SHARKS AND RAYS of PAPUA NEW GUINEA

Identification Key:
Fins

Fin identification

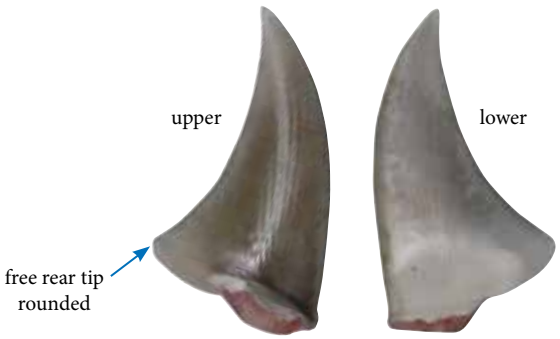
This guide covers the fins of shark and shark-like ray species encountered in the batches of dried fins examined during the ACIAR shark and ray project. Examination of dried fins was found to be crucial for understanding the size and species composition of shark and ray catches at various locations. In some provinces, travel to remote locations yielded data on only a small number of whole sharks, but examination of dried fins at fish buyers at key locations yielded substantially more species composition data.

Different fin types

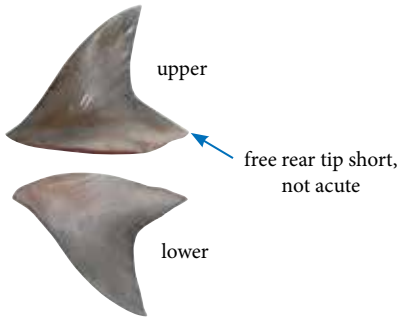
Batches of dried fins usually comprise all the different fins of sharks. To assess catch composition, it is important to be able to separate the different fin types, particularly all the first dorsal fins and any whole caudal fins. The different fin types of a typical shark are described below (examples given from an adult male *Hemipristis elongata*, see p. 124), with notes on distinguishing them from each other.

Pectoral and pelvic fins

Upper (dorsal) surface is distinctly darker than lower (ventral surface); free rear tips often short and rounded, usually not long and acute.



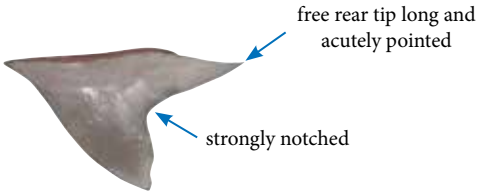
Pectoral fin



Pelvic fin

Anal fin

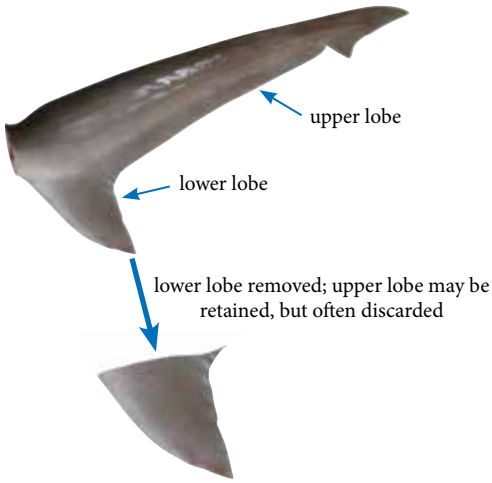
Pale in colour (vs. dorsal fins usually dark); free rear tip usually long and pointed (often acutely); typically low and deeply notched or falcate.



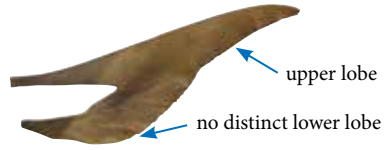
Anal fin

Caudal fin

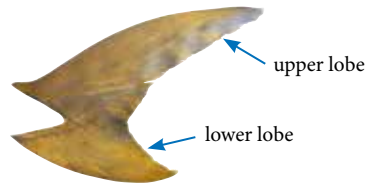
Same colour on both sides. When whole, distinctive and easily distinguished; usually (but not in some species) with a distinct upper and lower lobe. The caudal fin of the shark-like rays (wedgefishes, guitarfishes and sawfishes) is typically retained and dried whole. For sharks, usually only the lower lobe is retained.



Typical shark caudal fin



Guitarfish caudal fin



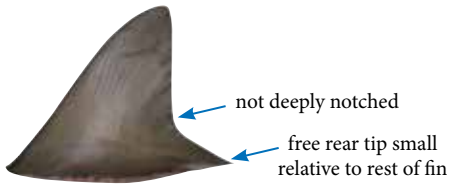
Wedgefish caudal fin

The lower caudal-fin lobe of sharks can be very similar in shape to the first dorsal fin. However, it can be readily distinguished from dorsal fins in lacking the free rear tip—that is, with the internal fin structure visible along the entire base and lacking a free rear tip (covered with skin and denticles).

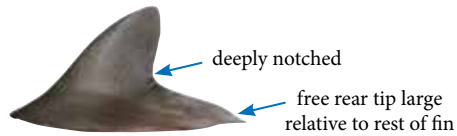
Dorsal fins

Same colour on both sides; typically greyish or brownish (not very pale or white); free rear tip relatively long and pointed (often acutely).

First dorsal fin typically not deeply notched (second usually deeply notched); first dorsal-fin rear tip small relative to the rest of the fin (second dorsal-fin rear tip large relative to rest of fin).

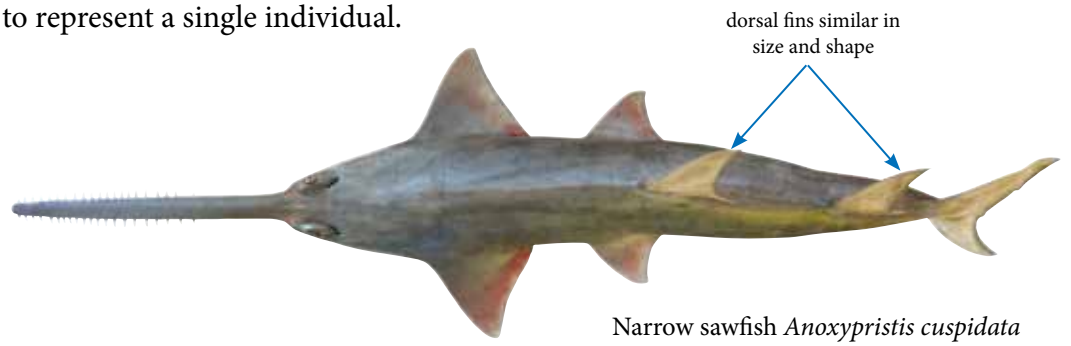


First dorsal fin



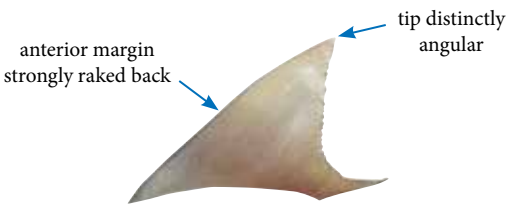
Second dorsal fin

In most shark species, the second dorsal fin is much smaller than the first and deeply notched, and thus they can be readily separated from each other. However, some species have larger second dorsal fins, sometimes almost the same shape and height. The shark-like rays (wedgefishes, guitarfishes and sawfishes) have similar-sized and shaped dorsal fins. In these cases, every two dorsal fins found should be considered to represent a single individual.

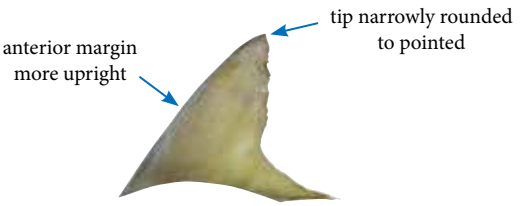


Narrow sawfish *Anoxypristis cuspidata*

The lemon shark, *Negaprion acutidens*, has dorsal fins that are similar in height, but differ morphologically (see below). Thus, the dorsal fins can be separated based on their morphology rather than size.



First dorsal fin



Second dorsal fin

Species coverage in this guide

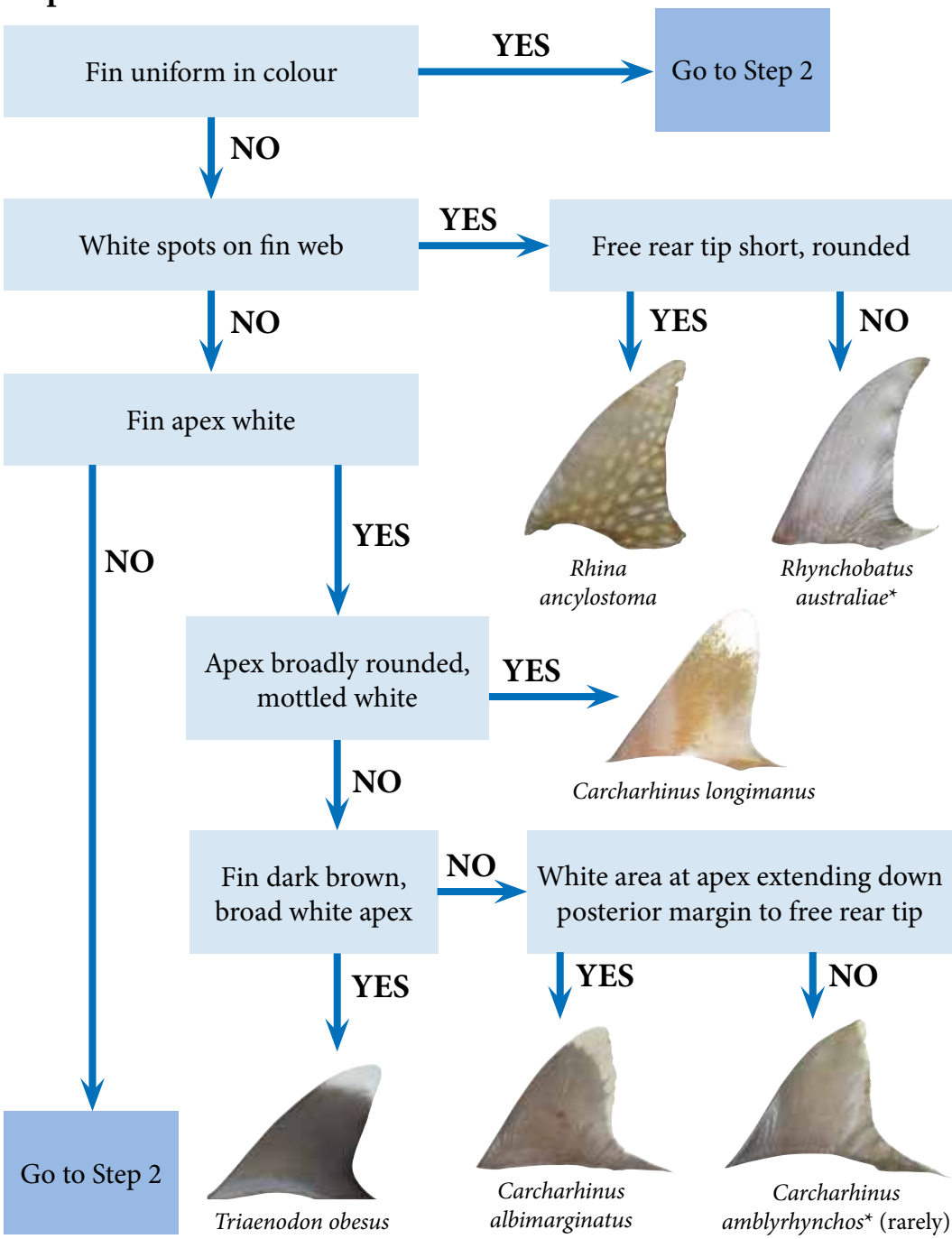
The species covered in the following fin identification guide follow the species composition of the batches of dried fins examined during this study (>1,000 first dorsal fins). Images of fresh fins have been used for several species for which dried fins were not observed, but the species are confirmed from PNG fisheries during this project. The species for which fresh images of the first dorsal fin were used are *Alopias pelagicus*, *Carcharhinus fitzroyensis*, *Carcharhinus longimanus*, *Glyphis glyphis*, *Prionace glauca*, *Triaenodon obesus*, *Pristis clavata* and *Pristis pristis*. Species not included in this guide that are possibly represented in batches of dried fins in PNG are *Alopias superciliosus, Isurus paucus* and *Carcharhinus cautus*. Also, several small species that are typically not finned may be represented in some areas (although not observed in this study), namely *Carcharhinus macloti*, *Loxodon macrorhinus* and *Rhizoprionodon* spp.

Dried caudal fins were used for all the large shark-like rays encountered, except for *Pristis pristis*, where a caudal fin from a preserved specimen was used.

Key to first dorsal fins

Identification of sharks from a single fin is difficult and, as a result, some species are repeated at different steps in the key and not all species are identified to species level. Species marked with an asterisk (*) appear more than once in this key.

Step 1



Step 2

Large black blotch at tip; fin web distinctly pale beneath blotch

YES

Carcharhinus melanopterus

NO

Fin black-tipped (often faint)

YES

Carcharhinus amblyrhynchoides

NO

Carcharhinus brevipinna

Carcharhinus sorrah

Carcharhinus limbatus

Carcharhinus tilstoni

Fin very tall and narrow, fin height > fin length

YES

Free rear tip not pointed, enlarged denticles on anterior third of fin

NO

YES

NO

Anterior margin black-edged

NO

YES

Go to Step 3

Go to next page

Eusphyra blochii

Glaucostegus typus

Fin very narrow

YES

Sphyrna mokarran

NO

*Rhynchobatus australiae**

Rhynchobatus palpebratus

Step 3

Fin tall, fin height > base length

NO

Go to Step 4

YES

Fin dark grey or dark bluish

YES

Fin with longitudinal striations; apex rounded

NO

YES

NO

Fin smooth, often shiny

Alopias pelagicus

Isurus oxyrinchus

YES

NO

Fin apex rounded; not falcate

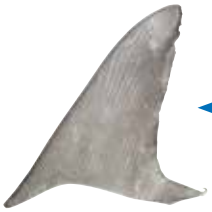
NO

YES

Anoxypristis cuspidata

Carcharhinus plumbeus

Go to next page

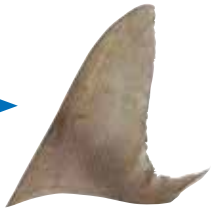


Sphyrna zygaena

NO

Fin usually brown, relatively broad

YES



Sphyrna lewini

Step 4

Fin low and long, fin length >1.6 times fin height

YES

Anterior margin strongly raked back, posterior margin vertical; fin web yellowish

NO

YES

Negaprion acutidens

Denticles large and not overlapping, giving fin a rough texture

YES

NO

Galeocerdo cuvier

Fin length ~1.8 times fin height

NO

~1.6 times fin height

YES

Glyphis glyphis

Fin grey; fin raked back, apex over free rear tip

YES

NO

Carcharhinus fitzroyensis

Glyphis garricki

NO

Go to Step 5

Step 5

Fin apex rounded

YES

Carcharhinus falciformis

NO

Fin yellowish green or sandy brown; free rear tip short and thick

YES

Fin yellowish green

YES

NO

NO

Pristis pristis

Pristis clavata

Pristis zijsron

Fin bluish to steel grey

YES

Prionace glauca

NO

Fin pale grey

NO

Posterior margin only weakly concave, angling rearwards from top to bottom

YES

YES

NO

Hemipristis elongata

Carcharhinus leucas

Go to next page

Inner margin short; fin relatively dark

YES

Carcharhinus amboinensis

NO

Fin small—max. fin height ~9 cm; max. fin length 14 cm

YES

Carcharhinus coatesi

NO
fins larger except in smallest juveniles

Apex narrowly to moderately rounded

YES

Carcharhinus altimus

NO
apex more angular

*Carcharhinus amblyrhynchos**

Key to whole caudal fins

As mentioned above, batches of dried fins typically only included the lower lobe of shark caudal fins but included whole caudal fins of the shark-like rays (wedgefishes, guitarfishes and sawfishes). The lower caudal-fin lobe alone is not adequate for identification in most instances and thus was not used in this study. The whole caudal fins of the shark-like rays were useful, and a rough guide to their identification is provided below.

Step 1

Lower lobe very long, almost or more than half length of upper lobe

NO

Lower lobe absent; upper half with enlarged denticles

YES

Glaucostegus typus

NO
lower lobe short

YES

Pristis pristis (juvenile)

Pristis spp.

Go to Step 2

Pristis clavata (adult)

Pristis zijsron (adult)

Step 2

Posterior margin deeply and evenly concave; lower lobe very broad, tip not pointed

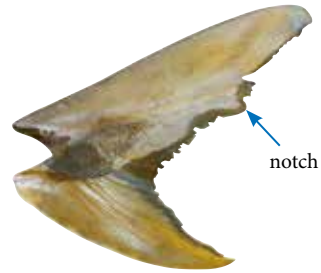
YES

Rhina ancylostoma

NO

Lower lobe more than half length of upper lobe; a distinct notch usually visible on posterior margin

YES



Anoxypristis cuspidata

NO
lower lobe less than half length of upper lobe

Rhynchobatus spp.

Rhynchobatus australiae

Rhynchobatus palpebratus