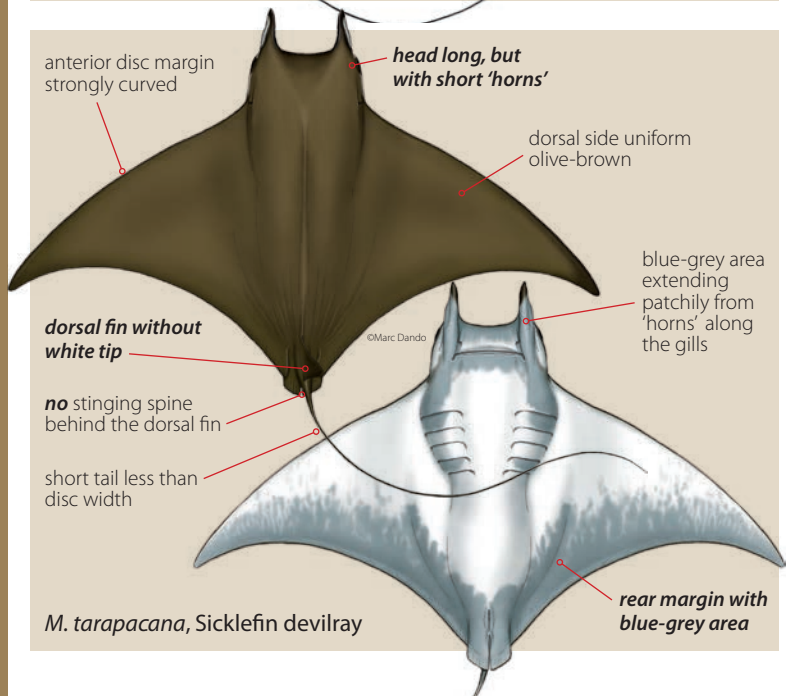
A moderate-size mobulid with a short head and horns, and no stinging spine. Dorsal surface a very dark blue, silvery around eyes, and a white tip on dorsal fin. Ventral surface white anteriorly, but disc "wings" with a silvery-brownish sheen.

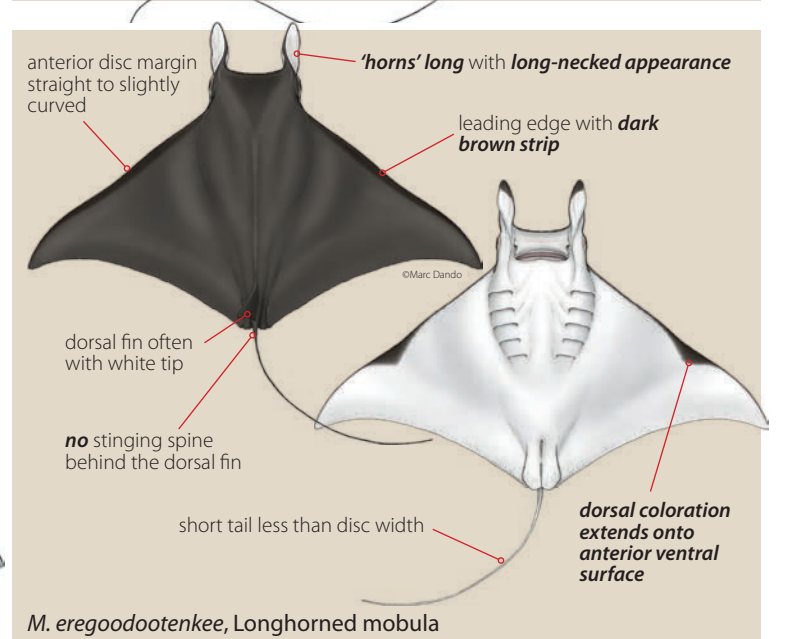
Dorsal and ventral patternation, tail spine and tail length



Dorsal and ventral patternation, tail spine and tail length







This part aims at giving an overview of the existing legislation (international, regional and national) regarding the species in the present guide.

CITES[1] lists

On CITES lists, the species are grouped in the Appendices[2] according to how threatened they are by international trade.

Appendix I lists species that are the **most endangered** among CITES-listed animals and plants. Appendix II lists species that are not necessarily now threatened with extinction but that **may become threatened** unless trade is closely controlled. Appendix III is a list of species included at the request of a Party that already regulates trade in the species and that **needs the cooperation of other countries to prevent unsustainable or illegal exploitation.**

The following species of the present guide are indicated on CITES lists:

Sphyrna lewini ***Scalloped Hammerhead*** p.15

Appendix II and III

Sphyrna mokarran ***Great Hammerhead*** p.17

Sphyrna zygaena ***Smooth Hammerhead*** p.19

Lamna nasus ***Porbeagle*** p.53

Carcharodon carcharias ***White Shark*** p.47

Rhincodon typus ***Whale Shark*** p.69

Cetorhinus maximus ***Basking Shark*** p.73

Appendix II

1 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

2 Last update: September 2014

IOTC Regulatory Framework[3]

IOTC Resolution 05/05 concerning the conservation of sharks caught in association with fisheries managed by IOTC

This resolution calls on IOTC Contracting Parties to annually report catches of sharks, requests the Scientific Committee to provide preliminary advice on the status of key shark species and propose a research plan for comprehensive assessment of these stocks of sharks, calls on CPCs to undertake research to identify ways to make fishing gear more selective, calls for full utilization of captured sharks, and provides a number of guidelines regarding shark finning.

It also requires that the total weight of shark fins on board not exceed 5 percent of the weight of sharks on board, and encourages the live release of all sharks taken incidentally to other targeted species.

Prior to the adoption by IOTC of resolution 05/05, there was no requirement for sharks to be recorded at the species level in logbooks. As a consequence, it is only since 2008 that some very patchy statistics are becoming available on shark catch, mostly representing retained catch and not accounting for discards.

The following species of the present guide are affected by the IOTC Resolution 05/05:

Prionace glauca ***Blue Shark*** p.27

There is no quantitative stock assessment for blue shark in the Indian Ocean, therefore the stock status is highly uncertain. Blue sharks are commonly taken by a range of fisheries in the Indian Ocean and in some areas they are fished in their nursery grounds. Because of their life history characteristics – they are relatively long lived (16-20 years), mature relatively late (at 4-6 years), and have relativity few offspring (25-50 pups every year), the blue shark is vulnerable to overfishing.

Isurus oxyrinchus ***Shortfin Mako Shark*** p.49

Again, a reconstruction of possible catches based on nominal CPUE of the different fleets would give catches of over 1,585 t for the shortfin mako sharks (Isurus oxyrinchus), compared to reported catches of 525 t. Data are not available at the IOTC Secretariat for stock assessment, but historical research data shows overall decline in CPUE and mean weight of mako sharks (Romanov et al. 2008). However, standardised CPUEs from Japanese (Hiraoka et.al. 2012) and from Portuguese (Coelho et al. 2012) longliners actually show an increasing trend following early declines, indicative of stable stock status. CPUE in the South African fisheries is fluctuating without any trend (Holmes et al. 2009).

3 Information coming from SmartFish Programme Report SF/2013/32 "

Carcharhinus longimanus ***Oceanic Whitetip Shark*** p.39

There is no quantitative stock assessment and limited basic fishery indicators currently available for oceanic whitetip sharks (Carcharinus longimanus) in the Indian Ocean therefore the stock status is highly uncertain. Oceanic whitetip sharks are commonly taken by a range of fisheries in the Indian Ocean. Because of their life history characteristics – they are relatively long lived, mature at 4–5 years, and have relativity few offspring (<20 pups every two years), the oceanic whitetip shark is vulnerable to overfishing. Despite the lack of data, it is apparent from the information that is available that oceanic whitetip shark abundance has declined significantly over recent decades.

The practice of shark finning is considered to be regularly occurring for this species (Clarke 2008; Clarke et al. 2006) and the bycatch/release injury rate is unknown but probably high. At-haulback mortality of oceanic whitetip sharks in the Atlantic Ocean longline fishery targeting swordfish was estimated to be at 30.6% (Coelho et al., 2011). Reported catches in 2010 were of 450 t, but it is likely that catches were considerably higher.

Carcharhinus falciformis ***Silky Shark*** p.35

There is no quantitative stock assessment or basic fishery indicators currently available for silky sharks (Carcharinus falciformis) in the Indian Ocean, therefore the stock status is highly uncertain. Silky sharks are commonly taken by a range of fisheries in the Indian Ocean. Because of their life history characteristics – they are relatively long lived (over 20 years), mature at 6–12 years, and have relativity few offspring (<20 pups every two years), the silky shark is vulnerable to overfishing. Despite the lack of data, it is clear from the information that is available that silky shark abundance has declined significantly over recent decades. However, standardized CPUE analyses from Japanese longliners (Hiraoka et.al. 2012) show a fairly stable trend, while from Spanish data the trend is rising after having fallen steadily between 1998 and 2007 (Ramos-Cartelle, et.al., 2012). The practice of shark finning is considered to be regularly occurring and on the increase for this species (Clarke 2008; Clarke et al. 2006) and the bycatch/release injury rate is unknown but probably high.

Reported landings in 2010 were of 1,153 t, compared to the 5-year average (2006-2010) of 670 t.

Alopias pelagicus Pelagic ***Thresher Shark*** p.57

Alopias superciliosus Bigeye ***Thresher Shark*** p.59

Finally, the thresher sharks (A. vulpinus and A. superciliosus) are all discarded, as are all the sharks and rays caught in small numbers.

IOTC Resolution 12/09 on the conservation of thresher sharks (Family Alopiidae) caught in association with fisheries in the IOTC area of competence

The following species of the present guide are affected by the IOTC Resolution 12/09:

- *Alopias pelagicus* ***Pelagic Thresher Shark*** p.57
- *Alopias superciliosus* ***Bigeye Thresher Shark*** p.59
- *Alopias vulpinus* ***Common Thresher Shark*** p.61

Fishing Vessels flying the flag of an IOTC Member or Cooperating Non-Contracting Party (CPCs) are prohibited from retaining on board, transhipping, landing, storing, selling or offering for sale any part or whole carcass of thresher sharks of all the species of the family Alopiidae.

However, there is one exception (paragraph 7 of the Resolution): Scientific observers shall be allowed to collect biological samples[4] from thresher sharks that are dead at haulback, provided that the samples are part of the research project approved by the IOTC Scientific Committee (or IOTC Working Party on Ecosystems and Bycatch (WPEB)).

IOTC Resolution 13/02 on the recording of catch and effort data by fishing vessels

IOTC Resolution 13/02 on the recording of catch and effort data by fishing vessels in the IOTC Area of competence provides guideline for logbooks for all the tuna fisheries (purse seine, longline, gillnets and pole and line) which also indicates all the sharks species to be recorded by each gear on the logbooks.

IOTC Resolution 13/05 on the conservation of whale sharks (Rhincodon typus)[5]

The following species of the present guide are affected by the IOTC Resolution 13/05:

- *Rhincodon typus* ***Whale Shark*** p.69

Contracting Parties and Cooperating Non-Contracting Parties (collectively, CPCs) shall prohibit their flagged vessels from intentionally setting a purse seine net around a whale shark in the IOTC area of competence, if it is sighted prior to the commencement of the set.

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4 vertebrae, tissues, reproductive tracts, stomachs, skin samples, spiral valves, jaws, whole and skeletonised specimens for taxonomic works and museum collections

5 The provisions of this measure do not apply to artisanal fisheries operating exclusively in their respective EEZ

CPCs shall require that, in the event that a whale shark is unintentionally encircled in the purse seine net, the master of the vessel shall:

a. take all reasonable steps to ensure its safe release, while taking into consideration the safety of the crew. These steps shall follow the best practice guidelines for the safe release and handling of whale sharks developed by the IOTC Scientific Committee;

b. report the incident to the relevant authority of the flag State, with the following information:
   i the number of individuals;
   ii a short description of the interaction, including details of how and why the interaction occurred, if possible;
   ii the location of the encirclement;
   iv the steps taken to ensure safe release;
   v an assessment of the life status of the animal on release, including whether the whale shark was released alive but subsequently died.

CPCs using other gear types fishing for tuna and tuna-like species associated with a whale shark shall report all interactions with whale sharks to the relevant authority of the flag State and include all the information outlined in paragraph 3b(i–v).

IOTC Resolution 13/06 on a Scientific and Management Framework on the conservation of shark species caught in association with IOTC managed species[6]

The following species of the present guide are affected by the IOTC Resolution 13/06:

Carcharhinus longimanus ***Oceanic Whitetip Shark*** p.39

CPCs shall prohibit[7], as an interim pilot measure, all fishing vessels flying their flag and on the IOTC Record of Authorised Vessels, or authorised to fish for tuna or tuna-like species managed by the IOTC on the high seas to retain onboard, tranship, land or store any part or whole carcass of oceanic whitetip sharks. However, there is one exception (paragraph 7 of the Resolution): Scientific observers shall be allowed to collect biological samples[8] from oceanic whitetip sharks taken in the IOTC area of competence that are dead at haulback, provided that the samples are a part of a research project approved by the IOTC Scientific Committee (SC)/the IOTC Working Party on Ecosystems and Bycatch (WPEB).

6 The provisional measures stipulated in this Resolution shall be evaluated in 2016 by the IOTC Scientific Committee to deliver more appropriate advice on the conservation and management of the stocks for the consideration of the Commission.

7 The provisions of this measure do not apply to artisanal fisheries operating exclusively in their respective Exclusive Economic Zone (EEZ) for the purpose of local consumption.

8 vertebrae, tissues, reproductive tracts, stomachs, skin samples, spiral valves, jaws, whole and skeletonised specimens for taxonomic works and museum collections

CPCs shall require fishing vessels flying their flag and on the IOTC Record of Authorised Vessels or authorised to fish for tuna and tuna-like species managed by the IOTC on the high seas to promptly release unharmed, to the extent practicable, of oceanic whitetip sharks when brought alongside for taking onboard the vessel. However, CPCs should encourage their fishers to release this species if recognised on the line before bringing them onboard the vessels.

The Memorandum of Understanding (MOU) on the Conservation of Migratory Sharks

It is the first global instrument for the conservation of migratory species of sharks. The MOU is a legally non-binding international instrument. It aims to achieve and maintain a favourable conservation status for migratory sharks based on the best available scientific information and taking into account the socio-economic value of these species for the people in various countries.


Isurus oxyrinchus ***Shortfin Mako Shark*** p.49


Rhincodon typus ***Whale Shark*** p.69


Cetorhinus maximus ***Basking Shark*** p.73


Carcharodon carcharias ***White Shark*** p.47


Isurus paucus Longfin ***Mako Shark*** p.51


Lamna nasus ***Porbeagle*** p.53

These 7 species are covered by the Memorandum of Understanding and their ranges.

The Signatories of the MoU should cooperatively strive to adopt, implement and enforce such legal, regulatory and administrative measures as appropriate to **conserve and manage migratory sharks and their habitat.**

IPOA-SHARKS

The objective of the IPOA-SHARKS is to ensure the conservation and management of sharks and their long-term sustainable use.

The IPOA-SHARKS is voluntary. It has been elaborated within the framework of the Code of Conduct for Responsible Fisheries as envisaged by Article 2 (d). All concerned States are encouraged to implement it.

Seychelles is the only country in the region that implemented a National Plan of Action for the Conservation and Management of Sharks in 2007[9].

9 SFA informed that the document will be reviewed in 2014

The Seychelles NPOA

The document sets out a four-year action plan with 11 work programmes that seek to address the 10 goals of the IPOA-Sharks as they relate to local circumstances. The NPOA contains a mission statement for attainment within its first four year-phase and sets as its ultimate vision:

"That shark stocks in the seychelles eez are effectively conserved and managed so as to enable their optimal long-term sustainable use."

Fisheries Act (1987)

Prohibition of net fishing of sharks (Reg. 16c): forbids the fishing of shark using nets from the 1st August 1998. This regulation was brought in due to concerns about by-catch of turtles, marine mammals and non-target whale shark in gillnets.

Subsequent to this, SFA developed and distributed the local "drag" (anchored longlines) system of fishing to former net fishermen. The switch to this equipment is believed to have increased shark catch.

Fisheries (Shark Finning) Regulations 2006: forbids the practice of finning by foreign vessels licensed to operate in Seychelles EEZ by requiring vessels to land fin to the quantity of no more than 5% of the mass of dressed shark carcass. The feasibility/ effectiveness of the enforcement of this regulation has yet to be assessed.

The wild animals and birds protection Act (1961)

Rhincodon typus **Whale Shark** p.69

It establishes the legal framework for the protection of species of wild animals and birds.

Wild Animals (Whale Shark) Protection Regulations, 2003: declares the whale shark (***Rhincodon typus***) protected throughout Seychelles at all times. The whale shark was not previously fished in Seychelles waters, the legislation was rather introduced in order to facilitate the pursuit of an international conservation agreement for the species.

The Mauritius NPOA

Mauritius is currently in the process of drafting its NPOA sharks.

It will be in force beginning of 2015.

IOC SmartFish is a regional fisheries programme managed by the Indian Ocean Commission, funded by the European Union and co-implemented by the Food and Agriculture Organization of the United Nations. IOC SmartFish, which operates in 20 countries throughout the East and Southern Africa - Indian Ocean region, focuses on fisheries governance, management, monitoring, control and surveillance, trade, and food security.

The present field guide is designed to assist in the identification of pelagic sharks and rays of the Western Indian Ocean that are major, moderate, or minor importance to fisheries. It encompasses the offshore, high seas portion of FAO Fishing Area 51.

This guide is intended to help fishery workers collecting catch data in the field in the identification of the sharks and rays they are likely to encounter. It is conceived to be updatable, offering the possibility to add additional species accounts as new information becomes available.

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