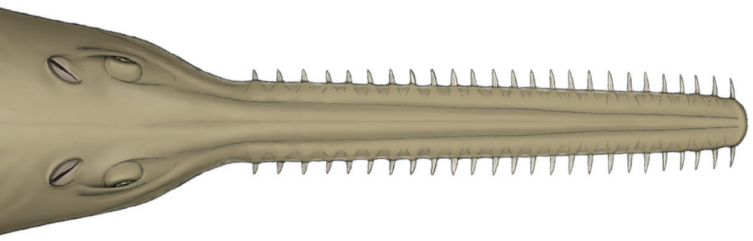
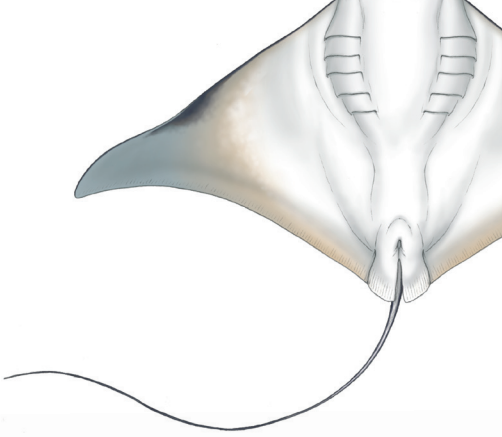
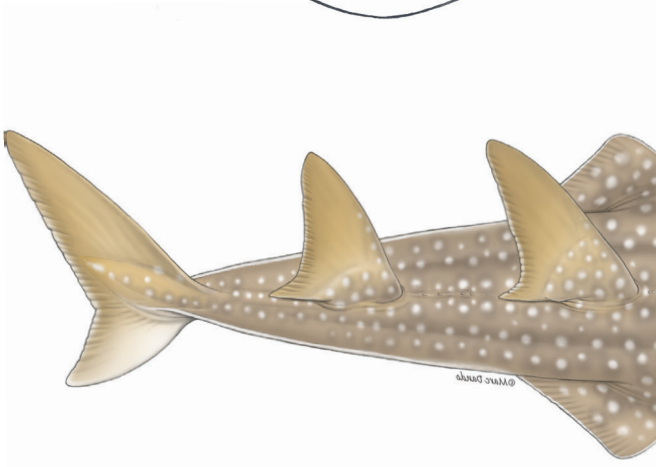
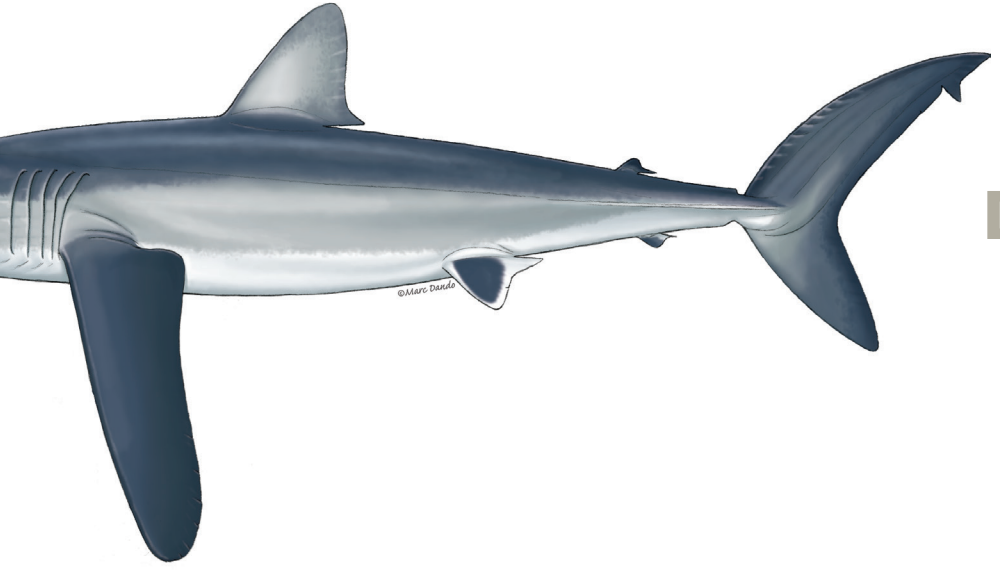




# SHARKS AND RAYS LISTED ON CITES

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FLORA AND FAUNA

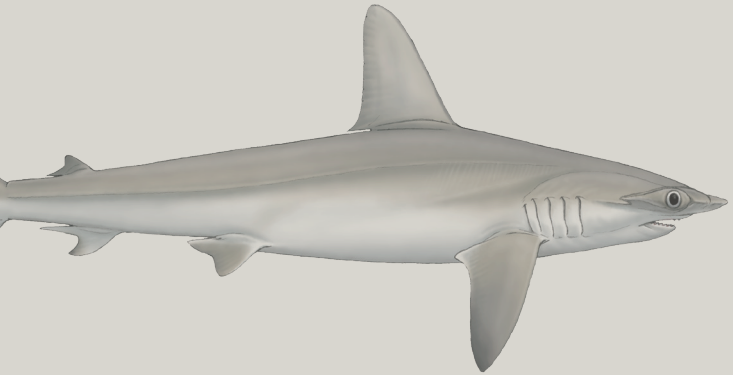





## DRIED PRODUCTS

WCS

ELASMOPROJECT

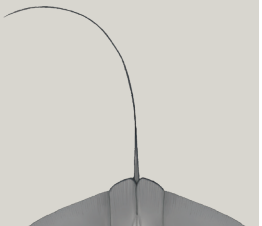


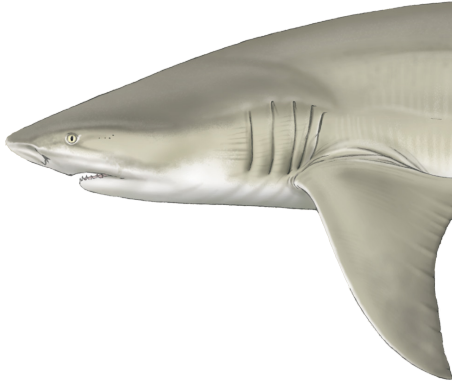


**Citation** Jabado RW, Abercrombie DL. 2024. Sharks and rays listed on the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES): Dried products. Wildlife Conservation Society, New York. pp. 91

**Illustrations** © Marc Dando, Wild Nature Press







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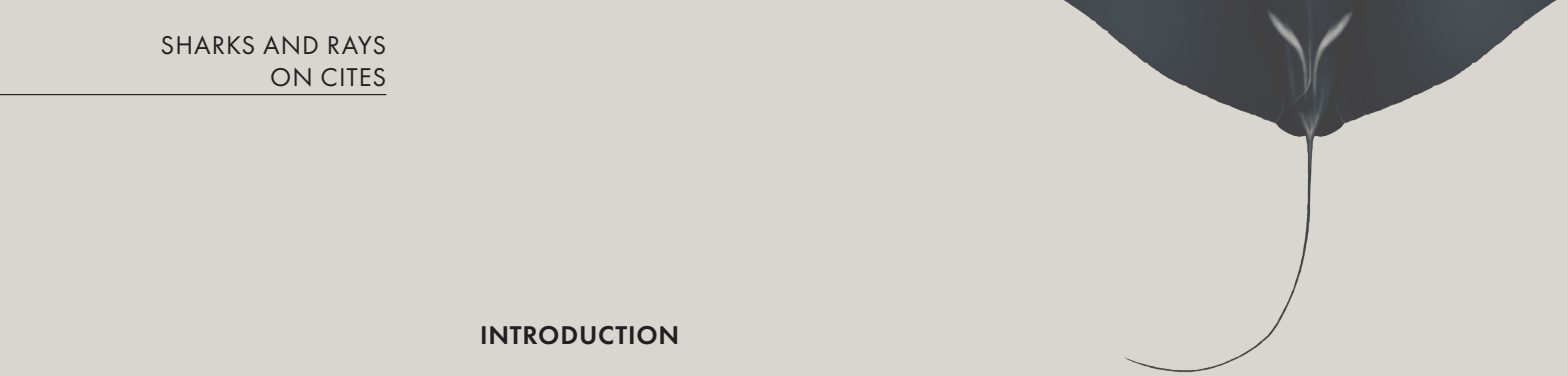
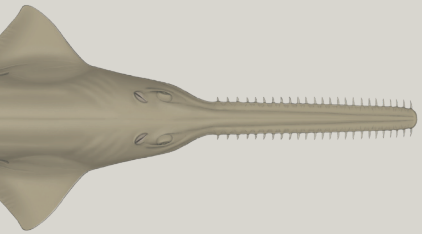


## INTRODUCTION

Sharks and rays are one of the most threatened groups of vertebrates with an estimated 37% of species threatened with extinction according to the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. Overfishing is the primary threat with many species harvested in significant numbers each year for their fins, meat, gill plates (for mantas and devil rays, family Mobulidae), skins, liver oil, and/or cartilage. Since 2003, an increasing number of shark and ray species have been listed in the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This has been partly due to concerns over global population declines associated with increased fishing pressure in industrial and small-scale fisheries. These derivative products are among the most valuable seafood products traded in international markets, and monitoring and enforcement are crucial to ensuring this trade is legal, sustainable, and traceable.

Over time, considerable progress has been made to address capacity needs in countries that exploit and trade in sharks and rays. Since 2014, over 60 regional and domestic shark and ray workshops have taken place globally to assist with the implementation of CITES listings. Visual identification tools (i.e., guides), coupled with advances in genetic approaches to species identification, have been effectively used to ensure CITES Parties meet their obligations under the Convention. However, notable implementation and enforcement challenges remain in relation to fisheries and trade controls, including the need for visual fin, sawfish rostra, and gill plate identification information for all CITES-listed shark and ray species. In many of the world's largest shark and ray fishing nations, species-specific information on landings and product exports are still lacking. Even in fisheries where sharks and rays are landed whole – with key morphological features on the head and fins intact – species-specific data collection remains a challenge due to lack of identification materials and insufficient training of field staff. This guide focuses on consolidating information on parts derived from CITES-listed sharks and rays to date.



## PURPOSE OF THIS GUIDE

This guide was created to enable wildlife inspectors and enforcement personnel to provisionally identify fins, rostra (family Pristidae, sawfishes), and gill plates derived from commercially traded shark and ray species listed in Appendix I and II of CITES. As of July 2024, there are 134 species of sharks (74 species) and rays (60 species) that are listed in CITES Appendices because they are found in the fin trade. Data collected at major trade hubs (e.g., Hong Kong Special Administrative Region [SAR]) indicate that fins derived from these species comprise over 70% of all fins traded. This guide focuses on providing information to allow the user to distinguish between the primary fins (i.e., first dorsal fin, pectoral fins, and caudal fins) originating from these CITES-listed species from those not listed on CITES (~500 species of sharks and rays that could also potentially be traded for their fins).

The simple structure of this field guide is designed to assist users with the identification of some derivative products, even if they have no previous knowledge of shark and ray identification. Species or genus level identification is based on morphological characteristics of their most distinctive fins (first dorsal fin, and for some species, pectoral and/or caudal fins), dried rostra, and gill plates in their commonly traded form (wet/frozen and/or dried and unprocessed). This preliminary visual identification will establish reasonable or probable cause in enforcement contexts so that expert opinion can be sought, or genetic testing can confirm field identification. This will aid governments in successfully implementing and enforcing CITES listings and promoting legal, sustainable trade.

Technical terms are kept to a minimum and identification features are mostly those that can be readily observed on derivative products. Several flowcharts are provided so that a shark or ray product can be systematically identified to its appropriate grouping and users can be guided to the relevant page for details. Species accounts provide information on the key identifying features of fins that allow users to differentiate between species.

**Note on potential limitations for using this field guide –** The first section of this guide focuses on visual identification methods of raw, unprocessed fins for both shark and shark-like ray species (sawfishes, wedgefishes [family Rhinidae], giant guitarfishes [family Glaucostegidae], guitarfishes [family Rhinobatidae]), and in wet or dried form. Pectoral fins derived from sawfishes, wedgefishes, giant guitarfishes, and guitarfishes are not covered since these are usually consumed locally, rarely found in international trade, and require genetic assays for identification to the species level. Pectoral fin

identification is only provided for those species that have distinct fins (primarily species listed on CITES prior to 2022). Additionally, lower caudal lobes derived from sharks are not covered due to a lack of morphological features (fin origin, fin insertion, or free rear tip) to allow for reliable visual identification of all CITES-listed species. Finally, second dorsal, pelvic, and anal fins are also not covered in this guide since they cannot be reliably used for the identification of species (with the exception of a few species with second dorsal fin resembling the first dorsal fin). For fins covered in this guide but that are heavily processed, genetic assays must be used for identification to the genus or species level. Overall, while this guide highlights general information regarding the key morphological characteristics of fins from CITES-listed species, there are a few important caveats to consider that may impede identification to the species level.

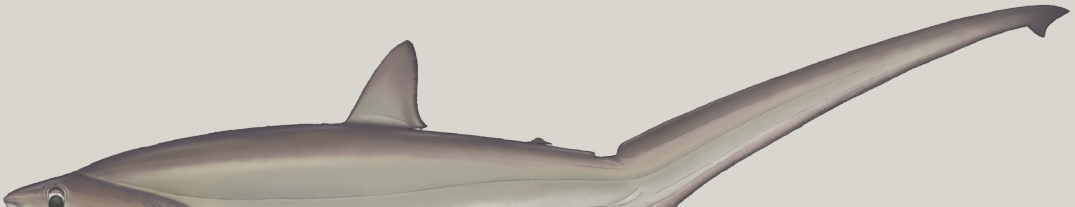
**1. Curling upon drying --** many large-sized fins (especially pectoral fins from thresher sharks [*Alopias* spp.]) might change forms after the drying process and might no longer be easily identifiable. Once dry, fins can be difficult to mould back into their original shape, however, their coloration will remain.

**2. Fin cut --** there are several ways in which fins can be cut by fishers and/or traders (half moon, straight, and variations in between) which might make it difficult to determine some key diagnostic features like fin origin, fin insertion, and presence or length of the free rear tip. For these fins, it would be better to use genetic approaches to confirm identification.

**3. Color upon processing --** variations in colors might occur depending on the drying methods used, including sun drying, salting and drying, or mechanical drying. Generally, with sun drying and salting, the colors on the fins (black or white) will fade away but are likely to still be visible. On the other hand, oven drying tends to darken the fin colors.

**4. Inconsistent coloration --** some species might show intra-specific variations in the coloration of their fins depending on their life-history stage (juveniles compared to adults). For example, the Blacktip Shark (*Carcharhinus limbatus*) does not always have a black spot on the apex of the first dorsal fin while the Grey Reef Shark (*C. amblyrhynchos*) often has a white margin on the trailing edge of its first dorsal fin in some regions of the Indian Ocean.

Information on gill plates is only provided for dried forms and at the genus level. It is important to note that although they look different when fresh, the same diagnostic features provided for the dried forms can be used by inspectors and wildlife



personnel to differentiate them. Overall, in law enforcement contexts, the use of this guide provides the information needed for establishing probable cause to hold shipments unaccompanied by the appropriate CITES permits so that expert opinion can be sought or genetic testing can be conducted to confirm field identification.

## HOW TO USE THIS GUIDE

This guide is organized in four sections. The first section is focused on identification of the primary fins of sharks and shark-like rays: first dorsal fins, pectoral fins, and caudal fins. There are steps to navigating this fin identification section:

1. Distinguish dorsal fins from other highly-valued fins: pectoral fins and lower caudal lobes (Section 1, Steps 1 and 2).

2. Distinguish between dorsal fins of listed and non-CITES-listed species (Section 1, Step 3).

3. Identify pectoral fins of some CITES-listed species (Section 1, Step 4).

4. Distinguish sawfish caudal fins from those derived from wedgefish, giant guitarfish, and guitarfish (Section 1, Step 5).

5. Use species identification pages to confirm type of fins and species for a selection of CITES-listed species (those for which a sufficient number of specimens have been examined to confirm the shape, color, and texture (Section 2).

The first four steps are in the form of flowcharts so that fins can be systematically identified to the appropriate genus or species and users can be guided to the relevant page. These flow charts are set up to ask a series of questions consisting of two choices, either Yes or No, that describe key characteristics that are seen on fins. These features can be used to quickly and easily distinguish CITES Appendix I and II listed species from non-CITES-listed species during routine inspections. A red hand ( ) in the flowchart indicates that the fin is not from a species covered in this guide (i.e., not a CITES-listed species). For fins that are difficult to identify or might be confused with other species, where pictures are available, comparison pages after each step are provided to showcase similar looking fins and provide details on how to separate them. The fifth step here consists of confirming species identification by reviewing the species-specific accounts where a full description of each type of fin is provided.

In section two, each species account contains detailed information including:

- The English common name and scientific name (binomial name: genus and species). These follow those adopted by Ebert et al. (2021) for sharks, Last et al. (2016) for rays, and the most current IUCN Red List assessments (www.iucnredlist.org).

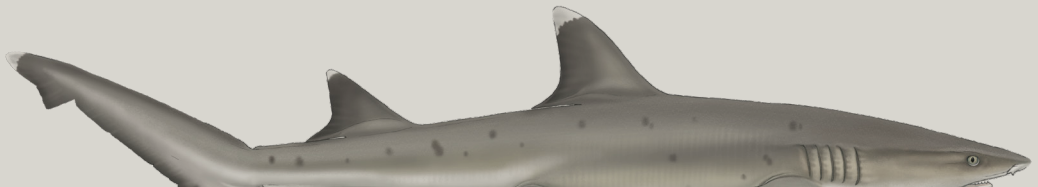
- The global IUCN Red List status of each species (data extracted in April 2024). Species are assigned to one of eight categories: EX - Extinct; EW - Extinct in the Wild; CR - Critically Endangered; EN - Endangered; VU - Vulnerable; NT - Near Threatened; LC - Least Concern; or DD - Data Deficient. Those assessed as CR, EN, or VU are considered threatened. The color of each status symbol used follows the standard colors for each category as defined by the IUCN Red List.

- A three letter identification code which is the official Food and Agriculture Organization of the United Nations (FAO) code unique to each species. Other codes refer to generic categories as follows ('nei' indicates 'not elsewhere included'): CWZ* – *Carcharhinus* sp. nei; RSK* – Carcharhinidae requiem sharks nei; SPN* – *Sphyrna* spp. hammerhead sharks, etc nei; RZN* – *Rhynchobatus* spp. wedgefishes; GUZ* - *Rhinobatos* spp. guitarfishes nei; GZL* – *Glaucostegus* spp. guitarfishes nei; GTF* – Rhinobatidae guitarfishes nei.

- The key features used to identify a first dorsal, pectoral, or caudal fins, where relevant.

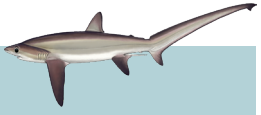
- A color illustration representing each species from a lateral (sharks) or dorsal (rays) view. The colors of live or freshly caught animals are illustrated.

The third section of this guide is focused on the identification of sawfish rostra. Descriptions are provided for each of the five species based on the position of the rostral teeth and their numbers on each side of the saw. Finally, the fourth section of this guide is focused on the identification of gill plates to distinguish between those of manta rays and devil rays (*Mobula* spp.).



## SPECIES INCLUDED IN THIS GUIDE

The 143 shark and ray species included in this guide belong to five orders and 10 families. These species have been listed on CITES due to their threatened status, the large volume and high value of their fins (or gill plates) in international trade markets, or because they are 'look-alikes' (i.e., similar in appearance to the species listed for conservation concerns). In this guide, established visual fin identification techniques have been adapted to consider the diversity of species now listed on CITES and ensure the continued reliability of visual approaches. By using a process of elimination by which the fins that are unlikely to originate from CITES-listed species (e.g., first dorsal fins with spines) are not considered, it is now easier to sort through large volumes of fins. However, as noted previously, there are still some important limitations in visual techniques. Some fins entering the trade might be too small to be positively assigned to a species. Further, there remain some very subtle differences in fins from the Triakidae (Houndsharks) and Hemigaleidae (Weasel Sharks) families that might make it difficult to identify some fins to the species level. Although fins derived from animals in these two families represent <1% of fins traded, it is important to remember that they can be found in the trade. In some circumstances, genetic testing might be warranted to confirm species identification. Overall, it is encouraged that fisheries agencies implement traceability mechanisms since species identification at the point of landing is the most reliable and accurate method to positively identify a species. Tracking specimens or their derivative products from the point of landing to the point of sale would provide the identification required to enable sustainable trade and allow for other management options that benefit both the species and trade.



**LAMNIFORMES**

CARPETSHARKS
- Cetorhinidae
- Alopiidae
- Lamnidae

**ORECTOLOBIFORMES**

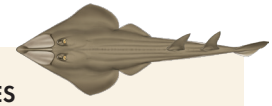
CARPETSHARKS
- Rhincodontidae

**CARCHARHINIFORMES**

GROUND SHARKS
- Carcharhinidae
- Sphyrnidae

**MYLIOBATIFORMES**

STINGRAYS AND THEIR RELATIVES
- Mobulidae

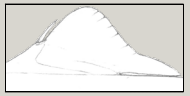


**RHINOPRISTIFORMES**

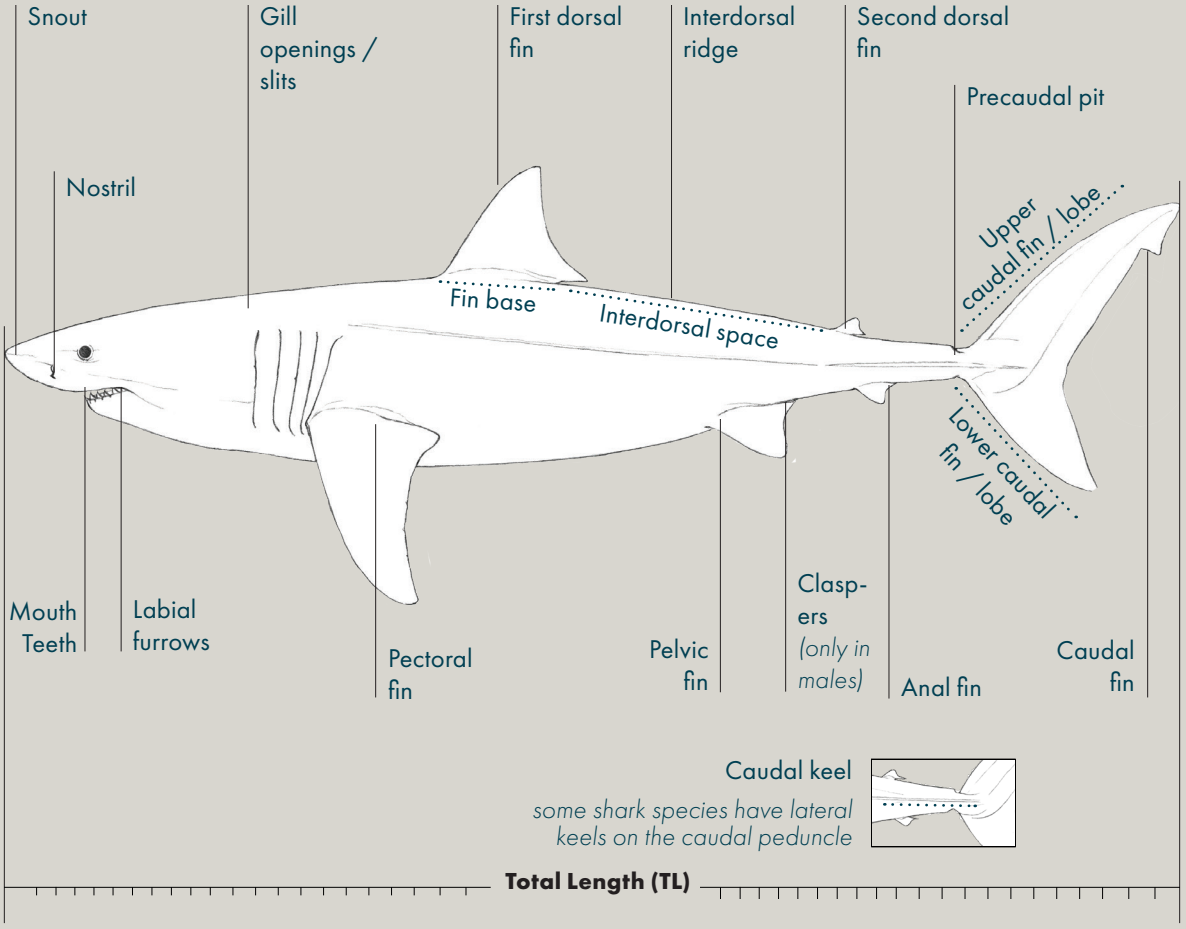
SHOVELNOSE RAYS
- Pristidae
- Rhinidae
- Rhinobatidae

## KEY ANATOMICAL FEATURES

The lateral view illustrations highlight the terminology used in this guide to describe key features and external characteristics used in the identification of full carcasses. The list of technical terms provided are limited to those used in this guide.



Dorsal spine - *some shark species have a spine at the origin of each dorsal fin*



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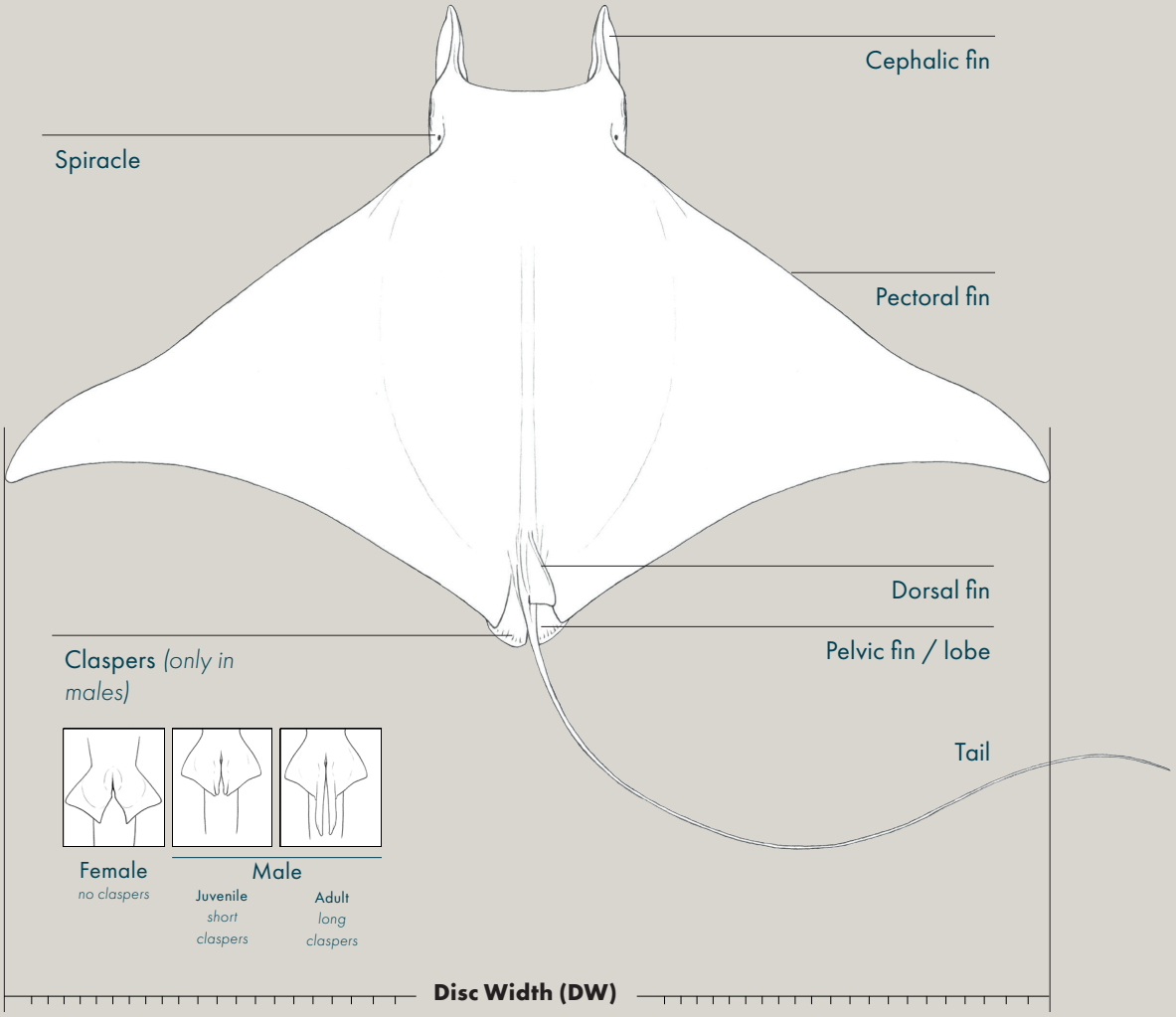
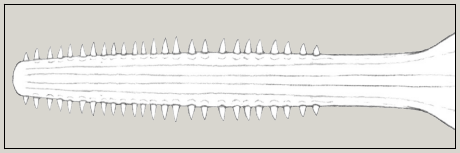
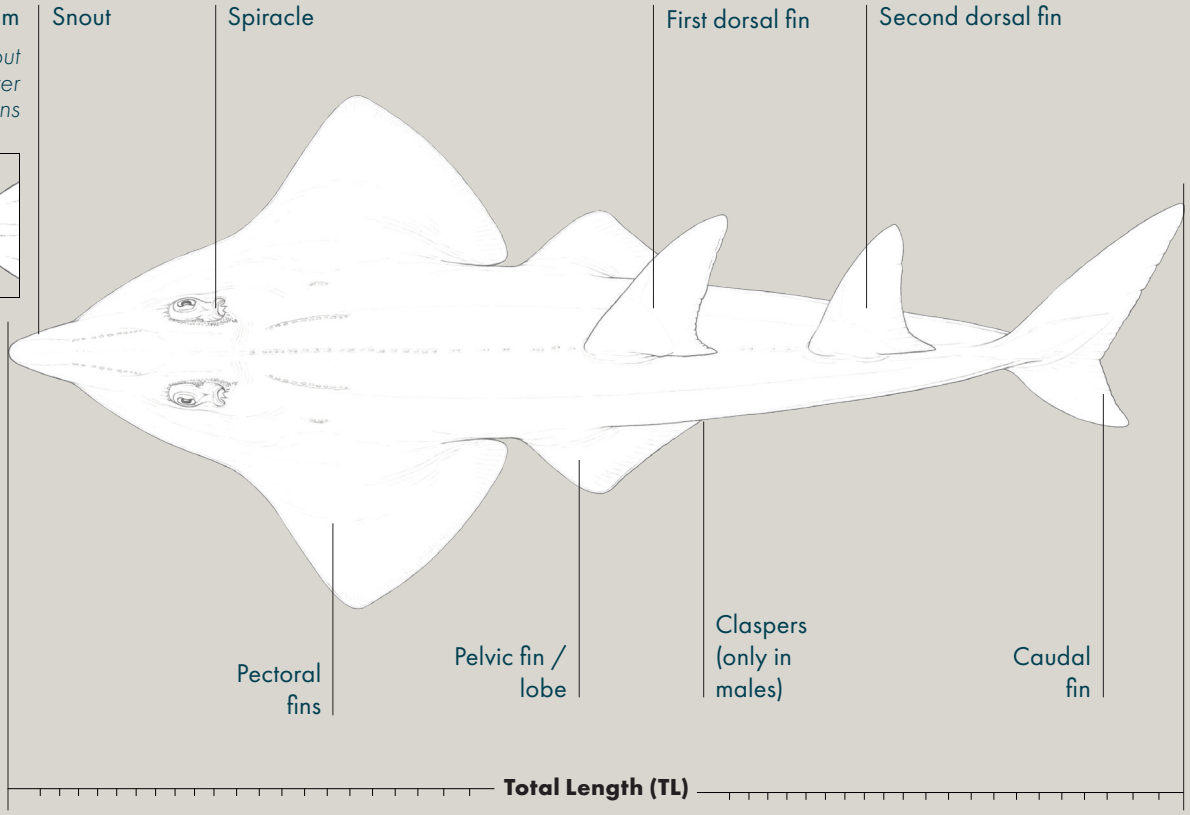


Rostrum

*sawfishes have an elongated snout with enlarged teeth on its outer margins*





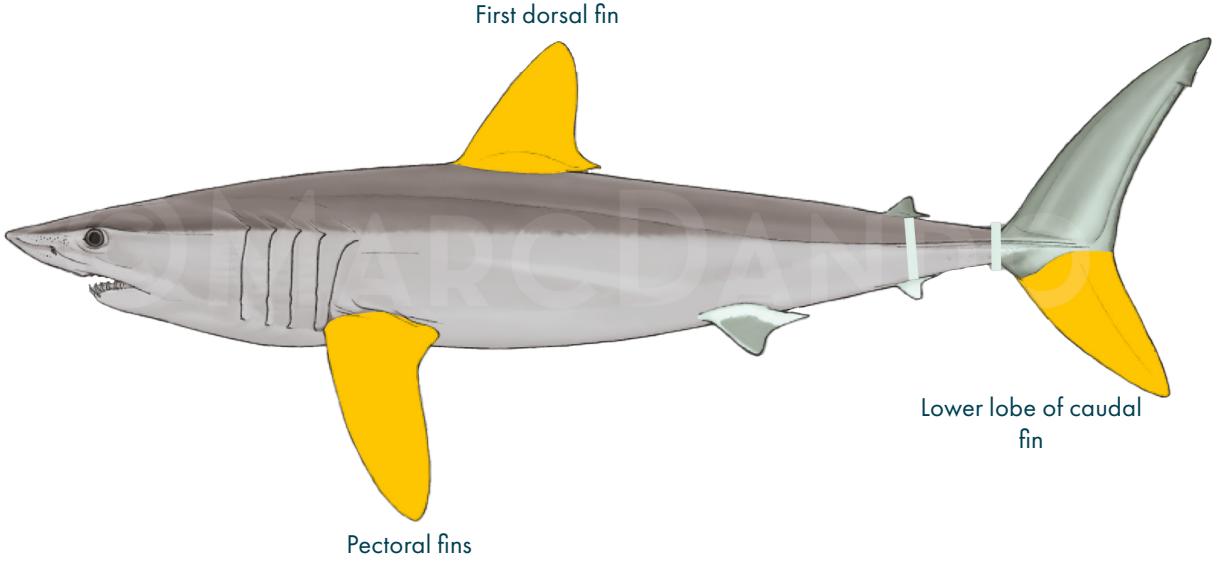

## KEY ANATOMICAL FEATURES

The lateral view illustrations highlight the terminology used in this guide to describe key features and external characteristics used in the identification of full carcasses. The list of technical terms provided are limited to those used in this guide.

## PRIMARY FINS TRADED

### SHARKS

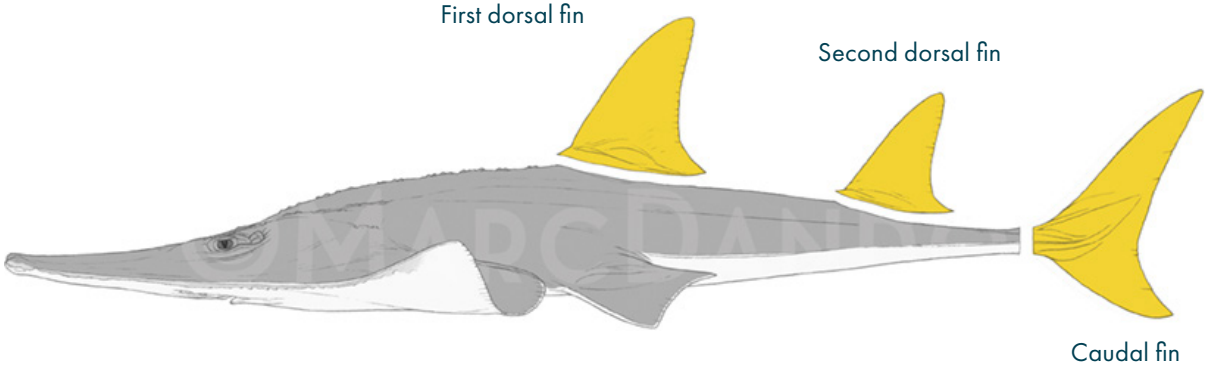
This illustration shows the positions of the primary fin types that are highly prized in trade and used for shark fin soup for sharks. The **first dorsal fin**, **paired pectoral fins**, and l**ower lobe of the caudal fin** (in yellow) are the primary fins traded, often together as a set. The upper caudal lobe is typically discarded but may be retained for the cartilage. Second dorsal fins derived from sharks, paired pelvic fins, anal fins, and upper caudal lobes also occur in trade (in green) but are less valuable than primary fins used to make shark fin soup.



## PRIMARY FINS TRADED

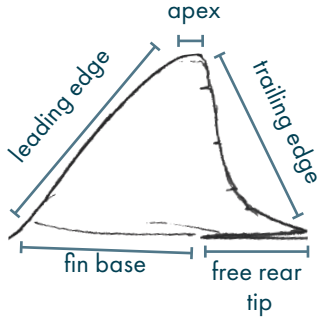
### SAWFISH, WEDGEFISH, GIANT GUITARFISH, GUITARFISH

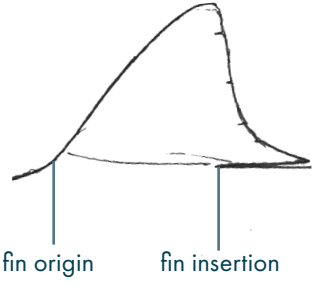
This illustration shows the positions of the primary fin types that are highly prized in trade and used for shark fin soup for shark-like rays (sawfish, wedgefish, giant guitarfish, and guitarfish). The **first dorsal fin**, **second dorsal fin**, and **whole caudal fin** (in yellow) are the primary fins traded, often together as a set. The exception to this are the small guitarfishes (family Rhinobatidae) that are not sold as sets. Pectoral fins are often consumed or traded locally and sometimes internationally for meat. However, pectoral fins are not used to make shark fin soup.



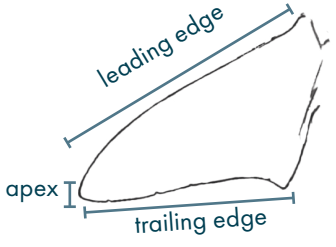
## FIN LANDMARKS

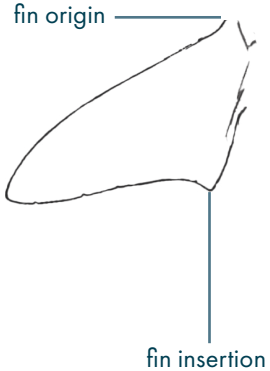
### Dorsal fins



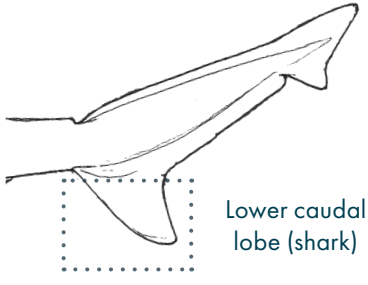




### Pectoral fins*




### Caudal fin



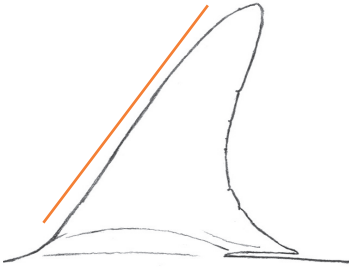



## TERMINOLOGY

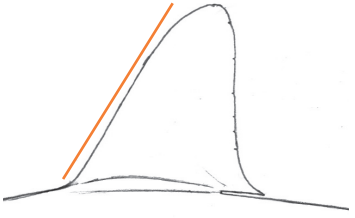
The landmarks used to describe key features of each fin type are the same for consistency and ease of use. For sharks, only the lower caudal fin is usually traded whereas for sawfishes, wedgefishes, and giant guitarfishes, the whole fin is traded. (*only pectoral fins of sharks are covered in this guide since fins of shark-like rays look different.)

## SHAPE

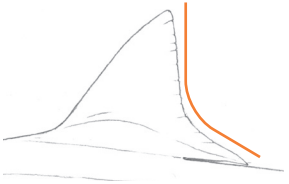
Beyond the color, texture, and position of the fin insertion in relation to the fin apex, the shape of the first dorsal fin is key to inspect. Fins that are tall, erect, with an angular leading edge likely originate from species that are listed on CITES. Fins with a strongly sloping leading edge, or forming different angles, are likely to originate from species that are not listed on CITES. Spines at the origin of a fin also indicates that the species is not listed on CITES (note that this spine is likely to have been removed or broken but its origin will still be visible.



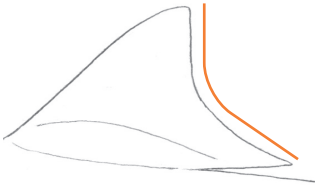
Tall, slender, leading edge curved, pointed apex, trailing edge concave



Tall, leading edge with steep angle (fin erect), rounded apex, trailing edge straight



Short, slightly sloping leading edge curved, pointed apex, trailing edge concave with distinct angle / deeply notched



Short, slightly sloping leading edge curved, pointed apex, trailing edge concave with distinct angle / not deeply notched

Extremely sloping leading edge, flat apex, very short trailing edge

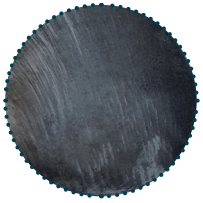
Sloping leading edge with short trailing edge

Sloping leading edge with spine at the origin, flat apex

## COLORATION

Several terms are used to refer to markings on the fins. The following images illustrate what the different colors refer to. When referring to pectoral fins, the term 'dusky' refers to markings that are slightly greyish or dark but diffuse in color with no stark demarcation between the white or light coloration on the ventral surface. The term 'black' refers to markings that are dark (inky black) in color with a stark demarcation between the white or light coloration on the ventral surface.

**Dorsal fin color**



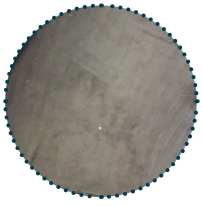
Slate grey

Light grey

Brown

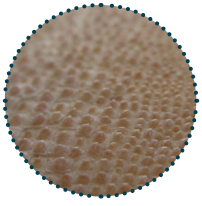
Yellowish

**Fin texture**



Rough with small denticles, dull

Very rough with large but flat denticles



Very rough with enlarged denticles

Smooth and shiny

**Pectoral fin apex color (ventral surface/ underside)**

Dusky

Dusky margins

Black

No markings

## TAKING FIN MEASUREMENTS

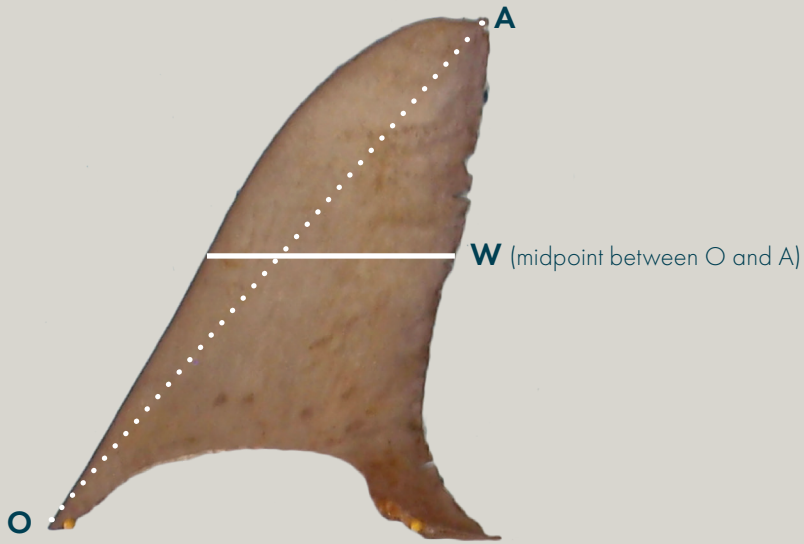
The origin (O), apex (A), and fin width (W) (measured from leading edge to trailing edge) are the three landmarks most useful for species identification purposes. Measurements based on fin height, fin base, and free rear tip are often too variable and dependent on the cut and condition of the fin.

### STEPS

1) Measure fin origin to apex (O-A) with a flexible tape measure.

2) Measure the fin width (W) at the halfway point of O-A (i.e., if O-A is 10 cm, measure W at 5 cm along O-A).

3) Divide O-A by W (O-A/W).

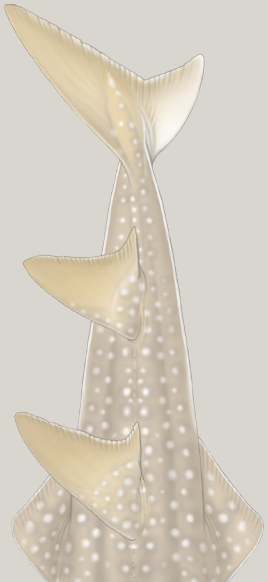



## TALL VERSUS SHORT FINS

Some dorsal fins can be distinguished by determining if they are 'tall' or 'short'. Fins are considered 'tall' if the ratio calculated is **over 2.5** and 'short' if the ratio is **less than 2.5**. Measurements need to be taken to calculate ratios.

# SECTION 1

## OVERVIEW ON IDENTIFYING SHARK AND RAY FINS



## STEP 1 - CHECK FIN COLORS ON BOTH SIDES

Shipments or bags of dried fins usually comprise all the different fins of sharks and shark-like rays that can be traded. The first two steps in the identification process is to separate the different fin types. Dorsal fins and intact caudal fins from shark and shark-like rays are the same color on both sides (see right and left side views). In contrast, pectoral fins (along with pelvic fins) are darker on the top side (dorsal view) and lighter underneath (ventral view), also known as counter shading. **Note:** Pectoral fins destined for the fin trade are derived from sharks, not shark-like rays (sawfishes, wedgefishes, giant guitarfishes) and are not covered in this guide.

- If the fin is a **dorsal fin**, go to **Step 3** (see pages 23–33).

- If the fin is a **pectoral fin**, go to **Step 4** (see pages 34–40).

- If the fin is an **intact caudal fin**, go to **Step 5** (see pages 41–43).

**Dorsal fins**

Left side Right side

**Caudal fin (intact)**


**Pectoral fins**


**Second row of pictures:** A few shark species (e.g., thresher sharks) have pectoral fins with a ventral surface that is only slightly lighter in color than the dorsal surface. However, there is still a detectable difference between the two sides of the fin.

## STEP 2 - CHECK FIN BASE

The second step of the process is to check the fin base to determine if there are visible pieces of cartilage. Like dorsal fins, the lower lobe of the caudal fin is the same color on both sides. However, when detached from the upper caudal lobe, the fin base looks quite different compared to the fin base of a dorsal fin.

Dorsal fins (D) have a continuous row of closely spaced cartilaginous blocks running along almost the entire fin base. When looking at a cross section of the base of a lower caudal lobe (LC1), there is typically only a yellow, 'spongy' material called *ceratotrichia*, which is the material used in shark fin soup. In some lower caudal lobes (LC2), there may be a row of the cartilaginous blocks present, but they are usually irregular in shape, widely spaced and/or occur only along part of the fin base. Dorsal fins also frequently have a free rear tip that is fully intact. In contrast, the lower caudal lobe has no free rear tip (although a cut with the trailing edge of the upper lobe intact may look like a free rear tip).

**Note:** Lower caudal lobes derived from sharks are not covered in this guide due to a lack of morphological features to allow for reliable visual identification of all CITES-listed species.

**Fin base**

Dorsal fins (D)

Lower caudal lobe (LC1)

Lower caudal lobe (LC2)

**Free rear tip**

Dorsal fins (D)

Lower caudal lobe (LC1)

Lower caudal lobe (LC2)

## STEP 2 - CHECK FIN BASE (*CONTINUED*)

### FIRST DORSAL FIN BASES

When checking the fin base, keep in mind that dorsal fins derived from sharks will have a continuous row of cartilage of similar size and shape running across the entire fin base. On the other hand, dorsal fins derived from sawfishes, wedgefishes, and giant guitarfishes will vary (depending on cut) with multiple, irregularly shaped rows of cartilage or two long strips of cartilage.

**Shark**

Hammerhead shark (*Sphyrna* spp.)

Hammerhead shark (*Sphyrna* spp.)

Thresher shark (*Alopias* spp.)

**Sawfish, wedgefish, and giant guitarfish**

Smalltooth Sawfish (*Pristis pectinata*)

Narrow Sawfish (*Anoxypristis cuspidata*)

Bowmouth Guitarfish (*Rhina ancylostomus*)

Giant guitarfish (*Glaucostegus* spp.)

## STEP 3 - DISTINGUISH DORSAL FINS

*The spine is likely to have been broken off or cut off from the side of the fin but its origin will still be visible.

**START**

— Does the fin have a distinct spine* at its origin?

**YES**

**This is not a CITES-listed species**

**NO**

— Does the fin have a strongly sloping leading edge (not tall, not erect, not angular), with or without free rear tip?

**YES**

**This is not a CITES-listed species**

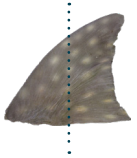
**NO**

— Does the fin have distinct markings or patterns visible?

**YES**

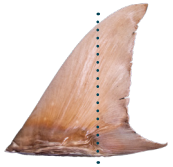
— Is the fin erect, tall, and have a free rear tip start before or directly under apex?

**YES**



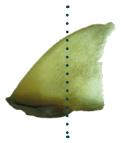
Bowmouth Guitarfish
*Rhina ancylostomus*
See page 76

**NO**



Wedgefishes
*Rhynchobatus* spp.
See page 75

**NO**



Guitarfishes
Rhinobatidae
See page 78

SEE PAGE 25

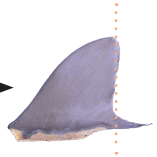
SEE PAGE 24

## STEP 3 - DISTINGUISH DORSAL FINS

**START**

— Does the free rear tip start before or directly under apex?

**NO**



SEE PAGE 25

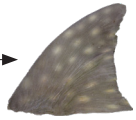
**YES**

— Does the fin have distinct markings or patterns visible?

**YES**

— Is the free rear tip short and rounded?

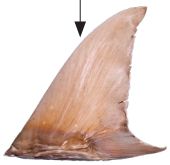
**YES**



Bowmouth Guitarfish*
*Rhina ancylostomus*
See page 76

*The False Shark Ray *Rhynchorhina mauritaniensis* likely has similar dorsal fins and is also listed on CITES.

**NO**



Wedgefishes**
*Rhynchobatus* spp.
See page 75

**Not all animals have white spots on the fin web, some might have a uniform yellowish, shiny first dorsal fin.

**NO**

— Is the fin light grey with a slightly rough and dull texture?

— Is the fin erect, yellowish with either a shiny and smooth, or visibly enlarged denticles on the leading edge, or with a transparent trailing edge?

**YES**

Wedgefishes
*Rhynchobatus* spp.
See page 75

Giant guitarfishes
*Glaucostegus* spp.
See page 77

Sawfishes
*Pristis* or *Anoxypristis spp.*
See pages 70–71

Guitarfishes***
Rhinobatidae
See page 78

***Some animals might have dusky blotches or spots on the fin web.

**YES**

Great Hammerhead or Winghead Shark
*Sphyrna mokarran* or *Eusphyra blochii*
See page 63 for *S. mokarran*

## STEP 3 - DISTINGUISH DORSAL FINS

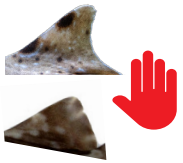
**START**

— Does the fin have distinct markings or patterns visible?

**YES** →

— Are the markings colorful blotches or patterns?

**YES** →



**This is not a CITES-listed species**

**NO** ↓

— Does the fin have distinct or faded horizontal dark blotches?

**YES** →

**This is not a CITES-listed species**

Tiger Shark*
*Galeocerdo cuvier*

*Fin is broad, light to dark grey, with a rough texture, free rear tip is almost 1/2 of fin height. Small specimens have distinct horizontal dark bands.

**NO** ↓

— Does the fin have distinct white markings at the apex or on the free rear tip?

**YES** → SEE PAGE 26

**NO** ↓

— Does the fin have distinct black markings on apex?

**YES** → SEE PAGE 27

**NO** ↓

— Is the fin very large, triangular, with white spots distributed across the entire fin?

**YES** →

Whale Shark
*Rhincodon typus*
See page 54

**NO** ↓

SEE PAGE 28

## STEP 3 - DISTINGUISH DORSAL FINS

**START**

— Does the fin have distinct white markings at the apex or on the free rear tip?

**YES** → — Is the free rear tip white?

**YES** →

Porbeagle
*Lamna nasus*
See page 51

**NO** → — Is the apex rounded with a large mottled white blotch/ patch?

**YES** →

Oceanic Whitetip Shark
*Carcharhinus longimanus*
See page 59

**NO** → — Is there a distinct white margin from the leading to the trailing edge of the fin?

**YES** → **This is not a CITES-listed species**

**NO** → — Is the apex pointed with white markings on tip and/or trailing edge, with a concave trailing edge?

**YES** →

Silvertip Shark, Grey Reef Shark, Whitetip Reef Shark
*Carcharhinus albimarginatus, C. amblyrhynchos, Triaenodon obesus*
See page 66

**NO** → — Is the fin light brown, with a pointed apex, white markings on tip, and a deeply notched trailing edge?

**YES** → **This is not a CITES-listed species***

**NO** →

SEE PAGE 28

*This is most likely a species from the family Triakidae or Hemigaleidae. However, not all animals have the same fins and these could still be confused with CITES-listed species (e.g., Whitetip Reef Shark).

## STEP 3 - DISTINGUISH DORSAL FINS

**START**

— Does the fin have distinct black markings on apex?

**YES** →

— Is there a large black blotch at the tip of the fin, with a distinct pale color under it?

**YES** →

Blacktip Reef Shark
*Carcharhinus melanopterus*

See page 60

**NO** ↓

— Is there a black margin from the leading to the trailing edge of the fin, without a black tip at the apex?

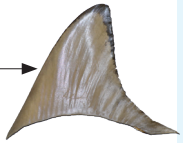
**YES** →

**This is not a CITES-listed species**

**NO** ↓

— Is the fin relatively tall with a black tip (often faint) on the apex only, and a glossy, smooth texture?

**YES** →



'Blacktip tip' complex
*Carcharhinus limbatus, C. brevipinna, C. leiodon, C. amblyrhynchoides, C. sorrah, C. tilstoni*

See pages 55, 58

**NO** ↓

— Is the fin relatively short with a black tip (often faint) on the apex only, and dull in color?

**YES** →

**This is likely a CITES-listed but is not covered in detail in this guide. Note that it is possible for some of these fins to belong to species not listed on CITES (family Triakidae). However, non-CITES listed species are likely to have a very pointed apex and often deeply notched fins.**

**NO** ↓

SEE PAGE 28

## STEP 3 - DISTINGUISH DORSAL FINS

— Is the fin generally uniform in color?

**YES**

— Is the fin dark grey, slate grey, or brownish grey in color?

**NO**

— Is the fin brown or light in color?

**YES**

— Is the fin 'short' (O-A divided by W is <2.5)

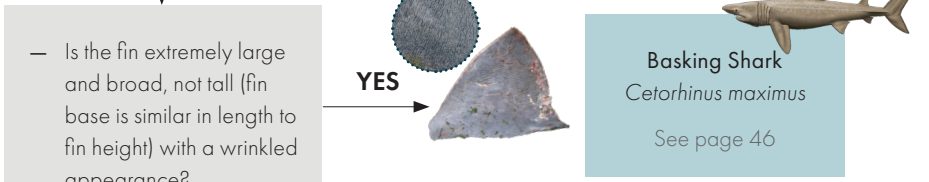
**YES**

**SEE NEXT PAGE**

**NO**

— Is the fin 'tall' (O-A divided by W is >2.5)

**YES**



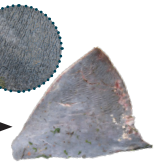
Basking Shark
*Cetorhinus maximus*

See page 46

**YES**

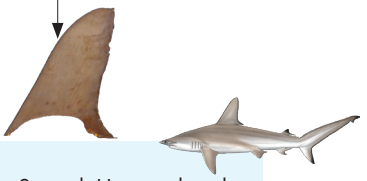
— Is the fin extremely large and broad, not tall (fin base is similar in length to fin height) with a wrinkled appearance?

**YES**



**NO**

**This is likely a CITES-listed species. However, it not possible to identify thresher, Great White Shark, and mako sharks using their first dorsal fins from this flowchart. The key diagnostic feature for visually identifying these species is on the pectoral fins. See pages 34–40**



Scalloped or Smooth Hammerhead
*Sphyrna lewini* or *S. zygaena*

See pages 67, 69

## STEP 3 - DISTINGUISH DORSAL FINS

— Is the fin generally uniform in color and 'short' (O-A divided by W is <2.5)

**YES**

— Is the fin greyish-brown, with a moderately rounded apex, convex trailing edge, and free rear tip close to half the length of the base?

**YES**

Silky Shark
*Carcharhinus falciformis*

See page 56

**NO**

— Does the fin have a low angular leading edge with a strongly convex trailing edge?

**YES**

Requiem sharks
*Carcharhinus, Glyphis, Isogomphodon, Lamiopsis, Loxodon, Nasolamia, Prionace, Rhizoprionodon, Scoliodon* spp.

**NO**

— Does the fin have a low angular leading edge, a straight trailing edge, is yellowish in color, with large obvious denticles?

**YES**

Sharptooth Lemon Shark or Lemon Shark
*Negaprion acutidens* or *N. brevirostris*

See page 65

**NO**

**This is not a CITES-listed species ***

*Nurse sharks (Ginglymostomatidae) or some species of carpet sharks (Hemiscylliidae) might have fins that resemble the lemon sharks. It is important to look at the color (yellow vs brown) and the texture of the fin (obvious denticles vs rough denticles).

## STEP 3 - DISTINGUISH DORSAL FINS

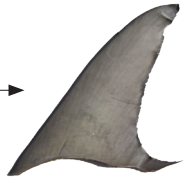
*The Winghead Shark is likely to often have a black or dark margin on the leading edge.

START

YES

— Is it strongly falcate, with cartilaginous blocks of similar shape and shape that extend across entire fin base?

YES



Great Hammerhead or Winghead Shark*
*Sphyrna mokarran* or *Eusphyra blochii*
See page 68 for *S. mokarran*, and pages 31–32 for comparisons

NO

— Is it uniform in color with large denticles concentrated along the leading edge, with a free rear tip that is not pointed?

YES

Giant guitarfishes
*Glaucostegus* spp.
See page 77

NO

— Is it dull, brownish grey with white spots across the entire fin and a rounded free rear tip?

NO

— Is the fin light brownish or yellowish with a shiny appearance, with pointed free rear tip?

NO

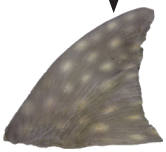
— Is the fin small with nearly translucent margins, with a rounded free rear tip?

— Is the fin tall, narrow with fin height > width?

NO

Sawfishes
*Pristis* spp.
See pages 71–74

YES



Bowmouth Guitarfish
*Rhina ancylostomus*
See page 76

YES

Wedgefishes
*Rhynchobatus or Rhynchorhina* spp.
See page 75

Narrow Sawfish
*Anoxypristis cuspidata*
See page 70

YES

Guitarfishes
Rhinobatidae
See page 78

## WEDGEFISH, HAMMERHEADS AND BLACKTIP SHARKS

Dorsal fins that are tall and slender and dull brown or light grey are probably from a hammerhead shark (Sphyrnidae). Fin descriptions for these three species can be found on pages 67–69. Tall dorsal fins can also come from several species of wedgefish or blacktip sharks. In wedgefish dorsal fins, cartilaginous blocks do not extend across the entire fin base. In hammerheads, these cartilaginous blocks are present along almost the entire fin base (see pages 21–22). Wedgefish dorsal fins (except for the Bowmouth Guitarfish *Rhina ancylostomus)*, also exhibit a glossy sheen, and some species have white spots at the fin base, unlike the dull brown, uniform coloration of hammerhead dorsal fins (Images A). Some blacktip sharks (e.g., *Carcharhinus limbatus*) first dorsal fins exhibit fin height to width ratio (O-A/W) that is close to or slightly greater than 2.5. However, they often (but not always) have a black spot on the dorsal fin apex, and the fin has a glossy appearance compared to the dull look of hammerhead first dorsal fins (Images B). Dorsal fins and pectoral fins are often traded together as a set. Pectoral fins from blacktip sharks have a glossy appearance and are longer and more slender than the dull, short, broad pectoral fins of hammerheads (Images C).

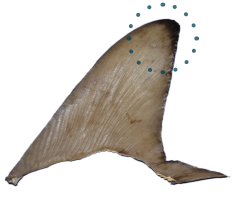
**A. Dorsal fin color and texture**

Wedgefish (*Rhynchobatus* spp.) first dorsal fin

Wedgefish (*Rhynchobatus* spp.) second dorsal fin

Scalloped hammerhead (*Sphyrna lewini*) first dorsal fin

**B. First dorsal fin height/width ratio**



Blacktip Shark (*Carcharhinus limbatus*)

Scalloped Hammerhead (*Sphyrna lewini*)

**C. Pectoral fins**

Blacktip Shark (*Carcharhinus limbatus*)

Scalloped Hammerhead (*Sphyrna lewini*)

## MAKO AND THRESHER SHARKS

First dorsal fins from mako (*Isurus oxyrinchus* and *I. paucus*), thresher (*Alopias* spp.), and hammerhead (*Sphyrna* spp.) sharks are tall and slender from leading to trailing edge. Mako and thresher fins are slate to dark grey in color (Images A). Great Hammerhead and Winghead Shark first dorsal fins have a distinctive curved shape and are a much lighter grey than mako or thresher fins (Images B).

Scalloped and Smooth Hammerhead first dorsal fins are similar in shape to the dorsal fins of mako and thresher sharks, but they are much lighter in color and are usually light brown instead of grey (Images C). Scalloped and Smooth Hammerhead first dorsal fins are very similar and often extremely hard to differentiate. However, it is not uncommon for valuable fins from an individual to be traded as a set (first dorsal fin, paired pectoral fins, and lower caudal lobe). If this is the case, the two species can be distinguished using the pectoral fins.

**A. Mako and threshers**

Shortfin Mako
(*Isurus oxyrinchus*)

Bigeye Thresher
(*Alopias superciliosus*)

Pelagic Thresher
(*Alopias pelagicus*)

**B. Great Hammerhead and Winghead Shark**

Great Hammerhead
(*Sphyrna mokarran*)

Winghead Shark
(*Eusphyra blochii*)

**C. Scalloped and Smooth Hammerhead**

Scalloped Hammerhead
(*Sphyrna lewini*)

Smooth Hammerhead
(*Sphyrna zygaena*)

## MAKO AND DORSAL FINS FROM OTHER SHARKS WITH 'TALL' FINS

First dorsal fins for both the Shortfin Mako (*Isurus oxyrinchus*) and Longfin Mako (*I. paucus*) are morphologically similar in size, shape, and coloration at all life stages. They are dark slate grey (wet) or greyish-brown (dried, semi-dried) in color, tall, very erect due to the steep angle of the leading edge, have a moderately rounded apex, and nearly straight trailing edge, and short free rear tip (see pages 52–53).

First dorsal fins from Porbeagle (*Lamna nasus*), Salmon Shark (*L. ditropis*), and Great White Shark (*Carcharodon carcharias*) are also uniform dark slate grey (wet) or greyish-brown (dried, semi-dried) in color; tall and very erect due to the steep angle of the leading edge (Images A).

First dorsal fins originating from the three species of thresher sharks (*Alopias* spp.) look similar and can be mistaken for first dorsal fins originating from mako sharks (Images B). First dorsal fins from the Blue Shark are similar in color. However, they are not tall and have a low sloping edge, a moderately rounded apex (outwardly pointed) and a longer free rear tip than seen in first dorsal fins from Porbeagle, Salmon Shark (**this is not a CITES-listed species**), Great White Shark, and thresher sharks (see page 61).

**A. Porbeagle, Salmon Shark, and Great White Shark first dorsal fins**

Porbeagle
(*Lamna nasus*)

Salmon Shark
(*Lamna ditropis*)

Great White Shark
(*Carcharodon carcharias*)

**Description of fins:** Porbeagle fin with very distinctive white patch on the free rear tip not seen in any other species of shark. Salmon Shark fin much broader (leading edge to trailing edge). Apex also more broadly rounded than Mako Shark first dorsal fin. Great White Shark first dorsal fin leading edge flattens out at the moderately pointed apex. Trailing edge slightly concave, often with ragged appearance.

**B. Thresher shark first dorsal fins**

Pelagic Thresher
(*Alopias pelagicus*)

Bigeye Thresher
(*Alopias superciliosus*)

Common Thresher
(*Alopias vulpinus*)

**Description of fins:** First dorsal fin dark and broad. Bigeye Threshers has visible striations that are absent in Pelagic Thresher dorsal fins. Common Thresher fin typically tall and light grey in color.

## STEP 4 - DISTINGUISH PECTORAL FINS

**START**

— Does the dorsal surface have an obvious mottled white coloration at the broadly rounded apex?

**YES**

Oceanic Whitetip Shark
*Carcharhinus longimanus*
See page 59

**NO**

— Is the ventral surface uniformly light in color with little or no obvious markings?

**YES**

— Is the fin short and broad, with a light brown or light greyish brown dorsal surface, and a moderately rounded apex?

**YES**

Smooth Hammerhead
*Sphyrna zygaena*
See page 69

**NO**

— Is the fin large, strongly falcate with white spots across dark grey dorsal surface?

**YES**

Whale Shark
*Rhincodon typus*
See page 54

**NO**

— Is the fin moderately short and broad, with a uniformly dark slate grey dorsal surface, and a narrowly rounded apex?

**YES**

Shortfin Mako
*Isurus oxyrinchus*
See page 52

**NO**

SEE NEXT PAGE

## STEP 4 - DISTINGUISH PECTORAL FINS

— Is the ventral surface uniformly light in color with obvious black markings concentrated at the apex?

**YES**

— Is the pectoral fin short and broad with a moderately rounded apex?

**YES**

Scalloped Hammerhead
*Sphyrna lewini*
See page 67

**NO**

— Is the fin short and broad, with a light brown or light greyish brown dorsal surface, and a moderately rounded apex?

**YES**

Great White Shark
*Carcharodon carcharias*
See page 50

**NO**

**This is likely a CITES-listed but may not be covered in detail in this guide (see page 40 for descriptions of pectoral fins from some species with obvious black coloration on the ventral surface).**

**NO**

SEE NEXT PAGE

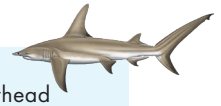
## STEP 4 - DISTINGUISH PECTORAL FINS

— Is the ventral surface generally light in color with dusky markings concentrated at the apex?

**YES**

— Is the dorsal surface light greyish brown in color; fin short and broad along the base but tapering to a strongly pointed apex; falcate trailing edge?

**YES**



Great Hammerhead
*Sphyrna mokarran*
See page 68

**NO**

— Are the dusky markings concentrated at apex and diffusing along less than 1/3 of the trailing edge of the ventral surface; dorsal surface is brown or greyish?

**YES**

Silky Shark
*Carcharhinus falciformis*
See page 56

**NO**

— Are the dusky markings concentrated at the apex and diffusing along more than 1/3 of the trailing edge of the ventral surface?

**YES**

**This is likely a CITES-listed but may not be covered in detail in this guide (see page 40 for descriptions of pectoral fins from some species with obvious black coloration on the ventral surface).**

**NO**

**SEE NEXT PAGE**

## STEP 4 - DISTINGUISH PECTORAL FINS

— Is the ventral surface with dusky markings along the leading edge and trailing edge and apex margins only?

YES

Longfin Mako
*Isurus paucus*
See page 53

NO

— Is the ventral surface with dusky markings along the leading edge, concentrated at the apex and diffusing throughout midsection of fin?

YES

Porbeagle
*Lamna nasus*
See pages 51

NO

— Is the ventral surface only slightly lighter than the dorsal surface?

YES

— Is the fin extremely large and broad, highly textured with linear striations that give it a wrinkled appearance?

YES

Basking Shark
*Cetorhinus maximus*
See page 46

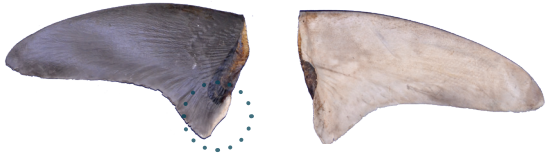
NO

Thresher Sharks
*Alopias* spp.
See pages 47–49

## IDENTIFYING MAKO PECTORAL FINS

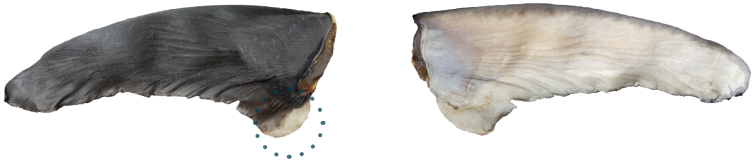
The pectoral fins of both the Shortfin Mako (*Isurus oxyrinchus*) and Longfin Mako (*I. paucus*) are morphologically similar in size, shape and coloration at all life stages. They may also be of similar size, shape and coloration of commonly traded pectoral fins from thresher sharks and other CITES-listed sharks (e.g., Blue Shark [*Prionace glauca*]) or non-CITES-listed species (e.g., Salmon Shark [*Lamna ditropis*]). The key diagnostic characters on the ventral surface of these pectoral fins are provided here for reference. For both species, the ventral surface can sometimes have small, mottled light grey spots visible along the ventral surface of the pectoral fins.

### Shortfin Mako



**Description of fins:** Moderately broad (leading edge to trailing edge), with a narrowly rounded apex. Ventral surface uniform white or light in color with no obvious dark or dusky markings. Dorsal surface with white margin running along the edge of free rear tip.

### Longfin Mako



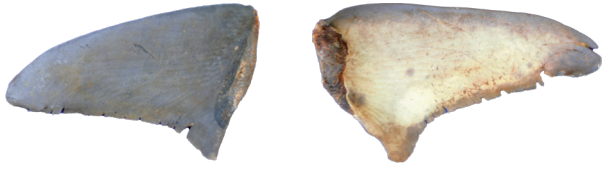
**Description of fins:** Extremely elongated, with a moderately rounded apex. Ventral surface mostly white or light in color with dusky or dark markings at apex and along margins of the leading and trailing edges. Dorsal surface with white margin running along the edge of free rear tip.

### Blue Shark

**Description of fins:** Extremely elongated, slender (from leading edge to trailing edge) with a narrowly rounded to slightly pointed apex. Dorsal surface dark grey or greyish-brown in color without white margin running along edge of the free rear tip, as seen in lamnids with fins of similar size and color (e.g., Shortfin and Longfin Mako, Porbeagle). Ventral surface uniform white or light in color with no obvious dark or dusky markings. Radial cartilage is easily seen extending from base towards apex.

## IDENTIFYING MAKO PECTORAL FINS

### Salmon Shark



**Description of fins:** Moderately large but short and broad (from leading edge to trailing edge) with a rounded apex. Dorsal surface dark grey or greyish-brown in color without white margin running along edge of free rear tip, as seen in lamnids with fins of similar size and color (e.g., Shortfin and Longfin Mako, Porbeagle). Ventral surface uniform white or light in color with obvious dark or dusky markings at apex and along margins of leading and trailing edge. **The Salmon Shark (*Lamna ditropis*) is not a CITES-listed species**

### Porbeagle

**Description of fins:** Moderately large but short and broad (from leading edge to trailing edge) with a rounded apex. Dorsal surface dark grey or greyish-brown in color with white margin running along the edge of the free rear tip, as seen in lamnid species with fins of similar size and color (e.g., Shortfin Mako and Longfin Mako). Ventral surface white or light in color with a dusky coloration throughout the midsection of the fin and along margins of leading and trailing edge.

## IDENTIFYING SILKY SHARK PECTORAL FINS

Several commonly traded pectoral fins from CITES-listed species have a dusky coloration concentrated at the apex of the ventral surface. A comparison is provided for some the commonly traded pectoral fins that resemble the Silky Shark (*Carcharhinus falciformis*).

### Silky Shark

**Description of fins:** Moderately long with narrowly pointed apex. Dusky coloration heavily concentrated at apex, extending along less than 1/3 of the margin of the trailing edge.

### Night Shark

**Description of fins:** Moderately long with pointed apex. Dusky coloration at apex on ventral surface is less concentrated, typically diffusing over more of the ventral surface.

### Dusky Shark

**Description of fins:** Moderately long tapering towards a slightly pointed apex. Dusky coloration at apex on ventral surface is less concentrated (or obvious), typically diffusing over more of the ventral surface.

### Bull Shark

**Description of fins:** Relatively short with pointed apex. Dusky coloration extends further into the middle of the ventral surface and further along the trailing edge (more than 1/3).

### Caribbean Reef Shark

**Description of fins:** Moderately long with pointed apex. Dusky coloration extends further into the middle of the ventral surface and further along the trailing edge (more than 1/3).

## STEP 5 - CHECK CAUDAL FINS

### SHARK VS RHINO RAY

Shark lower caudal lobes cannot reliably be identified to the species level. The cartilage extends into the upper lobe so only the lower lobes are traded. Lower lobes are generally removed and traded with the first dorsal fin and paired pectoral fins. Shark-like rays (sawfish, wedgefish, giant guitarfish, and guitarfish) have cartilage that does not extends into the upper lobe. They are traded as fin sets that generally include a whole caudal fin. It is necessary to distinguish sawfish fins (Appendix I) from wedgefish and guitarfish (Appendix II) in a CITES context.

**Shark**

Fresh caudal fin

Dried caudal fin

**Sawfish, wedgefish, and guitarfish**

Sawfish dried caudal fin (Pristidae)

Wedgefish dried caudal fin (Rhinidae)

Giant guitarfish dried caudal fin (Glaucostegidae)

Guitarfish wet caudal fin (Rhinobatidae)

## STEP 5 - CHECK CAUDAL FINS

START

— Is the lower lobe short or absent?

YES

— Are there large denticles concentrated along leading edge of upper lobe?

YES

Giant guitarfish
*Glaucostegus* spp.
See page 77

NO

— Is the upper lobe elongated?

YES

Sawfishes
*Pristis* spp.
See pages 71-74

NO

Guitarfishes
*Acroteriobatus, Pseudobatos, Rhinobatos* spp.
See page 78

NO

— Is the fin lunate with broad lower lobe almost symmetrical to upper lobe, with sometimes white spots?

YES

Bowmouth Guitarfish
*Rhina ancylostomus*
See page 76

NO

— Is the lower lobe more than half length of the upper lobe with a distinct notch visible on posterior margin?

YES

Narrow Sawfish
*Anoxypristis cuspidata*
See page 70

NO

— Is the lower lobe less than half length of the upper lobe with no distinct notch on posterior margin, with sometimes white spots?

YES

Wedgefishes
*Rhynchobatus* spp. or *Rhynchorhina mauritaniensis*
See page 75

## WHALE SHARK AND BOWMOUTH GUITARFISH

Whale Shark (*Rhincodon typus*) and Bowmouth Guitarfish (*Rhina ancylostomus*) fins are dark to light grey in color with white spots. Dorsal fins from both species are similar in color but Whale Shark fins are much larger, have a row of cartilage of similar size and shape running across the entire fin base. On the other hand, dorsal fins derived from the Bowmouth Guitarfish will vary (depending on cut) with multiple, irregularly shaped rows of cartilage or two long strips of cartilage.

The Bowmouth Guitarfish is a species of shark-like ray and pectoral fins from this species do not enter the trade. All pectoral fins that are dark grey with white spots dorsally, white ventrally, and usually large in size are likely to belong to a Whale Shark.

The caudal fins of both species are likely to be sold intact. The caudal fin of the Bowmouth Guitarfish is lunate and will usually be sold as a set with the two dorsal fins. The caudal fin of the Whale Shark has a long upper lobe compared to the lower lobe, likely to be extremely large, and sold as a souvenir.

### Whale Shark

First dorsal fin (wet)

Pectoral fin (wet)

Caudal fin (dry)

**Description of fins:** All fins are extremely large. The dorsal surface has white spots visible (and sometimes white bands). The dorsal fin is short and broad, with an extremely rounded apex. The ventral surface of pectoral fins is white with no obvious markings.

### Bowmouth Guitarfish

First dorsal fin (dry) with white spots

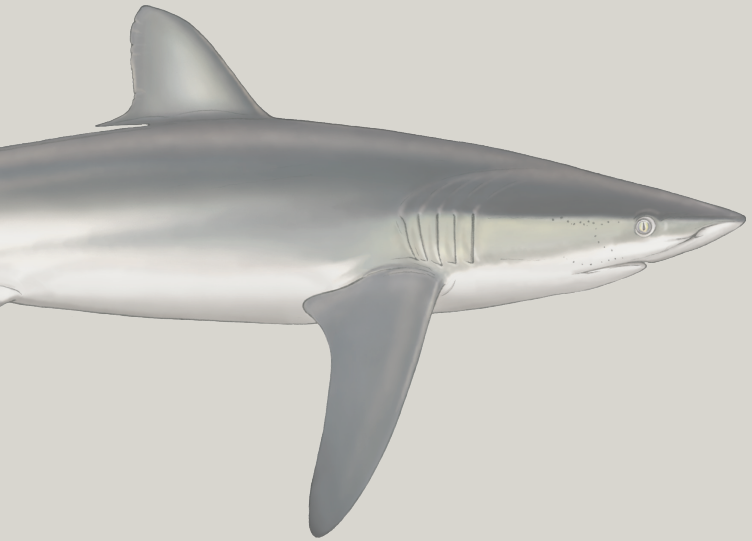
First dorsal fin (dry) without white spots

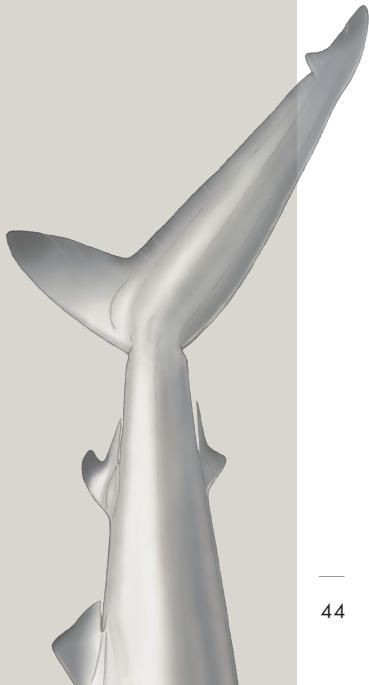
Caudal fin (dry)

**Description of fins:** Fins are light grey to greyish brown in color, sometimes the spots are barely visible. Dorsal fins are broad and angular at the apex. The caudal fin does not have cartilage extending into upper lobe.

# SECTION 2

## IDENTIFYING SHARKS AND RAYS FROM THEIR FINS





## EACH SPECIES ACCOUNT INCLUDES (from top to bottom)

**Common name** – the name according to the IUCN Red List of Threatened Species assessment (www.iucnredlist.org).

**Scientific name** – the binomial name (genus and species).

**Family name** – the family the species belongs to.

**Species illustration** – color illustrations highlighting key external characteristics including shape, color, and distinctive features to check when identifying specimens.

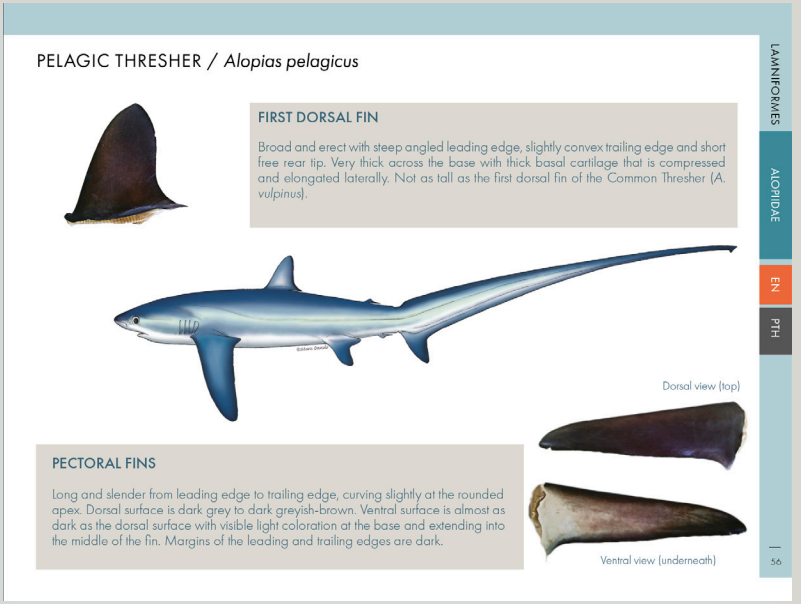
**Order name** – the order the species belongs to.

**Conservation status:** the global status according to the IUCN Red List is indicated with a two-letter code.

**FAO code** – a three-letter code unique to the species based on the FAO ASFIS list.

Abbreviations for IUCN Red List categories in order of decreasing threat are:

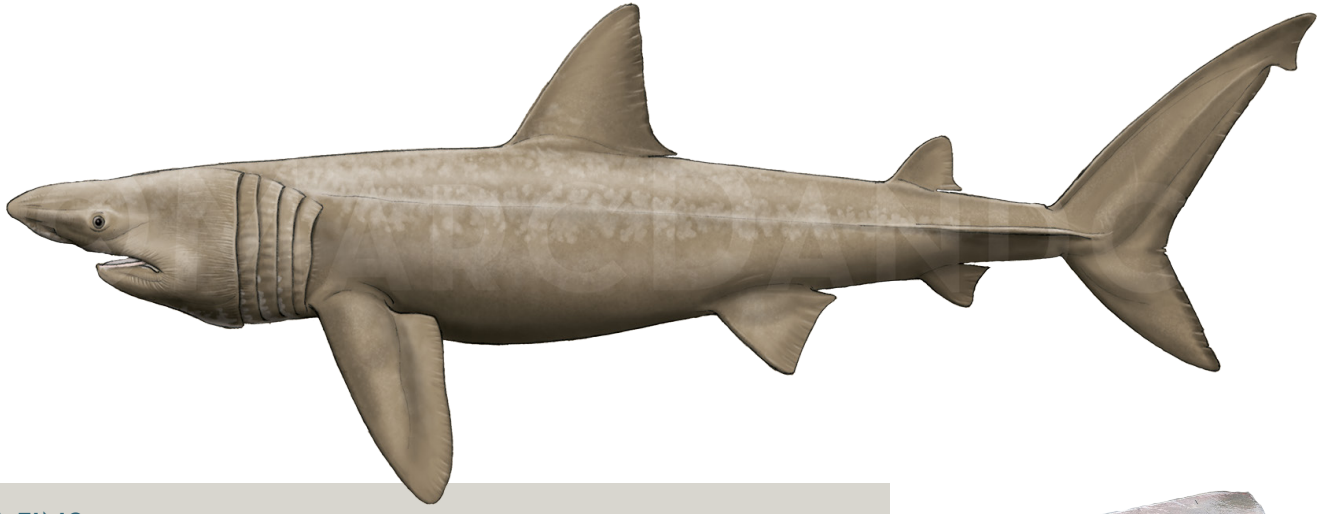
| | |
|---|---|
| EX | Extinct |
| EW | Extinct in the Wild |
| CR | Critically Endangered |
| EN | Endangered |
| VU | Vulnerable |
| NT | Near Threatened |
| LC | Least Concern |
| DD | Data Deficient |



# BASKING SHARK / *Cetorhinus maximus*

## FIRST DORSAL FIN

Very large and broad, not tall (fin base similar in length to fin height) with moderately rounded apex. Color can vary from dark grey to light grey surface, with highly textured skin and linear striations visible across the surface of the fin. Free rear tip starts behind the apex.



## PECTORAL FINS

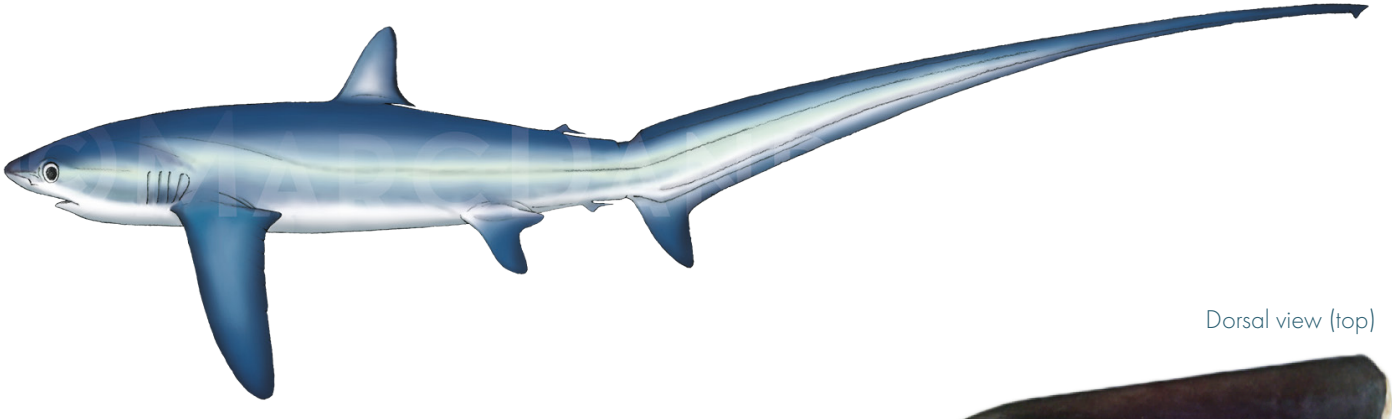
Very large and broad. Dorsal surface color can vary from dark grey to light grey in color. Ventral surface with little or no obvious markings, similar in color to the dorsal surface (not lighter, as typical for shark pectoral fins).

Ventral view (underneath)

# PELAGIC THRESHER / *Alopias pelagicus*

## FIRST DORSAL FIN

Broad and erect with steep angled leading edge, slightly convex trailing edge and short free rear tip. Very thick across the base with thick basal cartilage that is compressed and elongated laterally. Not as tall as the first dorsal fin of the Common Thresher (*A. vulpinus*).



Dorsal view (top)

Ventral view (underneath)

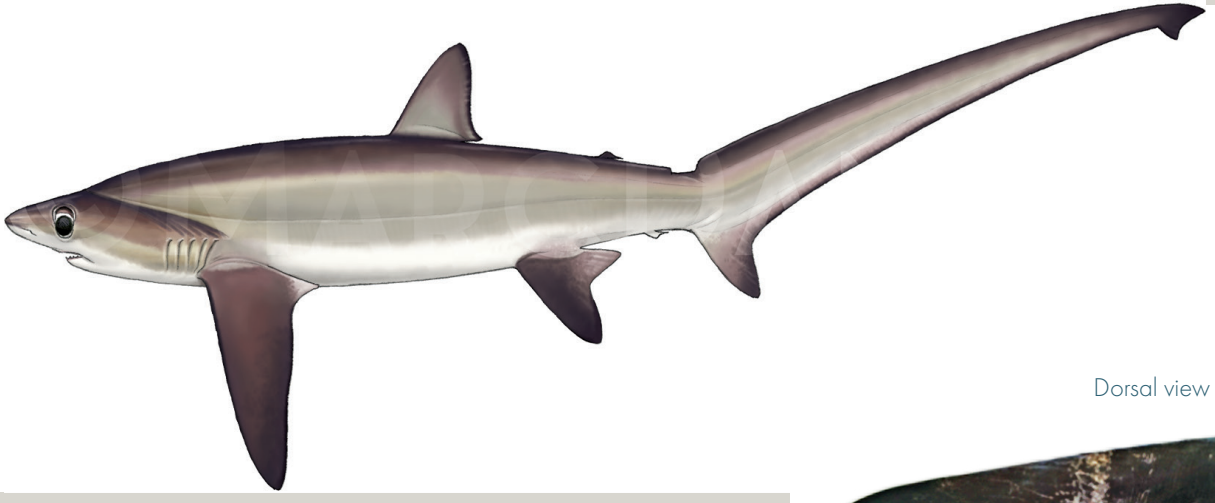
## PECTORAL FINS

Long and slender from leading edge to trailing edge, curving slightly at the rounded apex. Dorsal surface is dark grey to dark greyish-brown. Ventral surface is almost as dark as the dorsal surface with visible light coloration at the base and extending into the middle of the fin. Margins of the leading and trailing edges are dark.

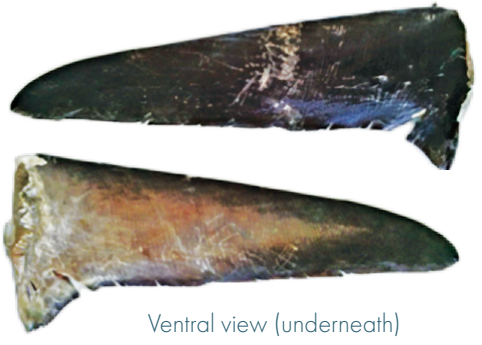
# BIGEYE THRESHER / *Alopias superciliosus*

## FIRST DORSAL FIN

Broad and erect with steep angled leading edge, slightly convex trailing edge and short free rear tip. Very thick across the base with thick basal cartilage that is compressed and elongated laterally. Not as tall as first dorsal fin of the Common Thresher (*A. vulpinus*).



Dorsal view (top)



Ventral view (underneath)

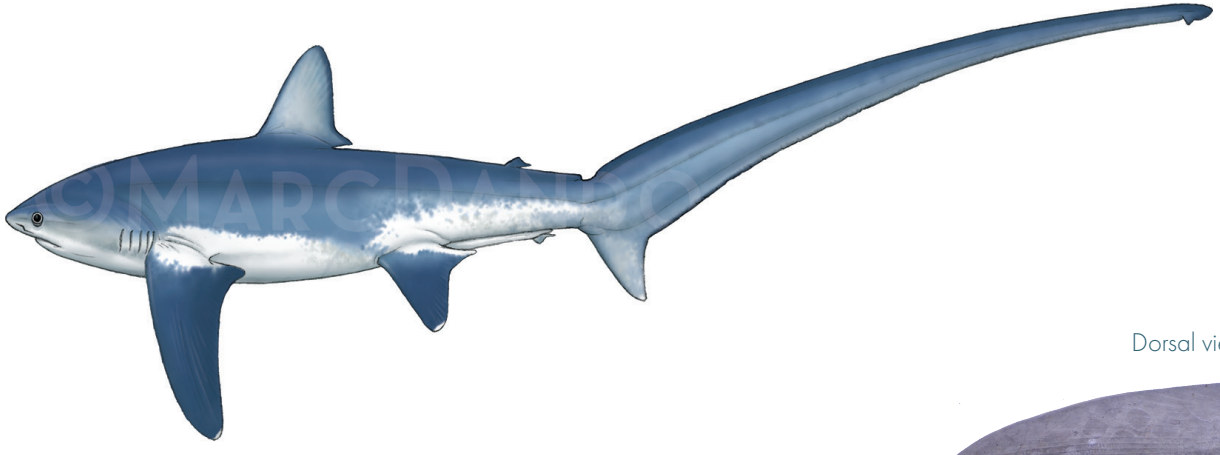
## PECTORAL FINS

Long and slender from leading edge to trailing edge, curving slightly at the rounded apex. Dorsal surface is a dark grey to dark greyish-brown. Ventral surface is almost as dark as the dorsal surface with a visible light coloration at the base that extends into the middle of the fin. Margins of the leading and trailing edges are dark.

# COMMON THRESHER / *Alopias vulpinus*

## FIRST DORSAL FIN

Tall, erect with steep angled leading edge, slightly convex trailing edge, narrowly rounded apex and short free rear tip. Very thick along the base and thick basal cartilage that is compressed and elongated laterally.



## PECTORAL FINS

Long and slender from leading edge to trailing edge, curving slightly at the rounded apex. Dorsal surface is dark grey to dark greyish-brown. Ventral surface is almost as dark as the dorsal surface with a mottled white coloration at the base. There is often a very small white spot at the tip of the apex (visible on both dorsal and ventral surfaces).

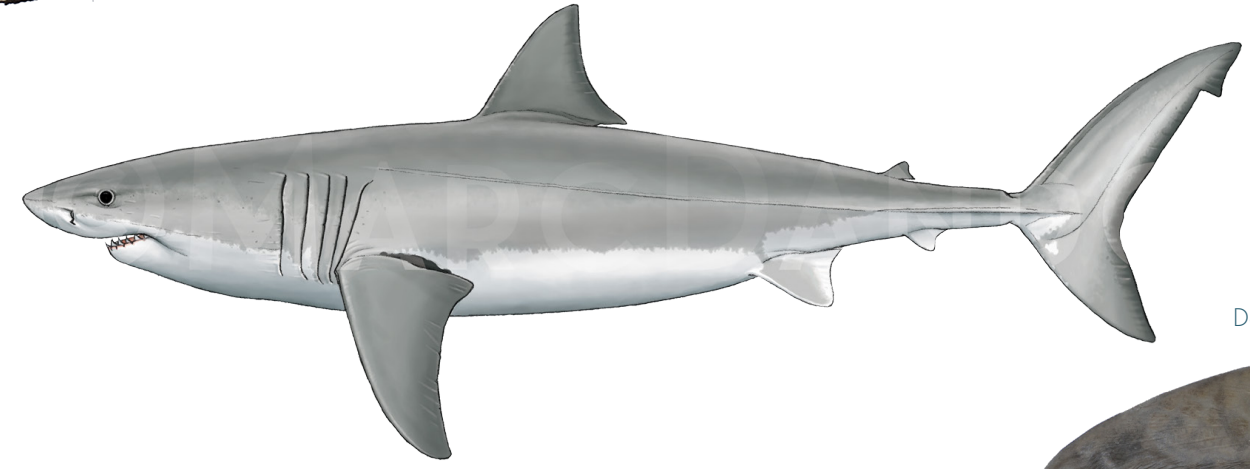
Dorsal view (top)

Ventral view (underneath)

# GREAT WHITE SHARK / *Carcharodon carcharias*

## FIRST DORSAL FIN

Dorsal fin large and triangular, dull dark grey to greyish brown in color. Leading edge angular, flattening out at the moderately pointed apex. Trailing edge slightly concave, often with a ragged appearance. Free rear tip short, origin starting behind the apex.



Dorsal view (top)

Ventral view (underneath)

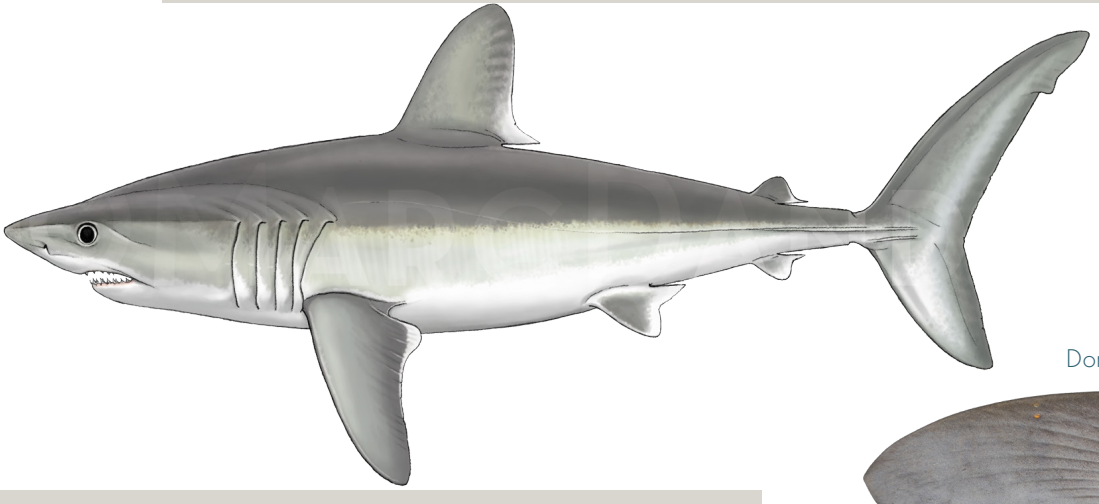
## PECTORAL FINS

Large, dorsal surface dull dark grey to greyish brown in color with white margin along the edge of the free rear tip. Ventral surface white or pale with black markings at the moderately pointed apex.

# PORBEAGLE / *Lamna nasus*

## FIRST DORSAL FIN

Tall, erect fin, dark blue/black to dark greyish brown. Rounded apex with distinct white patch on lower trailing edge onto a short free rear tip. Rough texture but without visible denticles.



Dorsal view (top)

Ventral view (underneath)

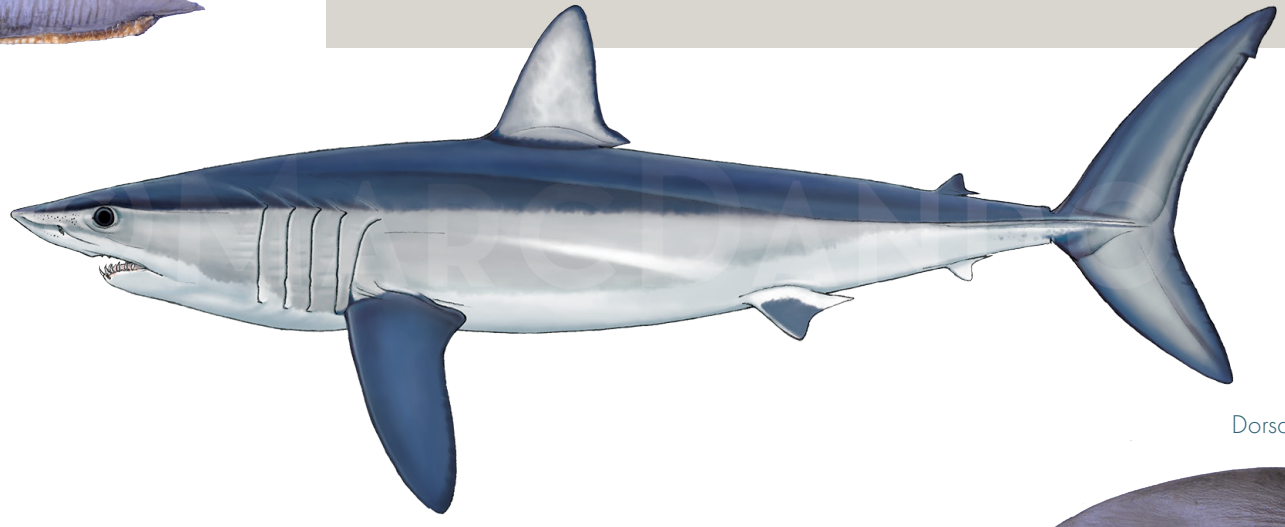
## PECTORAL FINS

Short and broad from leading edge to trailing edge, with a rounded apex. Dorsal surface dark or slate grey in color with visible white margin running along the leading edge of the free rear tip. Ventral surface dusky in coloration along the leading edge, and concentrated at the apex and diffusing along the midsection of the fin.

# SHORTFIN MAKO / *Isurus oxyrinchus*

## FIRST DORSAL FIN

Uniform, dark slate grey (wet) or greyish-brown (dried, semi-dried) in color. Tall, very erect fin due to the steep angle of the leading edge. Moderately rounded apex, and nearly straight trailing edge. Short free rear tip.



Dorsal view (top)

## PECTORAL FINS

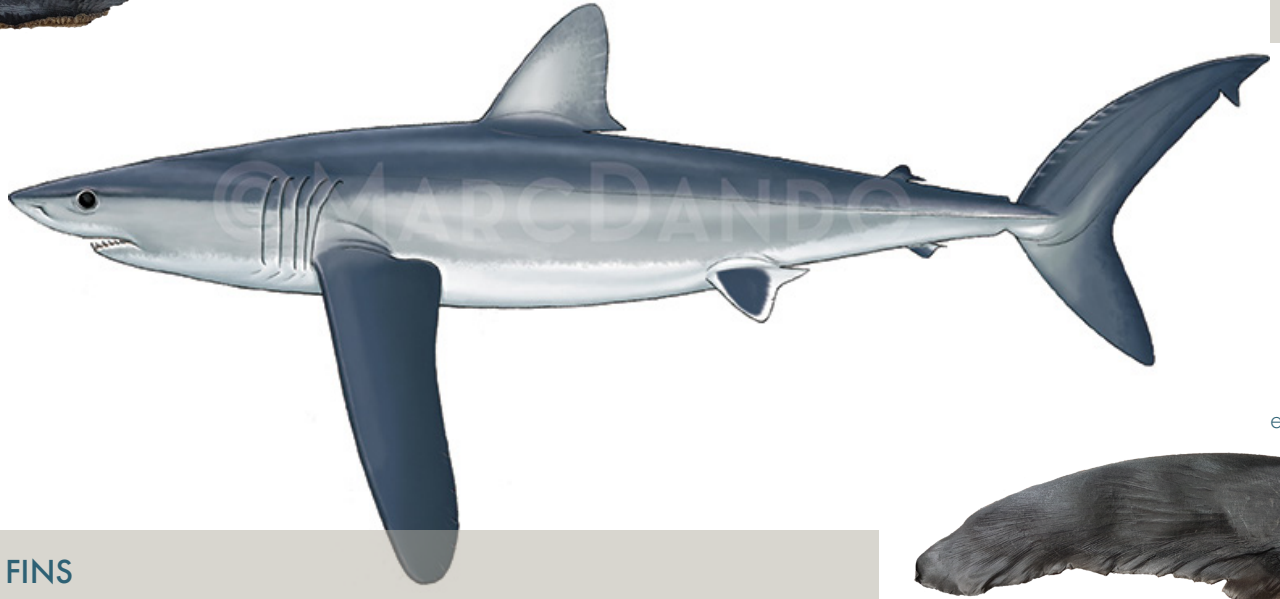
Moderately broad (leading edge to trailing edge), with a narrowly rounded apex. Dorsal surface is dark slate grey (wet) or greyish-brown (dried, semi-dried) in color with an obvious white margin running along the edge of the free rear tip. Ventral surface is uniform white or light in color with no obvious dark or dusky markings.

Ventral view (underneath)

# LONGFIN MAKO / *Isurus paucus*

## FIRST DORSAL FIN

Uniform, dark slate grey (wet) or greyish-brown (dried, semi-dried) in color. Tall, very erect fin due to the steep angle of the leading edge. Moderately rounded apex, and nearly straight trailing edge. Short free rear tip.




## PECTORAL FINS

Extremely elongated, with moderately rounded apex. Dorsal surface dark slate grey (wet) or greyish-brown (dried, semi-dried) in color with an obvious white margin running along the edge of the free rear tip. Ventral surface is mostly white or light in color with dusky or dark markings at the apex and along the margins of the leading and trailing edges.

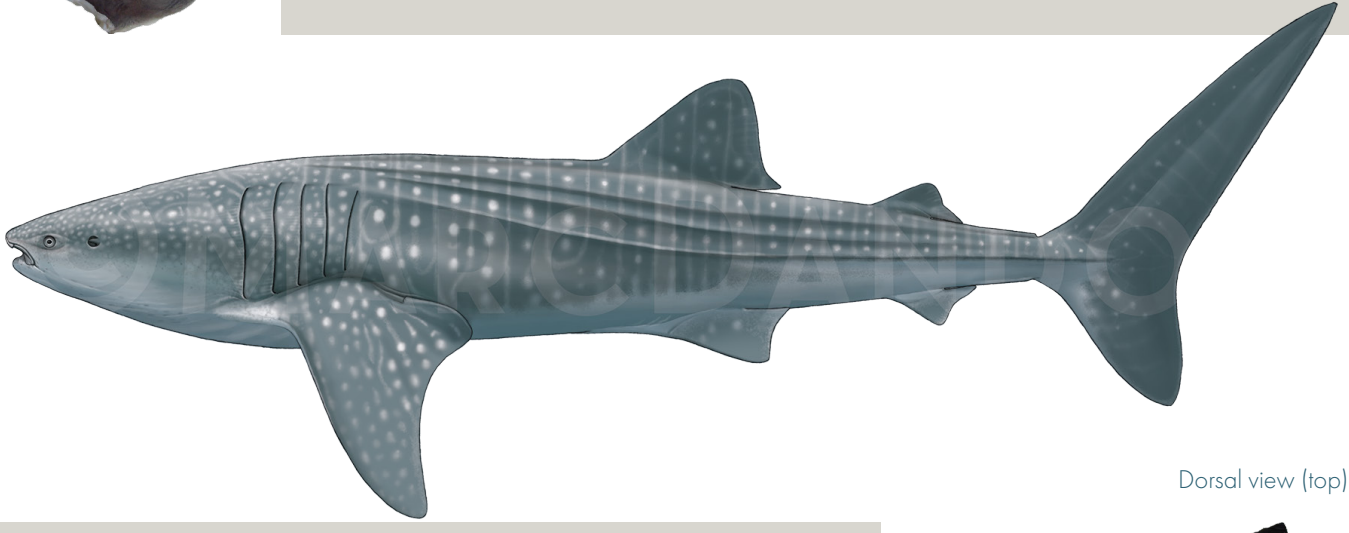
ew (top)

Ventral view (underneath)

# WHALE SHARK / *Rhincodon typus*

## FIRST DORSAL FIN

Very large and triangular, grey to grey-black in color with white spots (and sometimes linear bands) across the entire fin surface. Free rear tip starts behind the apex.
Note - See page 43 for comparison to Bowmouth Guitarfish (*Rhina ancylostomus*) dorsal fins.



Dorsal view (top)

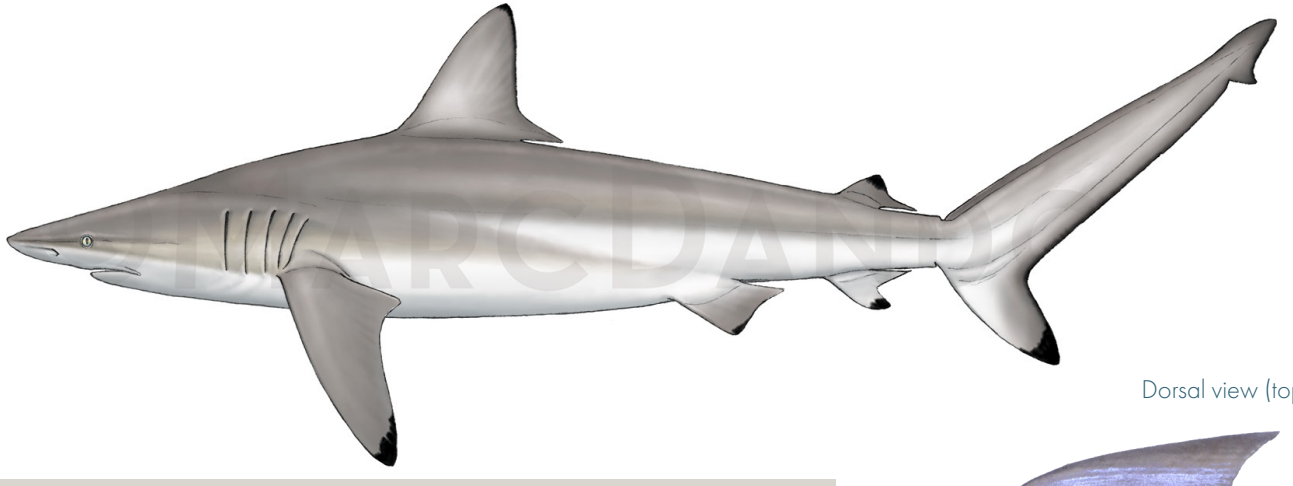
## PECTORAL FINS

Very large and strongly falcate (concave trailing edge). Dorsal surface grey to grey-black in color with white spots (and sometimes stripes) across the entire surface. Ventral surface white with little or no obvious markings.

# SPINNER SHARK / *Carcharhinus brevipinna*

## FIRST DORSAL FIN

Relatively short, moderately broad, brown to greyish-brown in color. Apex rounded with distinct black markings visible. Overall glossy, smooth texture. Short free rear tip.
**Note -** black markings on fins might not be there, especially in juveniles



Dorsal view (top)

## PECTORAL FINS

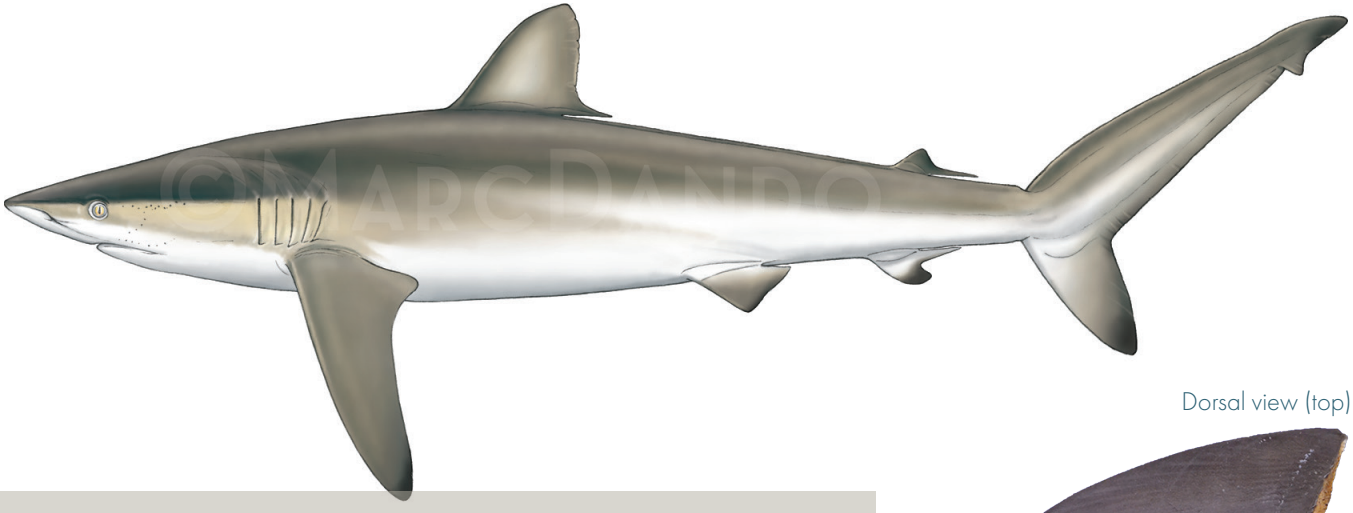
Relatively short, nearly straight trailing edge, narrowly pointed apex. Dorsal surface fin light brown or grey with a a glossy sheen. Black markings on the apex are obvious on the ventral and dorsal surfaces.
**Note -** black markings on fins might not be there, especially in juveniles

Ventral view (underneath)

# SILKY SHARK / *Carcharhinus falciformis*

## FIRST DORSAL FIN

Uniform grey to greyish-brown with sloping leading edge, moderately rounded (as opposed to pointed) apex, and strongly convex (outwardly rounded) trailing edge. Length of free rear tip is close to half the length of the base.



## PECTORAL FINS

Long, nearly straight trailing edge, narrowly rounded apex. Dorsal surface is grey or greyish-brown, and ventral surface is white with a visible dusky coloration concentrated at the apex and extending along less than 1/3 of the margin of the trailing edge.

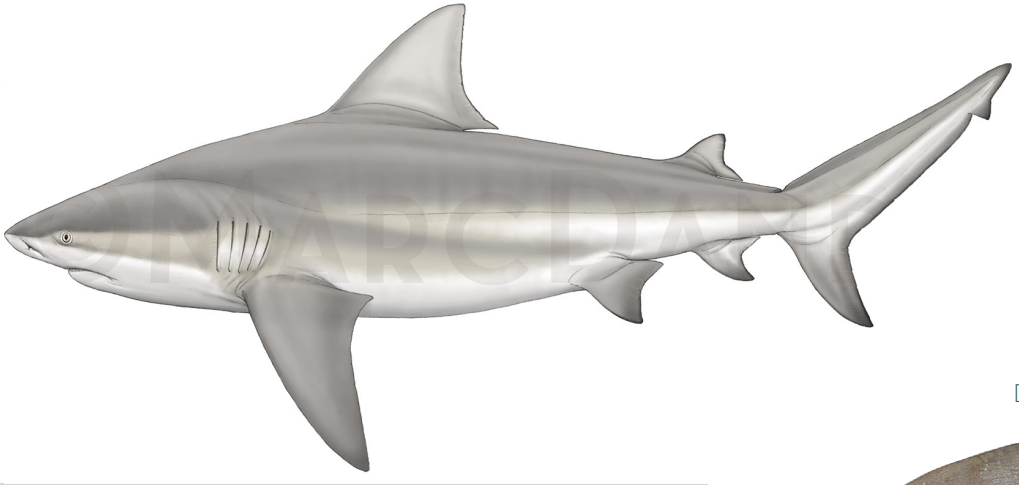
Dorsal view (top)

Ventral view (underneath)

# BULL SHARK / *Carcharhinus leucas*

## FIRST DORSAL FIN

Uniform light grey to greyish-brown with sloping leading edge, pointed apex, and convex (outwardly rounded) trailing edge with short free rear tip. Fin covered in large denticles (can look like salt grains), and has a rough texture (like sandpaper).



## PECTORAL FINS

Relatively short, nearly straight trailing edge, pointed apex. Dorsal surface is light grey or greyish-brown, and ventral surface with a visible dusky coloration extending from apex into the middle of the ventral surface and more than 1/3 of the margin of the trailing edge. Texture is rough with visibly obvious denticles.

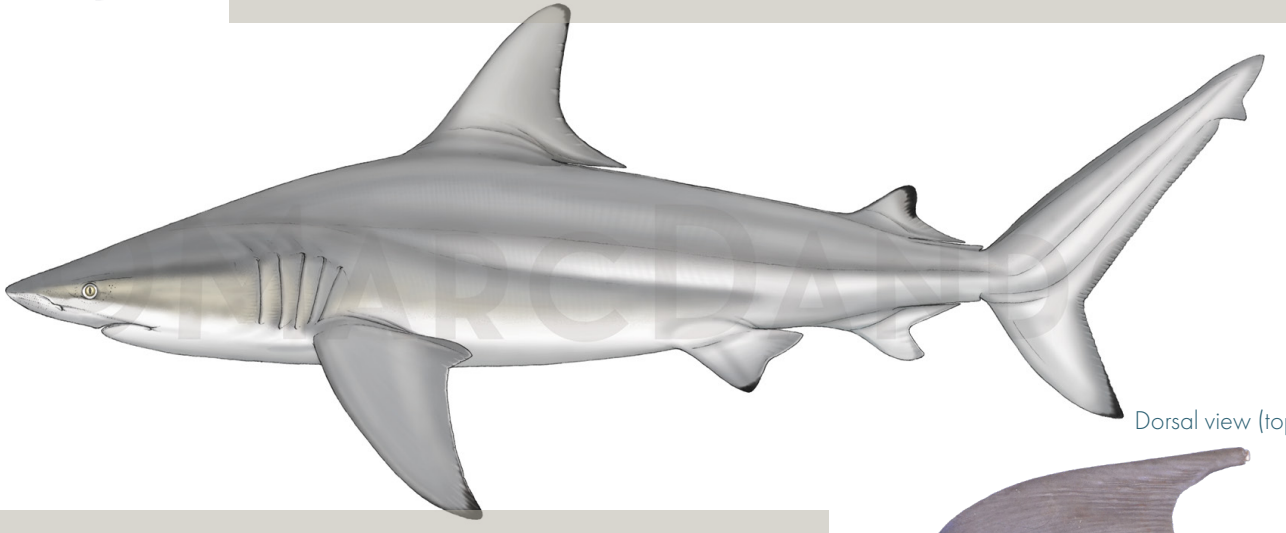
Dorsal view (top)

Ventral view (underneath)

# BLACKTIP SHARK / *Carcharhinus limbatus*

## FIRST DORSAL FIN

Tall fin, light brown or greyish-brown in color, narrowing at apex. Texture very smooth and often appear to be shiny. Juveniles usually with distinct black tips on all fins but adults may have faded black edges, indistinct markings, or none. Free rear tip moderately long (around 1/3 of the height of the fin).



Dorsal view (top)

## PECTORAL FINS

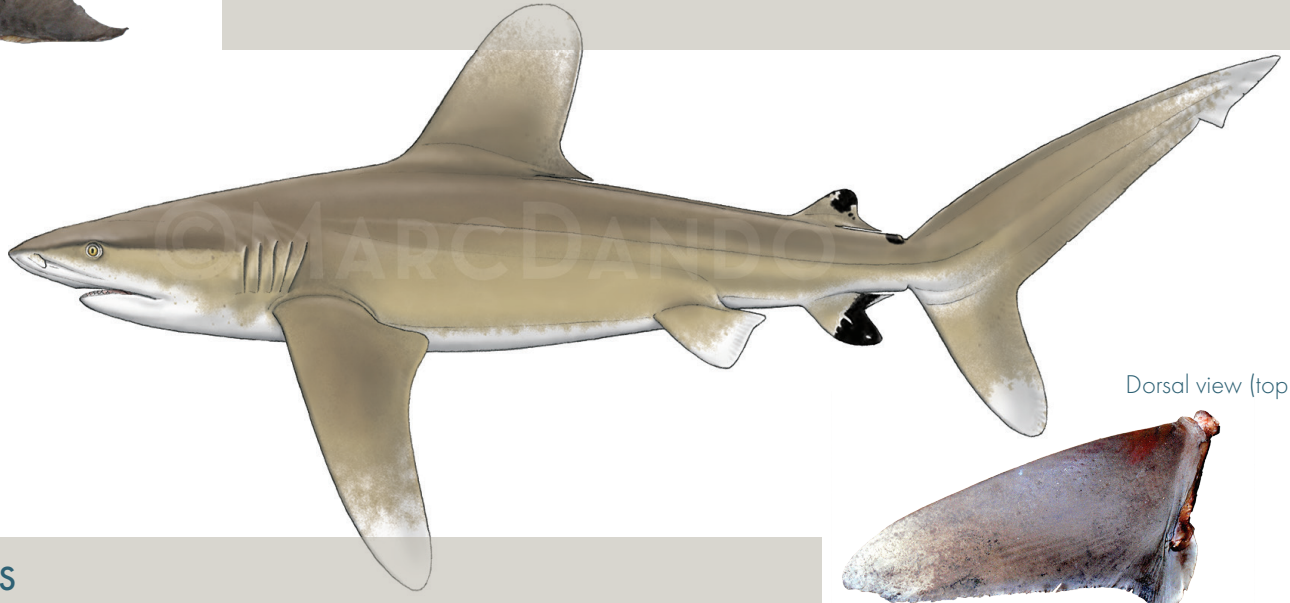
Relatively short, nearly straight trailing edge, narrowly pointed apex. Dorsal surface fin light brown or grey with a a glossy sheen. Black markings on the apex are obvious on the ventral surface and less obvious or absent altogether on the dorsal surface.

Ventral view (underneath)

# OCEANIC WHITETIP SHARK / *Carcharhinus longimanus*

## FIRST DORSAL FIN

Large and broad, with rounded (paddle-like) apex. Apex with white patch that is often mottled but remaining fin is light brown or bronze in color. Short free rear tip with a rough texture but no visible denticles.



## PECTORAL FINS

Long, broadly rounded at apex, dorsal surface has mottled white color at apex. Ventral surface typically white but can have mottled brown coloration. Mottled white color also present on caudal fin (upper and lower lobe). Very small juveniles may have mottled black coloration on the first dorsal, pectoral and caudal fins.

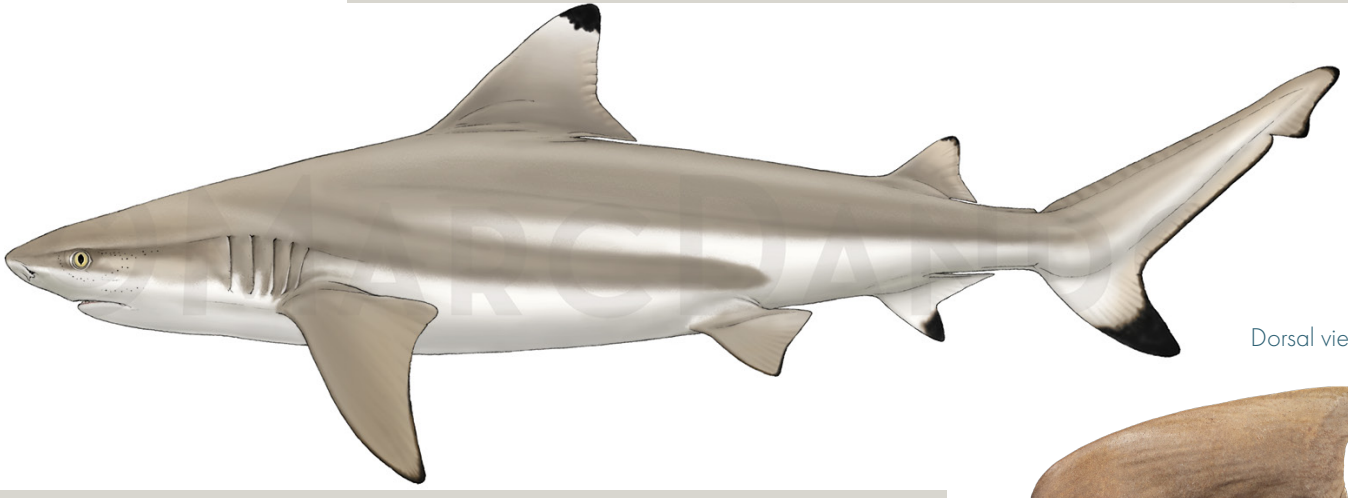
Dorsal view (top)

Ventral view (underneath)

# BLACKTIP REEF SHARK / *Carcharhinus melanopterus*

## FIRST DORSAL FIN

Dorsal surface light brown to greyish-brown in color. Apex narrowly rounded with a large black blotch and distinct pale color under it. Free rear tip relatively long.



Dorsal view (top)

## PECTORAL FINS

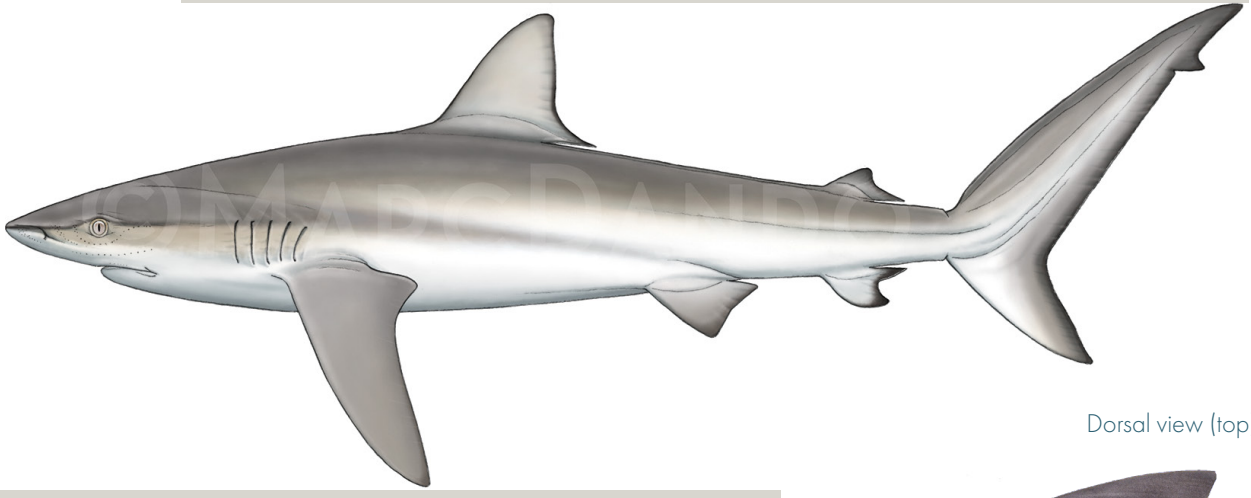
Moderately long, broadly rounded at apex, dorsal surface light brown to greyish-brown. Ventral surface with mottled black patch at apex, typically not diffusing onto the otherwise white colored ventral surface.

Ventral view (underneath)

# DUSKY SHARK / *Carcharhinus obscurus*

## FIRST DORSAL FIN

Uniform light grey to greyish-brown with sloping leading edge, narrowly rounded apex, and convex (outwardly rounded) trailing edge with relatively long free rear tip (less than half the fin base). Texture is relatively smooth with small denticles.



Dorsal view (top)

## PECTORAL FINS

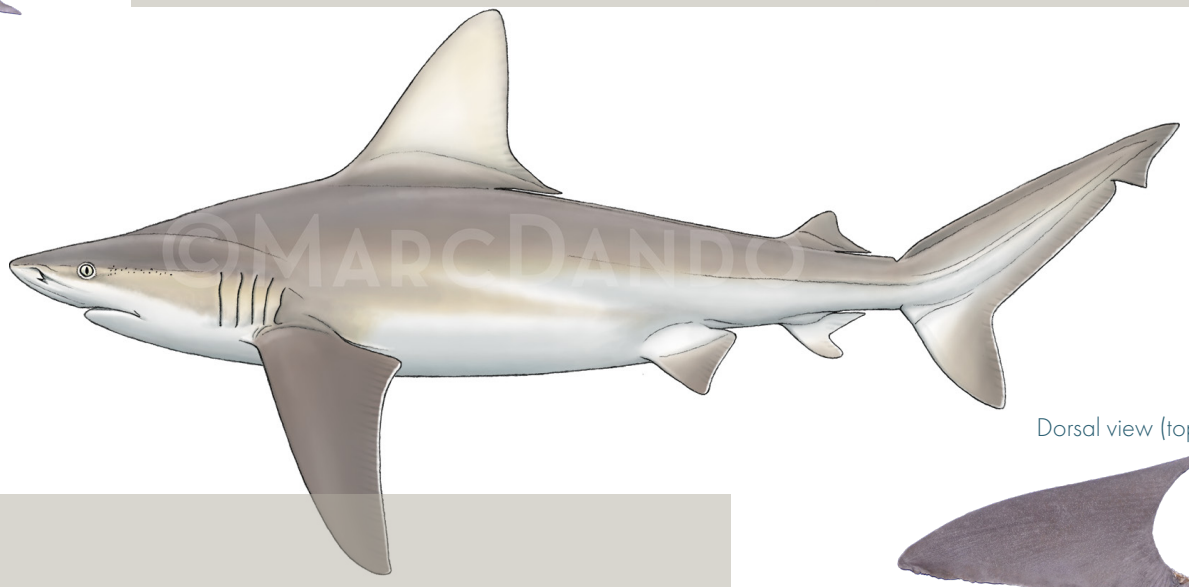
Relatively long and tapering towards a slightly pointed apex. Dorsal surface is light brown or greyish-brown. Ventral surface with a visible dusky coloration at the apex (not very concentrated that does not diffuse to center). Trailing edge is falcate and the free rear tip also narrows at the apex.

Ventral view (underneath)

# SANDBAR SHARK / *Carcharhinus plumbeus*

## FIRST DORSAL FIN

Uniform light brown, tan, or light grey color with sloping leading edge, rounded apex, and convex (outwardly rounded) trailing edge with moderately short free rear tip. Texture is relatively rough with large denticles that look like salt grains usually concentrated on leading edge.




Dorsal view (top)

## PECTORAL FINS

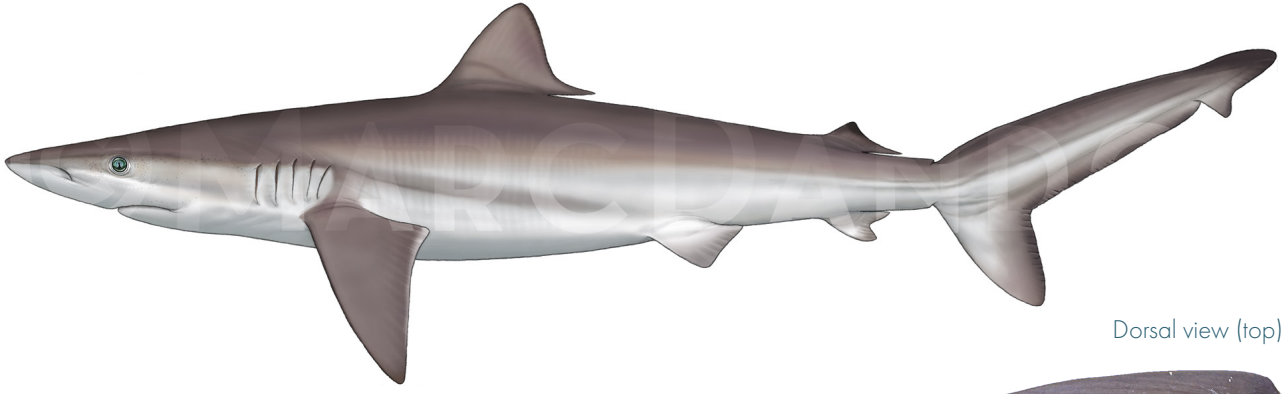
Relatively long and tapering towards a slightly pointed apex. Dorsal surface is light brown or greyish-brown with rough texture and large denticles that look like salt grains. Markings on the ventral surface are absent or consist of a faint dusky area at the apex and along the trailing edge. Free rear tip is short and narrow at the apex.

Ventral view (underneath)

# NIGHT SHARK / *Carcharhinus signatus*

## FIRST DORSAL FIN

Dorsal surface light grey to greyish-brown in color. Apex narrowly rounded with convex (outwardly rounded) trailing edge and relatively short free rear tip.



Dorsal view (top)

## PECTORAL FINS

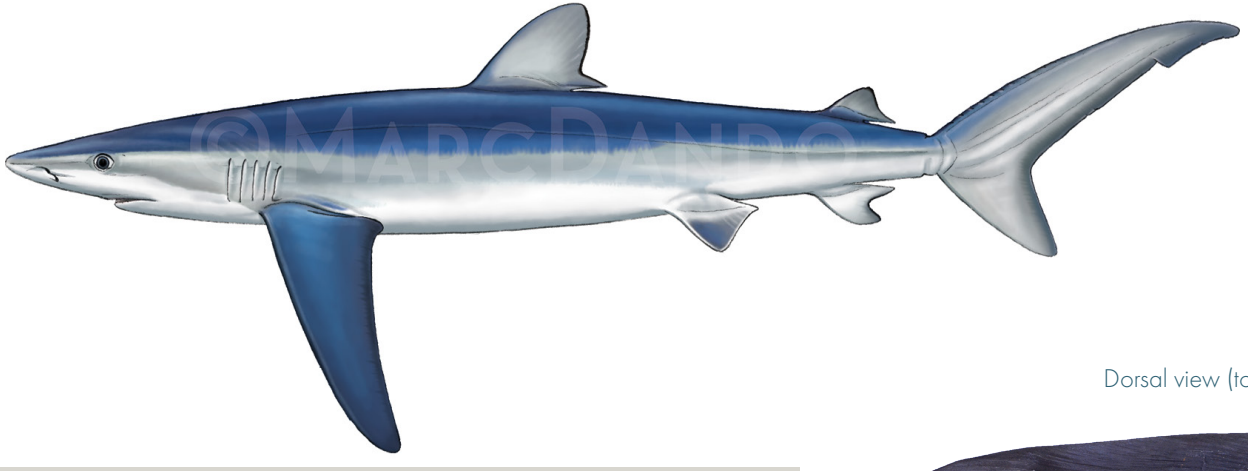
Moderately long, slightly falcate trailing edge, tapering towards a pointed apex. Dorsal surface is grey or greyish-brown, and ventral surface with a visible, but not very concentrated or obvious, dusky coloration at apex, typically diffusing over a small portion of the ventral surface (not to middle or along margin).

Ventral view (underneath)

# BLUE SHARK / *Prionace glauca*

## FIRST DORSAL FIN

Dorsal surface dark grey or greyish-brown in color. Leading edge low and angular with strongly convex trailing edge.



Dorsal view (top)

## PECTORAL FINS

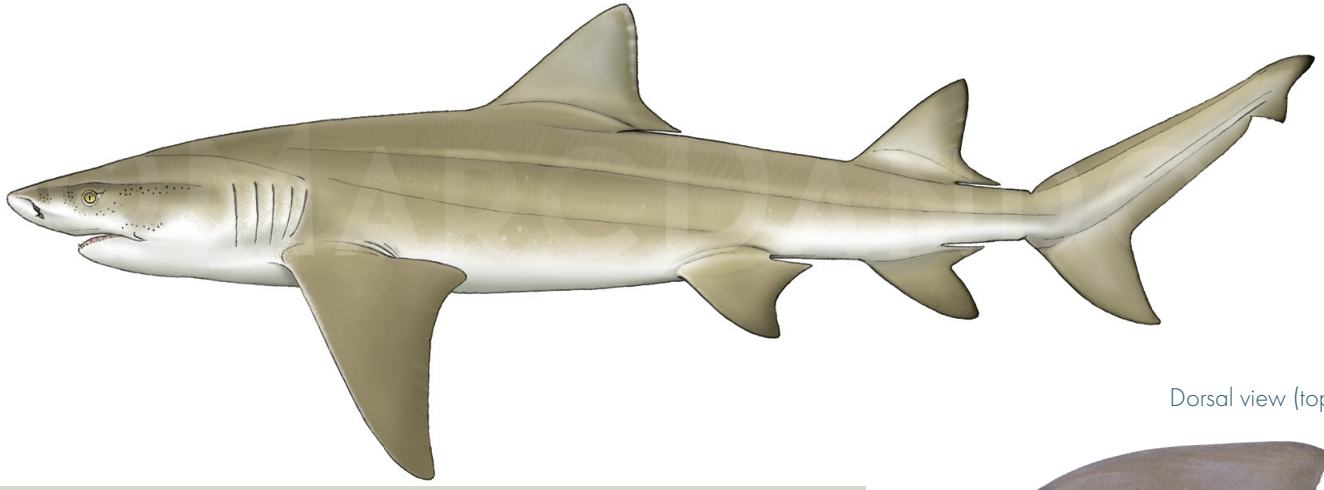
Extremely elongated, slender (from leading edge to trailing edge) with a narrowly rounded to slightly pointed apex. Dorsal surface dark grey or greyish-brown in color without white margin running along edge of the free rear tip, as seen in lamnids with fins of similar size and color (e.g., Shortfin and Longfin Mako, Porbeagle). Ventral surface uniform white or light in color with no obvious dark or dusky markings. Radial cartilage is easily seen extending from base towards apex.

Ventral view (underneath)

# LEMON SHARK / *Negaprion brevirostris*

## FIRST DORSAL FIN

Fin is short, broad and triangular in shape with a pointed apex. Light brown to golden brown in color, with rough texture and large obvious denticles, some which look like salt grains. Free rear tip moderate in length.
**Note:** the first and second dorsal fins are similar in size and shape. Both are probably retained for trade.



Dorsal view (top)

## PECTORAL FINS

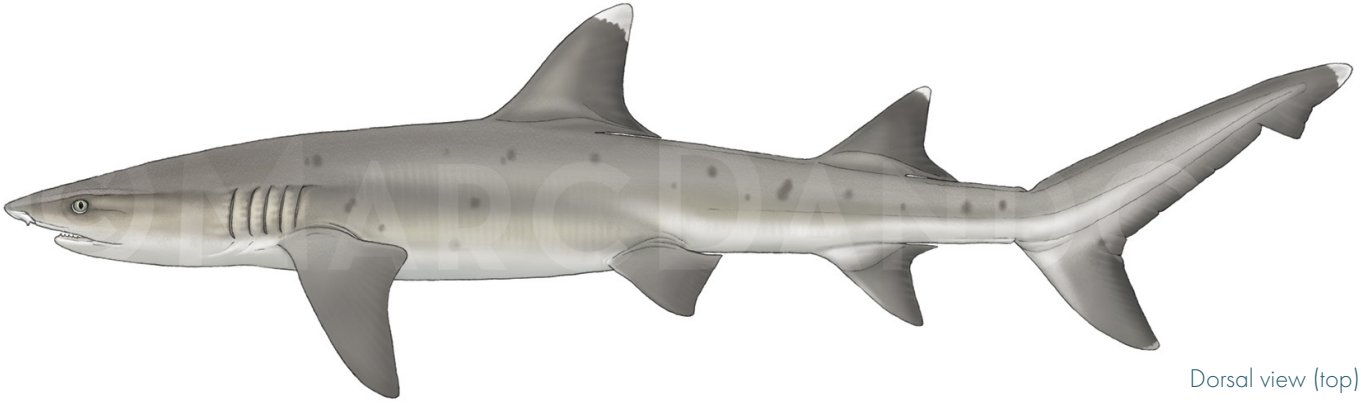
Moderately long, broad from leading edge to trailing edge, tapering into a pointed apex. Trailing edge falcate and free rear tip is broadly rounded at apex. Dorsal surface light brown or golden brown in color with a faint dusky coloration visible on the ventral surface at the apex. Visually obvious denticles (some of which resemble salt grains) on surface.

Ventral view (underneath)

# WHITETIP REEF SHARK / *Triaenodon obesus*

## FIRST DORSAL FIN

Dorsal surface grey or greyish-brown in color. Short, leading edge low and angular, with a pointed apex, and convex trailing edge. Apex with distinct white tip that does not extend onto trailing edge margin.



Dorsal view (top)

## PECTORAL FINS

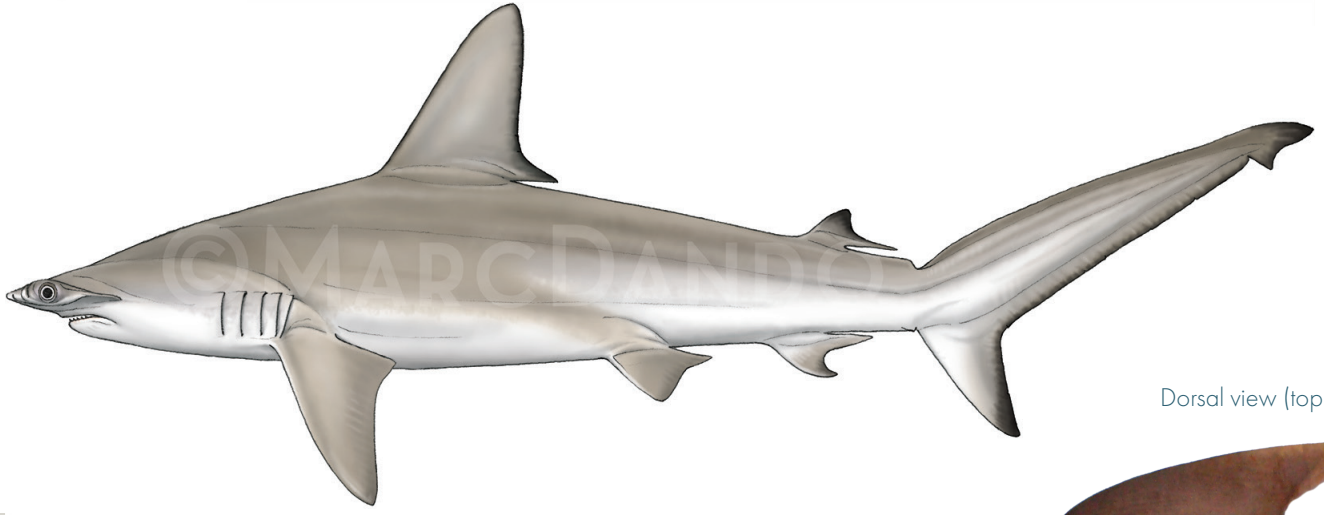
Relatively short and broad with a narrowly rounded to slightly pointed apex. Dorsal surface grey or greyish-brown in color without white tips. Ventral surface light in color with dusky markings at apex extending slightly into lower half of margins.

Ventral view (underneath)

# SCALLOPED HAMMERHEAD / *Sphyrna lewini*

## FIRST DORSAL FIN

Tall, flattening out toward apex, straight to moderately curved trailing edge (similar to Smooth Hammerhead [*S. zygaena*], less slender than Great Hammerhead [*S. mokarran*] first dorsal fin).




Dorsal view (top)

## PECTORAL FINS

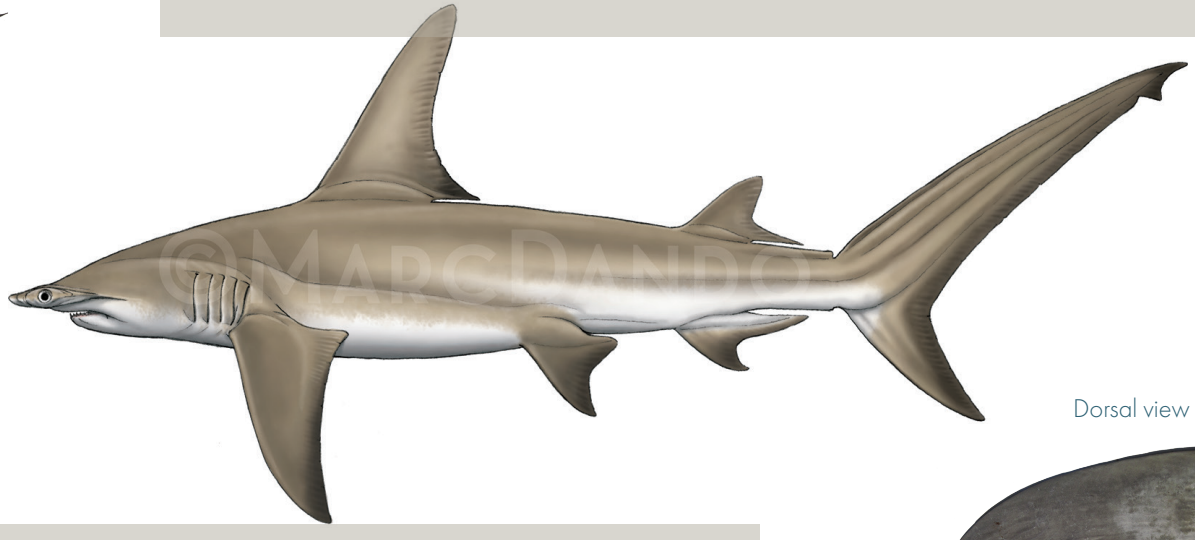
Short and broad, dorsal surface is uniform, light brown or light greyish-brown in color. Ventral surface light in coloration with distinct black markings concentrated at the apex. **Note** - certain Indian Ocean Scalloped Hammerhead (*S. lewini*) populations lack black tip at apex on ventral surface and look like Smooth Hammerhead (*S. zygaena*) pectoral fins - **both are CITES-listed!**

Ventral view (underneath)

# GREAT HAMMERHEAD / *Sphyrna mokarran*

## FIRST DORSAL FIN

Tall, slender from leading edge to trailing edge, elongated and pointed at apex. Similar to first dorsal fin of Winghead Shark (*Eusphyra blochii*) - **both are CITES-listed!**




Dorsal view (top)

## PECTORAL FINS

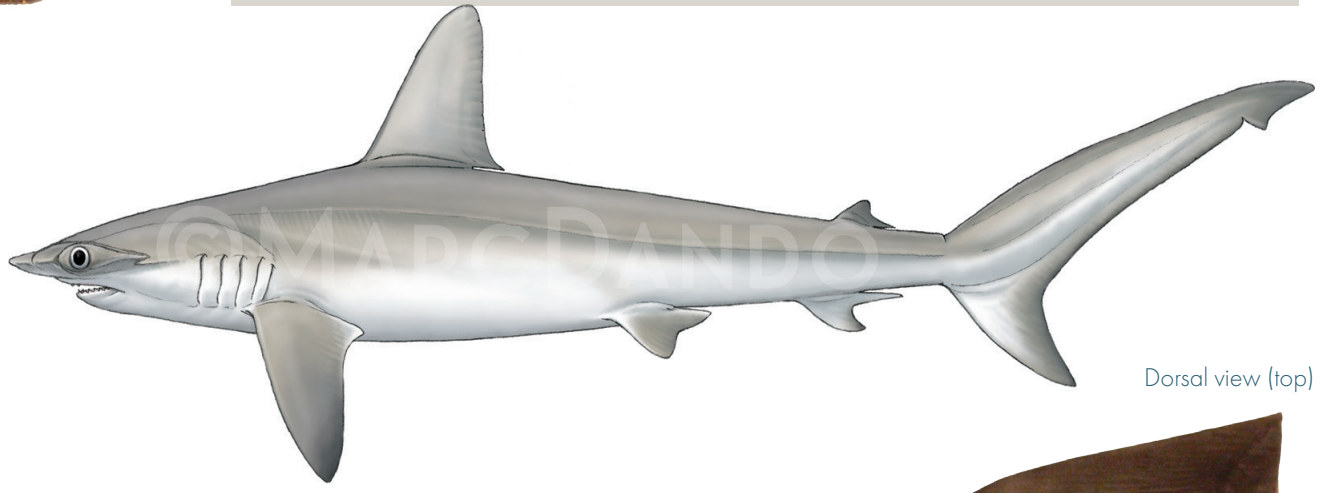
Pointed apex, moderately curved along trailing edge with dusky color at apex on ventral side and often along trailing edge.

Ventral view (underneath)

# SMOOTH HAMMERHEAD / *Sphyrna zygaena*

## FIRST DORSAL FIN

Tall, sloping more at apex, moderately curved trailing edge (similar to Scalloped Hammerhead [*S. lewini*], less slender than Great Hammerhead [*S. mokarran*] first dorsal fin).



Dorsal view (top)

## PECTORAL FINS

Short and broad, dorsal surface is uniform, light brown or light greyish-brown in color. Ventral surface is uniform and light in coloration, lacking distinct markings.
**Note -** certain Indian Ocean Scalloped Hammerhead (*S. lewini*) populations lack black tip at apex on ventral surface and look like Smooth Hammerhead (*S. zygaena*) pectoral fins - **both are CITES-listed!**

Ventral view (underneath)

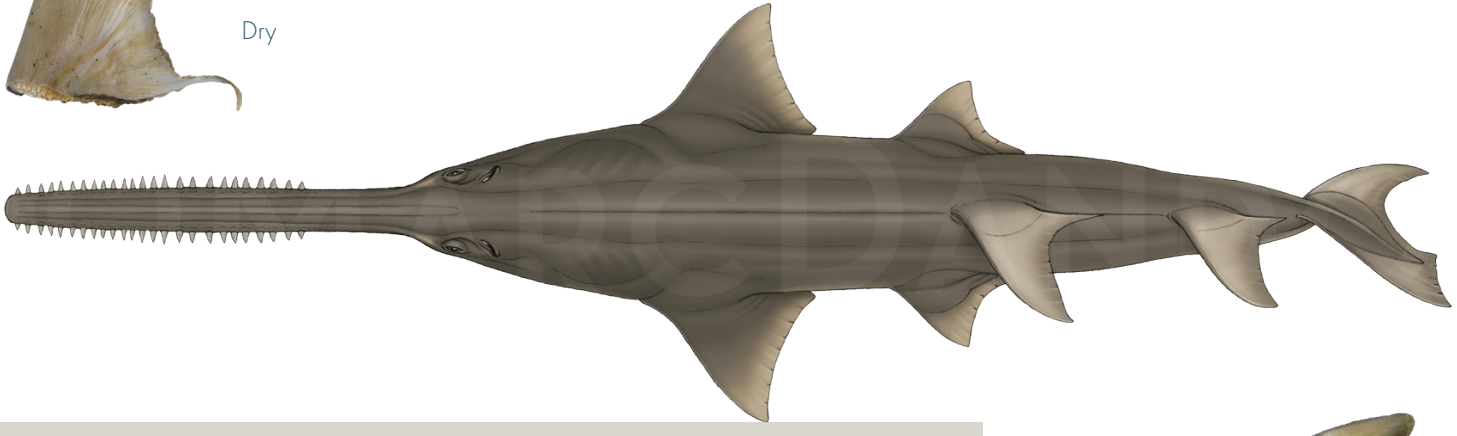
# NARROW SAWFISH / *Anoxypristis cuspidata*

Wet

Dry

## FIRST DORSAL FIN

Tall, falcate, height greater than width, angular at the apex. Long free rear tip starting directly under apex of first dorsal fin. Multiple irregularly shaped rows of cartilage or two long strips of cartilage along base. Color light brown or yellowish with a shiny appearance.
Note - second dorsal fin usually similar height and shape.



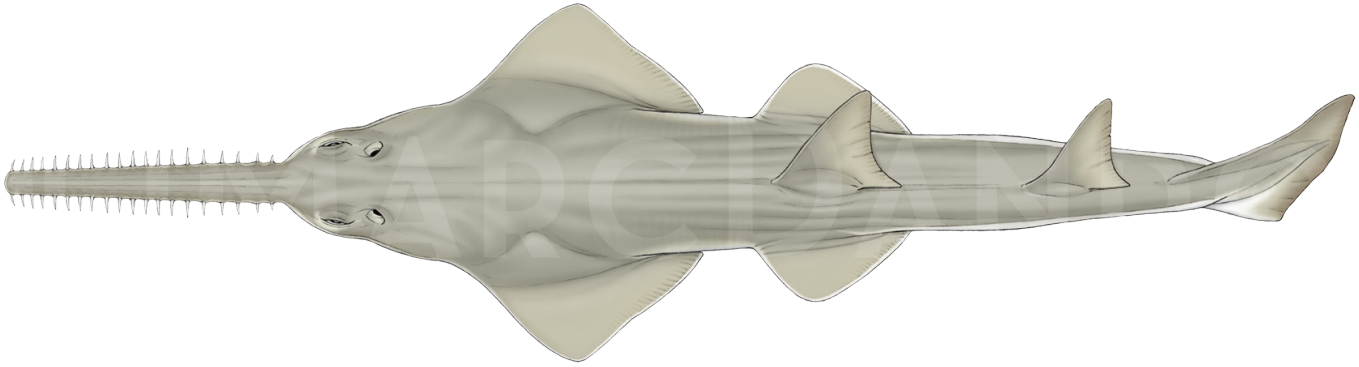
## CAUDAL FIN

Forked with prominent lower lobe. Upper lobe with distinct notch usually visible on trailing edge (posterior margin) that other sawfish species lack. Lower lobe large, more than half length of upper lobe. Two lateral keels may be present if caudal fin base is intact.

# DWARF SAWFISH / *Pristis clavata*

## FIRST DORSAL FIN

Broad, triangular, moderately rounded apex and small denticles more concentrated along the leading edge. Free rear tip short and thick, starting directly under apex in first dorsal fin or just before apex in second dorsal fin. Color greenish to grey-brown with a shiny appearance.
Note - second dorsal fin usually similar height and shape.



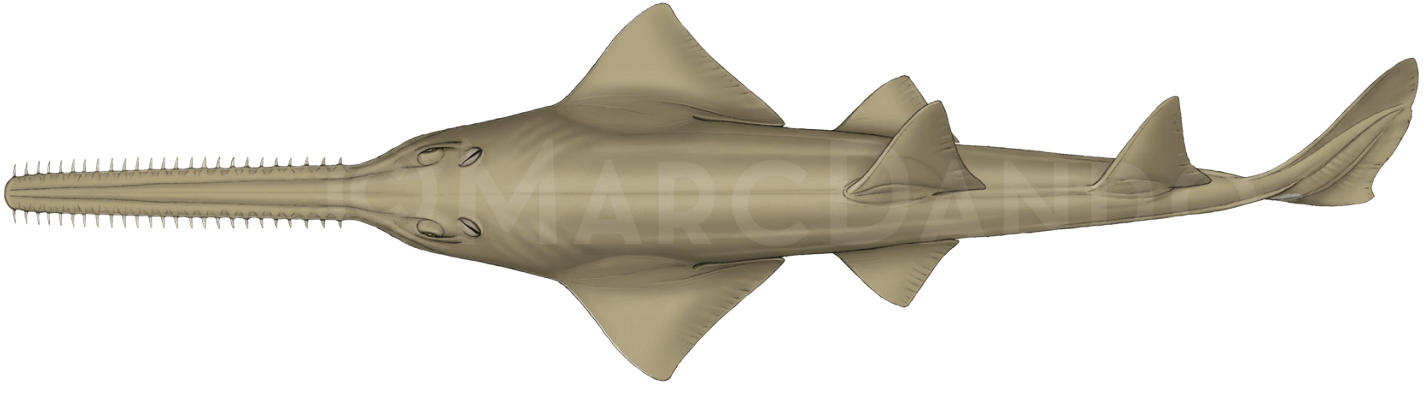
## CAUDAL FIN

Not forked with extremely short lower lobe, less than half length of upper lobe. Posterior margin nearly straight. Median keel may be present if caudal fin base is intact, but lacks shorter ventral keel.

# SMALLTOOTH SAWFISH / *Pristis pectinata*

## FIRST DORSAL FIN

Broad, triangular, moderately rounded to angular at apex and with small denticles that are more concentrated along the leading edge. Free rear tip short and thick, starting directly under or just before apex. Color light greyish to light grey-brown with a shiny appearance.
**Note -** second dorsal fin usually similar height and shape.



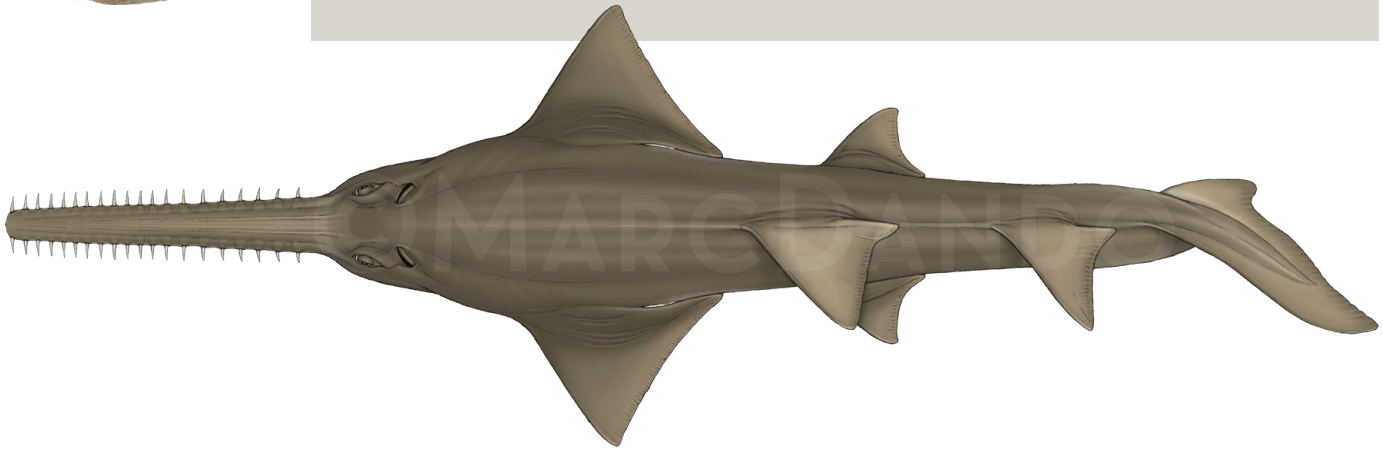
## CAUDAL FIN

Not forked with extremely short lower lobe. Posterior margin of fin straight. Median keel may be present if caudal fin base is intact, but lacks shorter ventral keel.

# LARGETOOTH SAWFISH / *Pristis pristis*

## FIRST DORSAL FIN

Broad, triangular, moderately rounded to angular at apex. Free rear tip short and thick, starting directly under apex in first dorsal fin or just before apex in second dorsal fin. Color brown or yellowish. In some animals, fins can be distinctly yellow. **Note -** second dorsal fin usually similar height and shape.



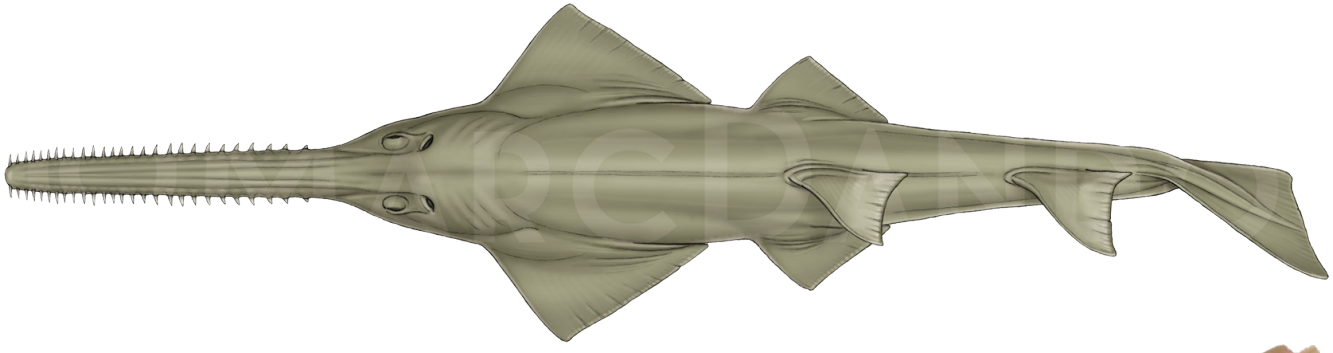
## CAUDAL FIN

Forked with short lower lobe, less than half length of upper lobe. Posterior margin slightly concave. Median keel may be present if caudal fin base is intact, but lacks shorter ventral keel. In some animals, fins can be distinctly yellow.

# GREEN SAWFISH / *Pristis zijsron*

## FIRST DORSAL FIN

Broad, triangular, moderately rounded to angular at the apex. Free rear tip short and thick, starting directly under or just before the apex. Color green to greenish brown when dry.
**Note -** second dorsal fin usually similar height and shape.



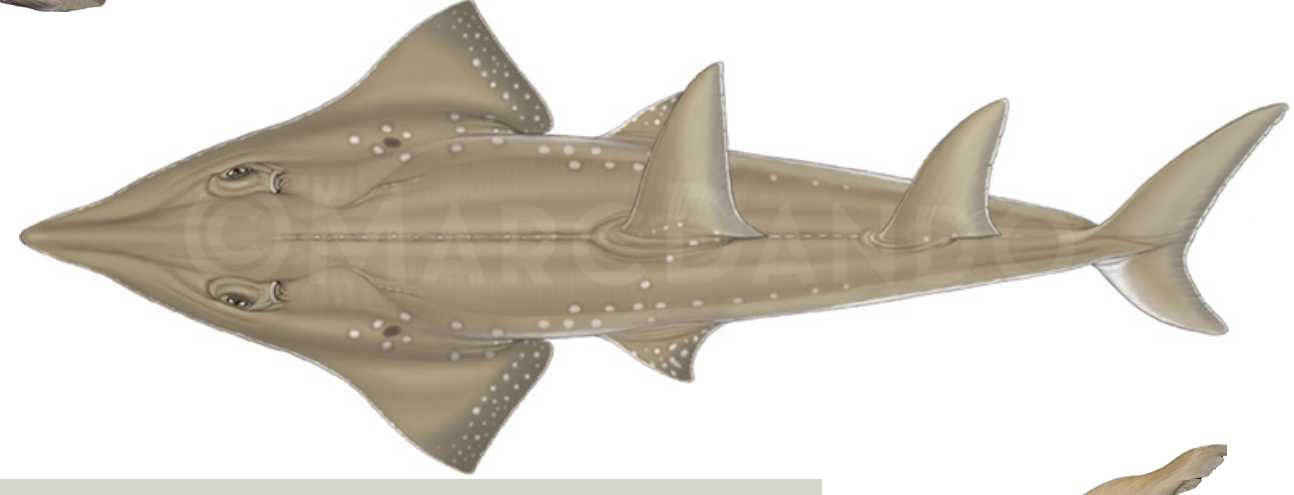
## CAUDAL FIN

Not forked with short lower lobe, less than half length of upper lobe. Posterior margin straight in adults but convex in young individuals. Median keel may be present if caudal fin base is intact, but lacks shorter ventral keel.

# WEDGEFISHES / *Rhynchobatus* spp.

## FIRST DORSAL FIN

Tall, narrow, with height greater than width. Strongly falcate with multiple irregularly shaped rows of cartilage or two long strips of cartilage along base. Free rear tip starting just before the apex. Color brownish or yellowish with shiny appearance. Some animals can have white spots along the base and onto lower portion of fin.
Note - second dorsal fin usually similar height and shape.



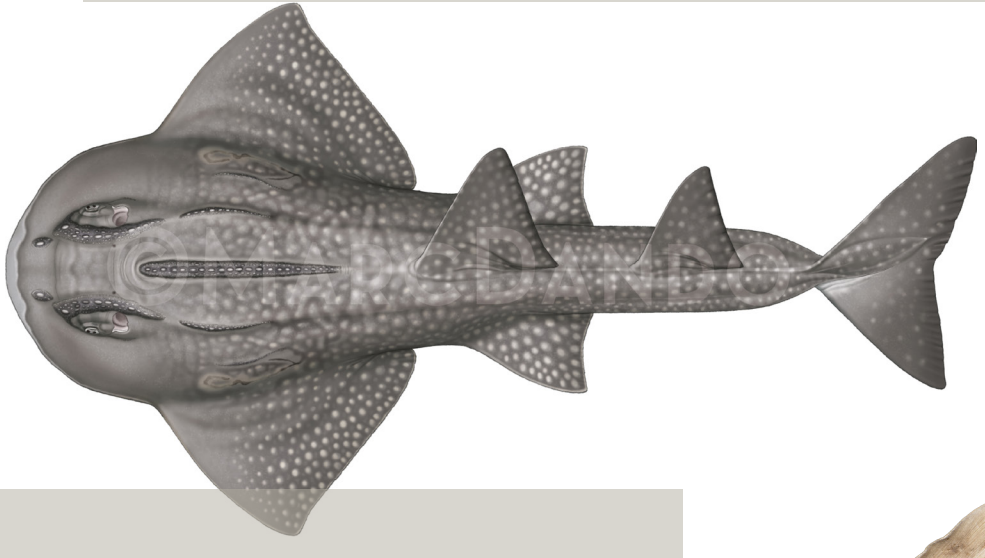
## CAUDAL FIN

Forked with prominent lower lobe. Lower lobe less than half length of upper lobe with no distinct notch on the posterior margin. Uniform in color with yellowish tone and shiny appearance.
Note - cartilage section is often removed/cut off the fin at the point of trade.

# BOWMOUTH GUITARFISH / *Rhina ancylostomus*

## FIRST DORSAL FIN

Tall, narrow, with height greater than width. Multiple irregularly shaped rows of cartilage or two long strips of cartilage along base. Dull, brownish grey, usually with white spots across entire fin (sometimes only close to the base or faded) and rounded free rear tip. Free rear tip starting before the apex.
Note - second dorsal fin usually similar height and shape.



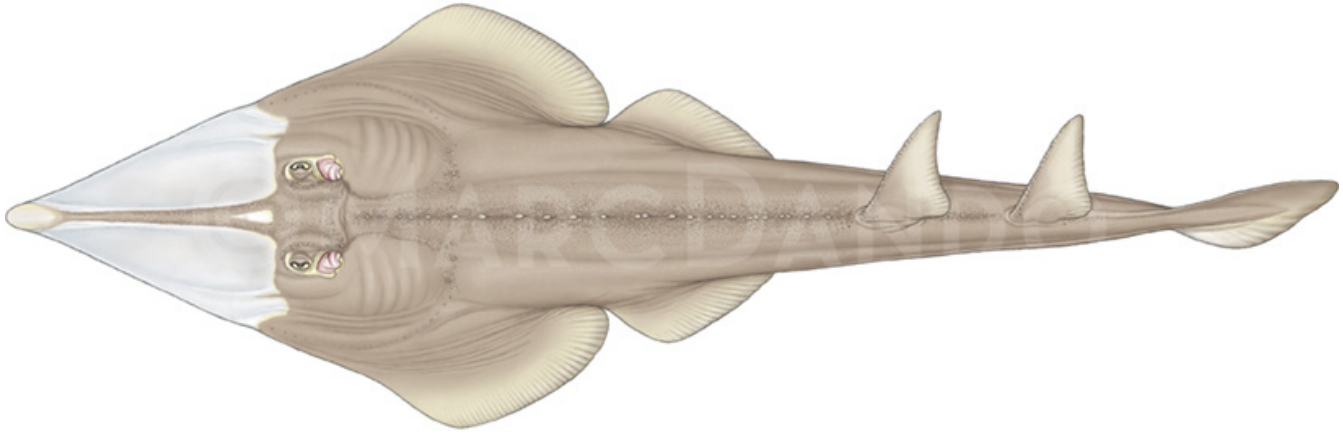
## CAUDAL FIN

Lunate with broad lower lobe that is almost symmetrical to upper lobe. Some white spots might also be visible on the surface.
Note - cartilage section is often removed/cut off the fin at the point of trade.

# GIANT GUITARFISHES / *Glaucostegus* spp.

## FIRST DORSAL FIN

Tall, narrow, with height greater than width. Usually with pointed apices except for the Widenose Guitarfish (*Glaucostegus obtusus*) that are short and rounded at the apex. Multiple irregularly shaped rows of cartilage or two long strips of cartilage along base. Uniform in color with large denticles concentrated along leading edge. Free rear tip starting before the apex.
**Note -** second dorsal fin usually similar height and shape.



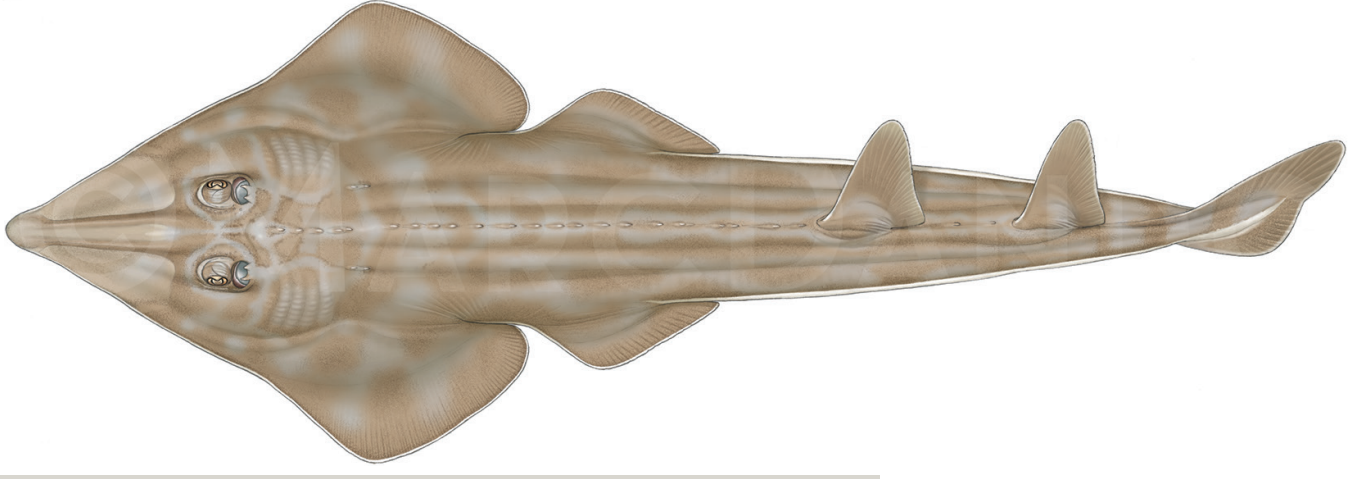
## CAUDAL FIN

Lower lobe absent with large visible denticles concentrated along the leading edge of the upper lobe. Generally uniform yellowish in color.
**Note -** cartilage section is often removed/cut off the fin at the point of trade.

# GUITARFISHES / *Acroteriobatus, Pseudobatos, Rhinobatos* spp.

## FIRST DORSAL FIN

Tall, narrow, but small fins with height greater than width. Variable apices that can be pointed or rounded. Multiple irregularly shaped rows of cartilage or two long strips of cartilage along base. Can often be translucent (especially from center to trailing edge), usually uniform in color but can have coloration or blotches, without large denticles along leading edge. Free rear tip starting before the apex. **Note -** second dorsal fin usually similar height and shape.

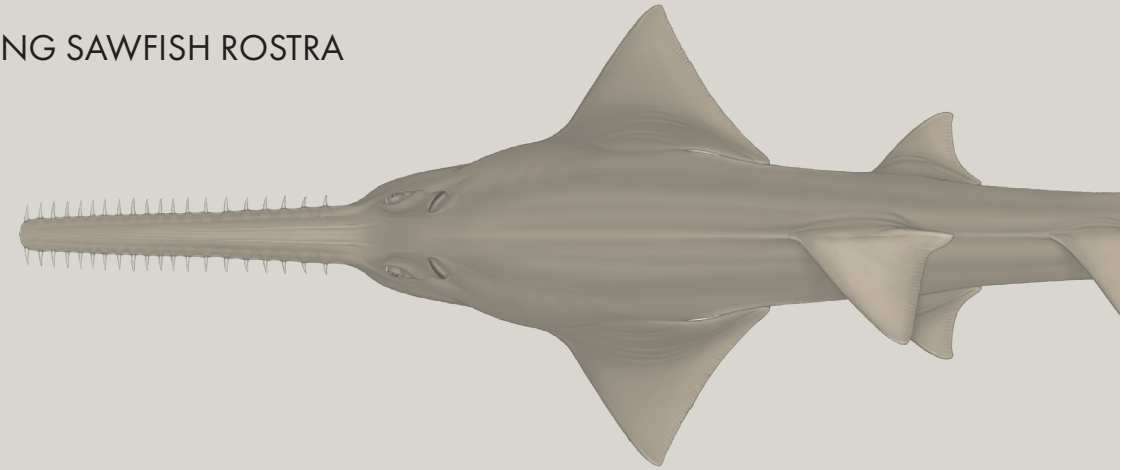


## CAUDAL FIN

Lower lobe absent, without large visible denticles along the leading edge of the upper lobe. Generally uniform yellowish in color but can have have dark blotches or some patterns on upper and/or lower margins.

# SECTION 3

## IDENTIFYING SAWFISH ROSTRA

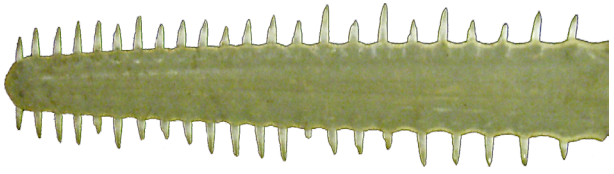


## SAWFISH ROSTRA

**Narrow Sawfish**
*Anoxypristis cuspidata*

No teeth at base of saw, gaps unevenly spaced; 16–33 teeth per side of saw

**Dwarf Sawfish**
*Pristis clavata*

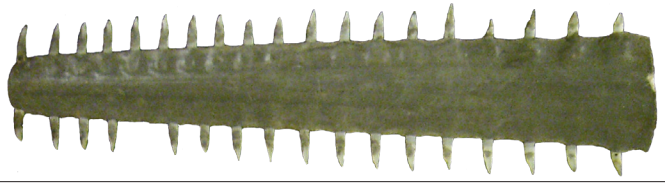


Teeth evenly spaced, 18–27 teeth per side of saw

**Smalltooth Sawfish**
*Pristis pectinata*

Teeth get closer together toward the tip; 20–32 teeth per side of saw

**Largetooth Sawfish**
*Pristis pristis*



Teeth evenly spaced, last tooth gap near tip bigger than preceding gap; 14–24 teeth per side of saw

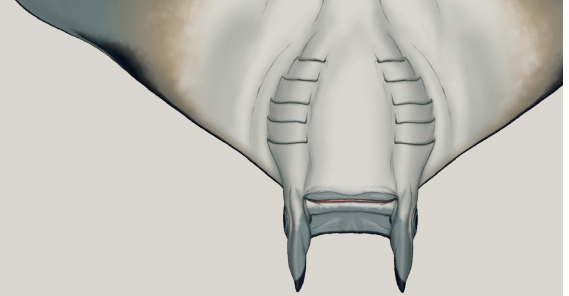
**Green Sawfish**
*Pristis zijsron*

Teeth get closer together toward the tip; 23–37 teeth per side of saw

### APPENDIX I

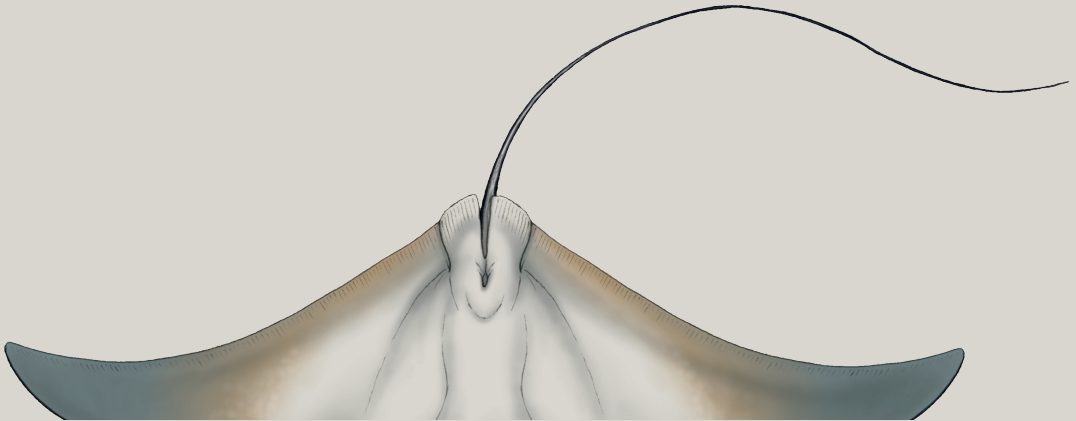
Sawfish rostra sometimes also enter the international trade. All five species of sawfishes are listed on Appendix I of CITES and therefore commercial trade in their products is prohibited.

Any shipments containing these can be stopped immediately. The following descriptions are provided in case inspectors also need to identify rostra to the species-level. When differentiating between sawfish rostra, the key features to look at are the number of rostral teeth on each side of the saw and the space separating them.



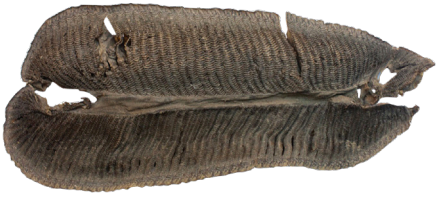
# SECTION 4

## IDENTIFYING MANTA AND DEVIL RAY GILL PLATES



## GILL PLATES

**Size**
measured as the total length of the traded gill plate



30 cm

**Color**
uniform (above) or bicolored (right and below right)

30 cm

## FEATURES

Gill plates (prebranchial appendages) from five different species of manta and devil rays have been found in the gill plate trade. Three key features can be used to easily identify each gill plate types: (1) gill plate size, (2) gill plate color, and (3) gill plate filament edging.

**Filament edging**

Smooth (left) or separated/ bristled (right)

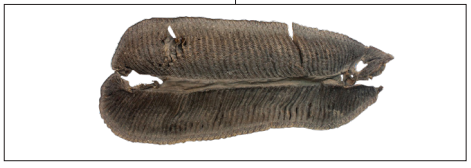
## KEY TO VISUAL IDENTIFICATION

**START**

— Is the gill plate uniform dark brown/black/white with smooth/merged filament tips (and often longer than 30 cm)?

**YES** →

Reef Manta Ray or Oceanic Manta Ray
*Mobula alfredi* or *M. birostris*



**NO** ↓

— Is the gill plate bicolored and/or have separated bristled filament tips?

**YES** →

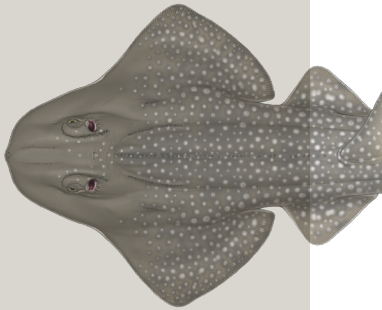
Devil rays
*Mobula* spp.

### FEATURES

Gill plates from the two species of manta rays (*Mobula alfredi* and *M. birostris*) can be visually identified and easily distinguished from the traded devil ray species' gill plates. Manta ray gill plates are uniform brown/black/white in color, usually large (more than 30 cm), and have a smooth lobe edge. On the other hand, devil ray gill plates are usually small to medium in size (often less than 30 cm in length), and either bicolored (white in the middle) with a smooth edge, or bicolored (white on the outside) or single color with jagged filament edges.

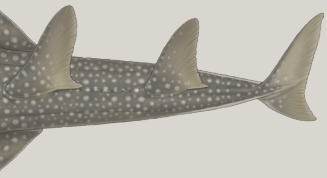
## GLOSSARY

| | |
|---|---|
| **angular** | – forming an angle; sharp-cornered |
| **anterior** | – the front, or situated towards the head |
| **apex** | – the top or highest point |
| **caudal peduncle** | – tapered region behind the anal fin where the caudal fin attaches to the body |
| **cephalic fin** | – broad lobe on forehead of some rays |
| **ceratotrichia** | – fin rays or fin needles found inside fins and made of soft collagen and elastin fibres |
| **clasper** | – a pair of reproductive appendages located behind the pelvic fins of a male shark or ray |
| **concave** | – curved inwards (opposite of convex) |
| **convex** | – arched, curved outwards (opposite of concave) |
| **denticle** | – a small, tooth-like structure on the skin; placoid scale of a cartilaginous fish |
| **dorsal** | – relating to the upper part or surface of back |
| **dorso-ventrally compressed** | – flattened from top to bottom |
| **dusky** | – slightly dark or greyish color diffusion with no stark demarcation |
| **falciform** | – curved like a sickle; hooked |
| **fin insertion** | – point of attachment of the fin to the shark body, located along the rear edge |
| **free rear tip** | – posterior tip of a fin that is not attached to the body, located closest to the fin insertion |
| **gill plates** | – ring of feathery cartilaginous gill filaments (known as prebranchial appendages) which circle manta and devil ray gill slits internally |
| **interdorsal** | – space on dorsal surface between first and second dorsal fin |
| **interdorsal ridge** | – ridge of skin between first dorsal and second dorsal fin |
| **lamnid** | – shark species from the family Lamnidae (e.g., Porbeagle [*Lamna nasus*], Shortfin Mako [*Isurus oxyrinchus*, Great White [*Carcharodon carcharias*]) |



## GLOSSARY

| | |
|---|---|
| **lateral keels** | – fleshy ridges on the sides of the body |
| **laterally compressed** | – flattened from side to side |
| **lunate** | – shaped like a crescent moon |
| **margin** | – edge or border of the body or fin |
| **nasal flap** | – dermal flap associated with the nostrils |
| **nictitating eyelid** | – movable eyelid that can lift and completely close the eye opening |
| **notched** | – an indentation, in this case on the rear edge of a fin |
| **posterior** | – the back, or situated behind or at the rear |
| **ragged** | – having a torn, irregular or uneven surface, edge, or outline |
| **rostral teeth** | – tooth-like projections on the side of the snout of sawfishes |
| **rostrum** | – a projecting snout |
| **spiracle** | – opening behind the eye used for maintaining a flow of oxygenated water over the gills when the mouth is closed |
| **ventral** | – related to the underside of body |



## INTERNATIONAL TREATIES

### Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)

CITES is an international agreement between governments aimed at ensuring that international trade in specimens of wild animals and plants does not threaten the survival of the species. A specimen of a CITES-listed species may be imported into or exported (or re-exported) from a State party to the Convention only if the appropriate document has been obtained and presented for clearance at the port of entry or exit. The species covered by CITES are listed in three Appendices, according to the degree of protection they need. **Appendix I** includes species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances. **Appendix II** includes species not necessarily threatened with extinction, but in which trade must be controlled to avoid utilization incompatible with their survival. **Appendix III** includes species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade.

www.cites.org

### Convention on the Conservation of Migratory Species of Wild Animals (CMS)

Also known as the Bonn Convention, CMS is an intergovernmental treaty under the United Nations Environment Programme (UNEP). It serves as a global platform for the conservation and sustainable use of migratory animals and their habitats. An **Appendix I** listing is for migratory species that are considered endangered. For these species, Range States shall endeavour to conserve or restore habitats important to a migratory species' positive conservation status, take actions to prevent or reduce obstacles to migration, as well as measures to prevent factors that are endangering species. These Range States shall prohibit the taking of all Appendix I-listed species. An **Appendix II** listing is for migratory species which have an unfavourable conservation status, and which require international agreements for their conservation and management, as well as those which have a conservation status which would significantly benefit from the international cooperation that could be achieved by an international agreement.

www.cms.int

### Memorandum of Understanding on the Conservation of Migratory Sharks (Sharks MoU)

The Sharks MoU is a daughter agreement under CMS and was concluded in 2010. It represents the only global instrument specifically dedicated to the conservation of migratory species of sharks and rays. Its main objective is to 'achieve and maintain a favourable conservation status for migratory sharks included in its **Annex 1** based on the best available scientific information, taking into account the socio-economic value of these species for the people of the Signatories'. The focus of the MoU is to help improve fisheries management and international conservation measures through a cooperative approach with range states, scientists and relevant organizations.

www.cms.int/sharks

## SHARKS, RAYS, AND CITES

### Sharks and rays

Around the world, there are over 1,250 species of sharks and rays. While these species exhibit diverse life-history characteristics, many are slow growing, late to mature, have low reproductive rates and are long-lived, making them susceptible to fishing pressure. Over the last few decades, many populations have seen drastic declines in their numbers requiring management actions to ensure their long-term survival. To ensure their recovery, various conservation strategies and context-specific approaches have been developed and are being implemented globally focusing on ensuring fisheries are sustainable and trade is controlled.

### What is CITES?

**CITES –** the Convention on International Trade in Endangered Species of Wild Fauna and Flora – is an international agreement between governments that works to ensure international trade in specimens of wild animals and plants is legal, sustainable, and traceable.

All 35,000 + species covered under the CITES convention are listed in three Appendices, according to the degree of protection they need.

**Appendix I** includes species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.

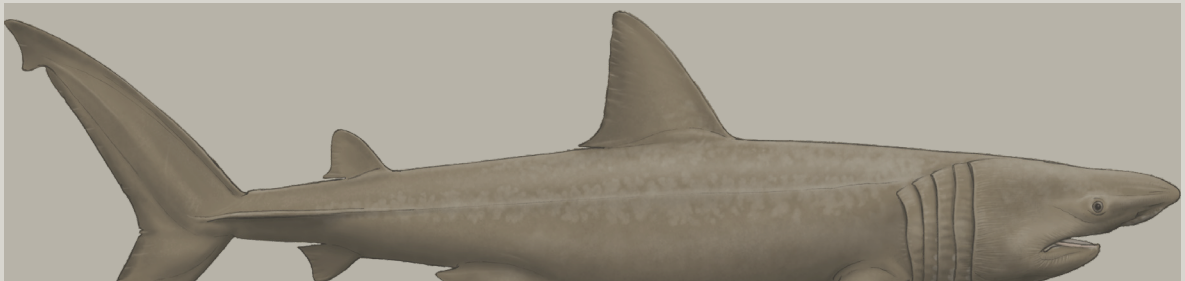
**Appendix II** includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.

**Appendix III** contains species that are protected in at least one Party (member country), which has asked other CITES Parties for assistance in controlling the trade. Changes to Appendix III follow a distinct procedure from changes to Appendices I and II, as each Party is entitled to make unilateral amendments to it.

A specimen of a CITES-listed species, or products derived thereof, may be imported into or exported (or re-exported) from a Party to the Convention only if the appropriate document has been obtained and presented for clearance at the port of entry and exit. There is some variation in the requirements from one country to another and it is always necessary to check on the national laws that may be stricter.

Overall, international trade of products derived from sharks and rays listed in Appendix I and II requires the CITES Management Authority of exporting countries to issue export documents certifying that the trade in each specimen is legal and not detrimental to the survival of the species. Customs personnel of both exporting and importing nations therefore must be able to recognize the traded products of these species and be able to readily identify illicit trade (i.e., trade across international borders without corresponding CITES documentation) in order to be able to effectively implement and enforce their CITES obligations.

For additional information on the types of permits required, supporting documentation, number and type of species covered under the convention, please visit **www.cites.org**



## ABOUT THIS GUIDE

The development of this guide was made possible with the support of the Wildlife Conservation Society (WCS) in collaboration with the Centre for Environment, Fisheries and Aquaculture Science (Cefas), through funding from the Shark Conservation Fund and the UK Government. The Shark Conservation Fund is a philanthropic collaborative pooling expertise and resources to meet the threats facing the world's sharks and rays. The Shark Conservation Fund is a project of Rockefeller Philanthropy Advisors.

Information on key morphological characters used in this guide (e.g., size, shape, color, and texture of dorsal, pectoral, and caudal fins, conspicuous coloration patterns on fins) were assessed for consistency within species and variations across geographic distributions (when possible) using photographs supplied by colleagues, published in the literature, and online. Special thanks to Ryan Charles for providing constructive review.

Photographs were collected across field sites by the authors or provided by colleagues in support of the development of previous versions of the fin identification portion of this guide. We thank Guy Stevens and Daniel Fernando from The Manta Trust for providing pictures (gill plate pictures by Paul Hilton) and information on how to differentiate between *Mobula* spp. gill plates. We are grateful for picture contributions from Brad Norman from Ecocean (Whale Shark, *Rhincodon typus*, dorsal and pectoral fins); Demian Chapman (Whale Shark, dried caudal fin); Ali Hood from The Shark Trust and Mauvis Gore (Basking Shark, *Cetorhinus maximus*); Jeff Whitty from the Sawfish Conservation Society (sawfish rostra); John Carlson (rostrum and fins, Smalltooth Sawfish, *Pristis pectinata*); Will White (Narrow Sawfish, *Anoxypristis cuspidata*, and dwarf sawfish, *P. clavata*, fins); Alastair Harry (Green Sawfish, *P. zijsron*); Alifa Haque (Largetooth Sawfish, *P. pristis*); Diego Cardenosa (Scalloped Bonnethead, *Sphyna corona*), Anna-Marie Steele (Smalleye Hammerhead, *S. tudes*), and Juan Carlos Perez Jimenez (Bonnethead, *S. tiburo*).

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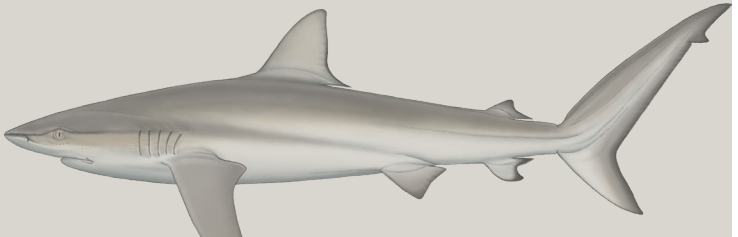

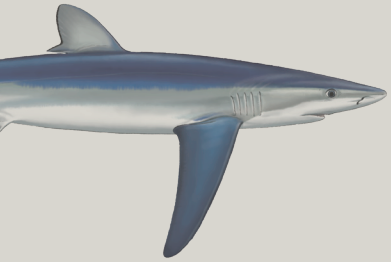

This identification guide has been produced by the Wildlife Conservation Society and Elasmo Project to help improve information and statistics on CITES-listed sharks and rays. Sharks and rays are increasingly threatened due to overexploitation and identification of species interacting with fisheries can support the development of scientifically based management measures. Provisional identification of products derived from CITES-listed sharks and rays leads to establishing reasonable or probable cause in an enforcement setting (e.g., detaining catches from a vessel suspected of harvesting these species if prohibited nationally; landings containing products from CITES-listed species and auctioned at fish markets; containers destined for international trade).

This guide has been designed to allow fisheries, customs, and wildlife officers with no previous knowledge of sharks and rays with identification of different derivative products (fins, sawfish rostra, gill plates). It includes information to support the identication of 143 (74 shark and 69 ray species) of the 150 species listed on Appendix I and II of CITES. It uses a flow chart format, pictures, color illustrations, and descriptions of the key features that can be quickly used to distinguish derivative products of CITES-listed species from non-CITES listed species during routine inspections. It is intended to help fisheries observers and law enforcement officers in the identification of sharks and rays, an important step in implementing the provisions of CITES for sharks and rays, thus preventing illegal and unsustainable trade. The guide is expected to also be useful for fisheries inspectors and researchers working on sharks and rays.

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