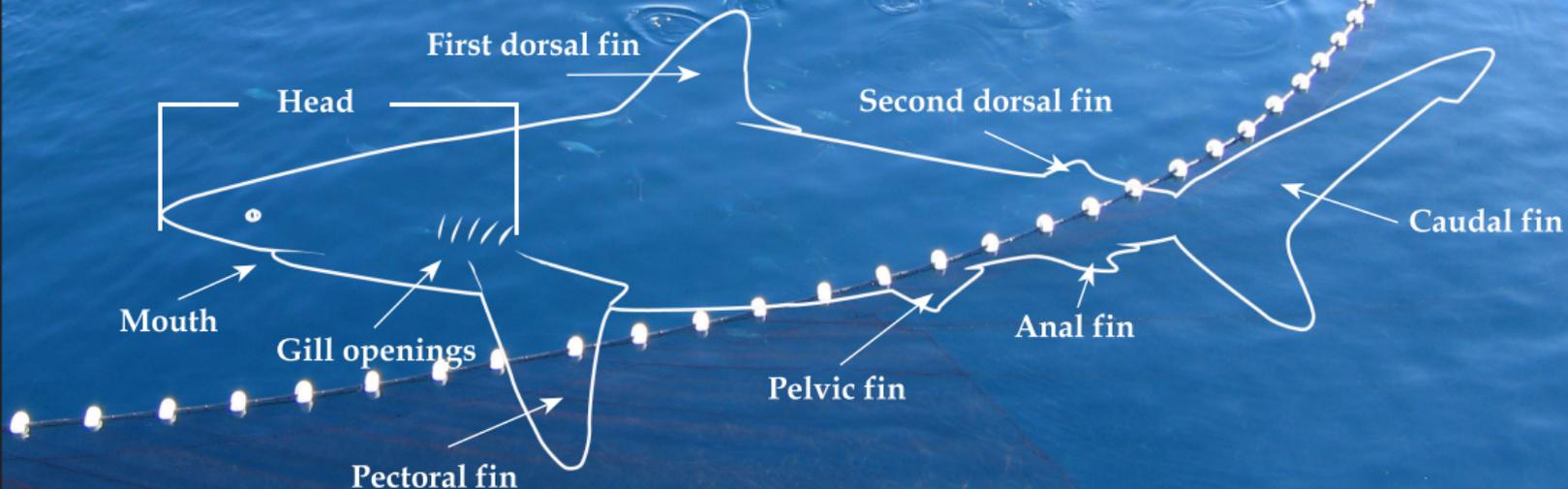


SHARK and RAY IDENTIFICATION IN INDIAN OCEAN PELAGIC FISHERIES



These identification cards are produced by the Indian Ocean Tuna Commission (IOTC), in collaboration with the Secretariat of the Pacific Community (SPC), to help improve catch data and statistics on sharks and rays that interact with tuna fisheries in the Indian Ocean. With a better understanding of shark stocks and with better statistics, regional fisheries managers can ensure that sharks and rays are fished in a sustainable manner in the Indian Ocean. The most likely users of the cards are fisheries observers, samplers, fishing masters and crew on board fishing vessels targeting tuna, tuna-like species and sharks in the Indian Ocean. Fisheries training institutions and fishing communities are other potential users.

This publication was made possible through financial support provided by the <partner>.

For further information contact:
Indian Ocean Tuna Commission
Le Chantier Mall
PO Box 1011, Victoria, Seychelles

Phone: +248 422 54 94
Email: secretariat@iotc.org

Fax: +248 422 43 64
Website: <http://www.iotc.org>

This publication is based on that developed by the Secretariat of the Pacific Community entitled «Shark identification in Pacific tropical offshore fisheries» (conception: M. Blanc / design: A.Desurmont and T. Luciani)

Layout: Julien Million and Jipé Le-Bars. Scientific advice: Dr. Evgeny Romanov and Dr. Charles Anderson.
Acknowledgements to Dr. Rui Coelho, Dr. Bernard Seret and Dr. David Wilson for their valuable inputs.

Illustrations © R.Swainston/anima.net.au.

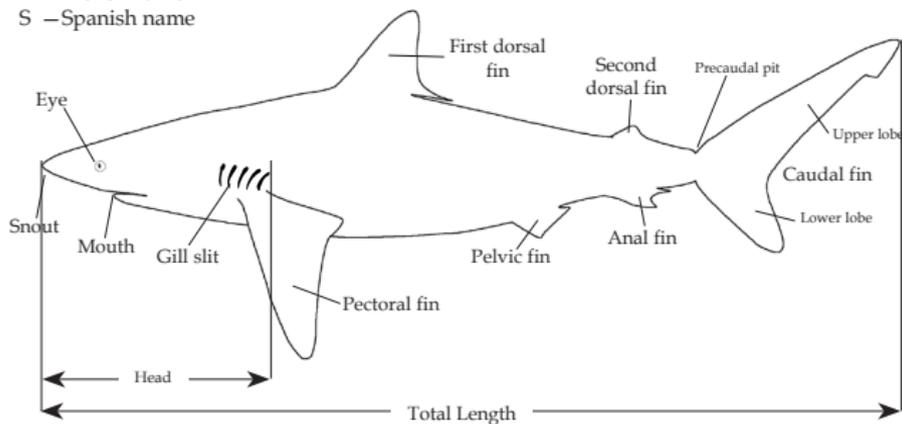
One shark illustration - *Odontaspis noronhai* - by L. Hata reproduced courtesy of SPC.
Four ray illustrations - *Manta alfredi*, *Manta birostris*, *Mobula mobular*, *Mobula tarapacana* - by J.F. Dejouanet are reproduced courtesy of the Institut de Recherche pour le Développement (IRD) and the National Museum of Natural History (MNHN).

Common English name

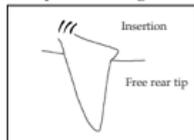
FAO

Scientific name

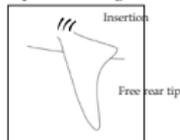
- J – Japanese name
- C – simplified Chinese / traditional Chinese names
- F – French name
- S – Spanish name



Pectoral fin with straight posterior margin



Pectoral fin with falcate posterior margin



How to use this card?

Each card contains:

- the scientific name of the species as well as its common names in English, French, Spanish, Japanese, traditional and simplified Chinese,
- its FAO code
- its maximum total length in centimeters.
- an illustration of the species and some distinctive features

Terminology

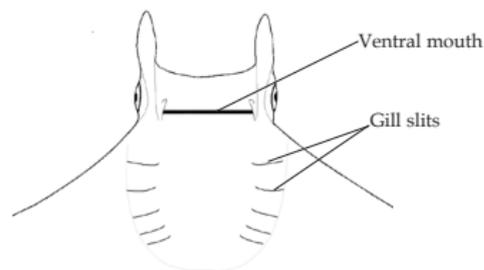
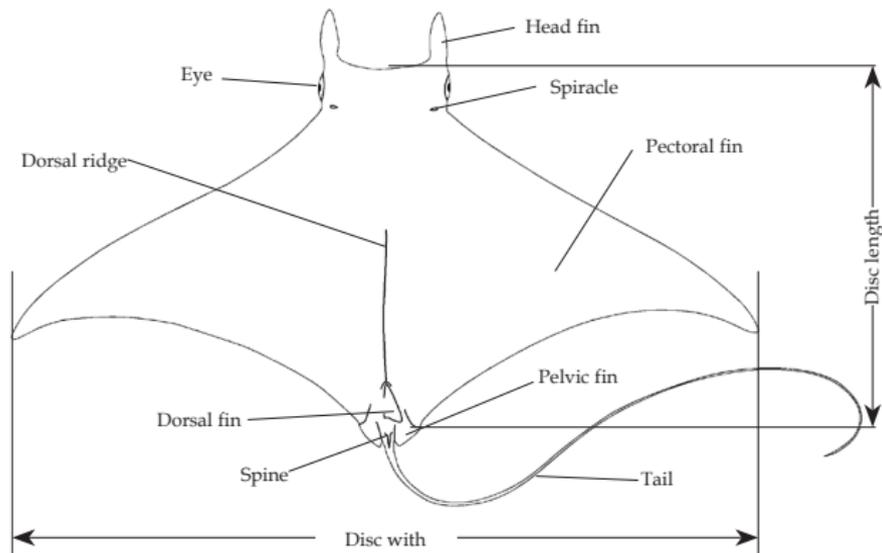
- interdorsal ridge: ridge of skin between the first and second dorsal fins
- serrated: saw-like

Common English name

FAO

Scientific name

- J – Japanese name
- C – simplified Chinese / traditional Chinese names
- F – French name
- S – Spanish name





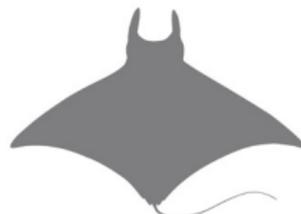
Thresher sharks - Alopiidae

Threshers sharks are easily identifiable with the characteristic shape of the caudal fin, its upper lobe length being equal to the rest of the body. These sharks are widely distributed in temperate and tropical seas around the globe.



Requiem sharks - Carcharhinidae

One of the largest family of sharks with 54 species. Many of these species are similar and their identification can be difficult. The most important identification features are the tooth shapes, the position of dorsal fins and the presence or absence of an interdorsal ridge.



Manta rays and devilrays - Mobulidae

Manta rays and devilrays are the largest rays and are widely distributed in tropical and warm temperate seas. Their body is wider than long with one cephalic lobe on each side of the head.



Hammerhead sharks - Sphyrnidae

Hammerheads are easily identifiable with the characteristic shape of their head which is similar to a hammer. These species are widely distributed in tropical and warm temperate waters.



Whale sharks - Rhindodontidae

Only one species for this shark which is the largest shark in the ocean. They are planktonic feeders and occur in all tropical waters around the globe.



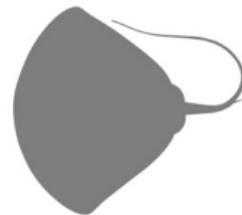
Mackerel sharks - Lamnidae

Mackerel sharks are large sharks with a conical and pointed snout, small second dorsal and anal fins, large lateral keels and prominent precaudal pits. they are widely distributed in tropical and temperate seas.



Kitefin sharks - Dalatiidae

Kitefin sharks are small cylindrical shark, missing the anal fin. They are widely distributed and mostly deepwater sharks.



Stingrays - Dasyatidae

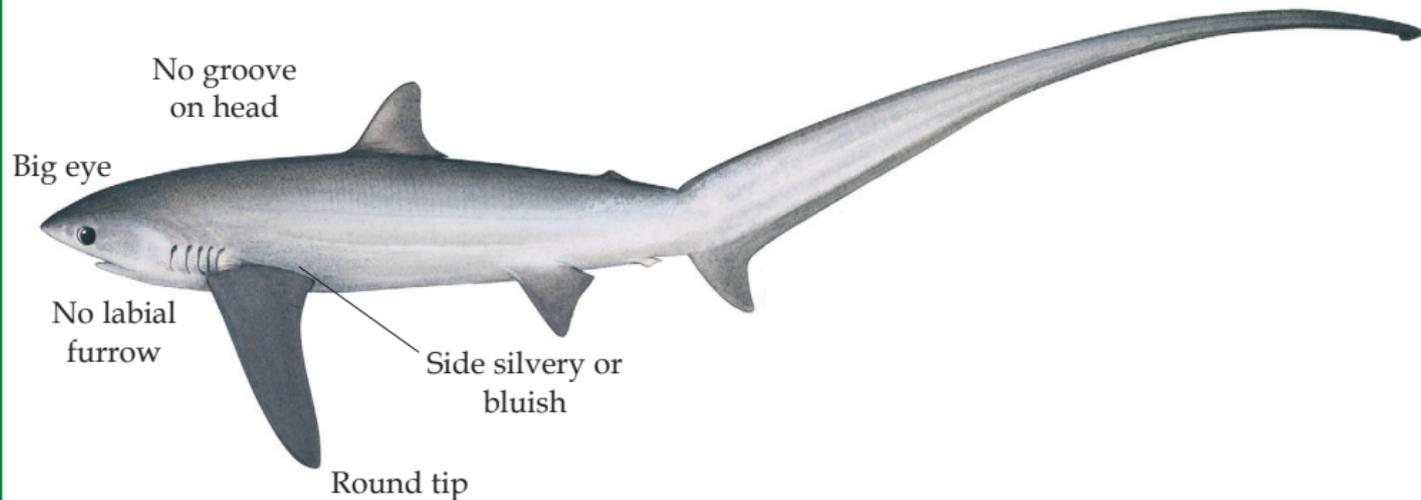
Stingrays include around 80 species, which disc shape can vary from circular to rhomboidal. The tail is missing dorsal, anal or caudal fin and has in general one or more stinging spines. Stingrays are widely distributed in tropical and temperate seas, as well as in some freshwaters habitat.

Pelagic thresher

PTH

Alopias pelagicus

- J - ニタリ
- C - 浅海长尾鲨 / 浅海狐鲛
- F - renard pélagique
- S - zorro pelágico



Max. length: 390cm

PROHIBITION OF RETENTION

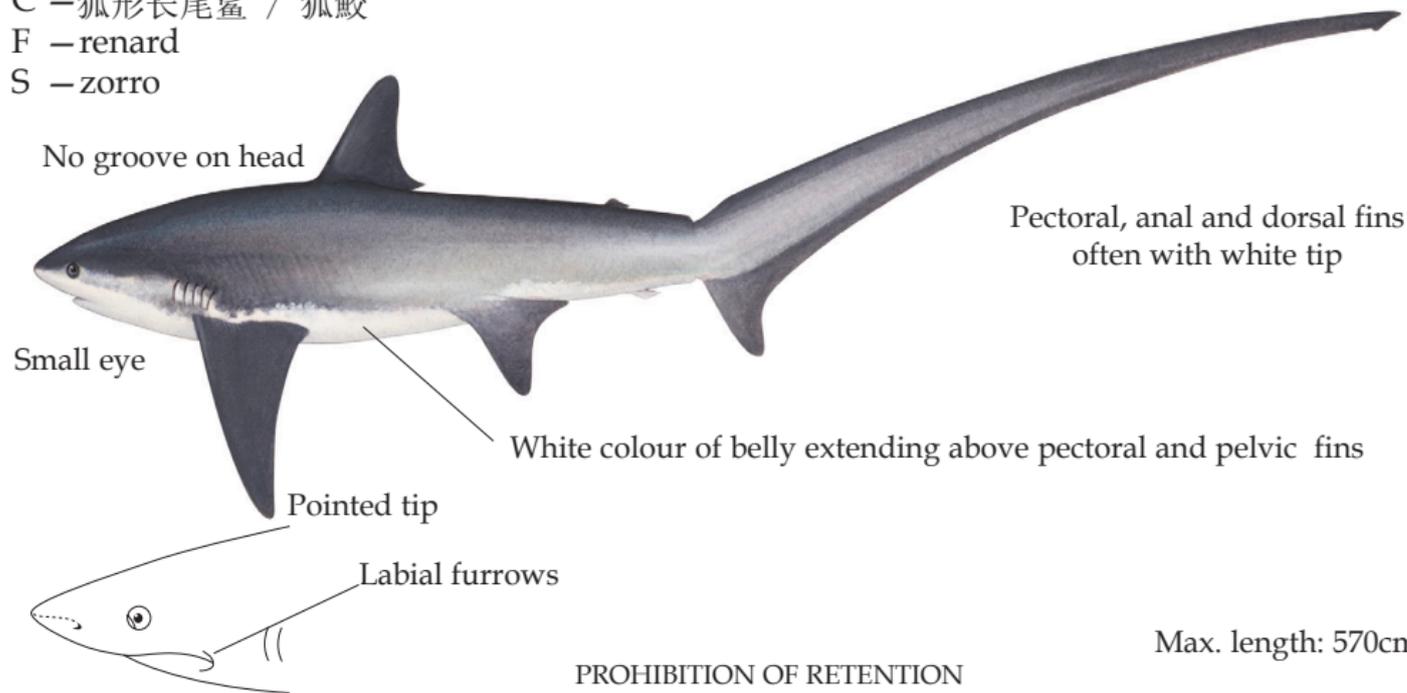
Thresher

ALV

Alopias vulpinus

- J - マオナガ
- C - 狐形长尾鲨 / 狐鯨
- F - renard
- S - zorro

No groove on head



Small eye

Pectoral, anal and dorsal fins
often with white tip

White colour of belly extending above pectoral and pelvic fins

Pointed tip

Labial furrows

PROHIBITION OF RETENTION

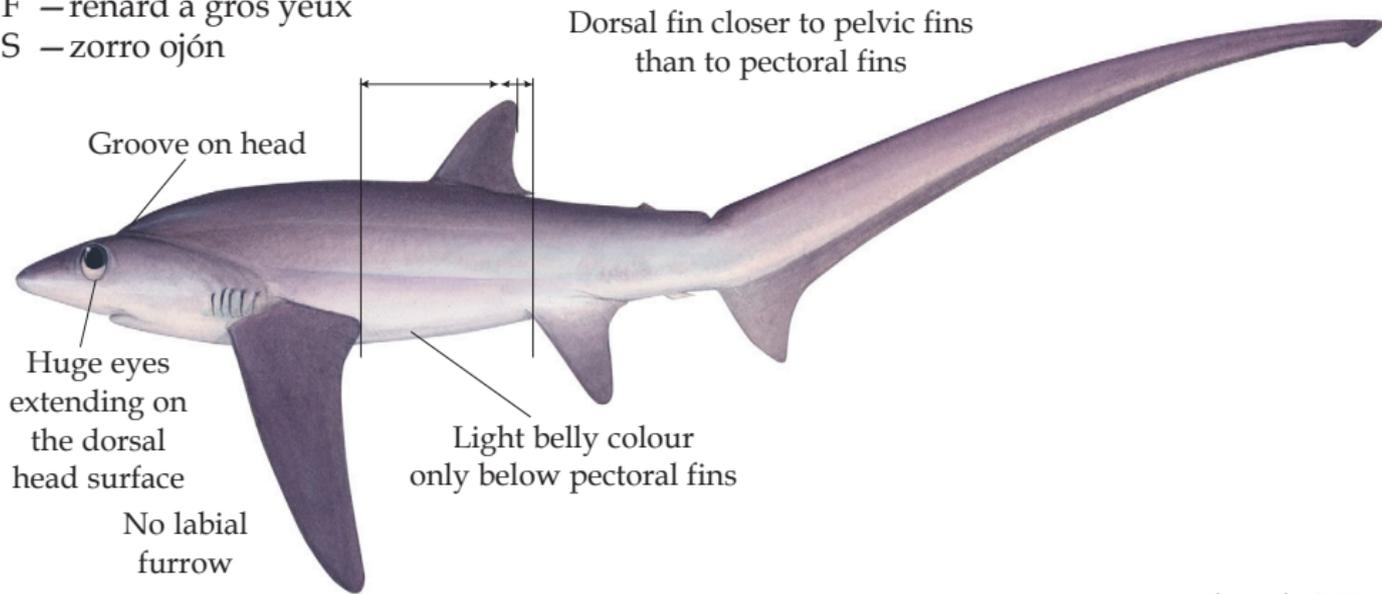
Max. length: 570cm

Bigeye thresher

BTH

Alopias superciliosus

- J - ハチワレ
C - 大眼长尾鲨 / 深海狐鮫
F - renard à gros yeux
S - zorro ojón



PROHIBITION OF RETENTION

Max. length: 585cm

Great hammerhead

SPK

Sphyrna mokarran

J - ヒラシユモクザメ

C - 无沟双髻鲨 / 八鳍丫髻鲨

F - grand requin-marteau

S - cornuda gigante

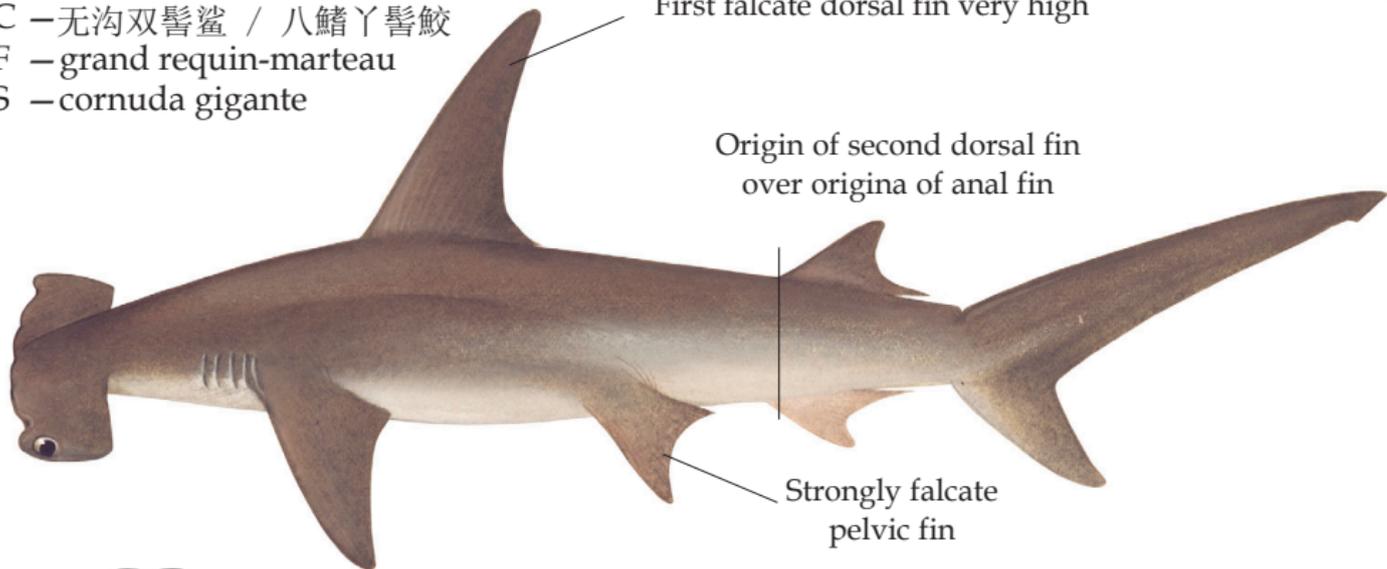
First falcate dorsal fin very high

Origin of second dorsal fin
over origina of anal fin

Strongly falcate
pelvic fin

Anterior margin of head nearly
straight with small indentation in the middle

Max. length: 600cm

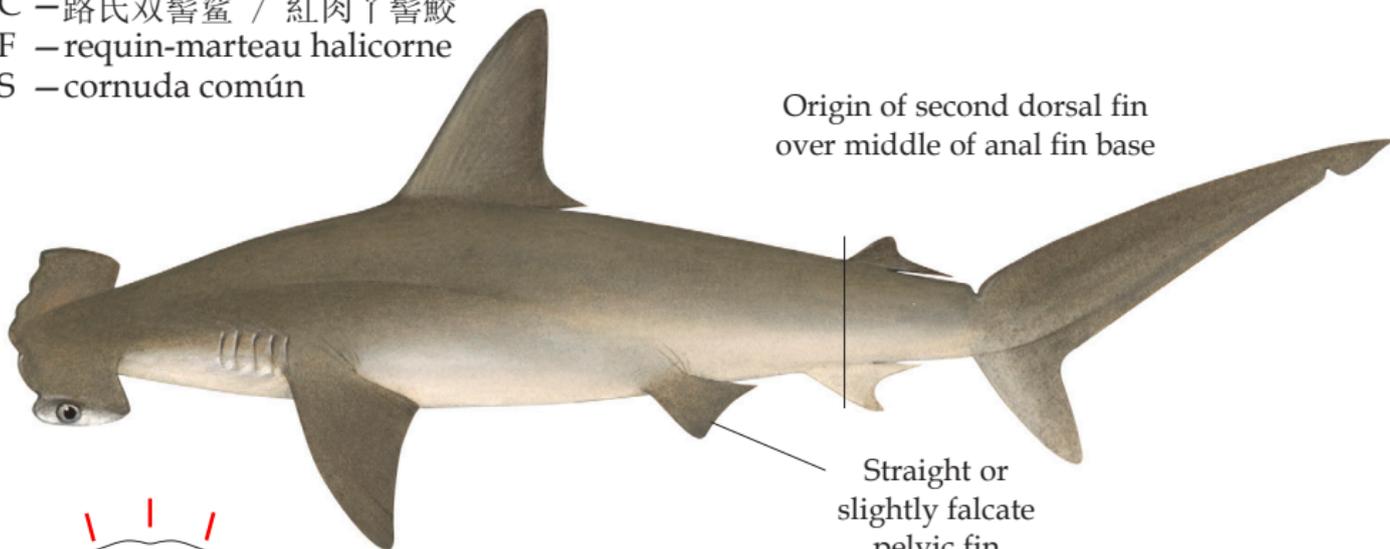


Scalloped hammerhead

SPL

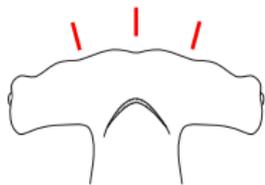
Sphyrna lewini

- J - アカシュモクザメ
- C - 路氏双髻鲨 / 紅肉丫髻鯊
- F - requin-marteau halicorne
- S - cornuda común



Origin of second dorsal fin
over middle of anal fin base

Straight or
slightly falcate
pelvic fin



Anterior margin of head curved with middle
marked dent and a distinct lobe at each end

Max. length: 350cm

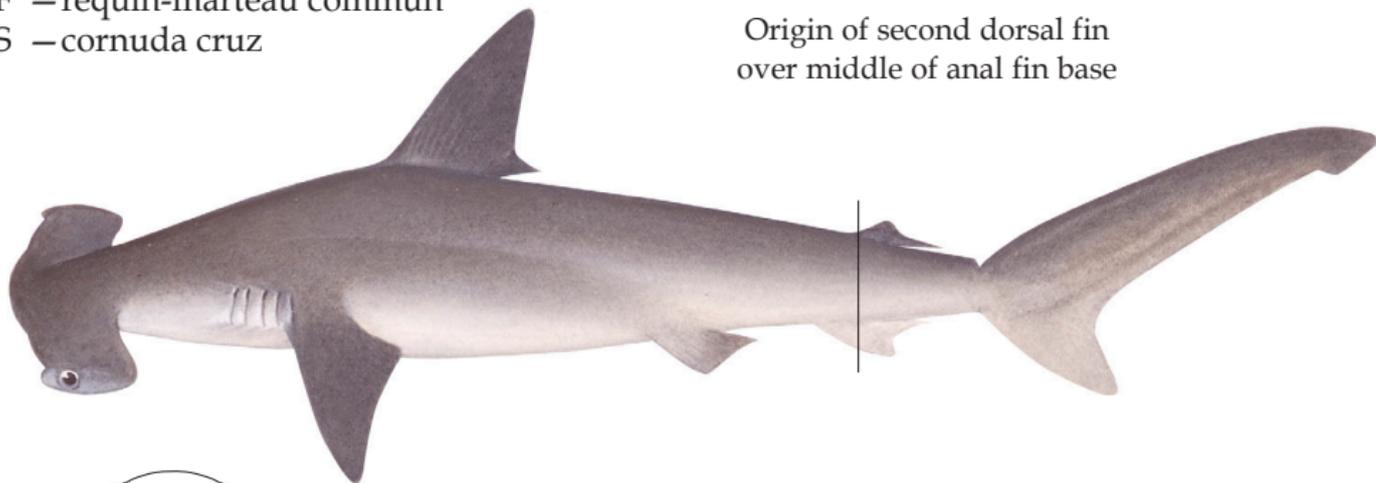
Smooth hammerhead

SPZ

Sphyrna zygaena

- J - シロシュモクザメ
- C - 鎚頭双髻鲨 / ヲ髻鯊
- F - requin-marteau commun
- S - cornuda cruz

Origin of second dorsal fin
over middle of anal fin base



Anterior margin of head curved
median indentation absent or
not well marked

Max. length: 350cm

Winghead shark

EUB

Eusphyra blochii

- J - インドシュモクザメ
C - 丁字双髻鲨 / 丁字雙髻鲨
F - requin-marteau planeur
S - cornuda planeadora



Head width nearly
half of body length

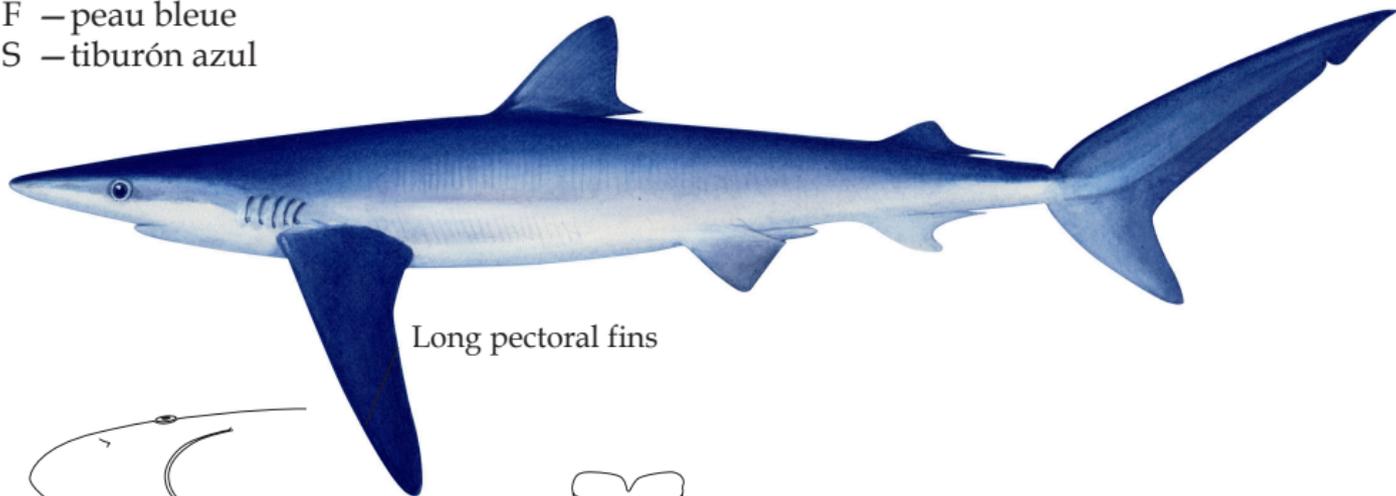
Max. length: 190cm

Blue shark

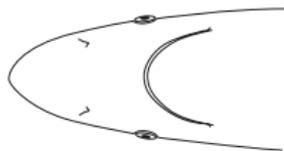
BSH

Prionace glauca

- J - ヨシキリザメ
- C - 大青鲨 / 鋸峰齒鯊
- F - peau bleue
- S - tiburón azul



Long pectoral fins



Head long and snout rounded



Upper teeth with jagged edges

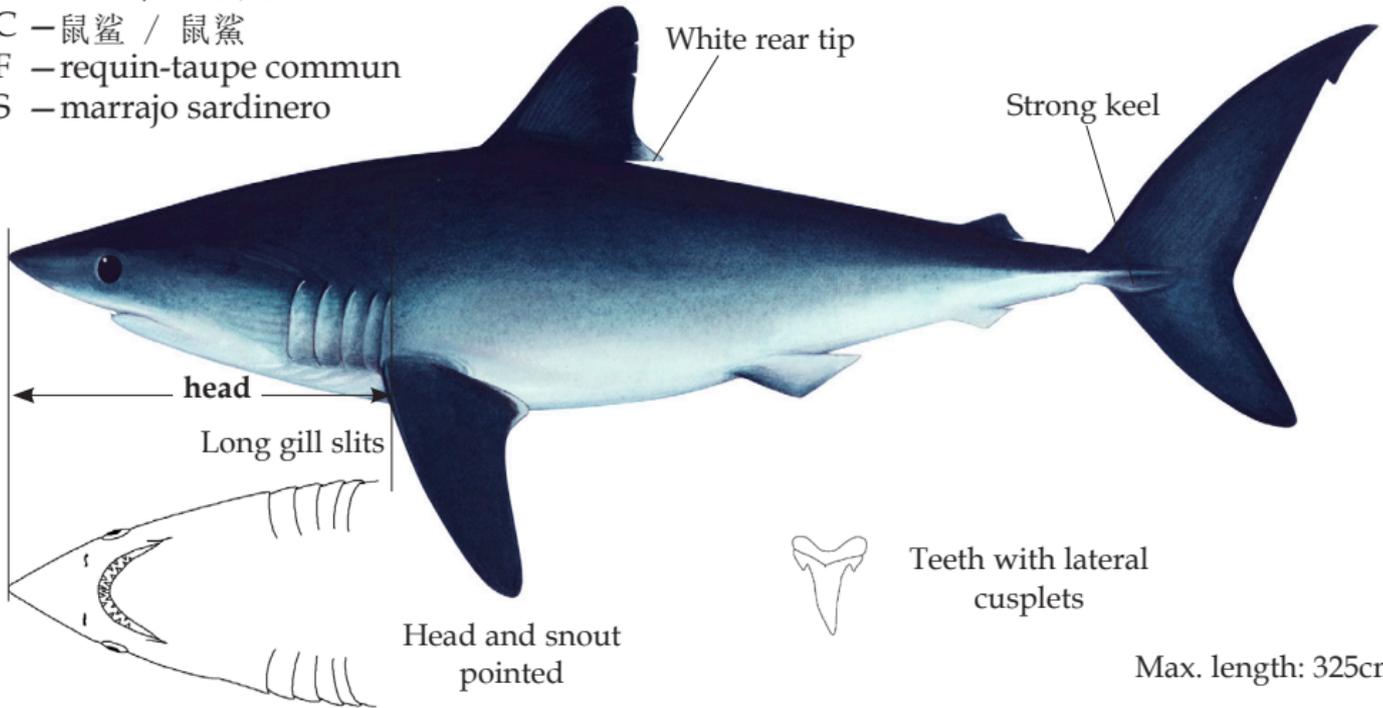
Max. length: 380cm

Porbeagle



Lamna nasus

- J – ニシネズミザメ
- C – 鼠鯊 / 鼠鯊
- F – requin-taupe commun
- S – marrajo sardinero



Max. length: 325cm

Shortfin mako

SMA

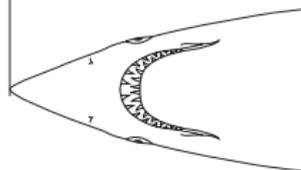
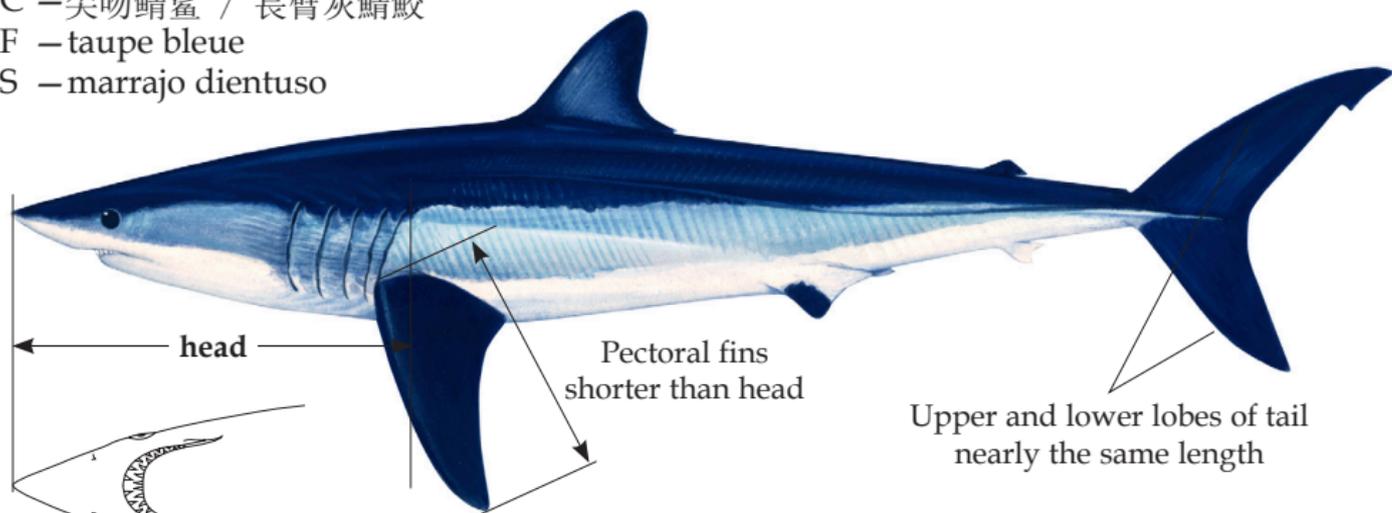
Isurus oxyrinchus

J - バケアオザメ

C - 尖吻鯖鲨 / 長臂灰鯖鯨

F - taupe bleue

S - marrajo dientuso



Head conical and snout pointed



Upper teeth with no jagged edges

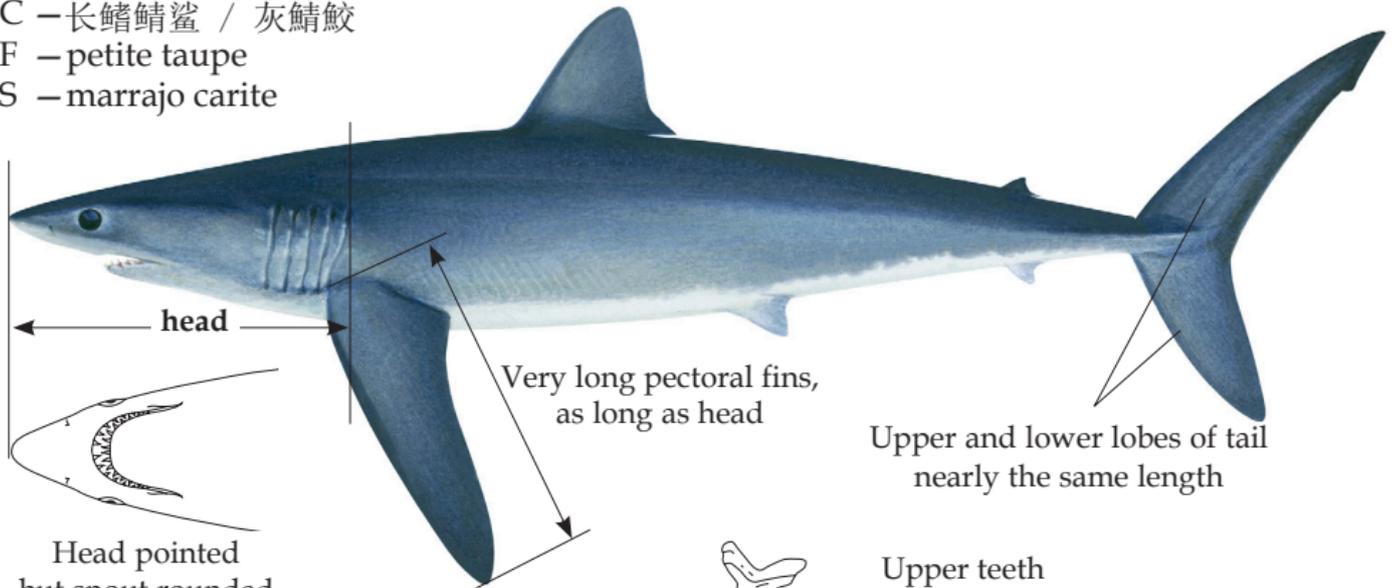
Max. length: 395cm

Longfin mako



Isurus paucus

- J – アオザメ
- C – 长鳍鯖鲨 / 灰鯖鯨
- F – petite taupe
- S – marrajo carite



Head pointed
but snout rounded

Very long pectoral fins,
as long as head

Upper and lower lobes of tail
nearly the same length



Upper teeth
with no jagged edges

Max. length: 420cm

Silvertip shark

ALS

Carcharhinus albimarginatus

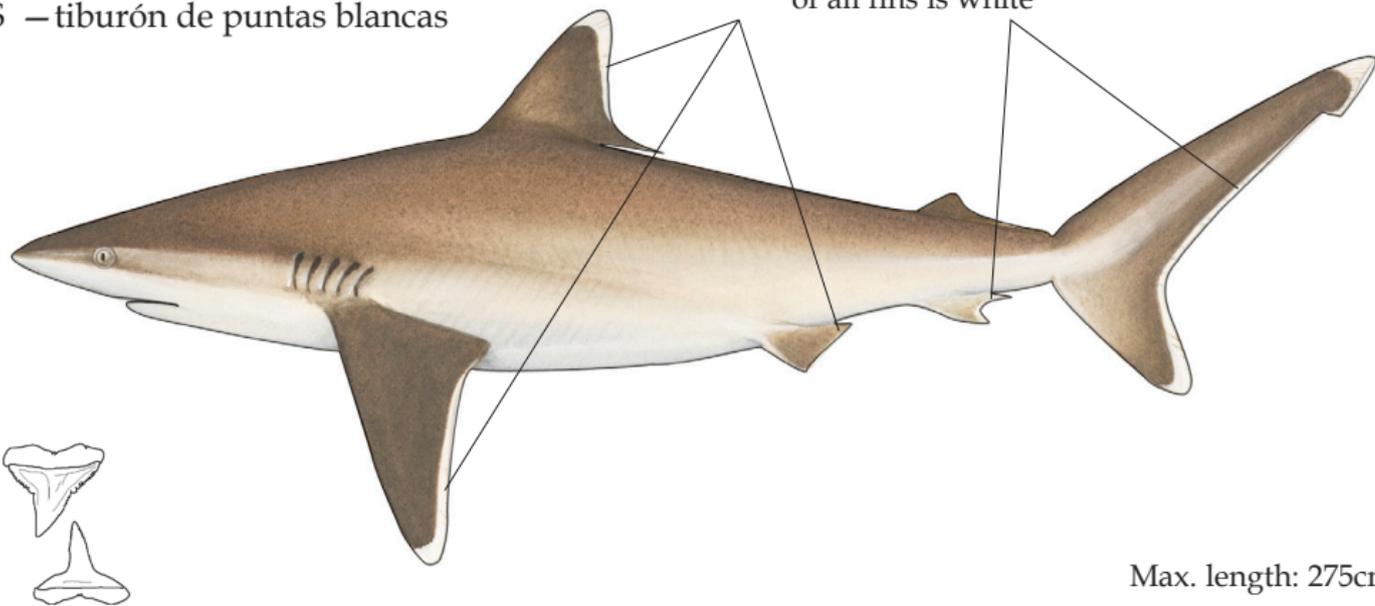
J - ツマジロ

C - 白边真鲨 / 白边鳍白眼鲨

F - requin pointe blanche

S - tiburón de puntas blancas

The back edge (not only the tips)
of all fins is white



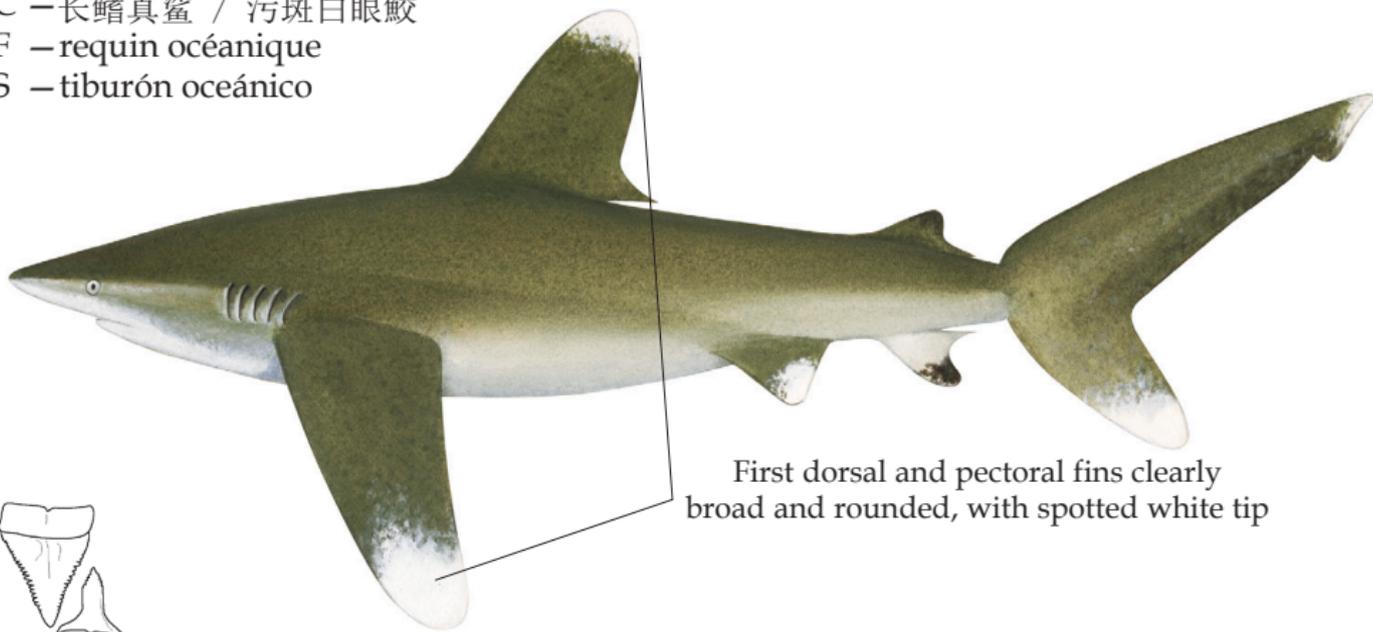
Max. length: 275cm

Oceanic whitetip shark



Carcharhinus longimanus

- J – ヨゴレ
- C – 长鳍真鲨 / 污斑白眼鲛
- F – requin océanique
- S – tiburón oceánico



First dorsal and pectoral fins clearly broad and rounded, with spotted white tip



Max. length: 300cm

Whitetip reef shark

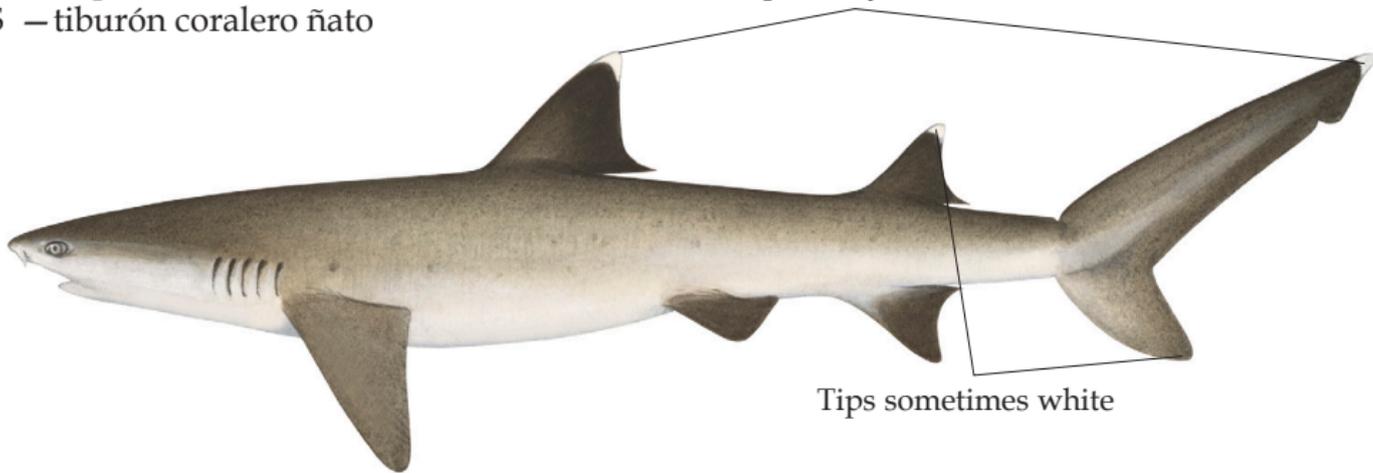
TRB

Triaenodon obesus

- J - ネムリブカ
- C - 灰三齿鲨 / 鬻鯨
- F - requin corail
- S - tiburón coralero ñato

Tips always white

Tips sometimes white



Max. length: 170cm

Blacktip shark

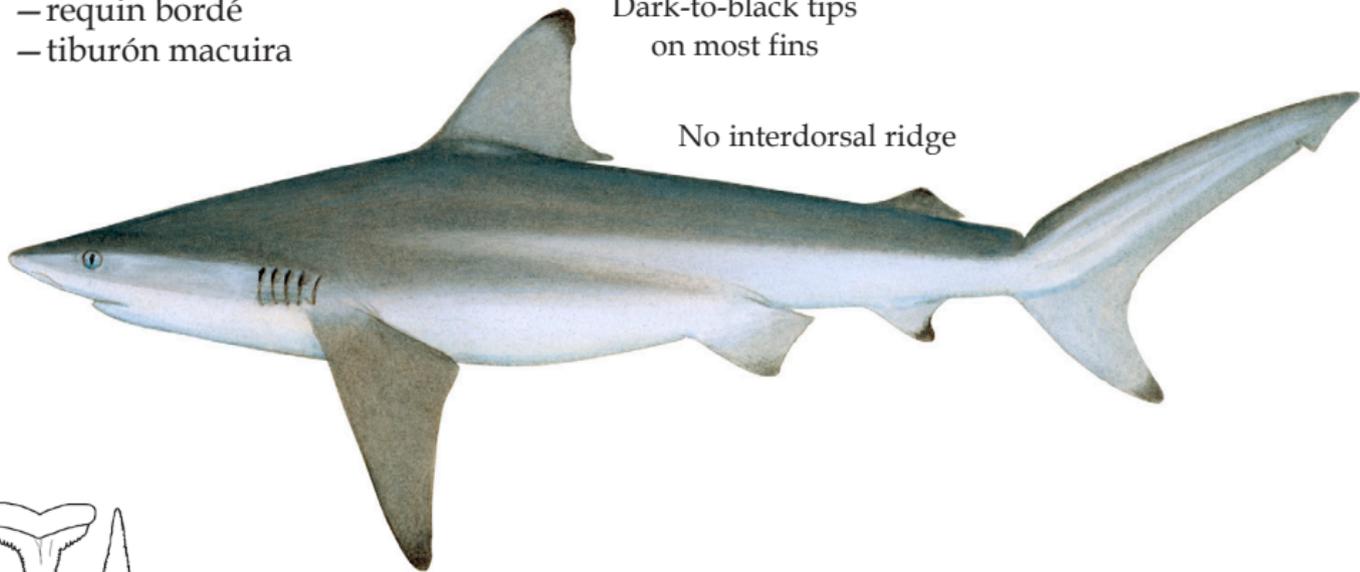


Carcharhinus limbatus

- J – カマストガリザメ
- C – 黒梢真鯊 / 黒邊鰭白眼鮫
- F – requin bordé
- S – tiburón macuira

Dark-to-black tips
on most fins

No interdorsal ridge



Narrow-cusped serrated
teeth

Max. length: 250cm

Bull shark

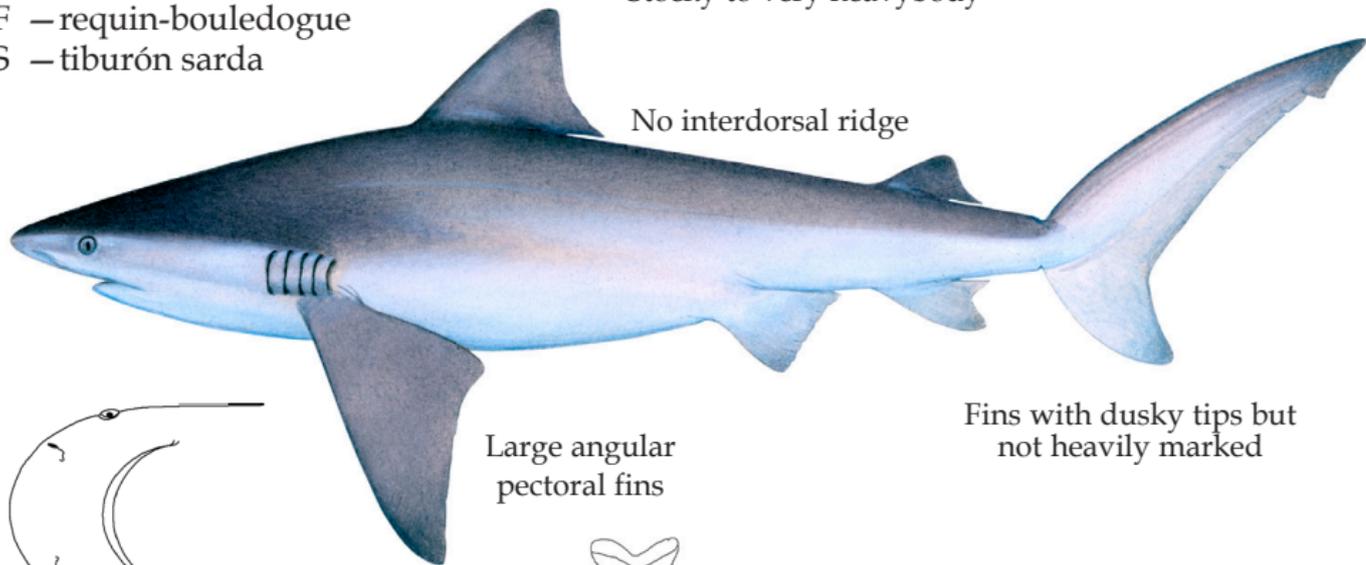
CCE

Carcharhinus leucas

- J - オオメジロザメ
- C - 公牛鲨 / 公牛白眼鯊
- F - requin-bouledogue
- S - tiburón sarda

Stocky to very heavybody

No interdorsal ridge



Fins with dusky tips but not heavily marked

Large angular pectoral fins

broadly triangular serrated upper teeth

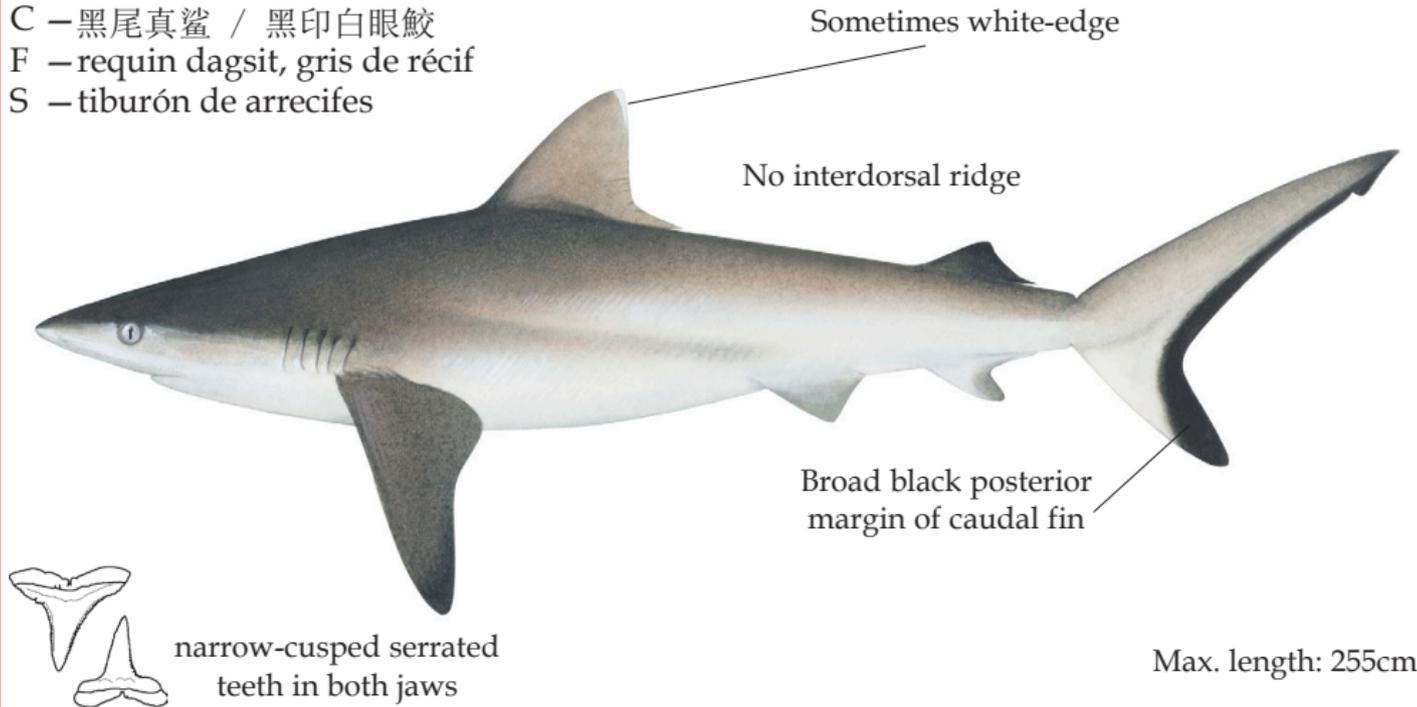
Max. length: 340cm

Grey reef shark

AML

Carcharhinus amblyrhynchos

- J – オグロメジロザメ
- C – 黒尾真鯊 / 黒印白眼鯊
- F – requin dagsit, gris de récif
- S – tiburón de arrecifes



Silky shark

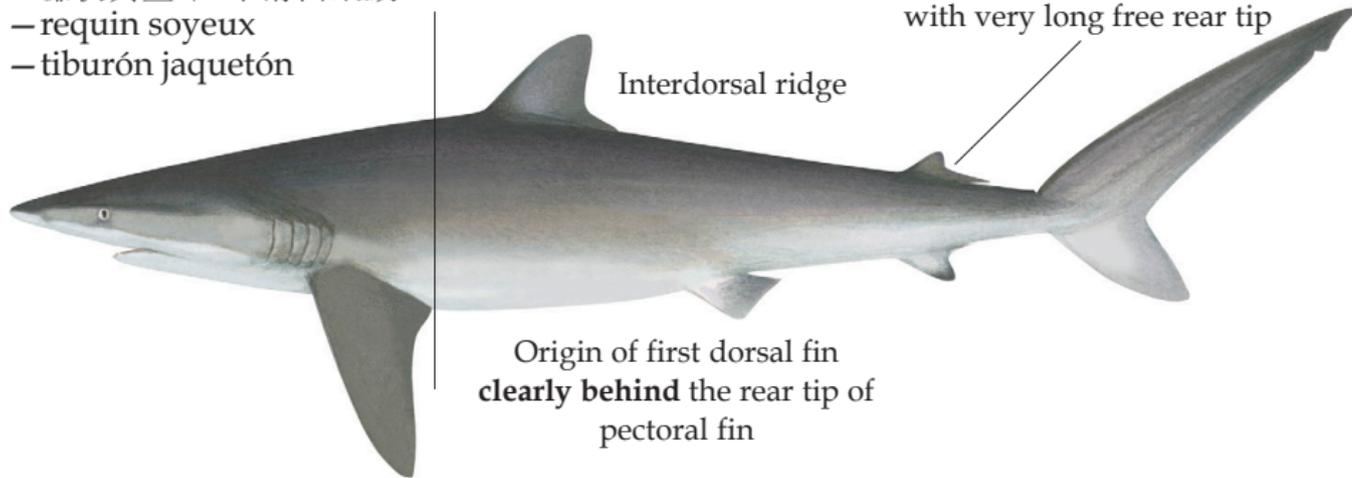
FAL

Carcharhinus falciformis

- J - クロトガリザメ
- C - 鎌状真鲨 / 平滑白眼鮫
- F - requin soyeux
- S - tiburón jaquetón

Very low second dorsal fin
with very long free rear tip

Interdorsal ridge



Origin of first dorsal fin
clearly behind the rear tip of
pectoral fin

Beware: pectoral, ventral, anal and caudal fins
often with dark or dusky tips



Very common in offshore fisheries

Max. length: 330cm

Blacktip reef shark

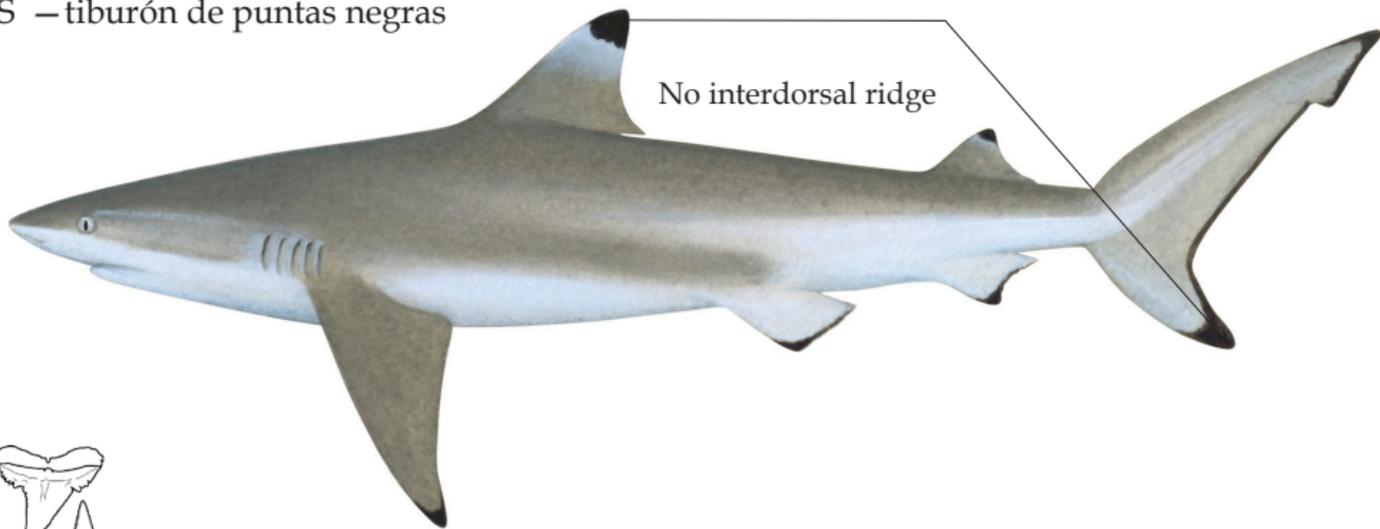
BLR

Carcharhinus melanopterus

- J – ツマグロ
- C – 乌翅真鲨 / 污翅白眼鲛
- F – requin pointes noires
- S – tiburón de puntas negras

Distinct black markings at the tip of the first dorsal fin and bottom lobe of tail

No interdorsal ridge



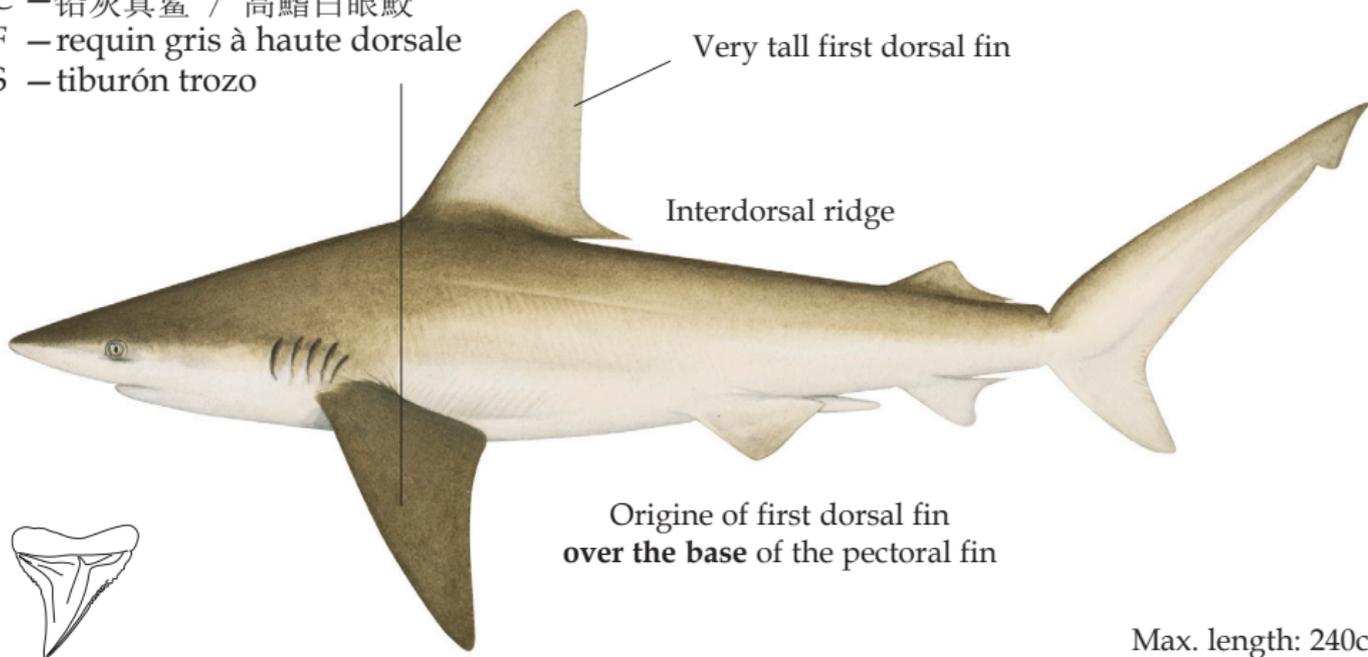
Max. length: 140cm

Sandbar shark

CCP

Carcharhinus plumbeus

- J - ヤジブカ
- C - 铅灰真鲨 / 高鳍白眼鲛
- F - requin gris à haute dorsale
- S - tiburón trozo



Max. length: 240cm

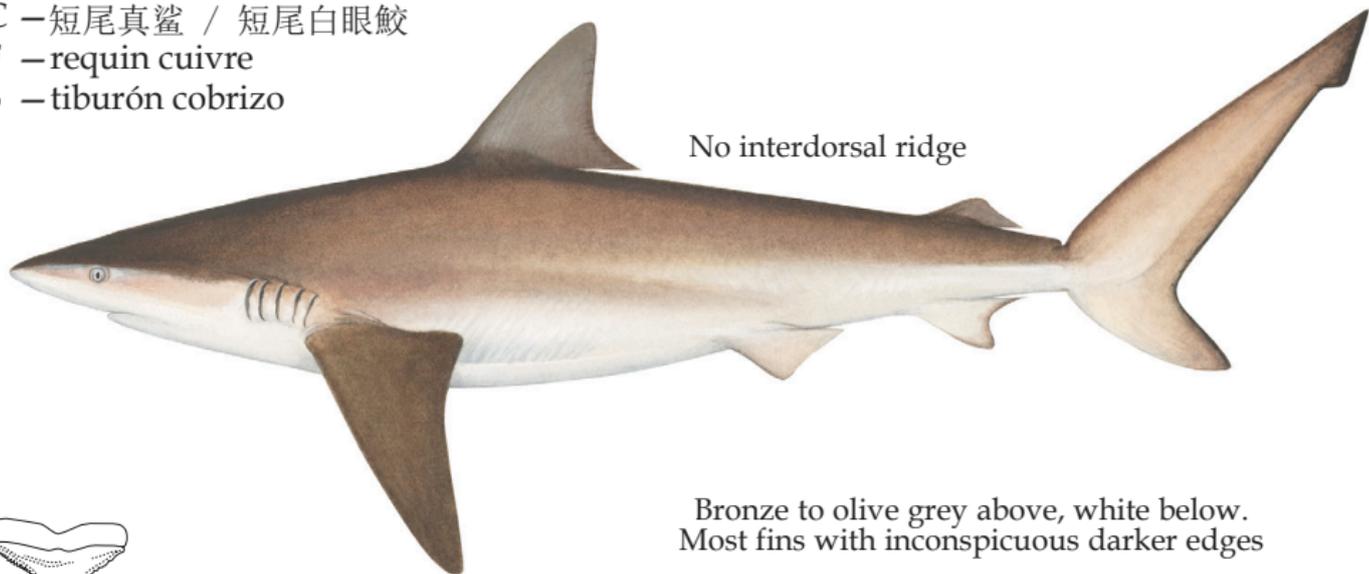
Sharks – with grey colouring

Copper shark (bronze whaler)

BRO

Carcharhinus brachyurus

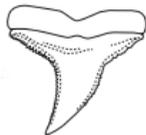
- J – クロヘリメジロザメ
- C – 短尾真鯊 / 短尾白眼鯊
- F – requin cuivre
- S – tiburón cobrizo



No interdorsal ridge

Bronze to olive grey above, white below.
Most fins with inconspicuous darker edges

Max. length: 295cm



Upper teeth with a
characteristic hook
shape

Bignose shark



Carcharhinus altimus

J - ハビレ

C - 高翅真鲨 / 大鼻白眼鯊

F - requin babosse

S - tiburón baboso

First dorsal fin relatively high

Prominent interdorsal ridge

Origin of first dorsal fin closer to pectoral fin base than to free rear tip

Long pectoral fins

Beware: pectoral, ventral, anal and caudal fins often with dark or dusky tips



Upper teeth serrated without cusplets

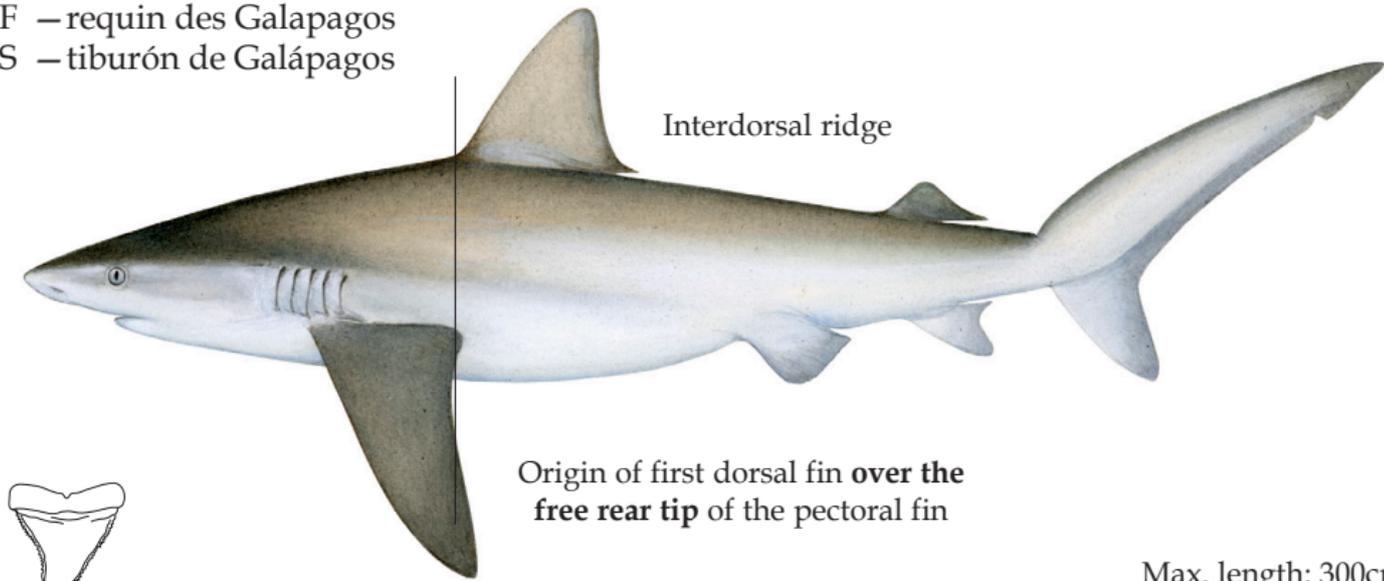
Max. length: 285cm

Galapagos shark



Carcharhinus galapagensis

- J – ガラパゴスザメ
- C – 直翅真鯊 / 直翅真鯊
- F – requin des Galapagos
- S – tiburón de Galápagos



Interdorsal ridge

Origin of first dorsal fin **over the free rear tip** of the pectoral fin

Max. length: 300cm

Beware: Galapagos and Dusky sharks are very similar

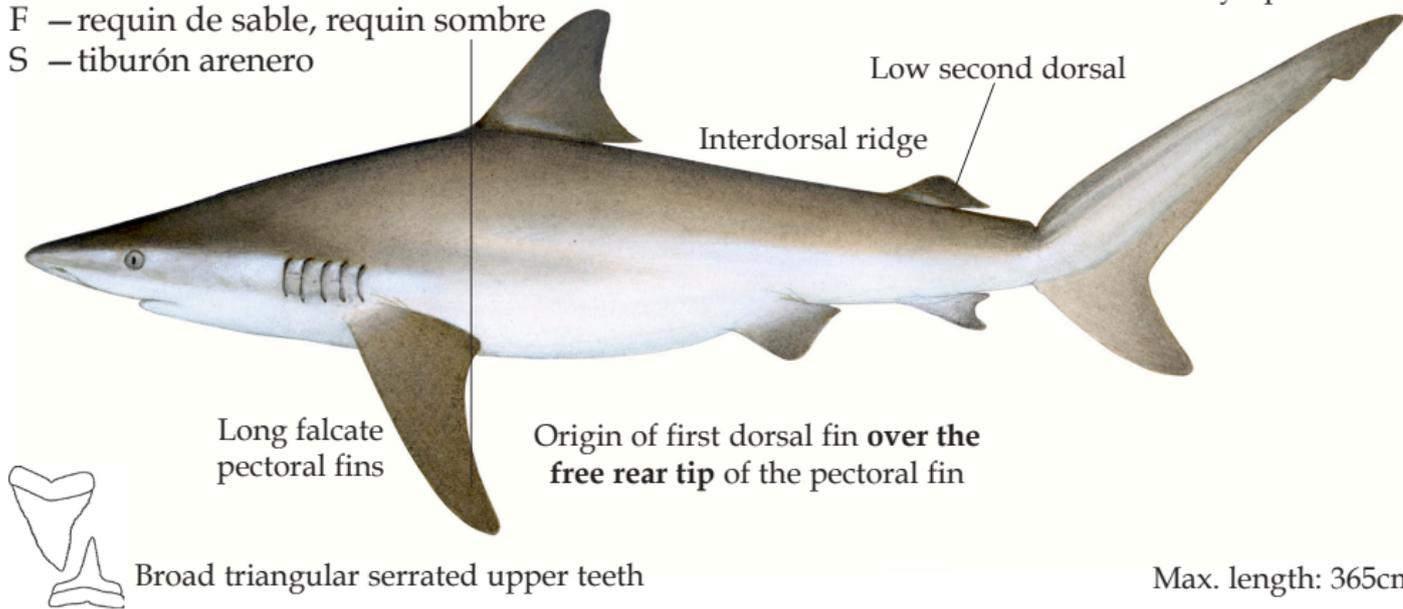
Dusky shark

DUS

Carcharhinus obscurus

- J - ドタブカ
- C - 灰真鲨 / 灰色白眼鯊
- F - requin de sable, requin sombre
- S - tiburón arenero

Beware: pectoral, ventral, anal and caudal fins often with dark or dusky tips



Beware: Galapagos and Dusky sharks are very similar

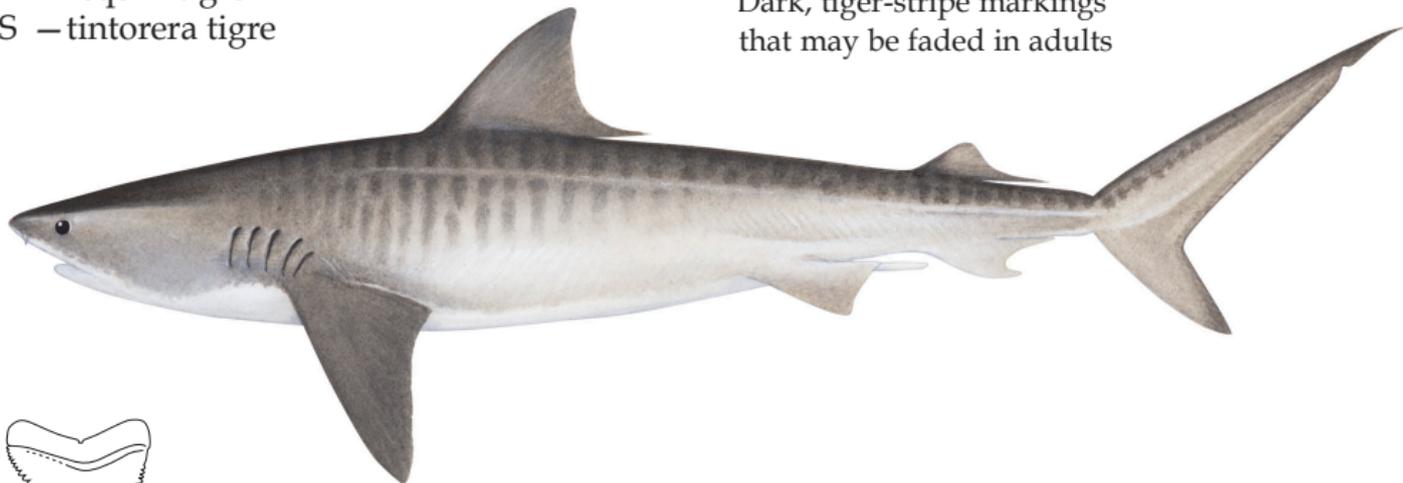
Tiger shark

TIG

Galeocerdo cuvier

- J – イタチザメ
- C – 鮫 / 鮫鮫
- F – requin-tigre
- S – tintorera tigre

Dark, tiger-stripe markings that may be faded in adults



Upper teeth with jagged edges and very characteristic shape

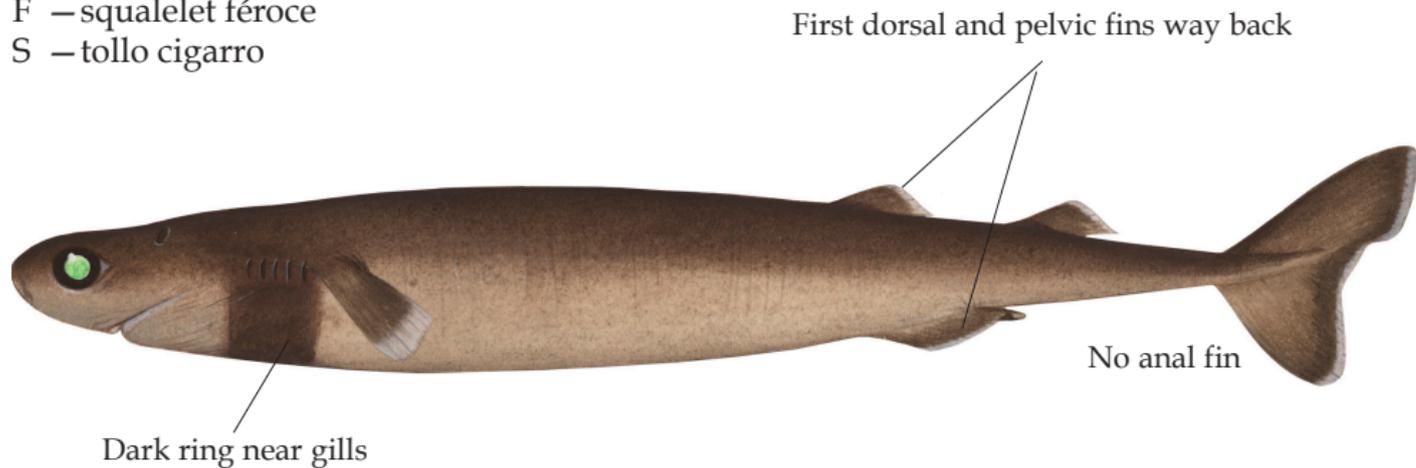
Max. length: 600cm

Cookie cutter shark

ISB

Isistius brasiliensis

- J - ダルマザメ
- C - 雪茄达摩鲨 / 雪茄鮫
- F - squalolet féroce
- S - tolo cigarro



Max. length: 50cm

Bigeye sand tiger shark

ODH

Odontaspis noronhai

- J – ビッグアイサンドタイガー
- C – 大眼砂錐齒鯊 / 大眼砂錐齒鯊
- F – requin noronhai
- S – solrayo ojigrande

Large eyes



Upper lobe of tail much longer than lower lobe



Upper teeth without jagged edges and 3-pointed ends

Relatively large species
Size at birth > 120 cm

Max. length: 360cm

Crocodile shark

PSK

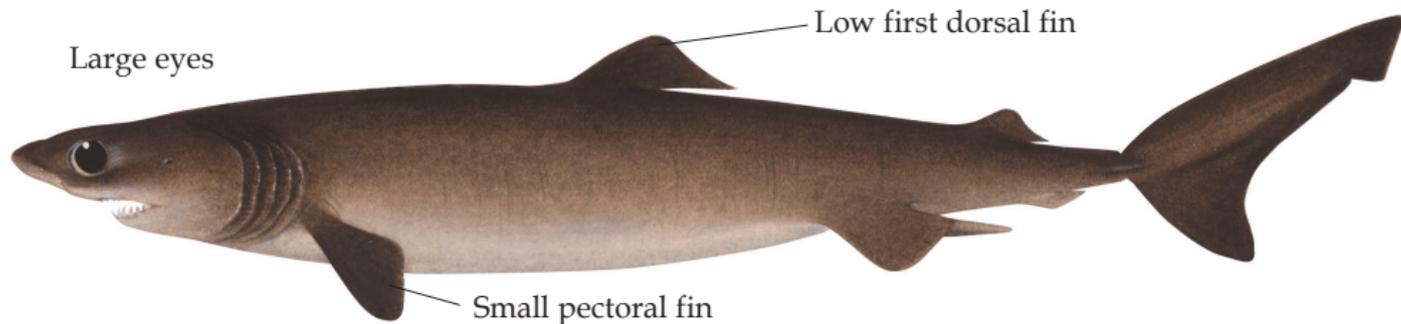
Pseudocarcharias kamoharai

J - ミズワニ

C - 鰐鲨 / 蒲原氏擬錐齒鯊

F - requin-crocodile

S - tiburón cocodrilo



Upper teeth
with no jagged edges

Max. length: 120cm

Basking shark

BSK

Cetorhinus maximus

- J - ウバザメ
- C - 姥鲨 / 象鯨
- F - pèlerin
- S - peregrino

Massive gill slits that go almost all the way around the head



Very small teeth

Max. length: 1000cm

Whale shark

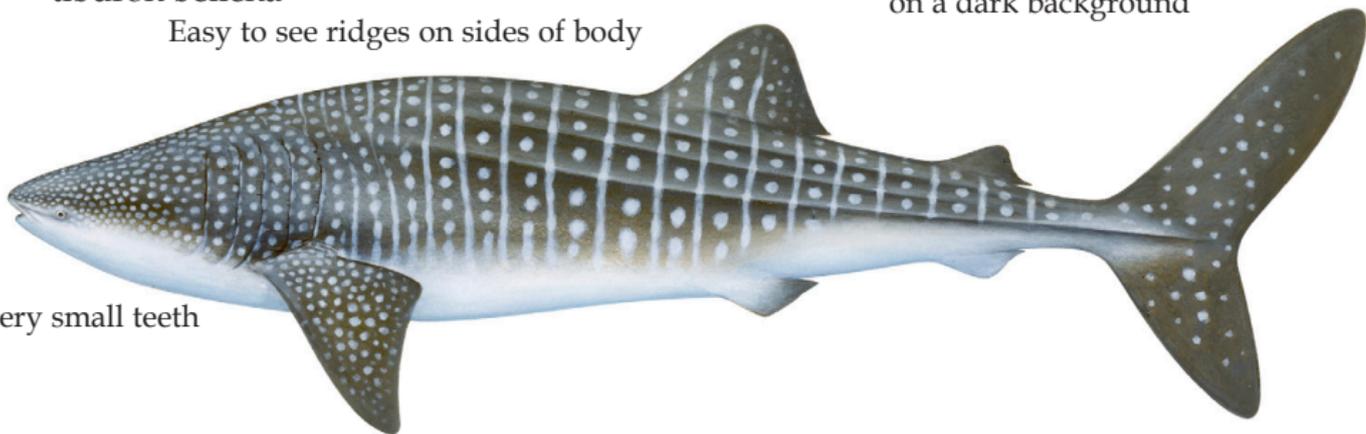


Rhincodon typus

- J - ジンベエザメ
- C - 鲸鲨 / 鲸鲨
- F - requin-baleine
- S - tiburón ballena

Easy to see ridges on sides of body

A very clear pattern of light spots and vertical stripes on a dark background



Very small teeth

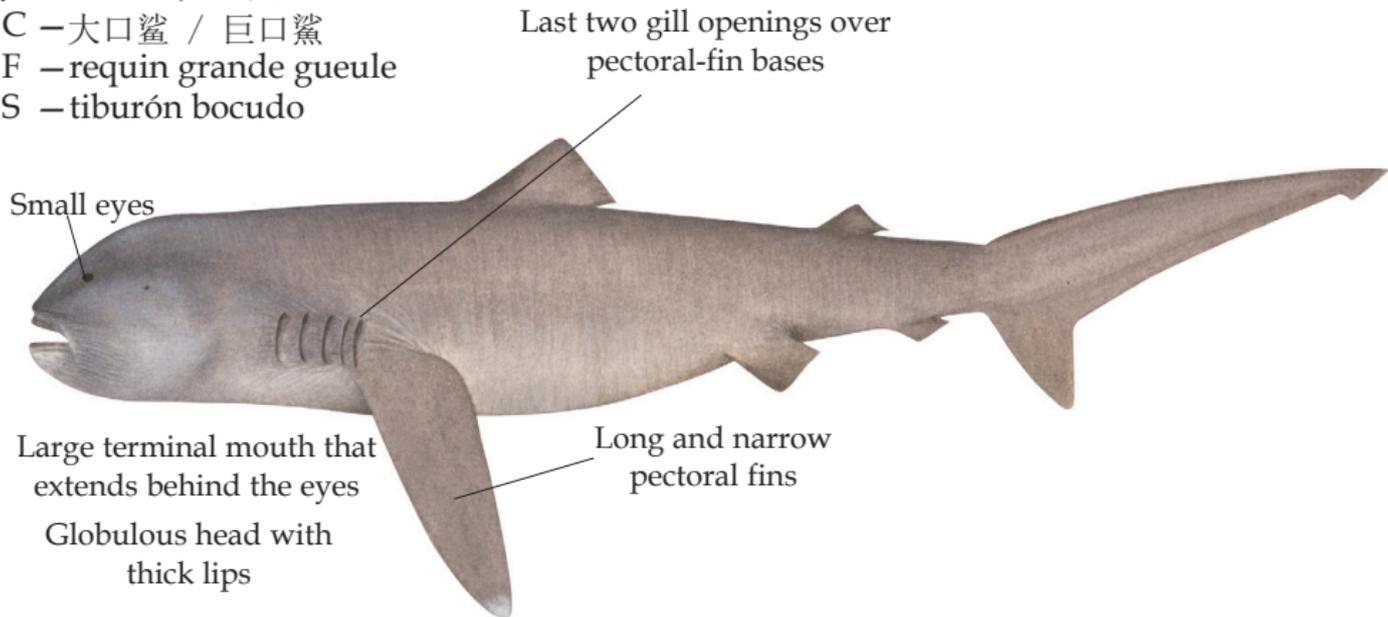
Max. length: 1200cm

Megamouth shark

LMP

Megachasma pelagios

- J - メガマウスザメ
- C - 大口鯊 / 巨口鯊
- F - requin grande gueule
- S - tiburón bocudo



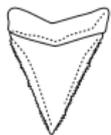
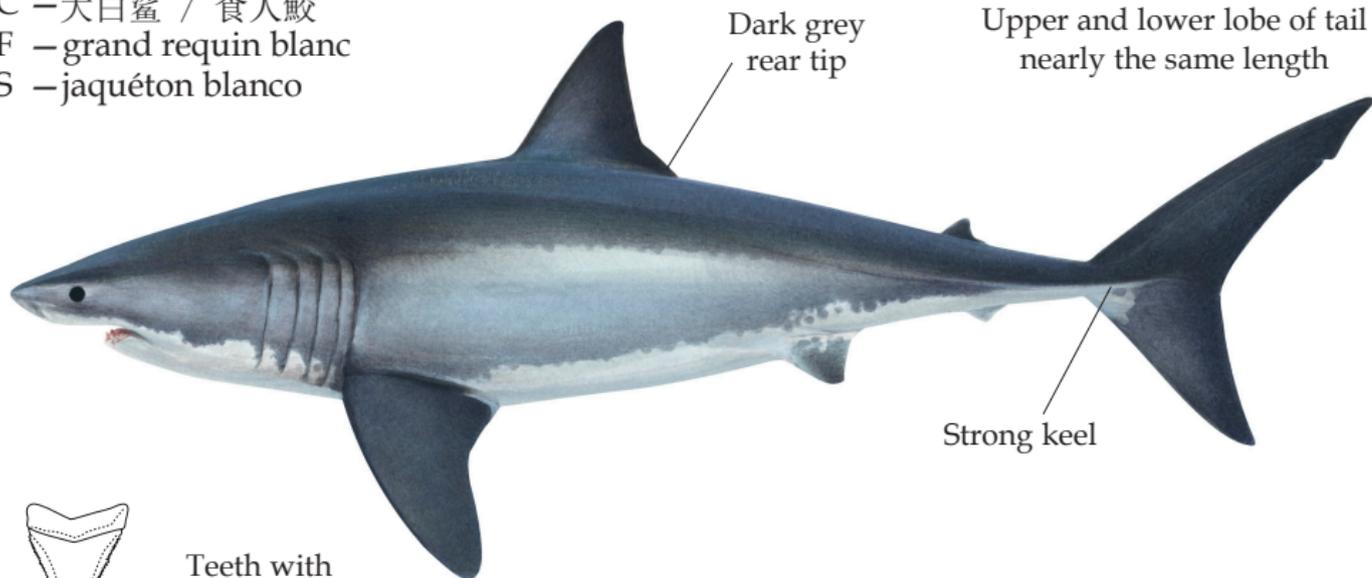
Max. length: 550cm

Great white shark

WSH

Carcharodon carcharias

- J - ホオジロザメ
- C - 大白鯊 / 食人鯊
- F - grand requin blanc
- S - jaquéton blanco



Teeth with jagged edges

Strong keel

Upper and lower lobe of tail nearly the same length

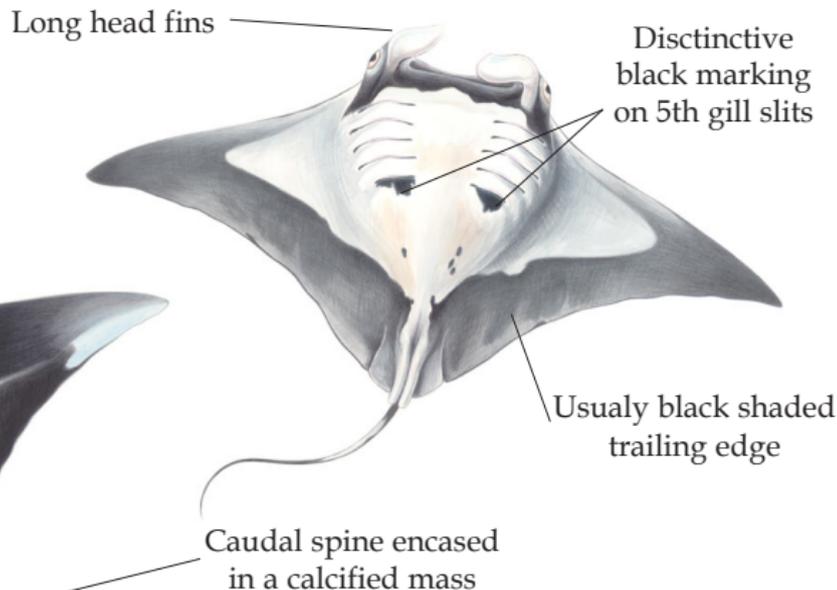
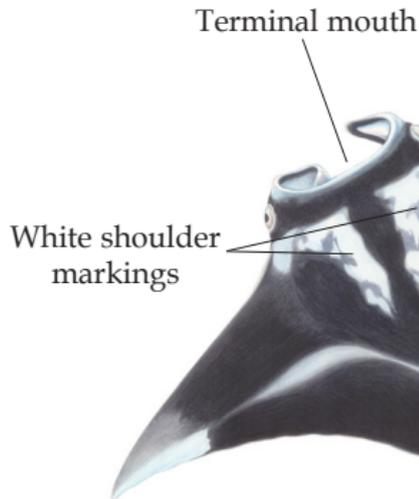
Max. length: 600cm

Manta ray

RMB

Manta birostris

- J - オニイトマキエイ
C - 双吻前口蝠鱝 / 鬼蝠魟
F - mante géante, manta
S - manta gigante



Max. width: 670cm

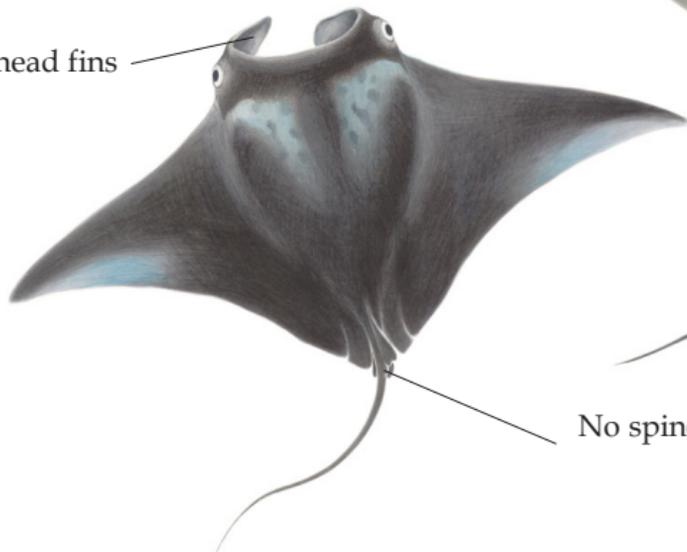
Alfred manta



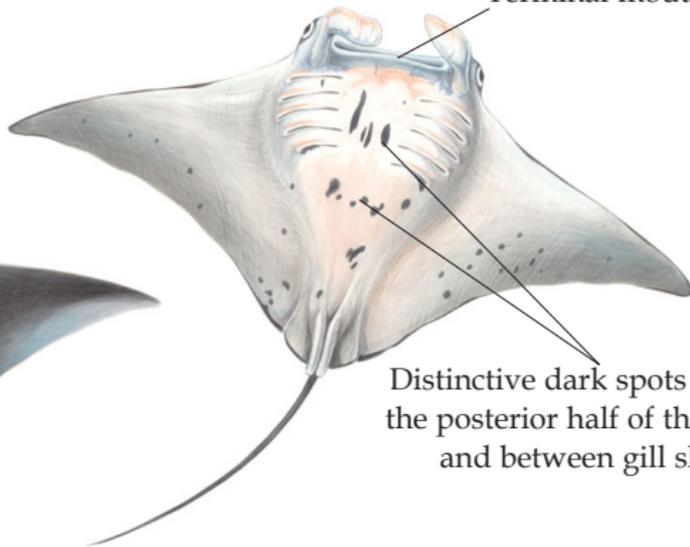
Manta alfredi

- J - ナンヨウマンタ
- C - 鬼蝠魟 / 小鬼蝠魟
- F - manta de récif
- S - manta de arrecife

Long head fins



Terminal mouth



Distinctive dark spots across the posterior half of the body and between gill slits

No spine or calcified mass on tail

Max. width: 550cm

Spinetail mobula (Japanese devilray)

RMJ

Mobula japonica

J - イトマキエイ

C - 日本蝠鯨 / 日本蝠魞

F - diable du Japon

S - manta de aguijón

Distinctive ridge

Short head fins

Ventral mouth

Slit-like spiracles above
margin of pectoral fin

Dorsal fin with
white tip

Caudal spine

Very long tail

Max. width: 310cm

When alive, large dark band which stretches from eye to eye

Smoothtail mobula (Bentfin devilray)



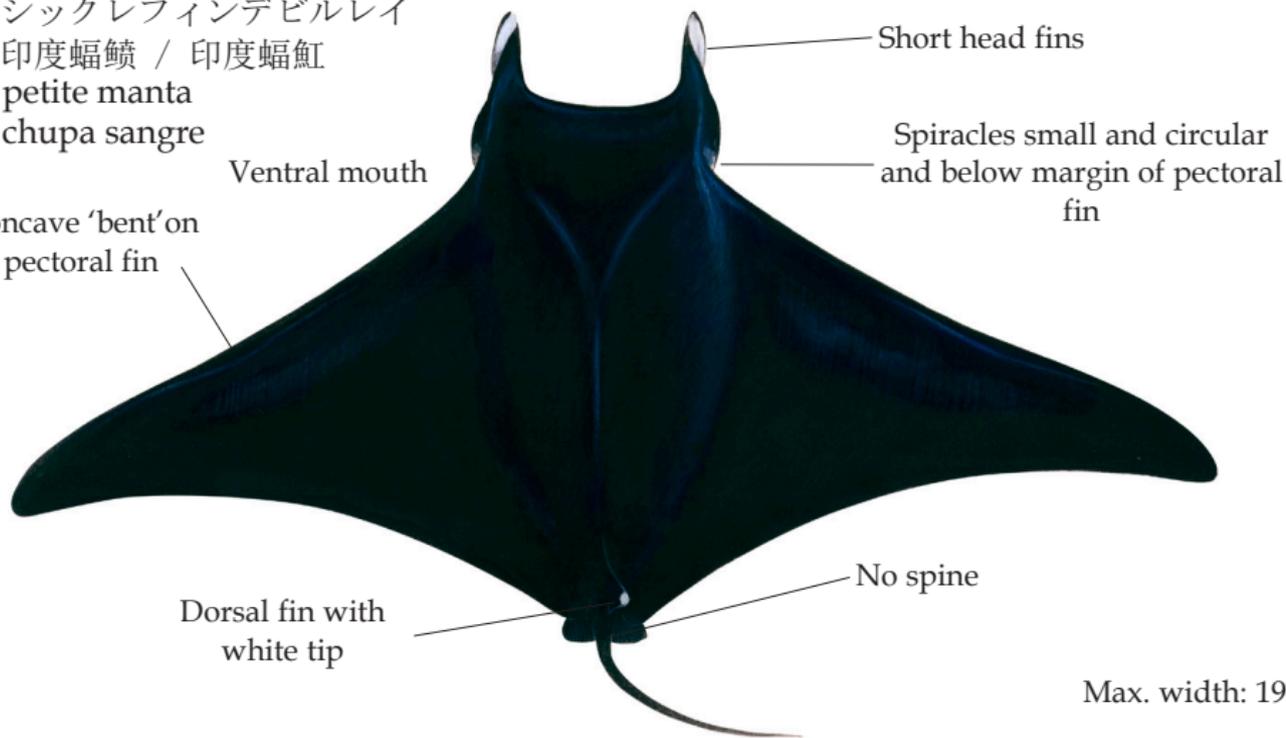
Mobula thurstoni

J - シックレフィンデビルレイ

C - 印度蝠鱝 / 印度蝠魞

F - petite manta

S - chupa sangre



Max. width: 190cm

Longhorned mobula

(Pygmy devilray)

RME

Mobula eregoodootenkee

J - スティングレスデビルレイ

C - 短尾蝠鯐 / 短尾蝠魛

F - diable pygmée

S - diablo pigmeo

Short head fins

Spiracles small and circular
and below margin of pectoral
fin

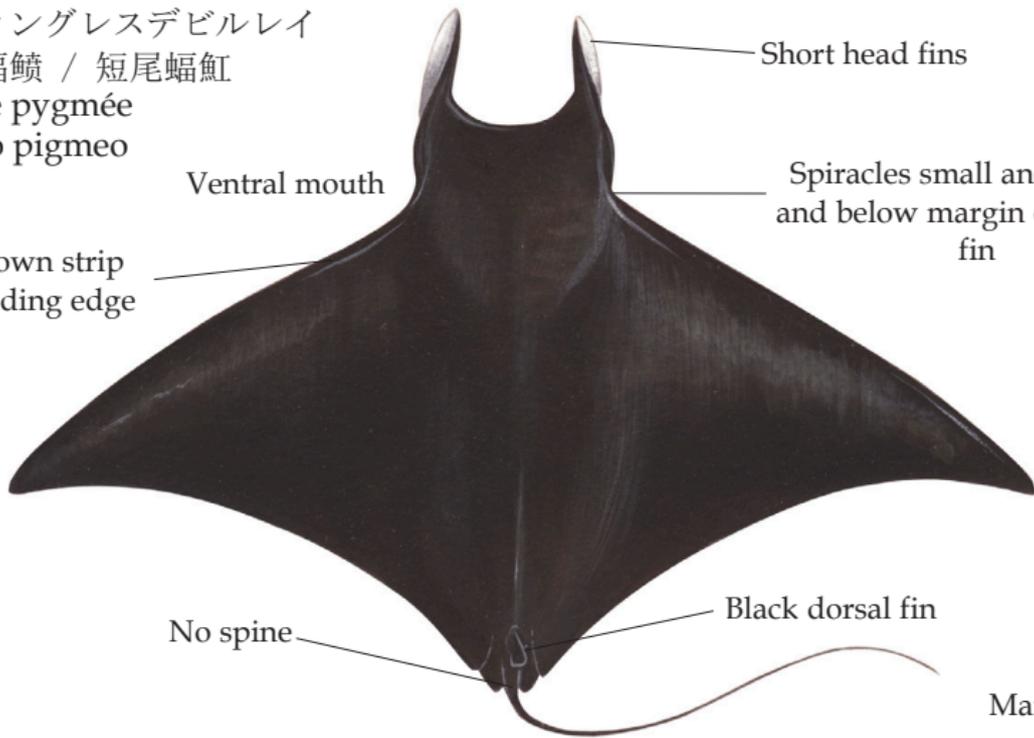
Ventral mouth

Dark brown strip
along leading edge

Black dorsal fin

No spine

Max. width: 100cm

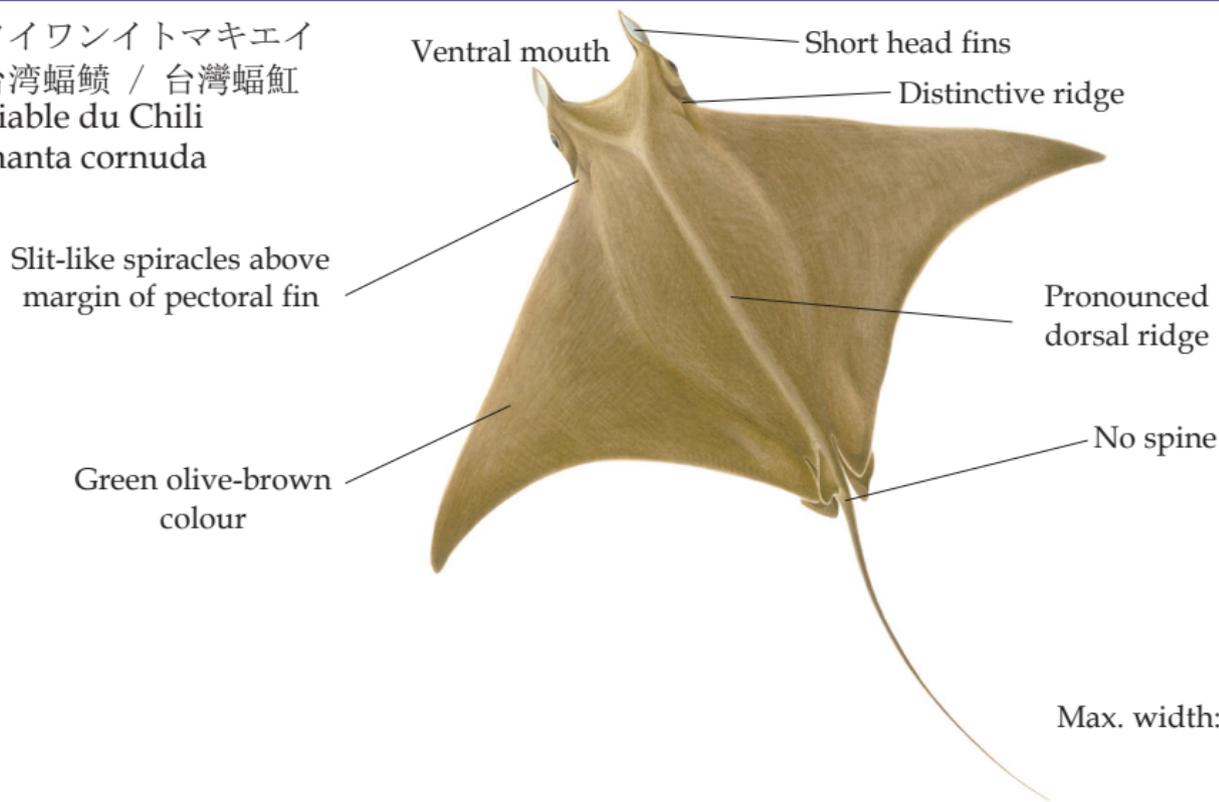


Chilean devilray (Sicklefin devilray)



Mobula tarapacana

J - タイワンイトマキエイ
C - 台湾蝠鲼 / 台湾蝠魟
F - diable du Chili
S - manta cornuda

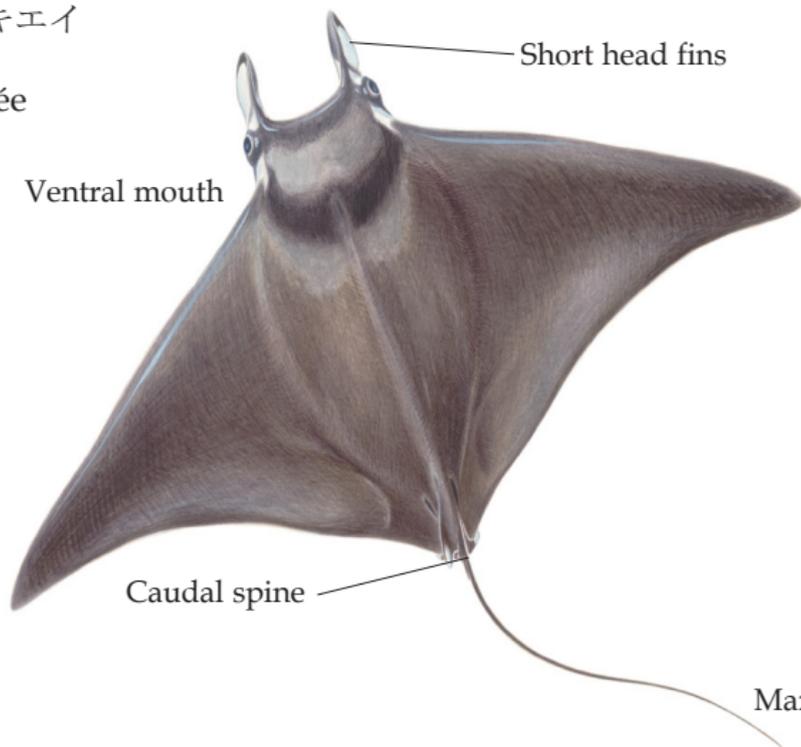


Devil fish

RMM

Mobula mobular

- J - タイセイヨウイトマキエイ
- C - 蝠鱝 / 蝠魟
- F - diable de Méditerranée
- S - manta mobula



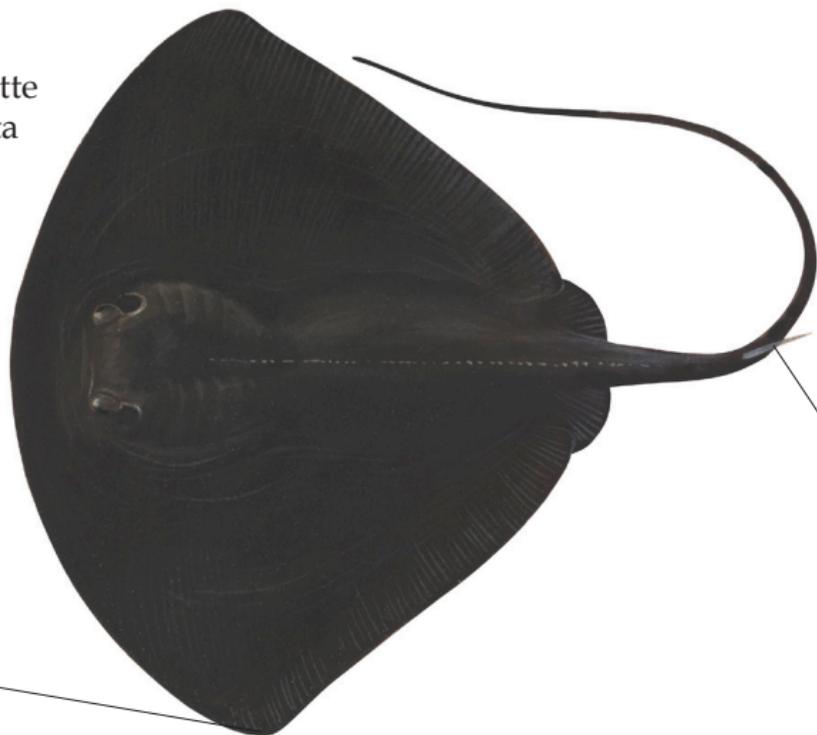
Pelagic stingray

PLS

Pteroplatytrygon violacea

- J - カラスエイ
- C - 紫魷 / 紫魷
- F - pastenague violette
- S - raya-látigo violeta

Dark colouration



Caudal spine

Angular pectoral fins

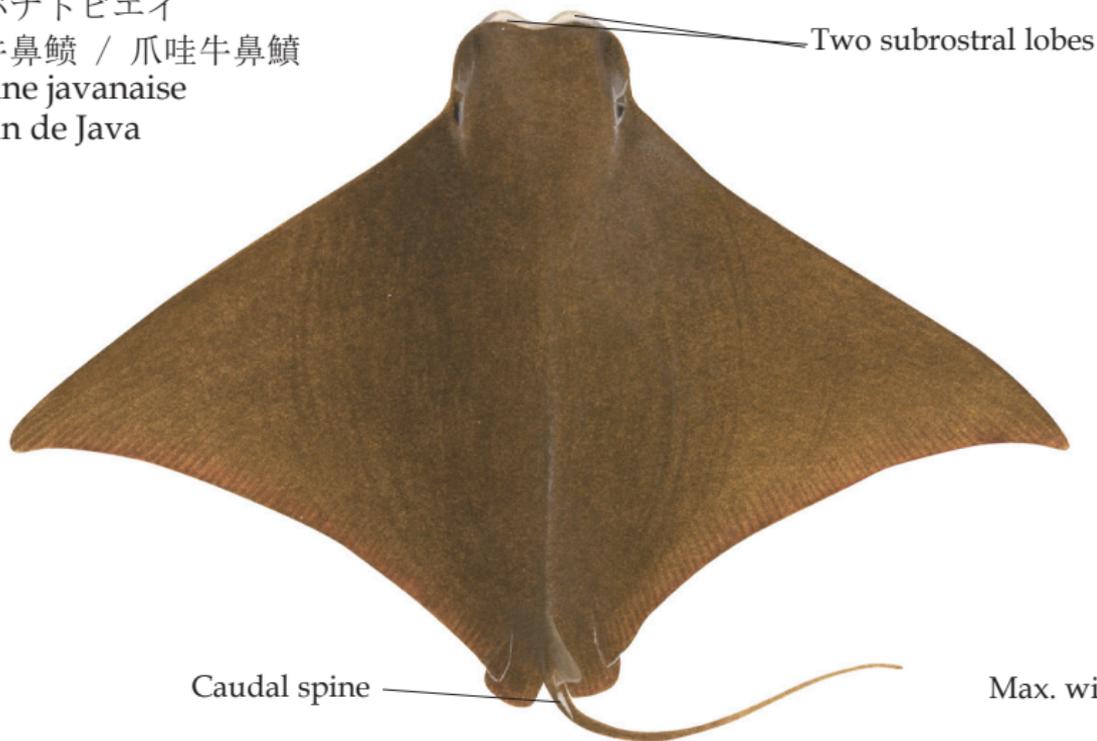
Max. width: 80cm

Flapnose ray (Javanese cownose ray)

MRJ

Rhinoptera javanica

- J - ウシバナトビエイ
- C - 爪哇牛鼻鱘 / 爪哇牛鼻鱘
- F - mourine javanaise
- S - gavián de Java



IOTC requirements regarding sharks and rays

Identify, record and correctly report every shark and ray caught by your vessel

The following are among the actions that fishers/observers are expected to take in relation to sharks and rays, in accordance with IOTC Conservation and Management Measures (CMM) (It is recommended that you check annually for modifications by IOTC):

- Fishers onboard longline vessels shall report through their logbooks, catches of blue shark (*Prionace glauca*), porbeagle (*Lamna nasus*), mako sharks (*Isurus* spp.), hammerhead sharks (Sphyrnidae) and other sharks, where possible by species or species group as per applicable CMM.
- Fishers onboard purse seine vessels shall report through their logbooks, catches of whale sharks (*Rhincodon typus*).
- Fishers onboard gillnet vessels shall report through their logbooks, catches of blue shark (*Prionace glauca*), porbeagle (*Lamna nasus*), mako sharks (*Isurus* spp.), hammerhead sharks (Sphyrnidae), whale sharks (*Rhincodon typus*) and other sharks, where possible by species or species group as per applicable CMM.
- Fishers onboard pole-and-line, handline or trolling vessels shall report through their logbooks, catches of sharks and rays where possible by species or species group as per applicable CMM.
- Observers shall record all interactions and catches of sharks and rays by species, as per applicable CMM.
- Fishing vessels shall not have fins onboard that total more than 5% of the weight of sharks onboard, up to the first point of landing.
- All species of thresher sharks (*Alopias* spp.) shall not be retained if caught in the Indian Ocean, and any interaction shall be recorded by fishers/observers.

SHARK AND RAY IDENTIFICATION IN INDIAN OCEAN PELAGIC FISHERIES



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