

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



Nineteenth meeting of the Conference of the Parties
Panama City (Panama), 14 – 25 November 2022

NEW IDENTIFICATION GUIDE IN SUPPORT OF PROPOSALS 37, 38 AND 40

1. Panama* submits a newly developed visual identification guide to further elaborate the family level listing approach and assist in the implementation of CITES CoP 19 Proposals 37 (Carcharhinidae spp. - Requiem sharks), 38 (Sphyrnidae spp. - Hammerhead sharks) and 40 (Rhinobatidae spp. - Guitarfishes).
2. This guide presents an independent scientific analysis developed by the same authors of the recent and comprehensive ID guides for the traded products of currently CITES listed sharks and rays. The guides for currently listed species can be found [here](#).
3. This new guide summarizes the identification issues for these three proposals as follows:

Visual identification approaches that have been developed to support the current CITES shark and ray listings have been effective and allow to distinguish between most listed and unlisted species. With almost 100 species being considered at CoP19, it is important to evaluate how implementation of proposed listings can be effectively undertaken.

At the point of landing, all species included in Proposals 37, 38, and 40 are identifiable to the species level. Identification guides to support implementation of the proposed listings are often available at the national and regional levels and in multiple languages. This allows for species-specific management and monitoring, and the issuance of CITES permits before products enter the international trade (if supported with appropriate documentation such as non-detriment and legal acquisition findings). This in turn is likely to increase traceability and reporting at the species-level.

At the point of trade, the ability to visually identify first dorsal fins and pectoral fins (for some species) has been key to ensure effective implementation of species listings. With multiple species of requiem, hammerhead, and guitarfish species being proposed, visual identification to the species-level will become increasingly difficult and customs officials will need to rely on genetic approaches to determine the species entering the trade. As highlighted in this document, look-alike issues for the majority of these species will occur within each of the families proposed.

Finally, the trade in meat for sharks and rays has significantly increased over the last decade. Most species proposed for listing are likely to enter the international meat trade. The identification of meat (or often processed carcasses with no distinguishing features) products is needed to implement listings. However,

* The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

visual identification to the species level is not possible and genetic techniques are required. This trade is an important challenge that needs to be addressed.

The information provided in this guide demonstrates the difficulty in identifying fins to the species level for all three proposals. Combined with the current status of species, family level listings of sharks and rays are likely going to be more effective from both a conservation and implementation/enforcement perspective. This family level approach has also been adopted for other species such as seahorses and orchids and has encouraged the development of traceability mechanisms. Since the majority of fins of the newly proposed species cannot be distinguished from each other without genetic tools, a family listing would allow customs officials to implement new listings and support with regulating international trade.'

4. This new analysis expands upon and confirms the need for the family listing approach as detailed in proposal 37 (requiem sharks), sections 8 and Annex 1.
5. Visual ID guides for CITES listed species in their primarily traded form have allowed for simple implementation of shark listings for customs officials in countries of all capacity level over the last decade, something Panama feels is exceptionally important to ensure equitable implementation capacity for all CITES parties. For these proposals, as detailed in the guide, that requires family level listings.
6. Panama also notes that the Report of the Seventh FAO Expert Advisory Panel for the assessment of the proposals to amend Appendices I and II of CITES concerning commercially-exploited aquatic species (Rome, 18–22 July 2022), found that three species of requiem shark met the FAO's interpretation of the CITES listing criteria. The panel report also included information on visual fin identification, including identification materials from industry sources and included the following statement:

'Noting the significant differences in morphological appearance, size, productivity and importance to trade, the best approach would be to deliberate over each look-alike species in detail, which considering the number presented is beyond the capacity of the Expert Panel.' - FAO Fisheries and Aquaculture Report No. 1389.

7. Panama welcomes the analysis of the FAO panel, but believes that industry generated information should not be used as the primary guidance to make decisions on listing proposals. As such, Panama feels the independent scientific analysis presented here represents the definitive identification guidance that should be considered in assessing these proposals.
8. The CITES Secretariat's provisional assessment of listing proposals submitted for CoP19 (No. 2022/066) also provides the following provisional conclusions on proposal 37 (requiem sharks);

'On the basis of the information in the supporting statement, the Secretariat finds that there is evidence of international trade in C. amblyrhynchos, C. obscurus, C. porosus, Glyphis gangeticus, C. plumbeus, C. leiodon, Negaprion acutidens, C. acronotus, C. dussumieri, and Lamiopsis temminckii. The Secretariat considers that for C. amblyrhynchos, C. obscurus, C. porosus, G. gangeticus, C. hemiodon, C. obsoletus, and Isogomphodon oxyrhynchus there is evidence of declining population trends which may make them eligible for inclusion in Appendix I in the near future (criterion A of Annex 2a), however, the Secretariat finds that there is insufficient information for the other species if regulation of trade is required to ensure the long-term conservation of their wild populations (criterion B of Annex 2a).

There is limited information to determine if the species of Carcharhinidae are lookalikes for fins, but all species are likely to be look alike species for trade in meat.'

9. This guide provides the deliberate species by species approach requested by the FAO Panel, but found to be beyond their capacity, along with the additional information requested by the Secretariat. The analysis presents clarity on the need for the family listing approach found in all three proposals, and a means to implement proposals 37, 38 and 40 in a manner that is practical for CITES Parties of all capacity levels.

10. The full guide is attached here for consideration as Parties make decisions on CoP19 proposal 37, 38 and 40. Panama is committed to work on turning this analysis into a full identification guide at the family level to aid in implementation if these proposals are adopted.

IDENTIFYING SHARKS FROM THEIR FINS

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READING MATERIAL

Abercrombie DL, Jabado RW. 2022. CITES Sharks and Rays - Implementing and Enforcing Listings: Volume III - Dried Product ID. Wildlife Conservation Society, New York, United States. 89 pp.

CITES. 2022. Proposals for amendment of the Appendices. Available at: <https://cites.org/eng/cop/19/amendment-proposals>

Ebert DA, Fowler S, Dando M. 2020. Sharks of the world: a fully illustrated guide. Wild Nature Press

FAO. 2016. SharkFin Guide: identifying sharks from their fins. By Marshall LJ, Barone M. Rome, Italy.

IUCN. 2022. www.iucnredlist.org. The IUCN Red List of Threatened Species. Version 2022.2.

Jabado RW. 2019. Wedgefishes and Giant Guitarfishes: a guide to species identification. Wildlife Conservation Society, New York, United States. 30 pp.

Jabado RW, Abercrombie L. 2022. CITES Sharks and Rays - Implementing and Enforcing Listings: Volume I - Full Carcass ID. Wildlife Conservation Society, New York, United States. 79 pp.

WHAT IS CITES?

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. Appendices I, II, and III to the Convention are lists of species afforded different levels or types of protection from over-exploitation.

APPENDIX I

... lists species that are the most endangered among CITES-listed animals and plants. They are threatened with extinction and CITES prohibits international trade in specimens of these species except when the purpose of the import is not commercial, for instance for scientific research. In these exceptional cases, trade may take place provided it is authorized by the granting of both an import permit and an export permit (or re-export certificate).

APPENDIX II

... lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled. It also includes "look-alike species", i.e. species whose specimens in trade look like those of species listed for conservation reasons. International trade may be authorized by the granting of an export permit or re-export certificate. No import permit is necessary for these species under CITES (although a permit is needed in some countries that have taken stricter measures than CITES requires). Permits or certificates should only be granted if the relevant authorities are satisfied that certain conditions are met, above all that trade will not be detrimental to the survival of the species in the wild.

APPENDIX III

... is a list of species included at the request of a Party that already regulates trade in the species and that needs the cooperation of other countries to prevent unsustainable or illegal exploitation. International trade in specimens of species listed in this Appendix is allowed only on presentation of the appropriate permits or certificates.

CONFERENCE OF PARTIES 19

The Parties to CITES are collectively referred to as the Conference of the Parties (CoP). Every two to three years, the CoP meets to review the implementation of the Convention. This provides the occasion for the Parties to (1) review progress in the conservation of species included in the Appendices; (2) consider (and where appropriate adopt) proposals to amend the lists of species in Appendices I and II; (3) consider discussion documents and reports from the Parties, the permanent committees, the Secretariat and working groups; (4) recommend measures to improve the effectiveness of the Convention; and (5) make provisions (including the adoption of a budget) necessary to allow the Secretariat to function effectively.

The nineteenth meeting of the CoP (CoP19) is scheduled in Panama City, Panama, from 14 – 25 November 2022. Four proposals dealing with Appendix II listings of sharks and rays have been put forward to the CoP. These proposals all include lead species proposed on the basis of Article II paragraph 2(a) of the Convention and satisfying Criterion A and B in Annex 2a of Resolution Conf. 9.24 (Rev. CoP17). These also include "look-alike" species to be listed in Appendix II in accordance with Article II paragraph 2(b) of the Convention and satisfying Criterion A in Annex 2b of Resolution Conf. 9.24 (Rev. CoP17).

CoP19 Proposal 37

The inclusion of all species of the family Carcharhinidae in Appendix II

CoP19 Proposal 38

The inclusion of all species of the family Sphyrnidae in Appendix II

CoP19 Proposal 39

The inclusion of *Potamotrygon wallacei*, *P. leopoldi*, *P. henlei*, *P. albimaculata*, *P. jabuti*, *P. marquesi* and *P. signata* in Appendix II

CoP19 Proposal 40

The inclusion of all species of the family Rhinobatidae in Appendix II

This document provides information on three of these proposals, namely the family Carcharhinidae, Sphyrnidae, and Rhinobatidae. Proposal 39 on species from family Potamotrygonidae (South American freshwater stingrays) is not covered since these species do not enter the fin trade. For those proposals covered, information presented focuses on the primary fins traded (i.e., first dorsal fin, pectoral fins, and caudal fin). Visual identification of these fins has been key in ensuring the implementation of previous shark and ray listings. In fact, capacity building of customs officials through training on visual identification of these fins has enabled the effective enforcement of trade controls. It is therefore important to ensure that any future listings can be effectively implemented by customs officials. Overall, a review of key morphological characteristics used to identify fins to the species level suggests that many fins are indistinguishable between species and that a family level listing is likely more appropriate for ease of implementation.

INFORMATION IN THIS GUIDE

This guide focuses solely on presenting the differences in the primary fins of shark and guitarfish species (first dorsal fin, pectoral fins, and caudal fin). Listings in CITES Appendix II imply that all trade in products derived from these species should be regulated. However, it is currently not possible to differentiate between the second dorsal, pelvic fins, anal fins, and meat of shark and guitarfish species. If these fins or meat are found to enter the trade, genetic techniques will need to be used to determine what species they belong to.

Information collated for this guide is based on an examination of dried fins, fresh carcasses at landing sites, or images of animals in the wild. While there are some variations in colorations between wet (i.e., animals freshly landed) and dried fins (i.e., already at point of trade), most features described in this guide remain distinguishable. Fin descriptions provided apply to adult animals. It is important to note that some fin colorations may change ontogenetically (i.e., depending on whether the animals being traded are juveniles or adults) or regionally (i.e., some colorations may vary depending on ocean basins). Venn diagrams are used to illustrate key features that allow to distinguish between species based on the shape and color of fins. Details are provided in turn for each family and then each species (except for the pectoral fins of the family Rhinobatidae since they do not enter the fin trade).

The International Union for Conservation of Nature Red List of Threatened Species™ status for each species was extracted from www.iucnredlist.org (September 2022). Species are assigned to one of eight categories: EX - Extinct, EW - Extinct in the Wild, Critically Endangered (CR), Endangered (EN), Vulnerable (VU), NT - Near Threatened, LC - Least Concern, DD - Data Deficient. Those assessed as CR, EN, or VU are considered threatened.



CARCHARHINIDAE

- Rapid population declines of 70% or more
- 46% of all shark fins in Hong Kong SAR and China
- 66% threatened (14% Critically Endangered, 20% Endangered, 32% Vulnerable)



SPHYRNIDAE

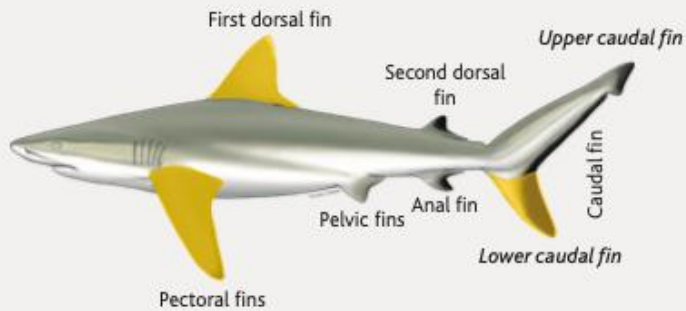
- 89% threatened (56% Critically Endangered, 22% Endangered, 11% Vulnerable)
- Only one species Data Deficient
- Small fins can be confused with fins of juveniles from currently listed species



RHINOBATIDAE

- 58% threatened (11% Critically Endangered, 11% Endangered, 37% Vulnerable)
- 'Small fins' becoming prevalent in trade
- Some species not assessed but likely threatened

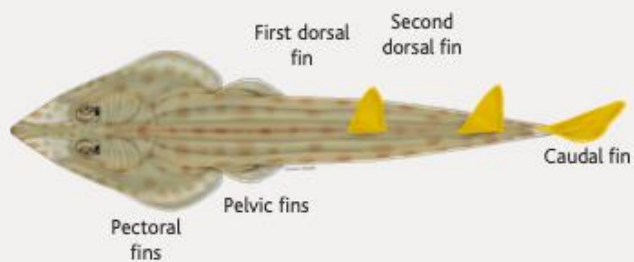
PRIMARY FINS TRADED



FAMILIES CARCHARHINIDAE AND SPHYRNIDAE

REQUIEM AND HAMMERHEAD SHARKS


All fins derived from requiem and hammerhead sharks enter the international trade. However, the primary fins traded, often in sets, are the first dorsal fin, two pectoral fins, and lower caudal fin. The remaining fins (second dorsal fin, pelvic fins, and anal fin) are less valuable and are often mixed together when transported or sold.



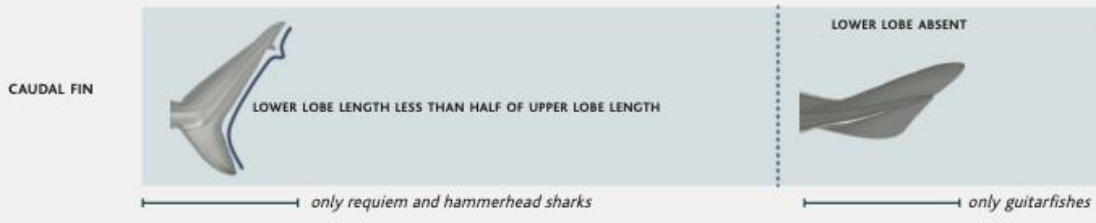
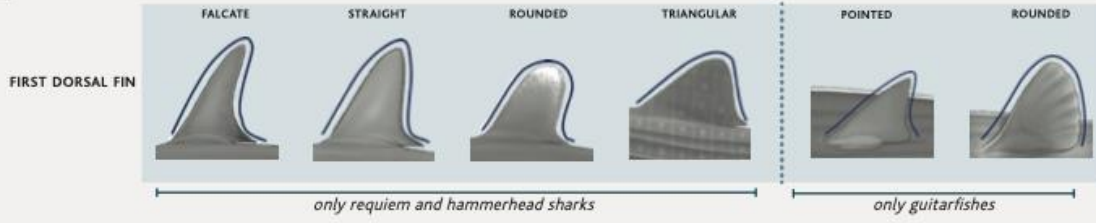
FAMILY RHINOBATIDAE

GUITARFISHES

The first and second dorsal fins are usually traded as a set with the whole caudal fin. The pectoral and pelvic fins are either consumed locally or discarded, and rarely enter the international fin trade. However, they are traded internationally as meat.

 Fins shaded in yellow are considered the primary fins in international trade

FIN SHAPES



CARCHARHINIDAE

REQUIEM SHARKS

Two species are currently listed in Appendix II: Silky Shark (*Carcharhinus falciformis*) and Oceanic Whitetip Shark (*C. longimanus*).

The remaining 54 species in the family are proposed for inclusion: Grey Reef Shark (*Carcharhinus amblyrhynchos*), Dusky Shark (*C. obscurus*), Smalltail Shark (*C. porosus*), Ganges Shark (*Glyphis gangeticus*), Sandbar Shark (*C. plumbeus*), Borneo Shark (*C. borneensis*), Pondicherry Shark (*C. hemiodon*), Smoothtooth Blacktip Shark (*C. leiodon*), Sharptooth Lemon Shark (*Negaprion acutidens*), Caribbean Reef Shark (*C. perezi*), Daggernose Shark (*Isogomphodon oxyrinchus*), Night Shark (*C. signatus*), Whitenose Shark (*Nasolamia velox*), Blacknose Shark (*C. acronotus*), Whitecheek Shark (*C. dussumieri*), Lost Shark (*C. obsoletus*), Pacific Smalltail Shark (*C. cerdale*), Borneo Broadfin Shark (*Lamiopsis tephrodes*) and Broadfin Shark (*Lamiopsis temminckii*) along with all other species in the family: Genus *Carcharhinus*, Genus *Isogomphodon*, Genus *Laxodon*, Genus *Nasolamia*, Genus *Lamiopsis*, Genus *Negaprion*, Genus *Prionace*, Genus *Rhizoprionodon*, Genus *Scoliodon*, Genus *Triaenodon*.



| Not all lead species proposed are illustrated |

CARCHARHINIDAE

REQUIEM SHARKS

DORSAL FINS

It is not possible to distinguish between first dorsal fins derived from most requiem sharks. The large majority of dorsal fins originating from requiem sharks are uniform in color, short, and broad. Some exceptions to this include the Oceanic Whitetip Shark (*C. longimanus*), which is already listed in Appendix II and easily identifiable by its white blotched markings on the apex of the fin, or the Blacktip Reef Shark (*C. melanopterus*), with a large distinct black blotch at apex of the fin. Many of the other requiem shark species often have a black or dusky tip on their dorsal fins and fins may vary in height. While fins may be categorized into species groupings by coloration (e.g., the blacktip complex), it still is generally not visually possible to determine the species the fins might originate from. Genetic techniques are required if species level identification is required.



- C. acronotus*, *C. altimus*,
- C. amblyrhynchoides*,
- C. amblyrhynchos*,
- C. amboinensis*, *C. borneensis*,
- C. brachyurus*, *C. cautus*,
- C. cerdale*, *C. coatesi*,
- C. dussumieri*, *C. fitzroyensis*,
- C. galapagensis*, *C. humani*,
- C. hemiodon*, *C. isodon*,
- C. leucas*, *C. macloti*,
- C. obscurus*, *C. perezii*,
- C. porosus*, *C. sealei*
- G. gangeticus*, *G. garricki*,
- G. glyphis*, *I. oxyrhynchus*,
- I. macrorhinus*, *I. temminckii*,
- I. tephrodes*, *N. velox*,
- N. acutidens*, *N. brevirostris*,
- R. acutus*, *R. lalandii*,
- R. longurio*, *R. oligoix*,
- R. porosus*, *R. taylori*,
- R. terraenovae*, *S. laticaudus*,
- S. macrorhynchus*

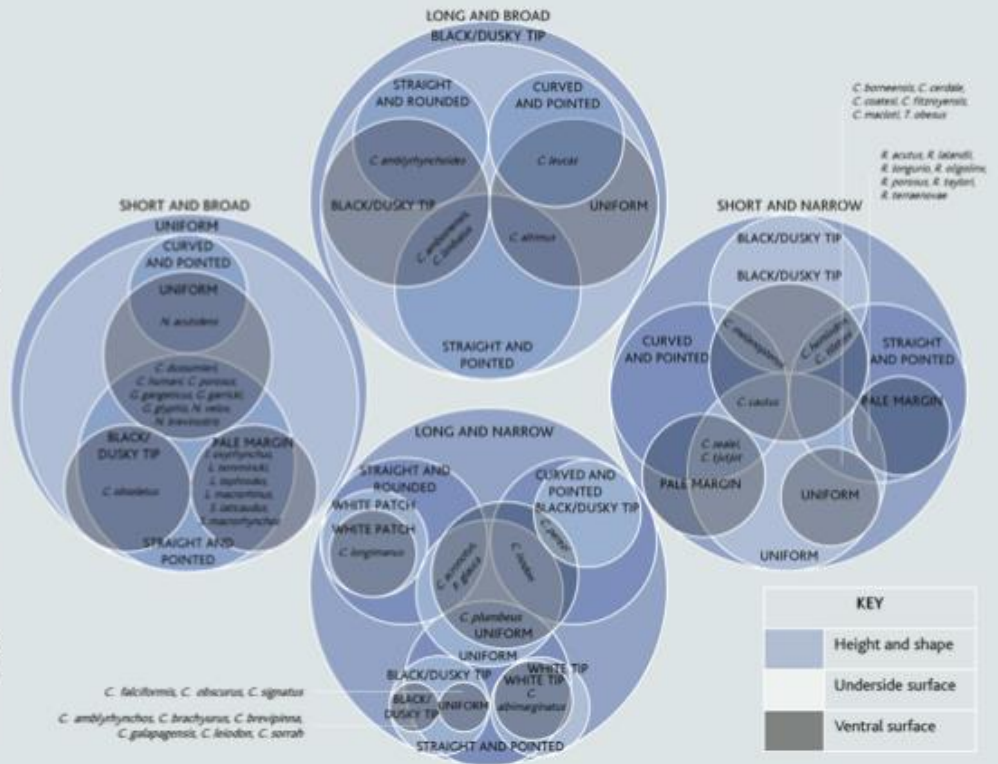
KEY	
	Height and shape
	Pattern

CARCHARHINIDAE

REQUIEM SHARKS

PECTORAL FINS

It is not possible to distinguish between pectoral fins derived from most requiem sharks. The large majority of pectoral fins can be categorized into larger groupings (short and broad or long and narrow), however, it is important to also look at the shape of the anterior margins and the coloration on the dorsal and ventral (underside) sides. These can vary depending on the size of the animals the fins originate from (i.e., adult or juveniles). Some exceptions to this include the Oceanic Whitetip Shark (*C. longimanus*), which is already listed in Appendix II. While fins may be categorized into species groupings by coloration (e.g., the blacktip complex), it still is generally not visually possible to determine the species the fins might originate from. Genetic techniques are required. Note – Great Hammerhead pectoral fin size might appear large due to the maximum total length of the animals and the proportion of the fins compared to the body.



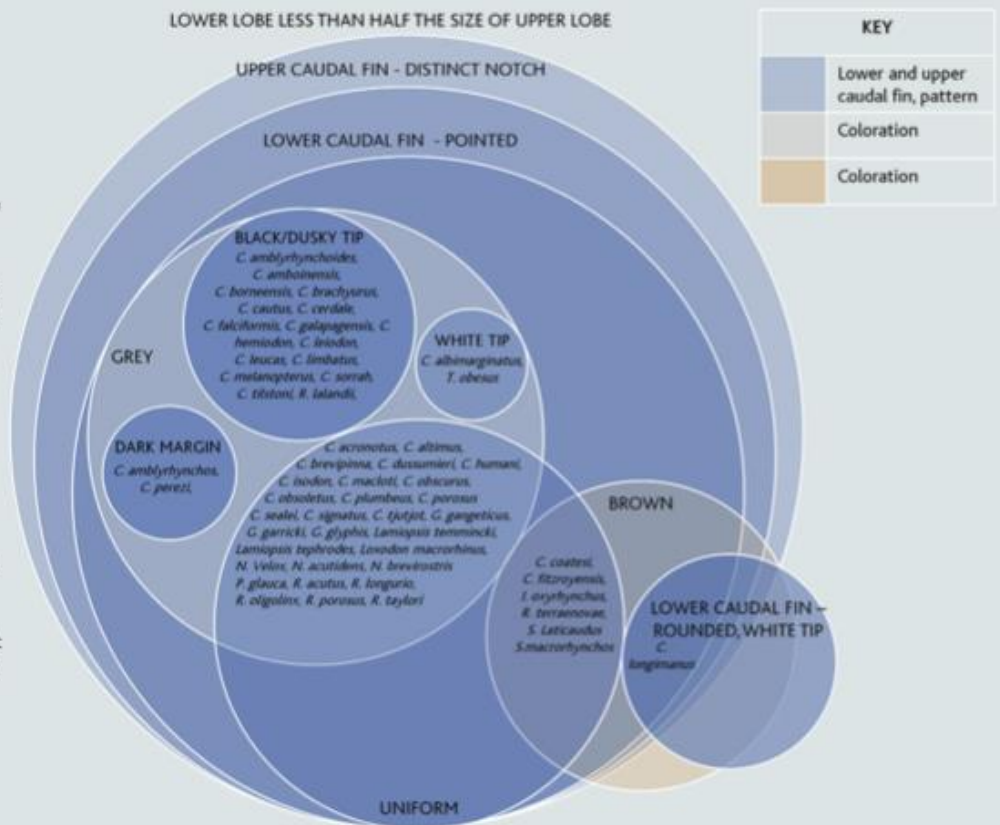
CARCHARHINIDAE

REQUIEM SHARKS

CAUDAL FIN

It is not possible to distinguish between whole caudal fins or lower caudal lobes derived from requiem sharks. One exception is the Oceanic Whitetip Shark (*C. longimanus*), which is already listed in Appendix II.

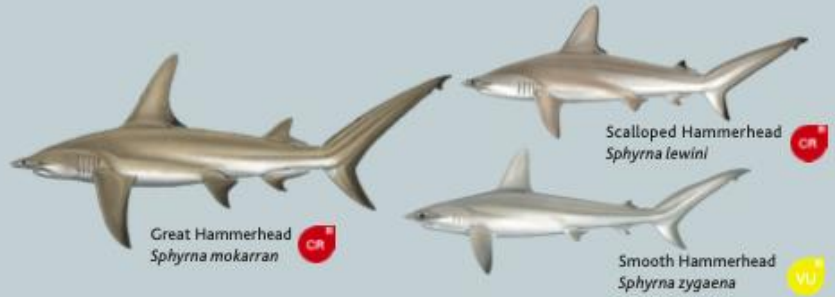
Although all requiem sharks have the length of their lower lobe less than half the length of their upper lobe and an upper lobe with a distinct notch, species may have uniform colored caudal fins, or have various markings on the lower lobe or the anterior margins of the caudal fin. While it may be possible to group species by the coloration of their caudal fins, overall, it is not possible to determine the exact species these fins might originate from. Genetic techniques are required.



SPHYRNIDAE

HAMMERHEAD SHARKS

Three species are currently listed in Appendix II: Great Hammerhead (*Sphyrna mokarran*), Scalloped Hammerhead (*S. lewini*), and Smooth Hammerhead (*S. zygaena*).



The remaining six species in the family are proposed for inclusion: Bonnethead Shark (*S. tiburo*), Scalloped Bonnethead (*S. corona*), Carolina hammerhead (*S. gilberti*), Scoophead Shark (*S. media*), Smalleye Hammerhead (*S. tudes*), and Winghead Shark (*Eusphyrna blochii*).



| Lead species proposed in **bold** |

SPHYRNIDAE

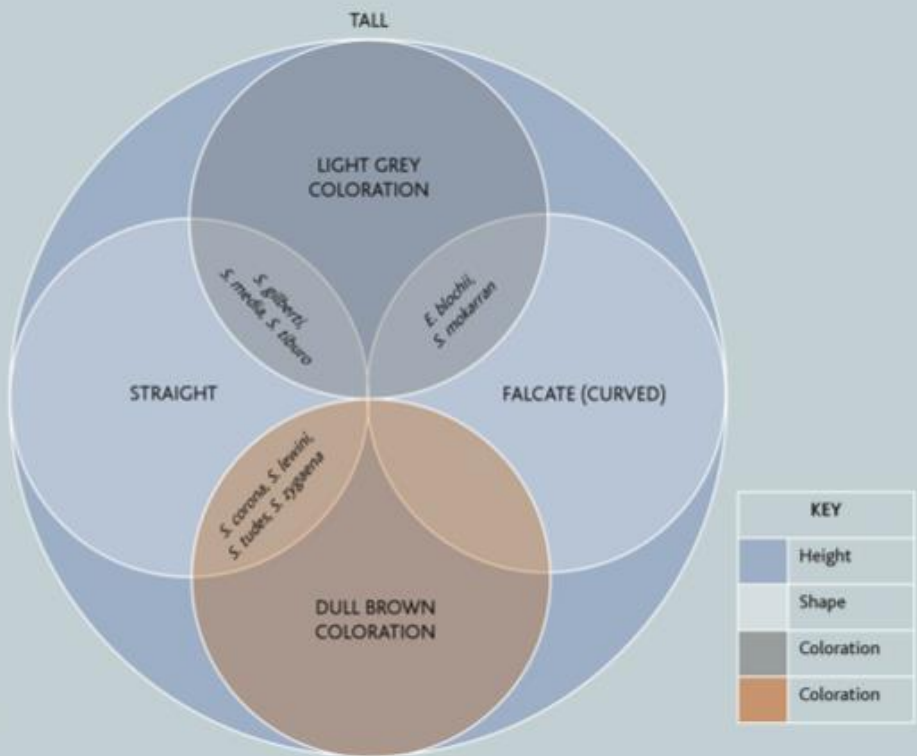
HAMMERHEAD SHARKS

DORSAL FIN

All hammerhead dorsal fins are considered tall fins. Two species have tall and falcate dorsal fins, namely, the Great Hammerhead (*S. mokarran*) and the Winghead Shark (*E. blochii*). The Great Hammerhead is already listed in Appendix II. It is not possible to distinguish between the dorsal fins of these two species.

The remaining hammerhead species have tall dorsal fins with a straight anterior margin. In wet form, there might be a slight distinction in the coloration of the dorsal fins (light grey or dull brown). However, dry fins are likely to all look the same. Overall, it is not possible to distinguish between dorsal fins derived from juveniles of all these species (noting exception above). Large dorsal fins might be attributed to the Scalloped Hammerhead (*S. lewini*) or Smooth Hammerhead (*S. zygaena*) which are already listed on Appendix II.

Overall, it is not possible to determine the species the fins might originate from. Genetic techniques are required.



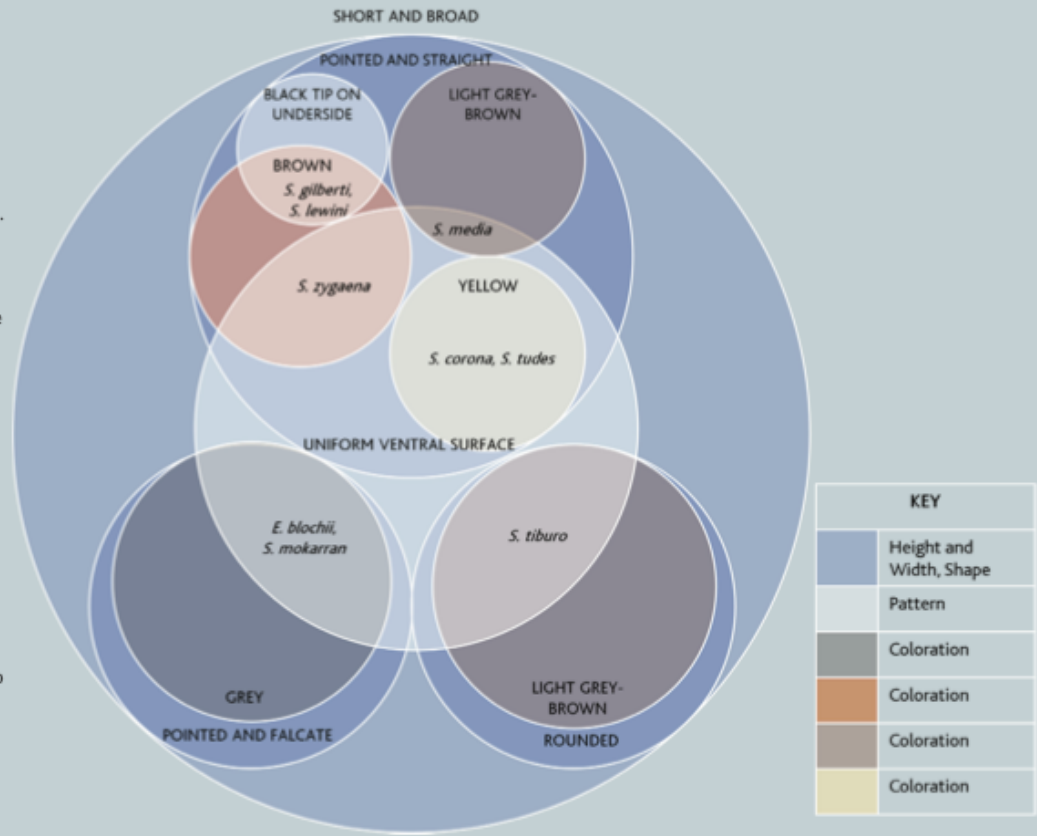
SPHYRNIDAE

HAMMERHEAD SHARKS

PECTORAL FINS

It is difficult to distinguish between most pectoral fins deriving from hammerhead sharks. In wet form, there might be a slight distinction in the coloration for some species (i.e., yellow coloration). Features related to the shape and color on the underside of the fins (i.e., black or dusky at apex) are common to several species. It is therefore not possible to determine the species the fins might originate from. Genetic techniques are required.

Note – Great Hammerhead pectoral fin size might appear large rather than short and broad due to the maximum total length this species can reach and the proportion of the fins compared to the body.

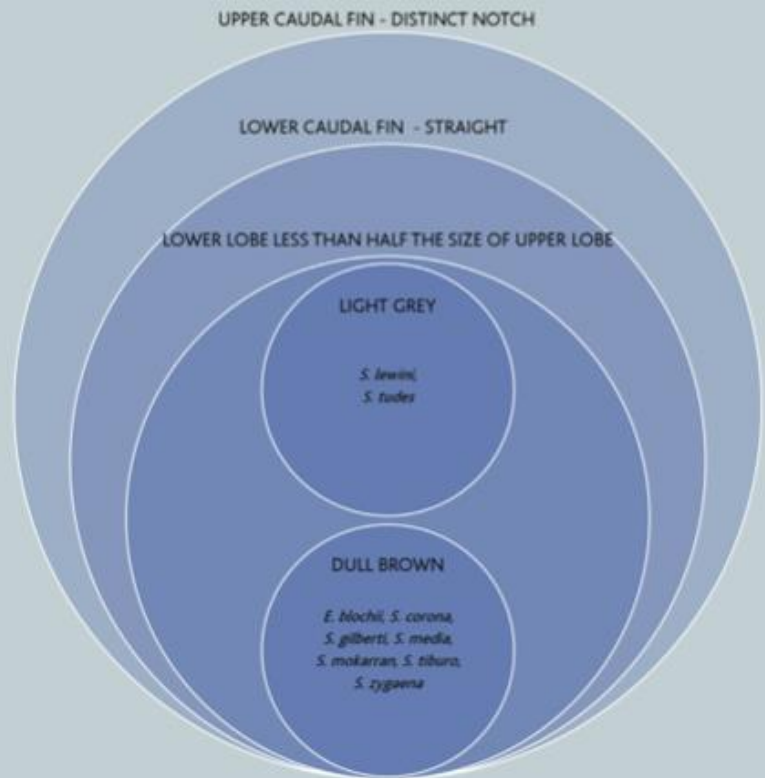


SPHYRNIDAE

HAMMERHEAD SHARKS

CAUDAL FIN

It is not possible to distinguish between whole caudal fins or lower caudal lobes derived from hammerhead sharks. In wet form, there might be a slight distinction in the coloration of the lower caudal lobe (light grey or dull brown). However, it still is not possible to determine the species the fins might originate from. Genetic techniques are required.

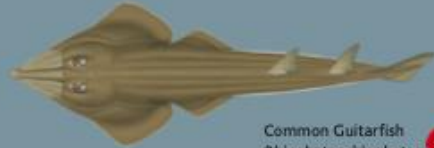


RHINOBATIDAE

GUITARFISHES

There are currently no guitarfish species of the Family Rhinobatidae listed on CITES appendices.

All 37 species in the family are proposed for inclusion: Stripenose Guitarfish (*Acroteriobatus variegatus*), Brazilian Guitarfish (*Pseudobatos horkelii*), Whitespotted Guitarfish (*Rhinobatos albomaculatus*), Spineback Guitarfish (*R. irvinei*), Common Guitarfish (*R. rhinobatos*), and Brown Guitarfish (*R. schlegelii*) along with all other species in the family.



Common Guitarfish
Rhinobatos rhinobatos CR



Whitespotted Guitarfish
Rhinobatos albomaculatus CR



Spineback Guitarfish
Rhinobatos irvinei CR



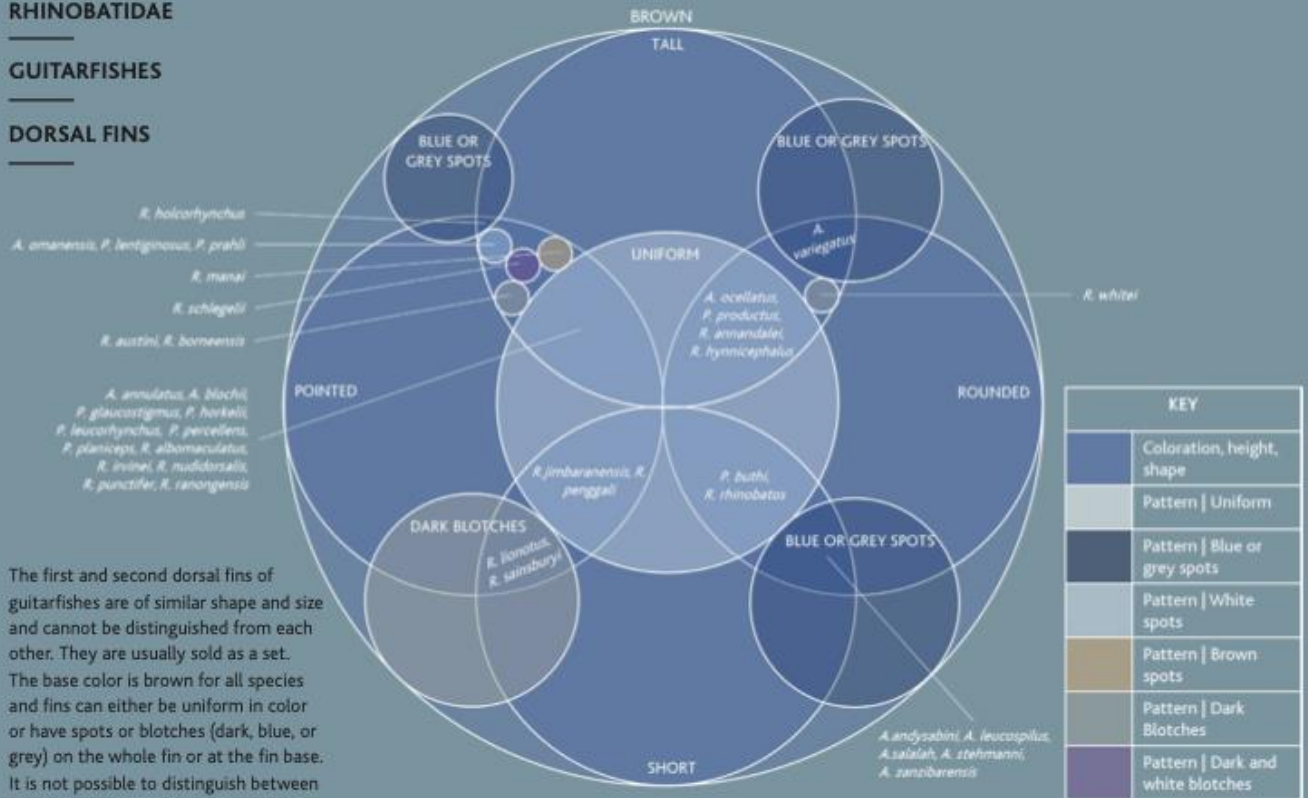
Stripenose Guitarfish
Acroteriobatus variegatus CR

| Not all lead species proposed are illustrated |

RHINOBATIDAE

GUITARFISHES

DORSAL FINS



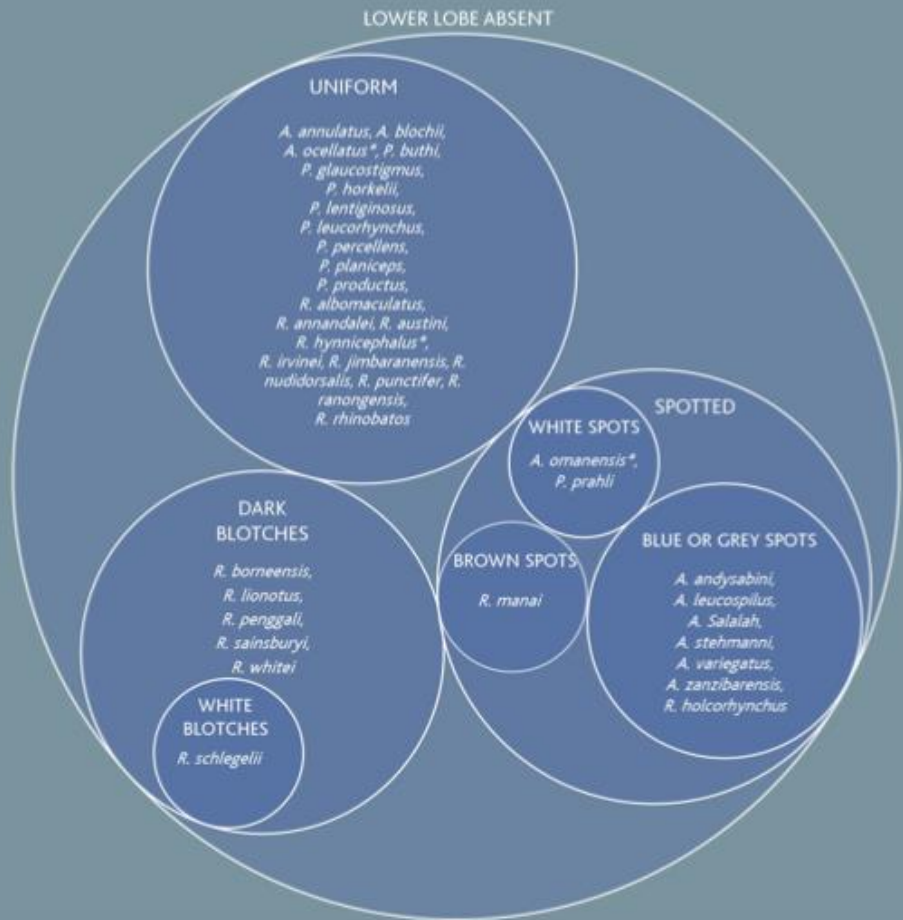
The first and second dorsal fins of guitarfishes are of similar shape and size and cannot be distinguished from each other. They are usually sold as a set. The base color is brown for all species and fins can either be uniform in color or have spots or blotches (dark, blue, or grey) on the whole fin or at the fin base. It is not possible to distinguish between whole caudal fins or lower caudal lobes derived from hammerhead sharks. It is generally not possible to determine the species the fins might originate from. Genetic techniques are required.

RHINOBATIDAE

GUITARFISHES

CAUDAL FIN

It is often difficult to distinguish between whole caudal fins derived from guitarfish species. All species lack a lower lobe, but some may have uniform colored caudal fins, or have various markings or patterns at the cross-section of the fin or on the whole fin. These markings may or may not be visible depending on how the caudal fin has been cut. If markings or patterns are visible on the caudal fin, these may be in form of dark or white blotches or variously colored spots (i.e., white, brown, or bluish grey). Overall, it is not possible to determine the exact species the fins might originate from. Genetic techniques are required.



SUMMARY

An estimated 37% of sharks, rays, and chimaeras are considered threatened with extinction. Over the last decades, the fin trade has been a major driver of shark fisheries globally and this has led to drastic population declines for many species. CITES listings have attempted to regulate the trade of some of these species because they meet CITES Appendix II criteria. The current status of many shark and ray species necessitates additional and immediate action. With an increasing number of species edging towards extinction, it is important to consider how trade regulations can support conservation measures for these species. Visual identification approaches that have been developed to support the current CITES shark and ray listings have been effective and allow to distinguish between most listed and unlisted species. With almost 100 species being considered at CoP19, it is important to evaluate how implementation of proposed listings can be effectively undertaken.

At the point of landing, all species included in Proposals 37, 38, and 40 are identifiable to the species level. Identification guides to support implementation of the proposed listings are often available at the national and regional levels and in multiple languages. This allows for species-specific management and monitoring, and the issuance of CITES permits before products enter the international trade (if supported with appropriate documentation such as non-detriment and legal acquisition findings). This in turn is likely to increase traceability and reporting at the species-level.

At the point of trade, the ability to visually identify first dorsal fins and pectoral fins (for some species) has been key to ensure effective implementation of species listings. With multiple species of requiem, hammerhead, and guitarfish species being proposed, visual identification to the species-level will become increasingly difficult and customs officials will need to rely on genetic approaches to determine the species entering the trade. As highlighted in this document, look-alike issues for the majority of these species will occur within each of the families proposed.

Finally, the trade in meat for sharks and rays has significantly increased over the last decade. Most species proposed for listing are likely to enter the international meat trade. The identification of meat (or often processed carcasses with no distinguishing features) products is needed to implement listings. However, visual identification to the species level is not possible and genetic techniques are required. This trade is an important challenge that needs to be addressed.

The information provided in this guide demonstrates the difficulty in identifying fins to the species level for all three proposals. Combined with the current status of species, family level listings of sharks and rays are likely going to be more effective from both a conservation and implementation/enforcement perspective. This family level approach has also been adopted for other species such as seahorses and orchids and has encouraged the development of traceability mechanisms. Since the majority of fins of the newly proposed species cannot be distinguished from each other without genetic tools, a family listing would allow customs officials to implement new listings and support with regulating international trade.

