



Food and Agriculture
Organization of the
United Nations

Identification guide to the deep-sea cartilaginous fishes of the Southeastern Atlantic Ocean



FAO. 2015. *Identification guide to the deep-sea cartilaginous fishes of the Southeastern Atlantic Ocean*. FishFinder Programme, by Ebert, D.A. and Mostarda, E., Rome, Italy.

Supervision: Merete Tandstad, Jessica Sanders (FAO, Rome)

Technical editor: Edoardo Mostarda (FAO, Rome)

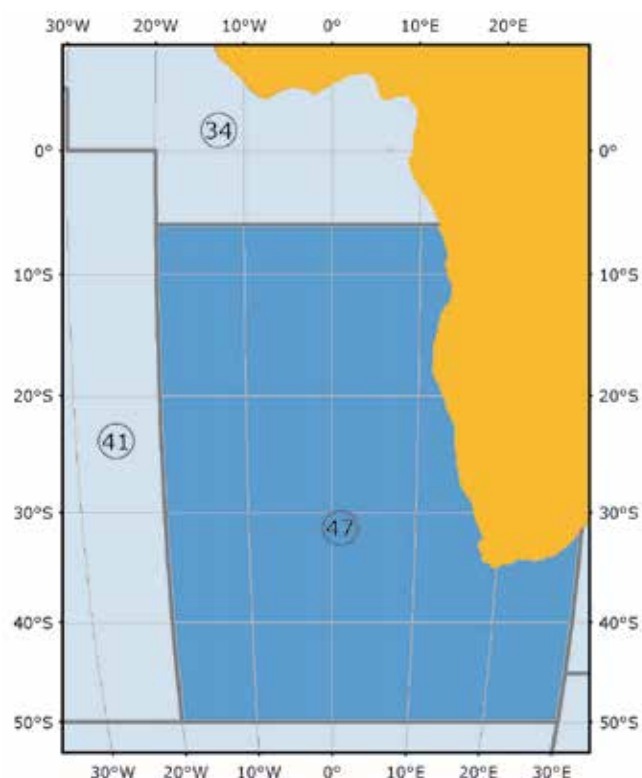
Colour illustrations, cover and graphic design: Emanuela D'Antoni (FAO, Rome)

This guide was prepared under the “FAO Deep-sea Fisheries Programme” thanks to a generous funding from the Government of Norway (*Support to the implementation of the International Guidelines on the Management of Deep-Sea Fisheries in the High Seas* project) for the purpose of assisting states, institutions, the fishing industry and RFMO/As in the implementation of FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas. It was developed in close collaboration with the FishFinder Programme of the Marine and Inland Fisheries Branch, Fisheries Department, Food and Agriculture Organization of the United Nations (FAO).

The present guide covers the deep-sea Southeastern Atlantic Ocean and that portion of Southwestern Indian Ocean from 18°42'E to 30°00'E (FAO Fishing Area 47). It includes a selection of cartilaginous fish species of major, moderate and minor importance to fisheries as well as those of doubtful or potential use to fisheries. It also covers those little known species that may be of research, educational, and ecological importance.

In this region, the deep-sea chondrichthyan fauna is currently represented by 50 shark, 20 batoid and 8 chimaera species. This guide includes full species accounts for 37 shark, 9 batoid and 4 chimaera species selected as being the more difficult to identify and/or commonly caught. Each species is described, depicted with a colour illustration and photo, and key distinguishing features of similar-looking species occurring in the same area are highlighted allowing for easy and accurate identification in the field. Keys to the shark and batoid orders and families, together with keys to chimaera and skate genera are also provided.

This guide is intended to help fishery workers collecting catch data in the field in the identification of the cartilaginous fish species they might encounter. It is conceived to be updatable, offering the possibility to add new species accounts as new species are described.



For feedback and questions contact:

FishFinder Programme, Marine and Inland Fisheries Branch (FIRF),
Food and Agriculture Organization of the United Nations, Viale delle
Terme di Caracalla, 00153 Rome, Italy.

Email: FishFinder@fao.org



The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

© FAO 2015

ISBN 978-92-5-108777-0

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

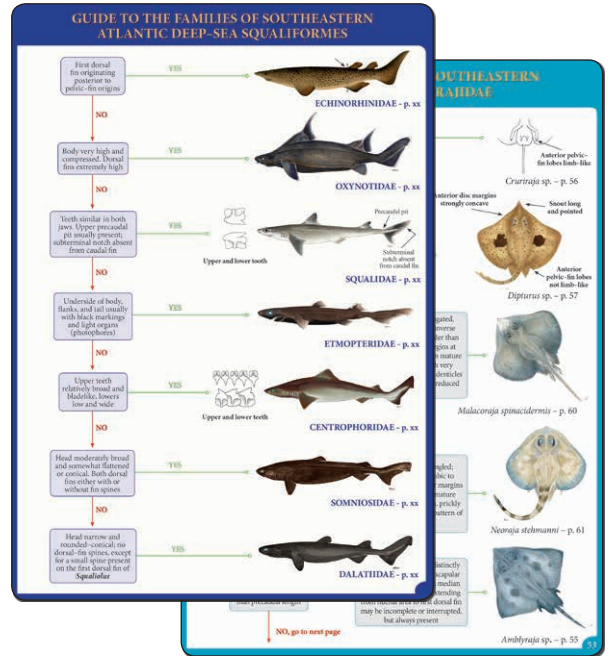
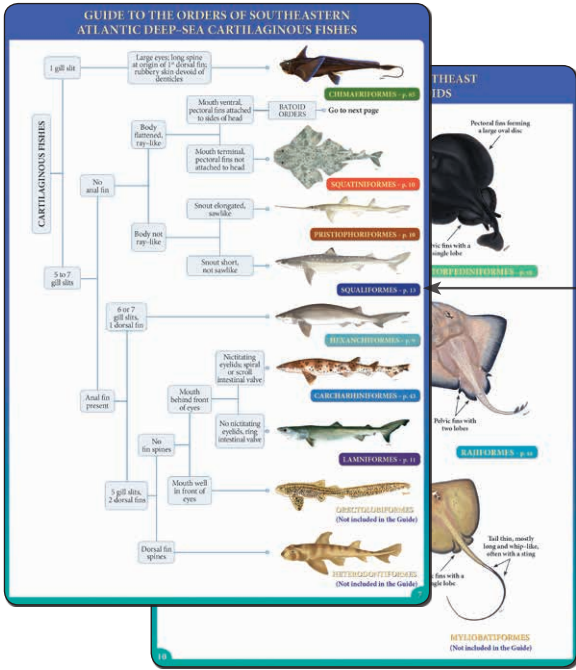
All requests for translation and adaptation rights, and for resale and other commercial use rights should be made via www.fao.org/contact-us/licence-request or addressed to copyright@fao.org.

FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org

HOW TO USE THIS GUIDE

1) The first step the user should take is to check the caught specimen against the Guide to the Orders (Pages 7 and 8) to determine to which Order it belongs and follow the colour code or page number to reach the Identification Sheets.

2) If the specimen seems to belong to the Orders **Squaliformes**, **Chimaeriformes**, or **Rajiformes**, it should be checked against the respective Guide to the Families or Genera to determine to which group it belongs. If it belongs to one of the other Orders, the user should go directly to the Identification Sheets.



3) Thereafter, the species can be determined by looking at all the Species Sheets for the Family or Genus.

- The species that are more difficult to identify and/or commonly caught are displayed with full species accounts, occupying one or two pages, that include their main distinctive characters and other useful information. The species that look similar and with which the species could be misidentified are displayed at the bottom of the page and when numerous, on the back page.

- The species having very peculiar characteristics and/or rarely caught are displayed with simplified species accounts showing their main distinctive features as captions with arrows, and other useful information.

***Etmopterus pusillus* (Lowe, 1839)**
Smooth lanternshark - Sagre nain
Tollo lucero liso

Karasuzame (Jpn)
Lixinha de fundura lisa (Por)

ETP

Head flattened and moderately broad, not deep and conical. First dorsal-fin spine short, short and usually lower than first dorsal-fin spine. Second dorsal fin much larger than first and nearly or quite twice its size. Anterior branch of caudal photophore broad, partly enveloping ventral surface of caudal peduncle. Anterior branch of flank photophore long and broad, much longer than posterior branch. Anterior branch of caudal photophore elongated and blunt-tipped. No anal fin. Dorsal fin with a slender base and one or more pairs of cusps. Upper teeth with a slender base and one or more pairs of cusps. Lower teeth compressed and blade-like. Dorsal dentacles (Dorsal view). Upper and lower teeth. Lateral trunk dentacles complex, truncated and wide-spaced, giving the body a smooth texture. Colour: Pale or dark brown to blackish on dorsal surface, underside of snout and abdomen abruptly black. Precaudal fins light distally. Size: Moderate with adults to about 40 cm TL. Distribution: Continental and insular shelves bottom or well above it. Also in over deep water. Similar species: *Etmopterus bigelowi*. *Etmopterus bigelowi* has in common with *E. pusillus* the smooth skin due to dentacles with long, flat, concave, scud-like crowns atop low bases. 39 to 24 teeth of upper teeth. Photo: © NOAA.

Etmopterus pusillus - Smooth lanternshark

Chlamydoselachidae - Frilled sharks

***Chlamydoselachus africana* (Hart and Compagno, 2009)**
African frilled shark

HWR

Head more than 17% of total length. No gill slits. Body elongated and ray-like. Head saddle-like, with short snout and terminal mouth. Teeth with three points in both jaws. Size: Max. total length 117 cm. Distribution: In FAO Area 47 known to occur off southern Angola, Namibia and the west and likely east coast of South Africa. Note: A distinct species, *Chlamydoselachus anguineus* Garman, 1884, occurs in the southwestern Indian Ocean. Since these two species are morphologically very similar (*C. anguineus* has a shorter head less than 17% TL) tissue samples should be taken when possible. Photo: © Oudgier Albein, DMR.

Hexanchidae - Cow shark

***Hexanchus perlo* (Bonnaterre, 1788)**
Sharpmouth sevengill shark - Requin perlou
Caluhatia bocadule

HXT

Big eye. Seven gill slits. Back black on the dorsal fin (inconspicuous in large individuals). Lower teeth comb-like. Size: Max. total length 139 cm. Distribution: In FAO Area 47 known to occur from Angola to South Africa (Western Cape off Cape Agulhas). Photo: © Oudgier Albein, DMR.

***Hexanchus griseus* (Bonnaterre, 1788)**
Bluntnose sixgill shark - Requin gris
Caluhatia gris

SBL

Dorsal-fin base separated from upper caudal-fin origin by a distance about equal to its length. No gill slits. Lower teeth comb-like. Size: Max. total length 482 cm. Distribution: In FAO Area 47 known to occur from Angola to South Africa (Northern and Western Cape). Photo: © Oudgier Albein, DMR.

HOW TO USE THIS GUIDE

Scientific Name Authorship Common names in Japanese (Jpn), Portuguese (Por), Korean (Kor), and Afrikaans (Afr), when available FAO 3-alpha code

FAO Names (English - French - Spanish, when available)

Colour illustration and main field marks

Additional details

Other similar species

Common names in Japanese (Jpn), Portuguese (Por), Korean (Kor), and Afrikaans (Afr), when available

FAO 3-alpha code

A different colour for each Order

Species coloration and size given as Total Length (TL)

Photo of a specimen immediately after capture

Family common name

Family

Order

Etmopterus pusillus (Lowe, 1839)
Smooth lanternshark - Sagre nain
Tollo lucero liso

Karasuzame (Jpn)
Lixinha-de-fundura lisa (Por)

ETP

Lateral trunk denticles cusplike, truncated and wide-spaced, giving the body a smooth texture

Upper teeth with a slender cusp and one or more pairs of cusplets

Lower teeth compressed and blade-like

Colour: Pale or dark brown to blackish on dorsal surface, underside of snout and abdomen abruptly black. Precaudal fins light distally.

Size: Size moderate with adults to about 48 cm TL.

Photos: © Dave Ebert

Similar species

Etmopterus bigelowi

Etmopterus bigelowi has in common with *E. pusillus* the smooth skin due to denticles with low, flat, concave, sessile crowns atop low bases.

First dorsal fin more anterior, distance from pectoral-fin insertion to first dorsal-fin base three or more times in interdorsal space

19 to 24 rows of upper teeth

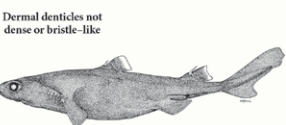
Photos: © NOAA

Squaliformes Etmopteridae - Lantern sharks

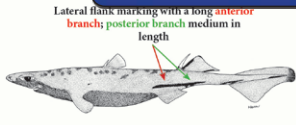
Other similar species

The following species can be distinguished from *Etmopterus pusillus* by the fact that their skin has a fuzzy or rough texture due to denticles with erect, thorn-like, cuspidate crowns, more or less elevated from their bases. Moreover, the denticles on both dorsal surface of head and on sides of body are randomly arranged, and not in regular longitudinal lines.

Etmopterus viator



Etmopterus cor



Bio-Ecology and Distribution of *Etmopterus pusillus*

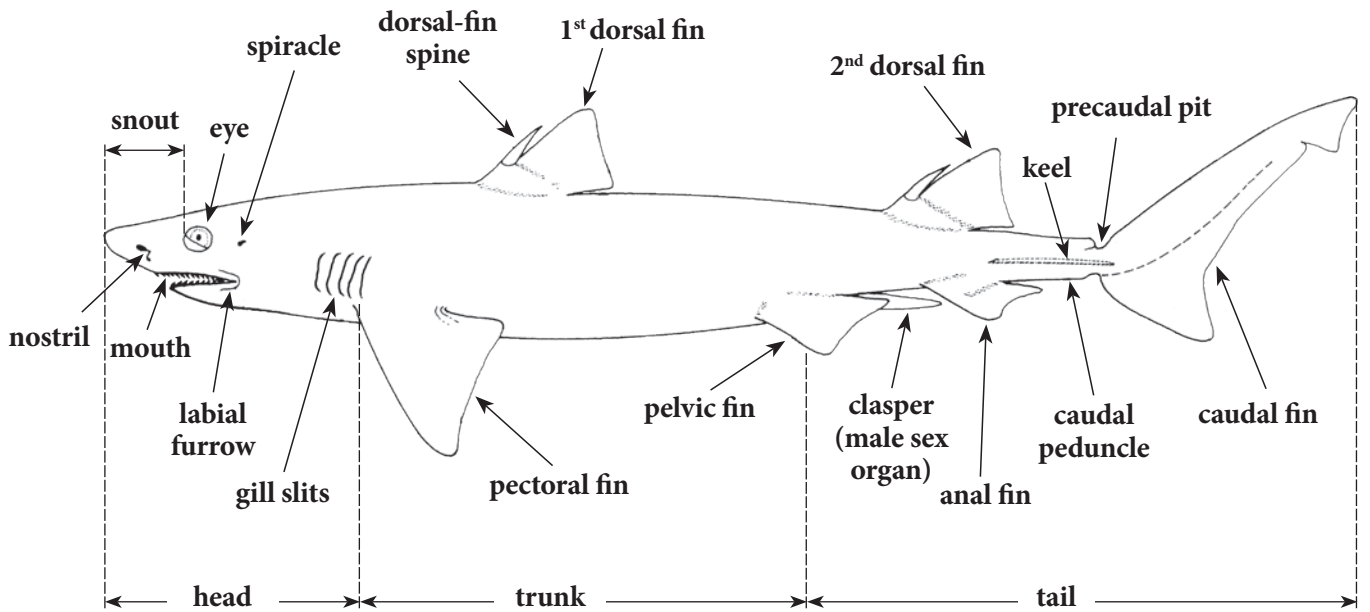
A common deepwater dogfish, sometimes collected in large groups, of the outer continental and insular shelves and upper, middle, and lower slopes from 60 to 1490 m depth, on or near the bottom or well above it. Also oceanic in the central South Atlantic at depths between the surface and 110 to 708 m over deep water.

Main distinctive characters of similar-looking species

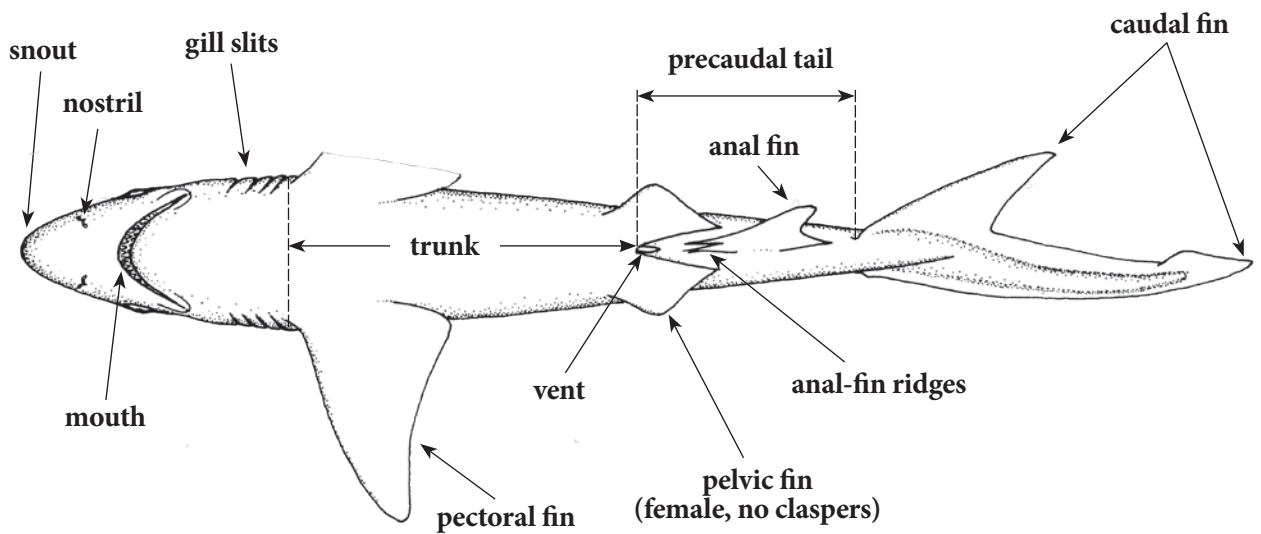
Information on the biology, ecology, distribution and fisheries of the species

Etmopterus pusillus - Smooth lanternshark

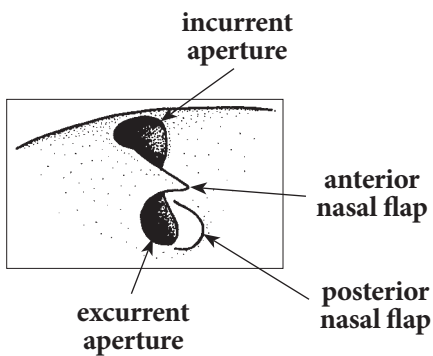
ILLUSTRATED GUIDE OF EXTERNAL TERMINOLOGY USED FOR SHARKS



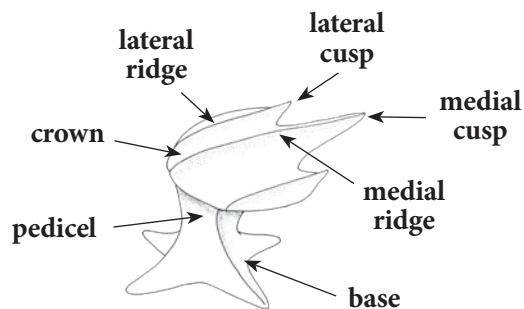
LATERAL VIEW



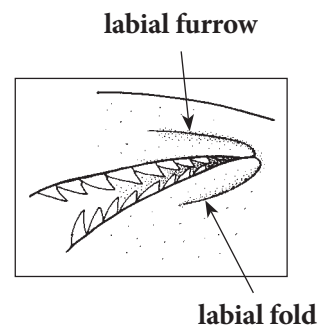
VENTRAL VIEW



Detail of nostril

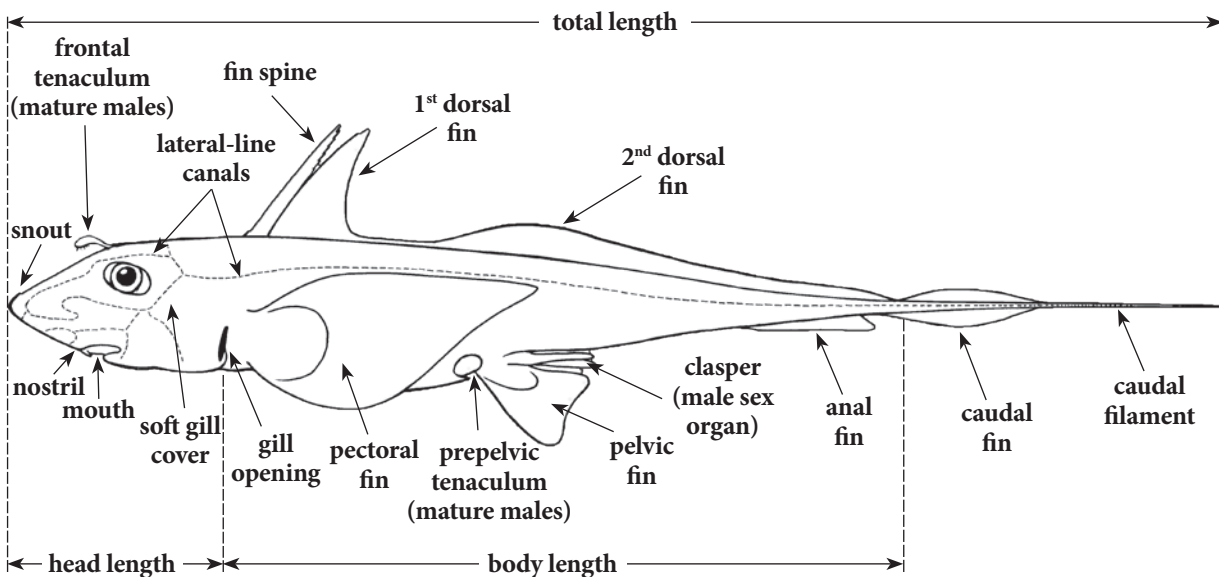
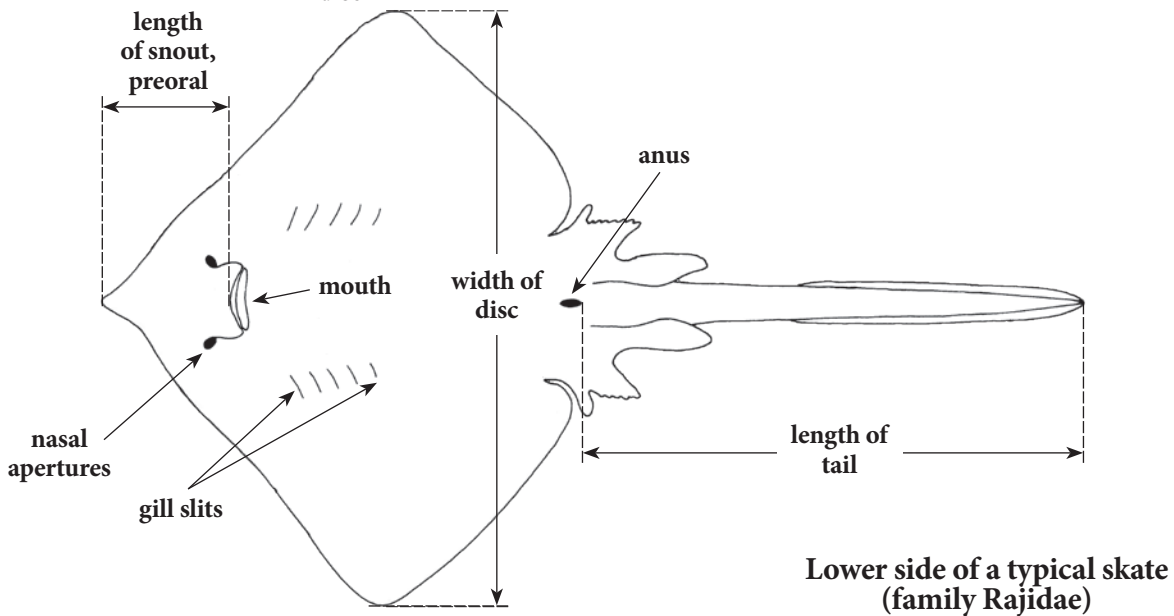
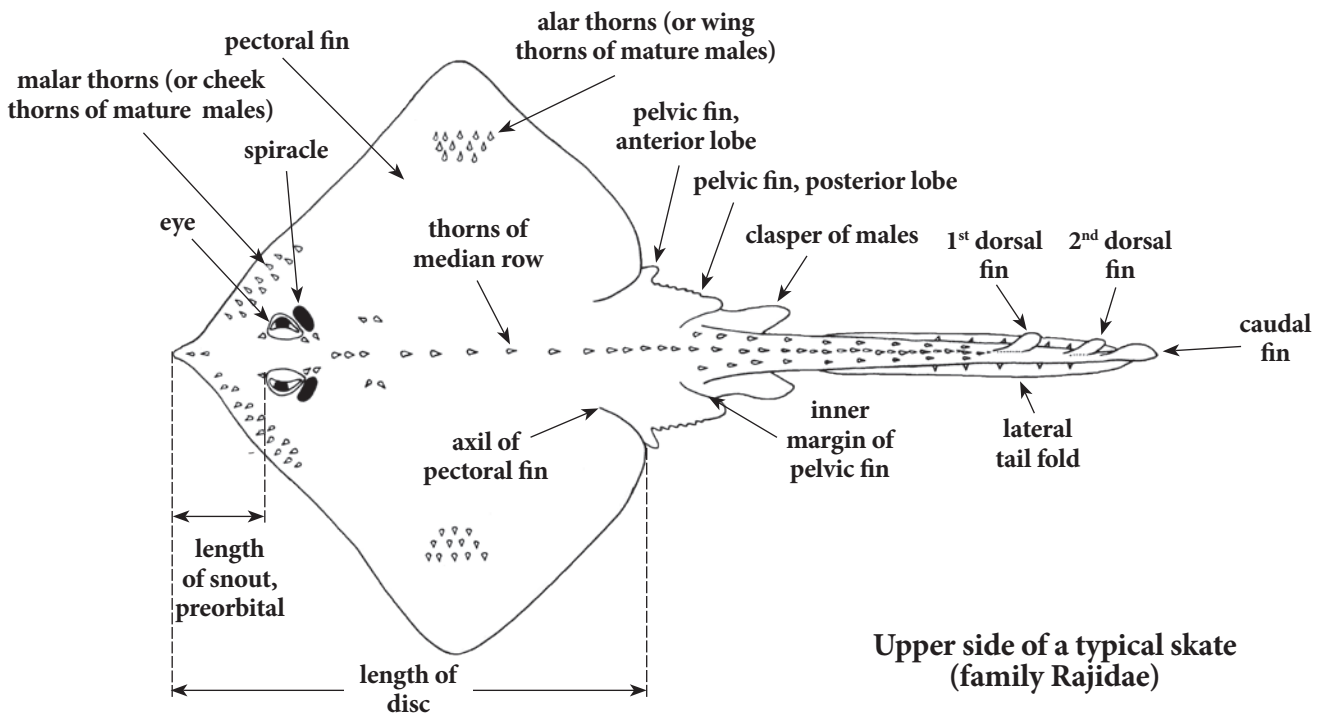


View of a lateral trunk dermal denticle



Mouth corner

ILLUSTRATED GUIDE OF EXTERNAL TERMINOLOGY USED FOR BATOIDS AND CHIMAERAS



Lateral view of a typical Chimaera

GLOSSARY OF TECHNICAL TERMS

Anterior margin: In precaudal fins, the margin from the fin origin to its apex.

Benthic or **Demersal:** referring to organisms that are bottom-dwelling.

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

Caudal peduncle: That part of the precaudal tail extending from the insertions of the dorsal and anal fins to the front of the caudal fin.

Circumglobal: Occurring around the world.

Circumtropical: Occurring around the tropical regions of the world.

Claspers: The paired copulatory organs present on the pelvic fins of male cartilaginous fishes, for internal fertilization of eggs.

Cusp: A usually pointed large distal projection of the crown of dermal denticles or oral teeth. **Multicuspid** refers to oral teeth or denticles with more than one cusp. In lateral trunk denticles, the posterior ends of the crown may have **medial** and **lateral cusps**, sharp or blunt projections associated with the medial and lateral ridges.

Cusplet: As with a cusp, but a small projection in association with a cusp, and usually mesial and distal but not medial on the crown foot.

Dermal denticle or **placoid scale:** A small tooth-like scale found in cartilaginous fishes.

Endemic: A species or higher taxonomic group of organisms that is only found in a given area.

Free rear tips: The pectoral, pelvic, dorsal, and anal fins all have a movable rear corner or flap, the free rear tip, that is separated from the trunk or tail by a notch and an inner margin. In some sharks the rear tips of some fins are very elongated.

Head: That part of a cartilaginous fish from its snout tip to the last or (in chimaeras) only gill slits.

Inner margin: In precaudal fins with free rear tips, the margin from the fin insertion to the rear tip.

Insertion: The posterior or rear end of the fin base in precaudal fins. The caudal fin lacks insertions except with many batoids and some chimaeroids that have a caudal filament that extends posterior to the fin. See **origin**.

Labial folds: Lobes of skin at the lateral angles of the mouth, usually with labial cartilages inside them, separated from the sides of the jaws by pockets of skin (labial grooves or furrows).

Labial furrows or **labial grooves:** Grooves around the mouth angles on the outer surface of the jaws of many cartilaginous fishes, isolating the labial folds. Primitively there is a distinct **upper labial furrow** above the mouth corner and a **lower labial furrow** below it.

Nictitating lower eyelid: In the ground sharks (order Carcharhiniformes), a movable lower eyelid that has special posterior eyelid muscles that lift it and, in some species, completely close the eye opening (or palpebral aperture).

Origin: The anterior or front end of the fin base in all fins. The caudal fin has **upper** and **lower** origins but no insertion. See **insertion**.

Paired fins: The pectoral and pelvic fins.

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

Postventral margin: In the caudal fin, the margin from the ventral tip to the subterminal notch of the caudal fin. See **lower** and **upper** postventral margins.

Preanal ridges: A pair of low, short to long, narrow ridges on the midline of the caudal peduncle extending anteriorly from the anal fin base.

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

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

Snout: That part of a cartilaginous fish in front of its eyes (preorbital) or mouth (preoral), including the nostrils.

Subterminal notch: On the caudal fin of most non-batoid sharks and at least one batoid, the notch in the lower distal end of the caudal fin, between the postventral and subterminal margins, and defining the anterior end of the terminal lobe.

Symphysis: The midline of the upper and lower jaws, where the paired jaw cartilages articulate with each other.

Ventral margin: In the caudal fin, the entire ventral margin from lower origin to posterior tip, either a continuous margin or variably subdivided into preventral, postventral, subterminal and terminal margins.

PHOTOGRAPHING AND PRESERVING SPECIMENS FOR IDENTIFICATION

Experience over many years has shown that the identification of cartilaginous fish species can be problematic. Sometimes rare species may be encountered, and if possible these specimens in addition to being photographed fresh, should be saved and forwarded to experts for possible identification. This can benefit both the scientists, most of whom are interested in these observations, and the public who are interested in having their specimen identified.

Taking photographs for easing identification:

If possible try to place a ruler or other measuring scale alongside the specimen; if no ruler is available, place some other object that may serve as a size reference, e.g. a lens cap, pencil or some object to show a size relationship. A handwritten label that includes a number, the date, location, and other relevant capture information, and may include the person's name should also be included. Plain coloured or an artificial background contrasting with the specimen's colour is fine.

Sharks and chimaeras: Take photographs in total lateral, dorsal and ventral views, if possible with fins erected and spread. Add close-ups of details catching your eye, e.g. lateral and ventral view of head to gill slits or to origin of pectoral fins, mouth–nasal region, both sides of the saw of sawsharks the jaws with dentition and scale cover detail, individual fins, colour marks.

Rays, skates, guitar- and sawfishes: Take photographs in total upper and lower views. Add close-ups of details, such as upper and lower side of head, both sides of the saw of sawfishes, mouth–nasal region, dorsal and caudal fins (if present), details of scale coverage (mainly in saw- and guitarfish) and obvious thorn pattern on upper side of disc and tail, colour pattern details like eye-spots.

Preservation of unknown, rare or strange specimens and where to send these:

Beyond, of course, taking photographs of the fresh specimen first, preserving and forwarding such individuals may be very important for science, e.g. these may document the first geographical records, or first records of small young or fully grown adults in a given location, or you may even have found a species so far unknown to science. On board fishing or angling vessels, preservation by deep-freezing, on ice, or in a refrigerator may be an option. Alternatively, preserving in 4% formaldehyde may be preferable (caution: dangerous to skin, eyes and when inhaled!). One may get concentrated (40%) formaldehyde from pharmacies or drugstores. If possible, inject formalin into the belly cavity, or cut a small slit through belly to allow formalin into the belly cavity to prevent the organs from disintegrating. With large specimens also inject formalin into the flesh. Place specimens in thick, water- and leakage-proof plastic bags or boxes for storage, but be careful to ensure that the spines do not pierce the bags. Dilute the concentrated formalin 1:9 with water and add the liquid to the specimen in the bag or box, and close firmly – the liquid and its gas are caustic! Specimens take one to several days to be preserved, depending on their size and thickness. When the specimen is preserved, pour the formalin off, rinse specimen under water, wrap it in moist cloths or paper to prevent it from drying out and keep it in a plastic bag or box. Contact the nearest marine, fishery, or zoological institute or museum and take the specimen there, or post it in leakage-proof packing. Internet search may help to find an appropriate addressee nearby.

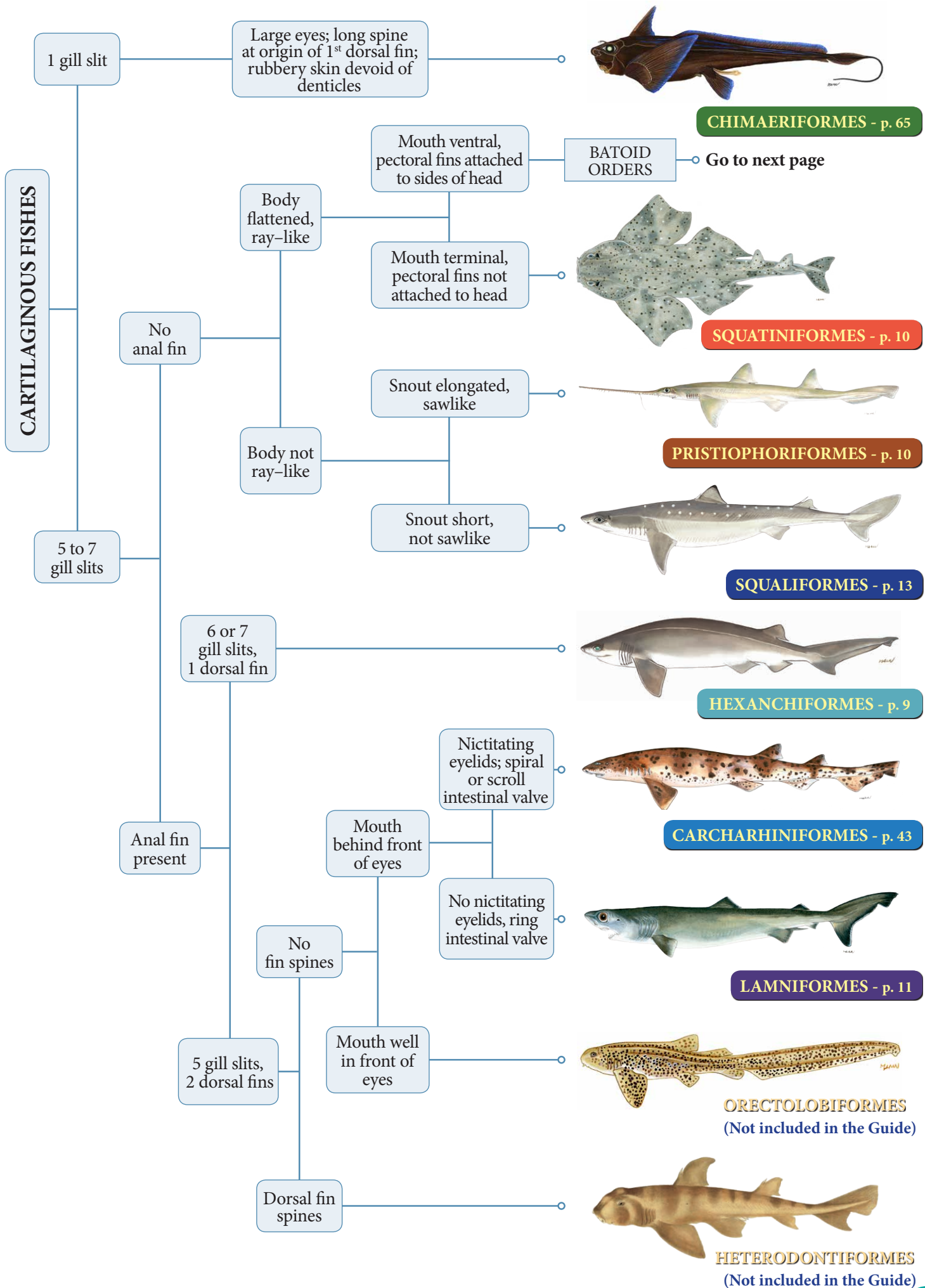


Photos of *Apristurus laurussonii*: © J. Poulsen



Photos of *Leucoraja naevus*: © M. Stehmann

GUIDE TO THE ORDERS OF SOUTHEASTERN ATLANTIC DEEP-SEA CARTILAGINOUS FISHES

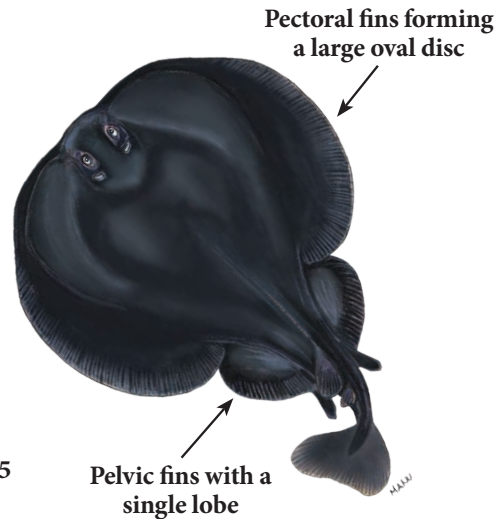


GUIDE TO THE ORDERS OF SOUTHEASTERN ATLANTIC DEEP-SEA BATOIDS

BATOIDS

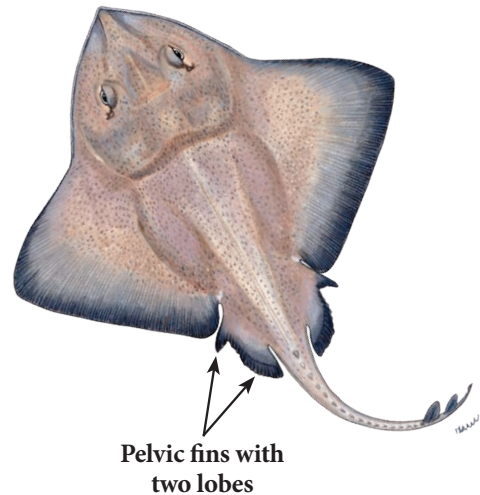
Pectoral fins forming a large oval disc; uni-lobed pelvic fins; tail massive, with two large dorsal fins and a large caudal fin; large electric organ on each side of head

Only one species, *Tetronarce cowleyi* Ebert, Haas & de Carvalho, 2015 is known to occur in the Southeastern Atlantic Ocean deep-sea



TORPEDINIFORMES - p. 50

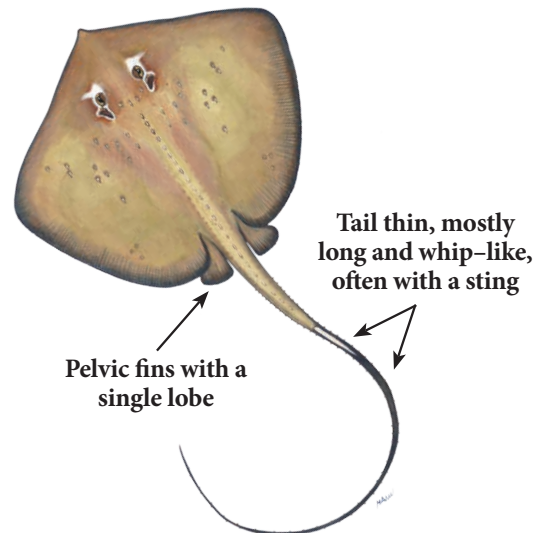
Pectoral fins fused with head and trunk to form mostly subrhombic disc; pelvic fins bilobed; tail rather slender, with two small dorsal fins and a rudimentary caudal fin



RAJIFORMES - p. 51

Disc subrhombic to lozenge-shaped; pelvic fins uni-lobed; tail thin, mostly long and whip-like, often with a serrated sting on root

Only one species, *Hexatrygon bickelli* Heemstra & Smith 1980 is known to occur in the Southeastern Atlantic Ocean deep-sea



MYLIOBATIFORMES
(Not included in the Guide)

Chlamydoselachidae – Frilled sharks

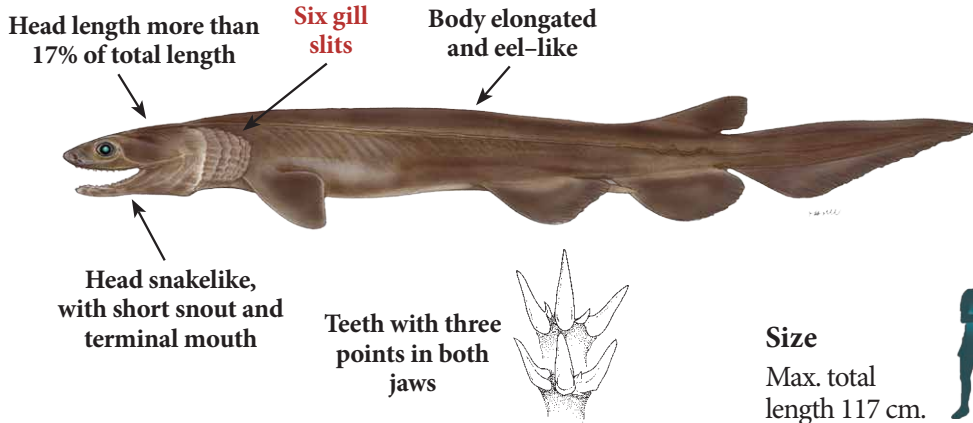
Chlamydoselachus africana Ebert & Compagno, 2009

African frilled shark

HWR



Photo: © Oddgeir Alvheim, IMR



Depth range

300–1400 m

Distribution

In FAO Area 47 it is known to occur off Southern Angola, Namibia and the west and likely east coast of South Africa.

Size

Max. total length 117 cm.



Note: A distinct species, *Chlamydoselachus anguineus* Garman, 1884, occurs in the Southwestern Indian Ocean. Since these two species are morphologically very similar (*C. anguineus* has a shorter head, less than 17% TL) tissue samples and photographs should be taken when possible.

Hexanchidae – Cow sharks

Heptranchias perlo (Bonnaterre, 1788)

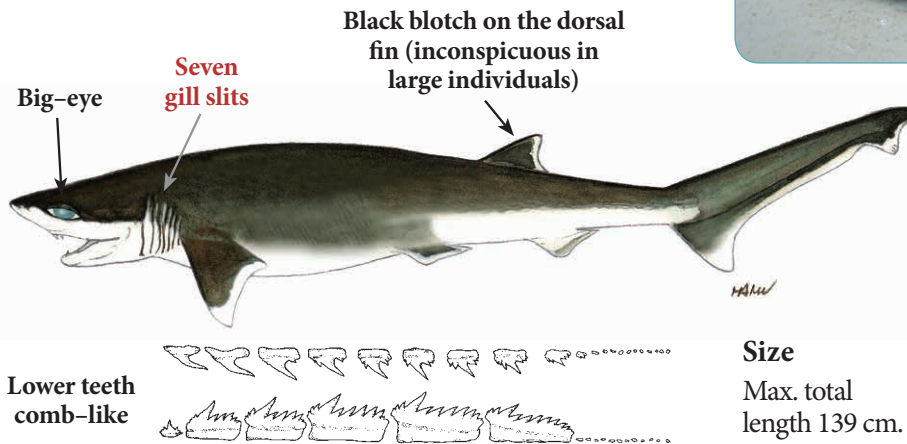
Sharpnose sevengill shark – Requin perlon

Cañabota bocadulce

HXT



Photo: © Oddgeir Alvheim, IMR



Depth range

100–1000 m

Distribution

In FAO Area 47 it is known to occur off Angola, north-central Namibia and South Africa (Western Cape, off Cape Agulhas).

Size

Max. total length 139 cm.



Hexanchus griseus (Bonnaterre, 1788)

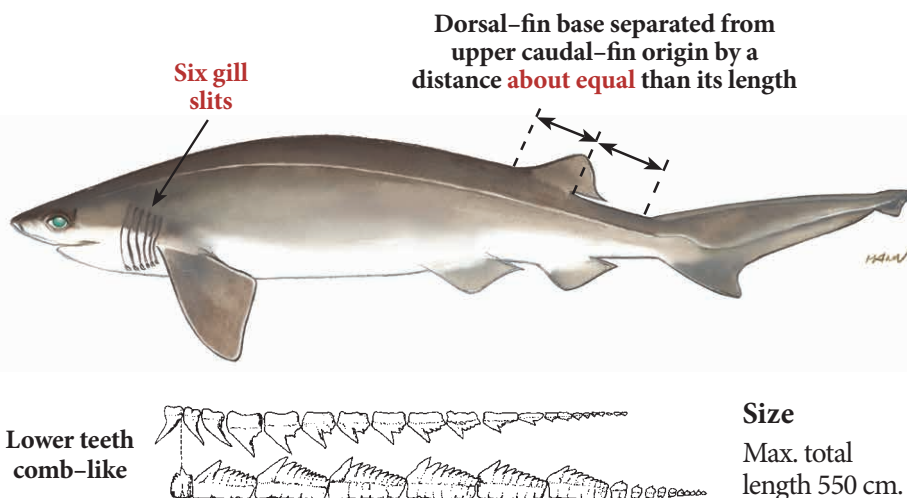
Bluntnose sixgill shark – Requin gris

Cañabota gris

SBL



Photo: © Oddgeir Alvheim, IMR



Depth range

100–2500 m

Distribution

In FAO Area 47 it is known to occur from Angola to South Africa. Also common around offshore seamounts and ridges including the Mid-Atlantic Ridge.

Size

Max. total length 550 cm.



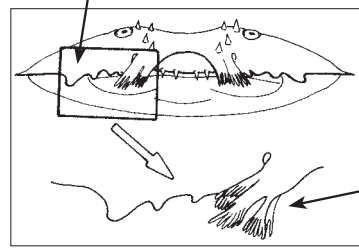
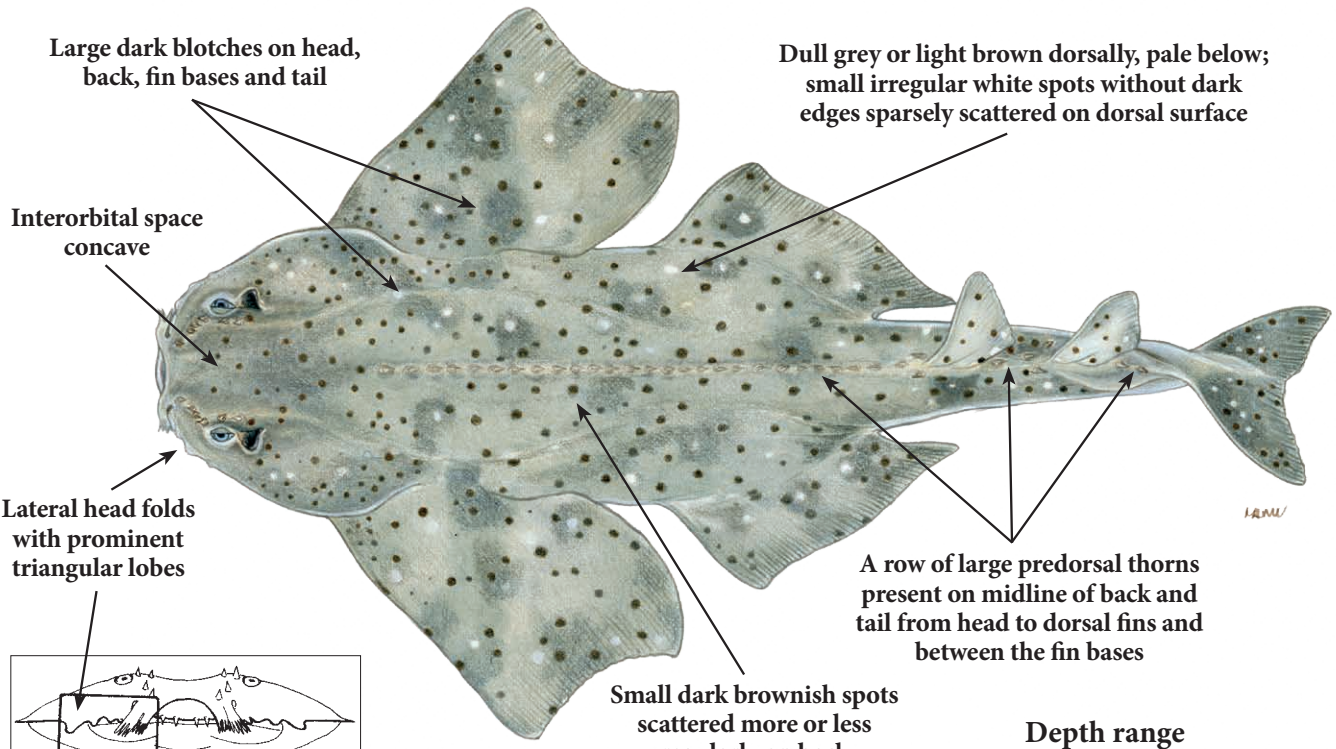
Squatina aculeata Cuvier, 1829

Sawback angelshark – Ange de mer épineux
Angelote espinudo

Engelhaai (Afr)
Peixe-anjo (Por)

SUA

Squatinae – Angel sharks
Squatiformes



Frontal view of head and detail of nostril

Nasal barbels fan-like, with expanded tips and strong lobate fringes

Small dark brownish spots scattered more or less regularly on back

Size
Max. total length 188 cm.



Depth range
30–500 m

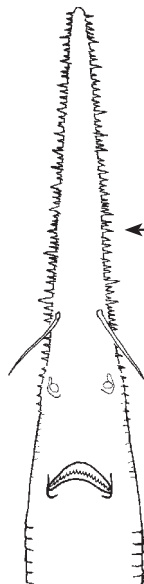
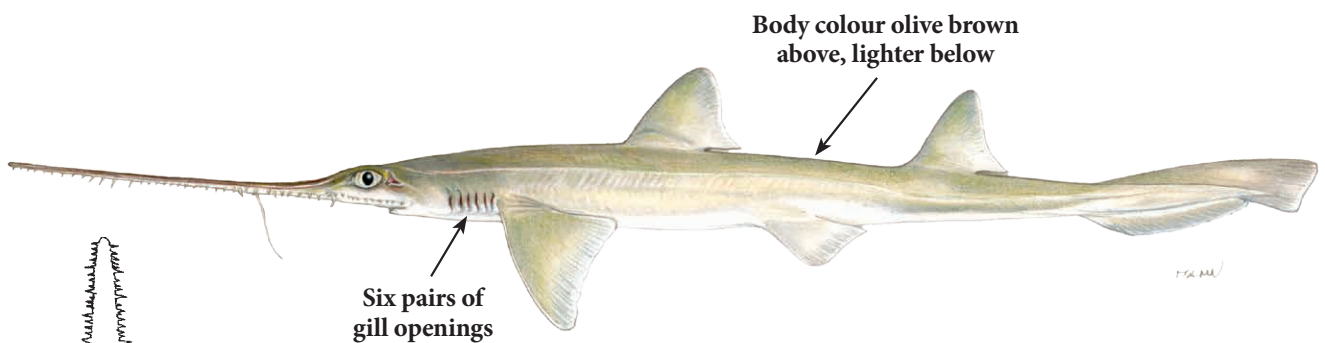
Distribution
In FAO Area 47 it is known to occur from Southern Angola to Namibia.

Pliotrema warreni Regan, 1906
Sixgill sawshark – Requin scie flutien
Tiburón sierra del Cabo

Mutsuera-nokogirizame (Jpn)
Seskief-saaghaai (Afr)

PPW

Pristiophoridae – Saw sharks
Pristiophoriformes



Underside of head

Large rostral teeth with posterior barbs



Photo: © Oddgeir Alvheim, IMR

Size
Max. total length at least 136 cm.



Depth range
37–500 m

Distribution
In FAO Area 47 it is known to occur from Table Bay to the south coast of KwaZulu-Natal, South Africa.

Mitsukurinidae – Goblin sharks

Mitsukurina owstoni Jordan, 1898
 Goblin shark – Requin lutin – Tiburón duende

Kabouterhaai (Afr)
 Teguzame (Jpn)

LMO

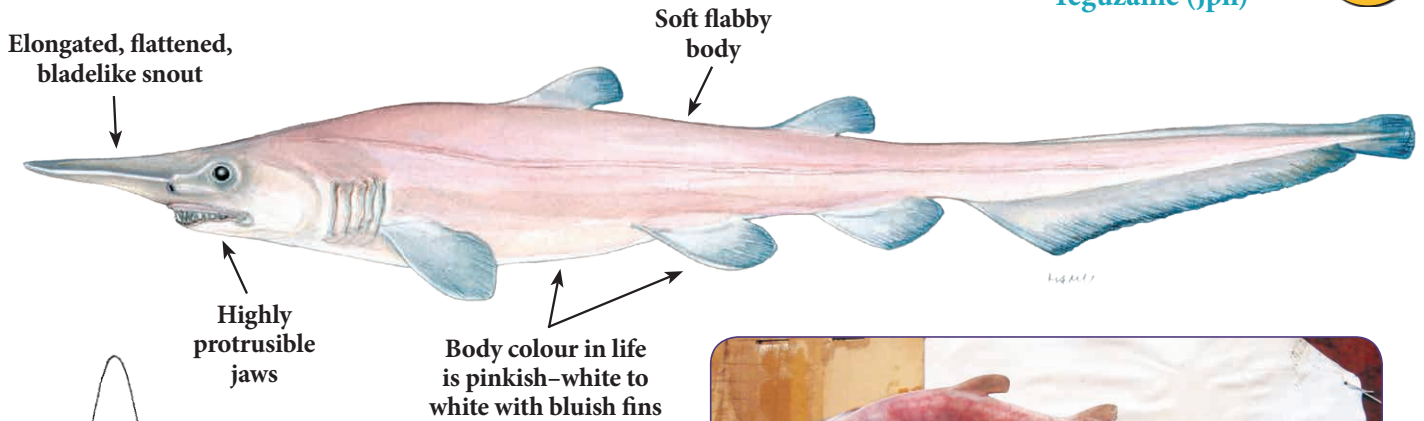
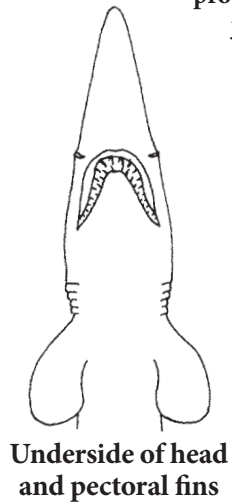
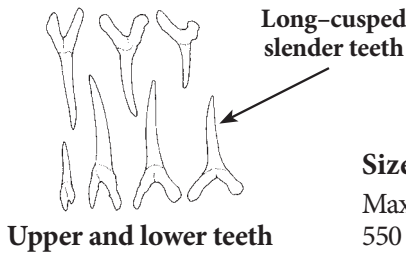


Photo: © Phil Gaugler



Underside of head and pectoral fins



Upper and lower teeth

Size
 Max. total length
 550 cm.



Depth range

100–1300 m

Distribution

In FAO Area 47 there is only a single confirmed record from west of Cape Town, South Africa (Western Cape).

Pseudocarchariidae – Crocodile sharks

Pseudocarcharias kamoharai (Matsubara, 1936)
 Crocodile shark – Requin crocodile – Tiburón cocodrilo

Krokodilhaai (Afr)
 Mizuwani (Jpn)
 강남상어 (Kor)

PSK

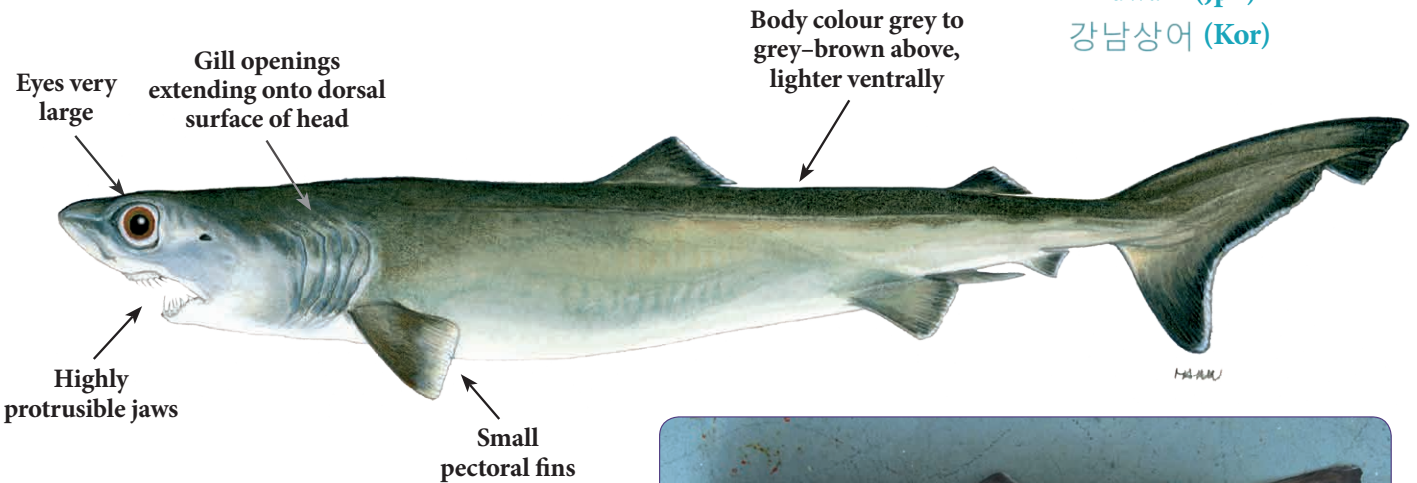
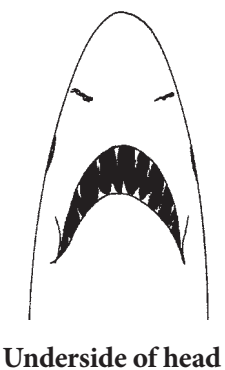
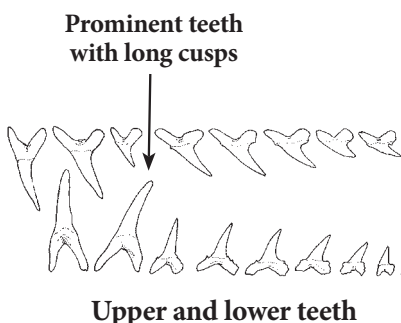


Photo: © Evgeny Romanov



Underside of head



Upper and lower teeth

Size
 Max. total length
 122 cm.



Depth range

0–590 m

Distribution

Oceanic in FAO Area 47, also reported inshore off Angola and South Africa (Western Cape).

Alopiidae – Thresher sharks

Alopias superciliosus Lowe, 1841

Bigeye thresher – Renard à gros yeux – Zorro ojón

Grootoog-sambokhaai (Afr)

Hachiware (Jpn)

큰눈한도상어 (Kor)

BTH

A distinct lateral groove above the eyes

Body colour purplish brown to violet above, light below

Caudal fin about same length as precaudal length

Eyes extending onto dorsal surface of head

Pectoral fin with curved anterior margin



Photo: © Ramon Bonfil

Dorsal view of head

Size

Max. total length 485 cm.



Depth range

0–723 m

Distribution

Oceanic in FAO Area 47, also coastal from off Angola with a few records from South Africa (Western Cape).

Cetorhinidae – Basking sharks

Cetorhinus maximus Lowe, 1841

Basking shark – Pèlerin – Peregrino

Koesterhaai (Afr)

Ubazame (Jpn)

BSK

Pointed snout

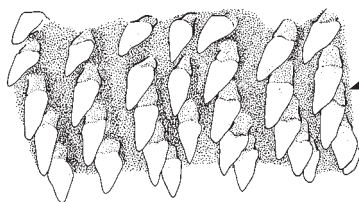
Caudal peduncle with strong lateral keels, and lunate caudal fin

Enormous gill slits that virtually encircle head

Teeth minute, with a single smooth-edged, hook-shaped cusp



Photo: © Fabrizio Serena



Upper teeth

Size

Max. total length 12 m.



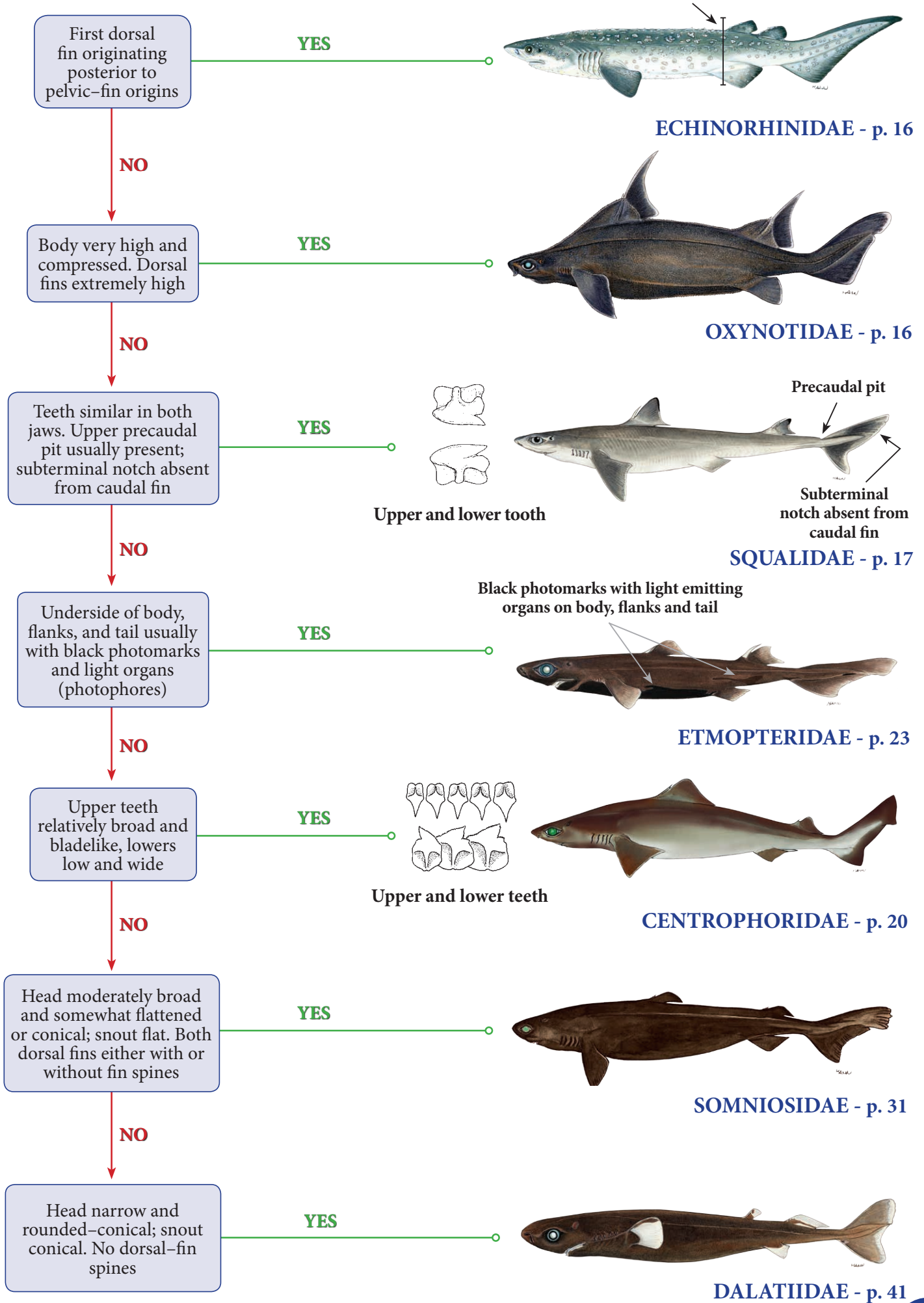
Depth range

0–1200 m

Distribution

Oceanic in FAO Area 47, also coastal from Namibia to South Africa (Northern and Western Cape) and likely Angola.

GUIDE TO THE FAMILIES OF SOUTHEASTERN ATLANTIC DEEP-SEA SQUALIFORMES



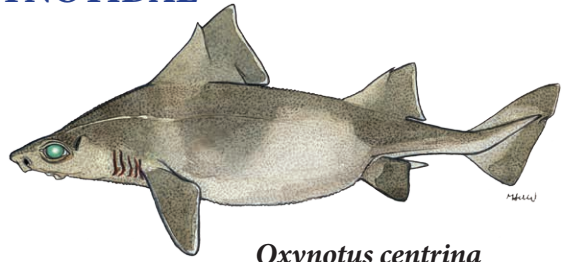
FAMILIES AND SPECIES OF SQUALIFORMES INCLUDED IN THE GUIDE

ECHINORHINIDAE



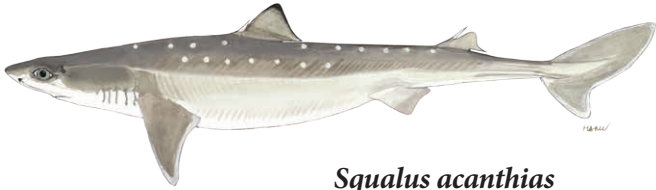
Echinorhinus brucus

OXYNOTIDAE



Oxynotus centrina

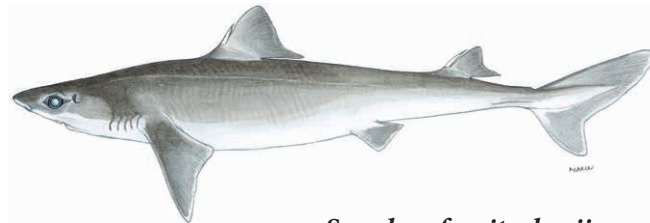
SQUALIDAE



Squalus acanthias



Squalus acutipinnis



Squalus cf. mitsukurii

CENTROPHORIDAE



Centrophorus granulosus



Centrophorus squamosus



Deania calcea

ETMOPTERIDAE



Centroscyllium fabricii



Etmopterus granulosus



Etmopterus pusillus



Etmopterus sculptus

FAMILIES AND SPECIES OF SQUALIFORMES INCLUDED IN THE GUIDE

SOMNIOSIDAE



Centroscygnus coelolepis



Centroscygnus owstonii



Centroselachus crepidater



Zameus squamulosus



Scymnodalatias albicauda



Somniosus antarcticus

DALATIIDAE



Euprotomicrus bispinatus



Heteroscymnoides marleyi



Isistius brasiliensis

Echinorhinidae – Bramble sharks

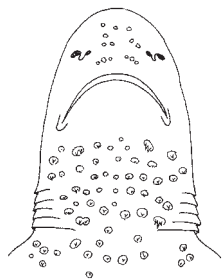
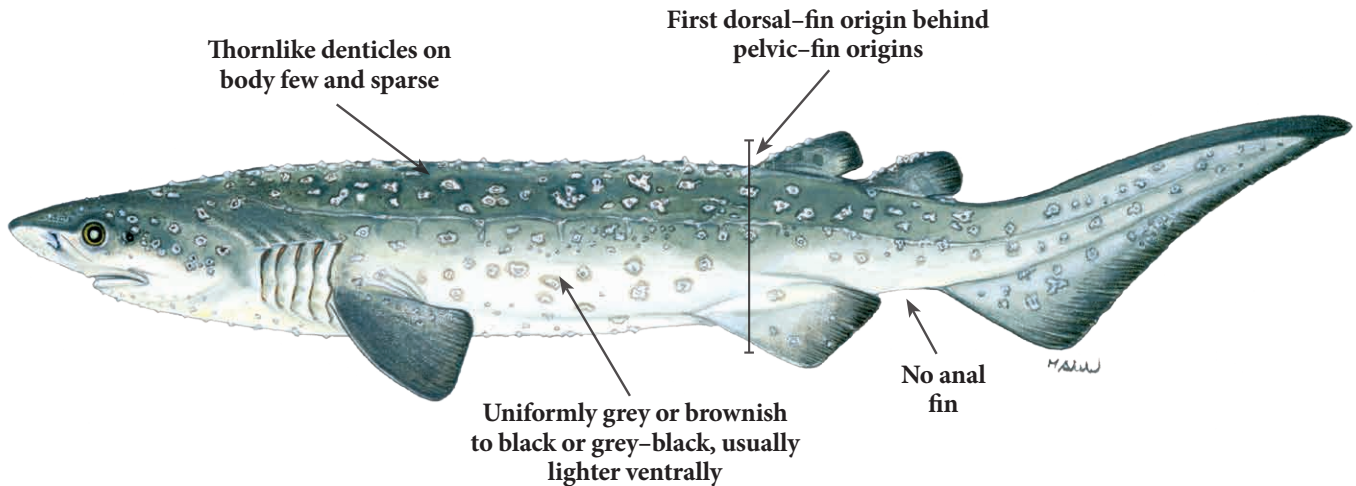
Echinorhinus brucus (Bonnaterre, 1788)

Bramble shark – Squale bouclé – Tiburón de clavos

Kikuzame (Jpn)

Braamhaai (Afr)

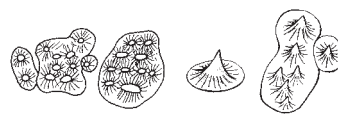
SHB



Underside of head

Juveniles (<90 cm) have close-set small denticles below snout and around mouth

Size
Max. total length about 326 cm.



Dermal denticles

Adults (>90 cm) with enlarged, conspicuous, not stellate denticles, some of which fused into plates with multiple cusps



Depth range
200–900 m

Distribution

In FAO Area 47 it is known to occur on the continental shelves and upper slopes from Southern Angola to the south coast of KwaZulu-Natal, South Africa.

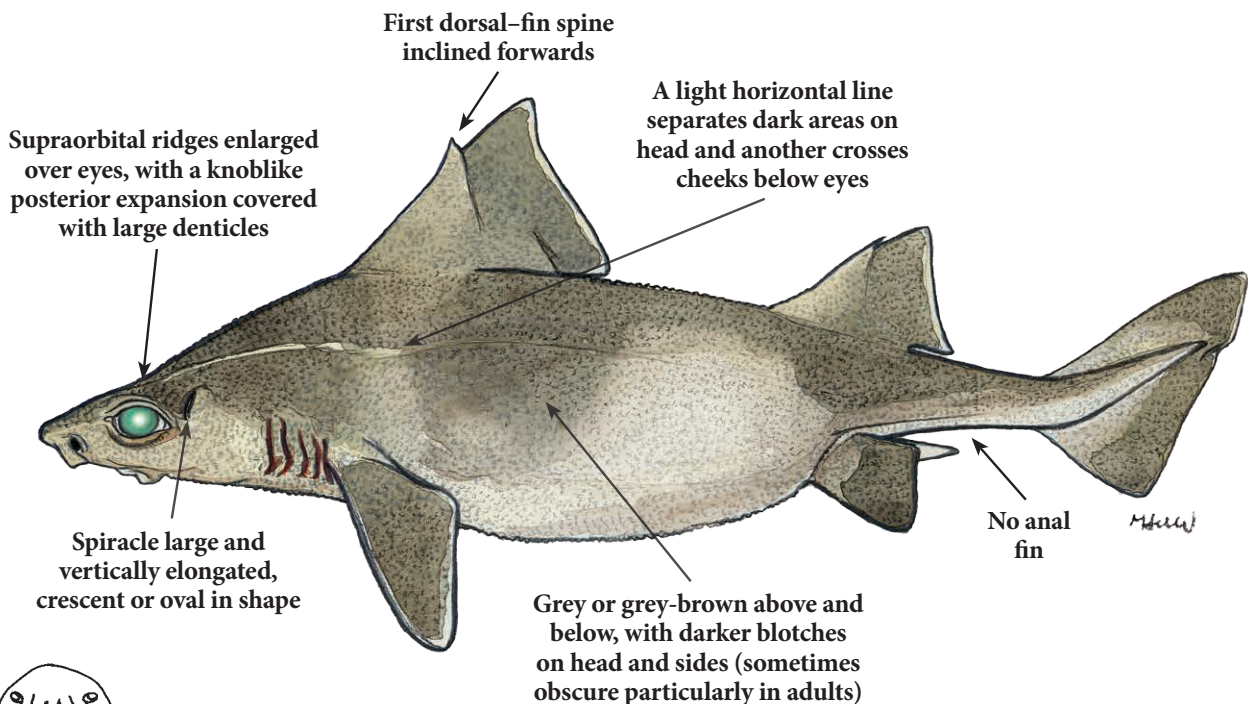
Oxynotidae – Rough sharks

Oxynotus centrina (Linnaeus, 1758)

Angular roughshark – Centrine commune – Cerdo marino

Stryksterhaai (Afr)

OXY



Underside of head

Size
Max. total length about 150 cm.



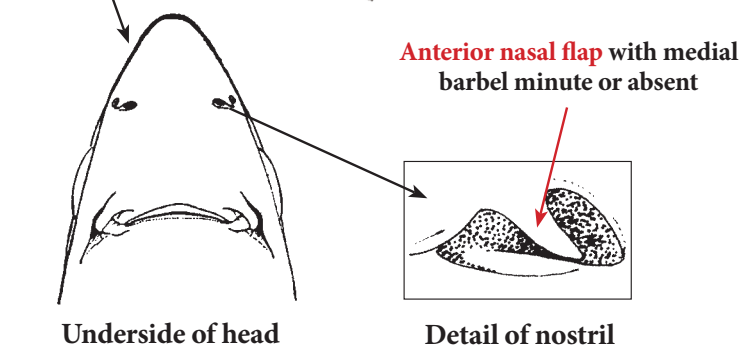
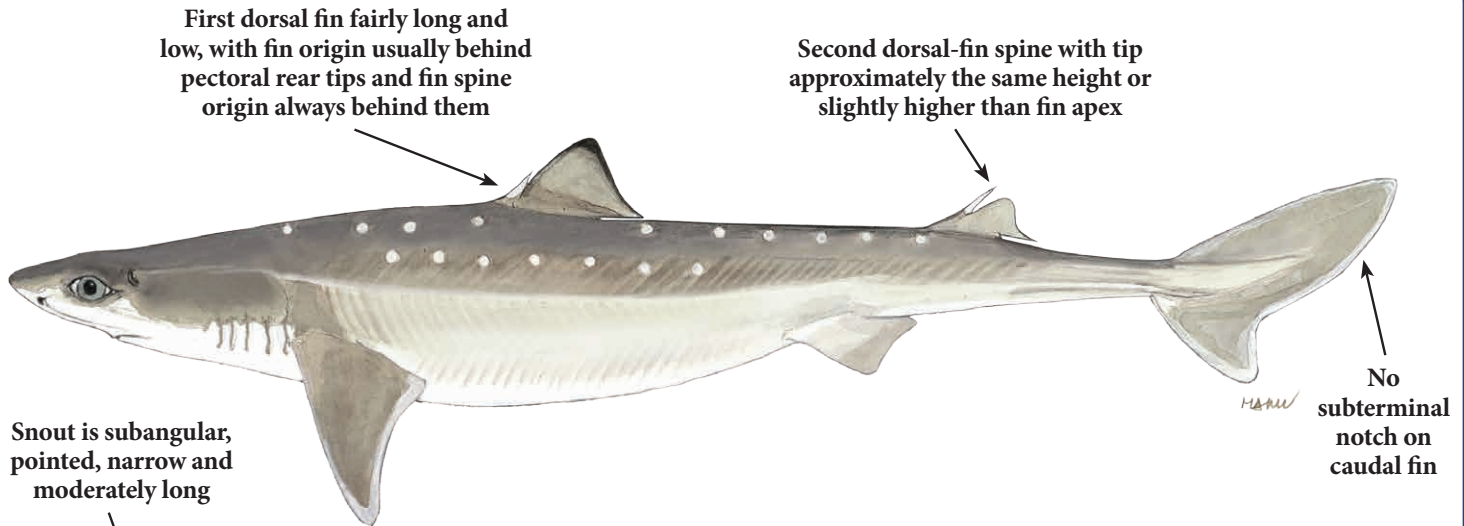
Depth range
50–780 m

Distribution

In FAO Area 47 it is known to occur on the continental shelves and upper slopes of Angola, Namibia and South Africa (Western Cape).

Squalus acanthias Linnaeus, 1758
Picked dogfish – Aiguillat commun – Mielga

Kop-sang- ò (Kor)
Doringhaai, Spikkel-penhaai (Afr)

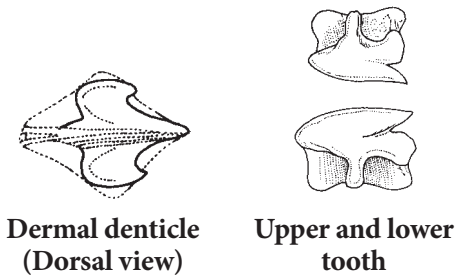


Colour

Grey or bluish grey above and lighter to white below. Sides of body usually with a conspicuous line of white spots or dashes (occasionally absent in large adults). Dorsal fins with dusky fin edges in adults, black in young.

Size

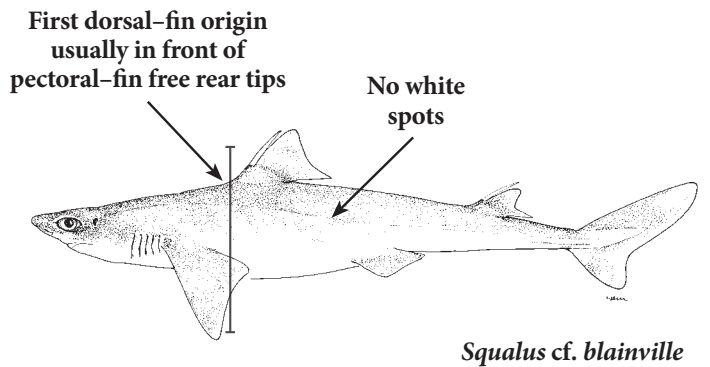
In the Southeastern Atlantic maximum total length is about 92.5 cm for females and 78.1 cm for males.



Similar species

All other *Squalus* species

Have the first dorsal fin more anteriorly situated on body, with **fin origin usually in front of pectoral-fin free rear tips**. Origin of **first dorsal-fin spine usually over inner margins of pectoral fins** and generally in front of their rear tips, varying from slightly behind to well ahead of free rear tips. Medial barbel well developed on anterior nasal flaps. **No white spots on sides of body.**



Bio-Ecology and Distribution of *Squalus acanthias*

In FAO Area 47 it is known to occur off the west coast of Namibia and South Africa, and possibly Southern Angola, but unconfirmed from this area. Contrary to its habitat preferences elsewhere, off the west coast of Southern Africa *Squalus acanthias* is an offshore species of the outer continental shelf and upper slope. Surveys conducted along the west coast of Southern Africa show this species to occur mostly between 125 and 515 m, a depth preference deeper than *S. acutipinnis*, but slightly shallower than *S. cf. mitsukurii*. These latter two species are far more common than *S. acanthias*.

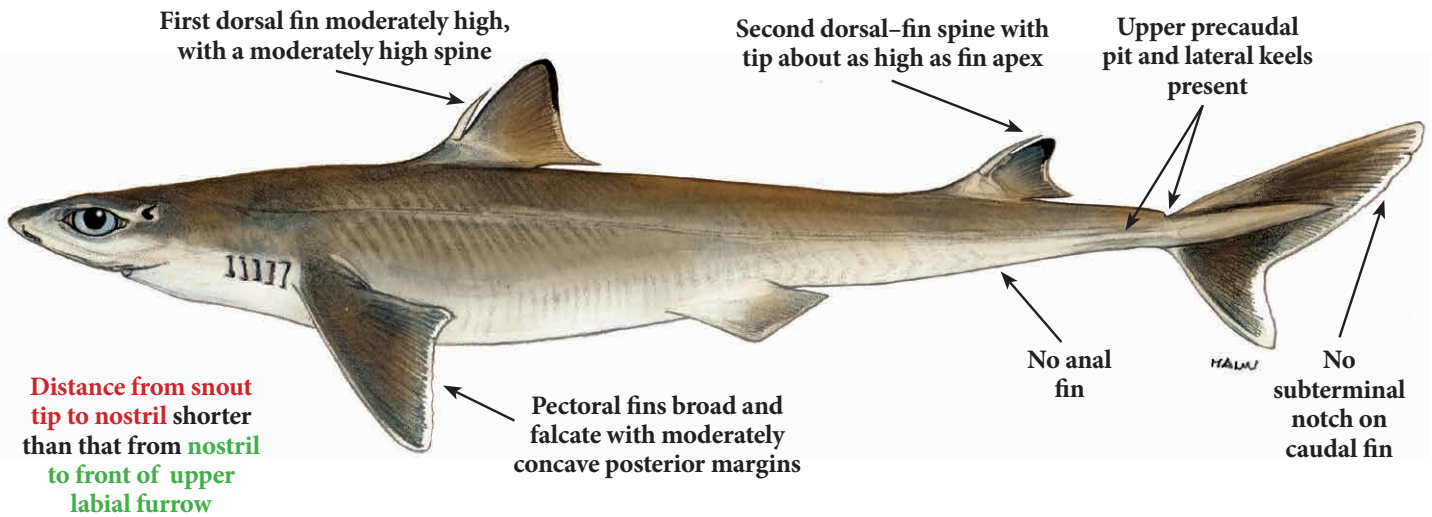
Squalus acutipinnis Regan, 1908

Bluntnose spiny dogfish

Tsumari-tsunozame (Jpn)

Stompneus-penhaai (Afr)

모조리상어 (Kor)



Colour

Light grey-brown to dark brown above, lighter below. Pectoral fins dusky above with light posterior margins. Dorsal fins with black tips and white posterior margins and rear tips often inconspicuous in adults. Caudal fin with light dorsal margin.

Size

Maximum total length for both sexes about 77 cm, though most are smaller than 65 cm.

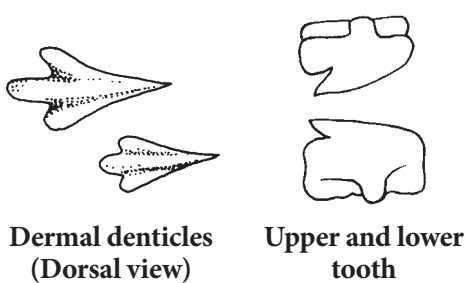
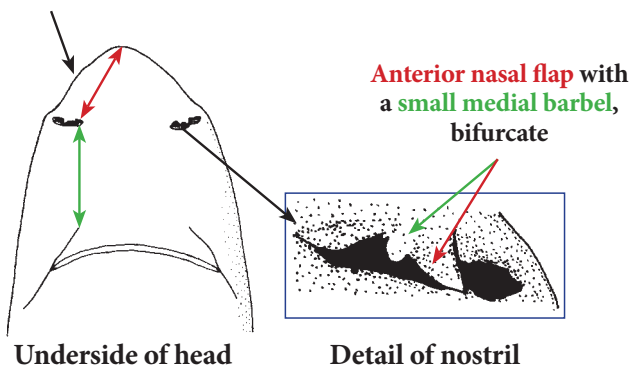
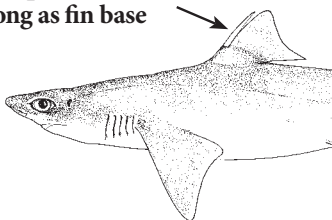


Photo: © Rob Leslie

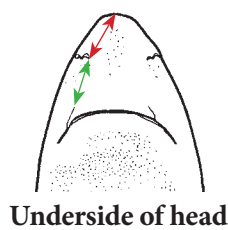
Similar species

Squalus cf. blainville

First dorsal fin high with spine about as long as fin base

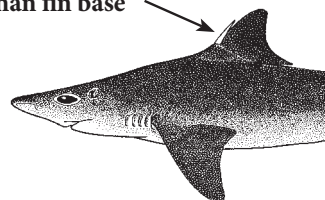


Nostril closer to upper labial furrow than snout tip

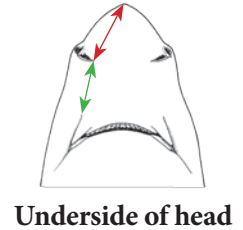


Squalus cf. mitsukurii

First dorsal fin lower with spine shorter than fin base



Nostril closer to upper labial furrow than snout tip



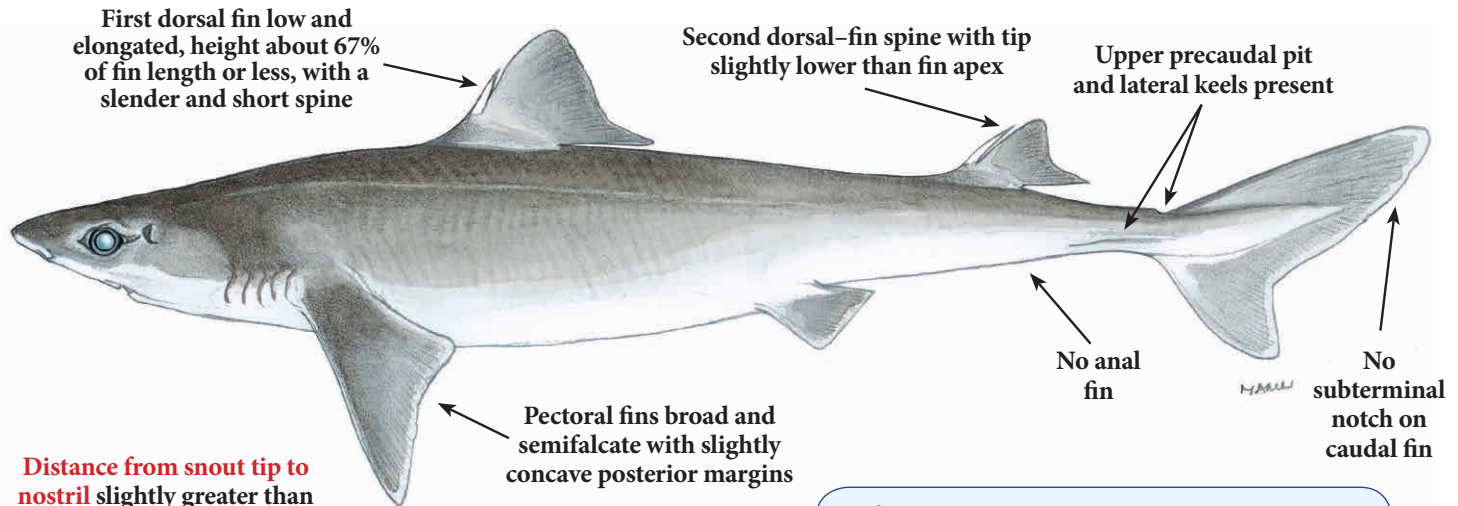
Bio-Ecology, Distribution and Remarks of *Squalus acutipinnis*

A common to abundant small dogfish of temperate and tropical seas, found on or near the bottom on the inner and outer continental shelves and upper slopes down to 732 m. In FAO Area 47 it is known to occur off Angola, Namibia and South Africa (Western and Northern Cape). *Squalus acutipinnis* was formerly considered a synonym of *S. megalops*, a species known to occur in Australia. Recently, significant differences between the Australian and South African populations were found. Therefore, the southern African dogfishes previously referred to as *S. megalops* or *S. cf. megalops* should in fact be referred to as *S. acutipinnis* Regan, 1908.

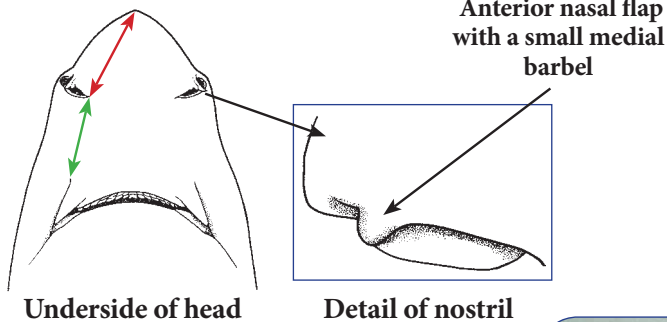
Squalus cf. mitsukurii Jordan & Snyder, 1903

Shortspine spurdog – Aiguillat épinette
Galludo espinilla

Futo-tsunozame (Jpn)
Langneus-penhaai (Afr)
돔발상어 (Kor)



Distance from snout tip to nostril slightly greater than that from nostril to front of upper labial furrow



Colour

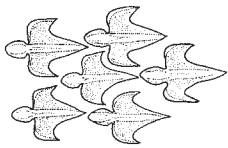
Grey or grey-brown above, white or lighter grey below. Pectoral fins dusky above with white tips and posterior margins. Caudal fin with a dusky web and lighter base and often a dark patch (black in young) at subcaudal notch.

Size

Maximum total length about 125 cm.



Dermal denticles (Dorsal view)



Upper and lower tooth

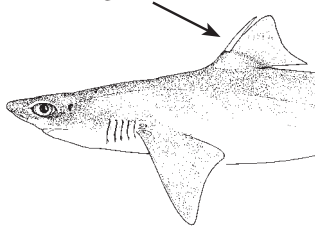


Photo: © Oddgeir Alvheim, IMR

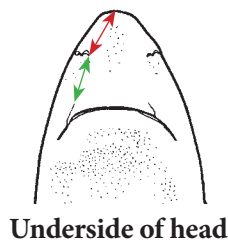
Similar species

Squalus cf. blainville

First dorsal fin high and erect, about 75% of fin length, with first dorsal-fin spine about as long as fin base

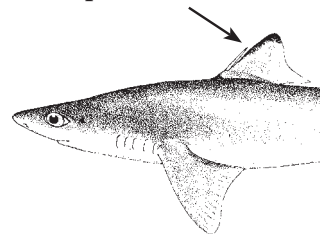


Nostril closer to upper labial furrow than snout tip

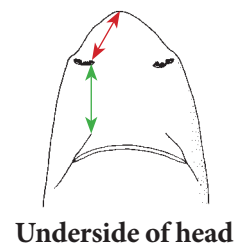


Squalus acutipinnis

First dorsal fin moderately high, with a spine shorter than fin base



Nostrils closer to snout tip than upper labial furrow



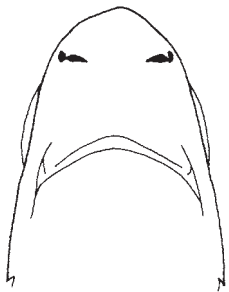
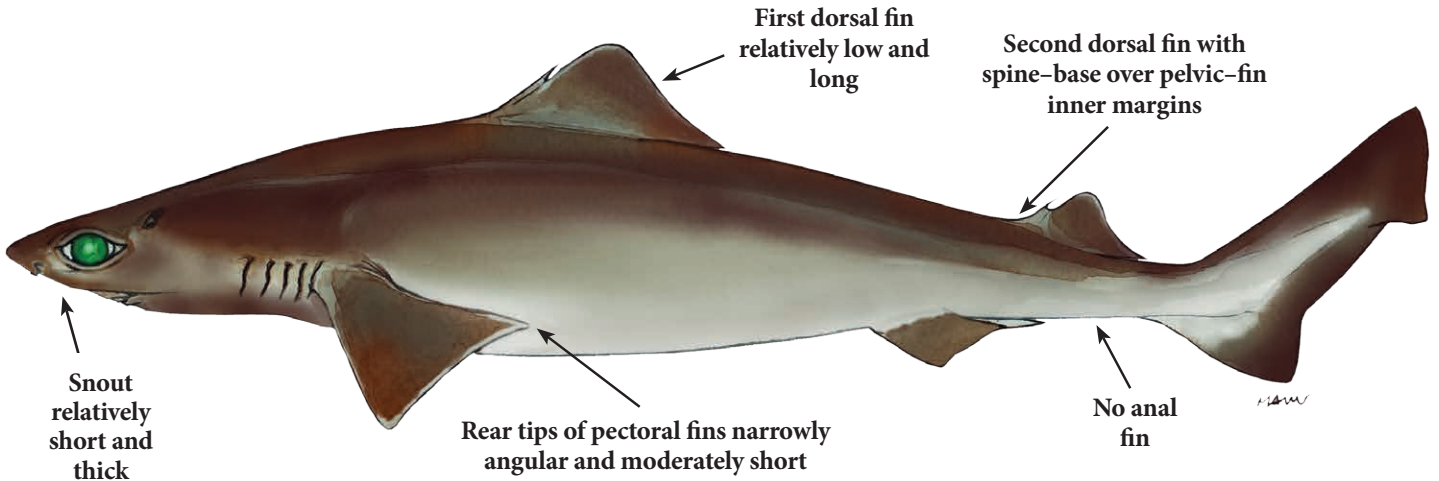
Bio-Ecology and Remarks of *Squalus cf. mitsukurii*

Distribution only approximately known because of erroneous identifications with similar looking species. Common to abundant where it occurs, often found in large aggregations or schools on the bottom on the continental and insular shelves, upper slopes, submarine ridges and seamounts at depths of 4 to 954 m, mostly between 100 and 500 m. In FAO Area 47 it is known to occur off Namibia and South Africa (Northern and Western Cape). The taxonomic status of *Squalus cf. mitsukurii* is currently under investigation.

Centrophorus granulosus (Bloch & Schneider, 1801)

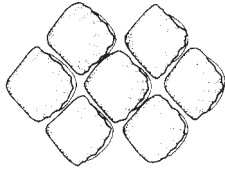
Gulper shark – Squale-chagrin commun
Quelvacho

Uroko-aizame (Jpn)
Cação (Por)



Underside of head

Dermal denticles low and rhomboidal



Dermal denticles (Dorsal view)

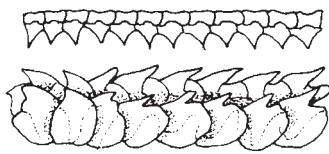
Note: Be aware that young specimens of the gulper shark (size less than 80 cm) present lateral trunk denticles similar to those of *C. squamosus*

Colour

Body dark grey or grey-brown above, lighter below, with dusky fin webs but no prominent blackish fin markings.

Size

Maximum total length about 166 cm.



Upper and lower teeth



Photo: © Paul Clerkin

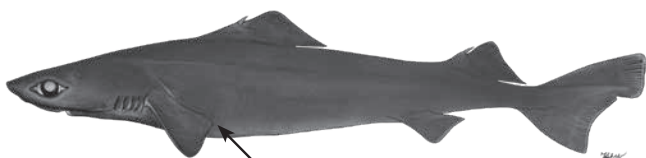
Similar species

Centrophorus squamosus

Leaf-shaped denticles on elevated narrow to broad pedicels extending above the denticle bases



Dermal denticles (Dorsal and lateral view)

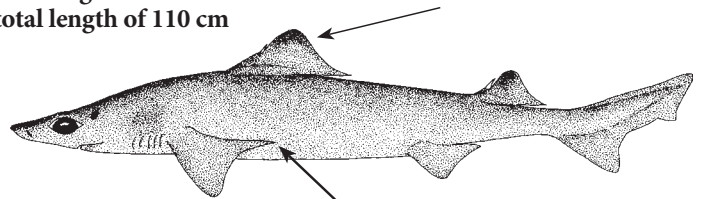


Rear tips of pectoral fins hardly angular and slightly elongated

Centrophorus cf. uyato

A smaller *Centrophorus* attaining a maximum total length of 110 cm

First dorsal-fin relatively short and more triangular in shape



Rear tips of pectoral fins moderately long

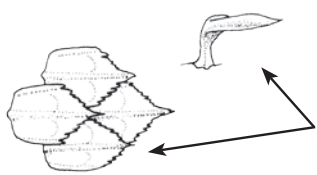
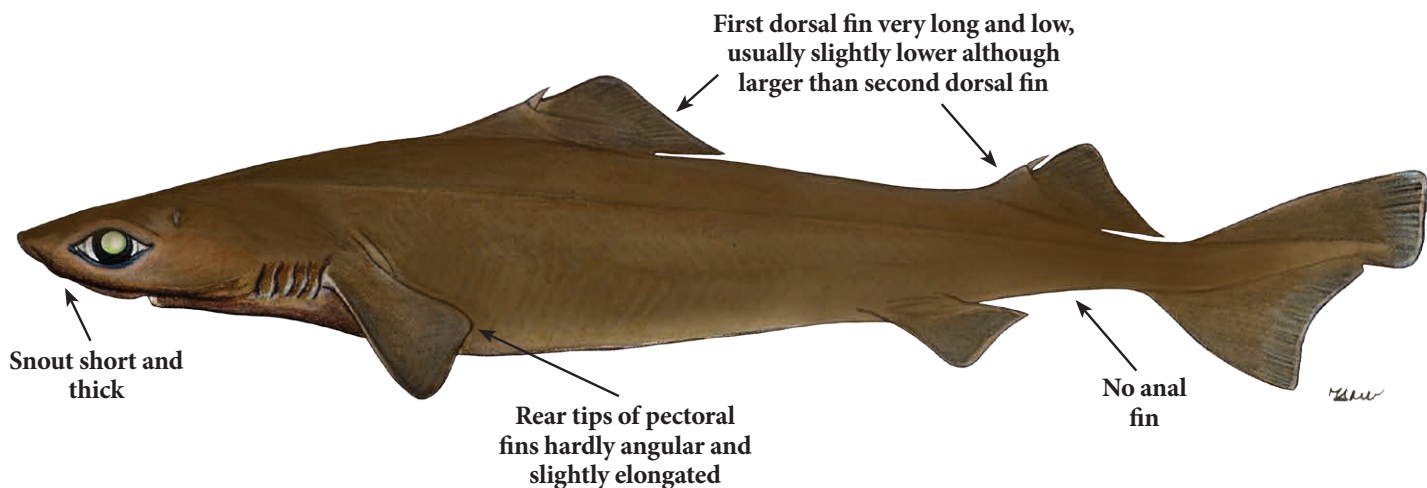
Bio-Ecology and Distribution of *Centrophorus granulosus*

A deepwater dogfish of the outer continental shelves and upper slopes, usually on or near the bottom at depths from 50 to 1440 m, but most records between 200 to 600 m. In FAO Area 47 it is known to occur off Angola, Namibia and the west coast of South Africa (Northern Cape).

Centrophorus squamosus (Bonnaterre, 1788)

Leafscale gulper shark – *Squale-chagrin de l'Atlantique*
Quelvacho negro

Gryns-hondhaai (Afr)
Momiji-zame (Jpn)



Dermal denticles
(Dorsal and lateral view)

High, rough, leaf-shaped
tricuspidate or multicuspidate
lateral trunk denticles

Colour

Uniform dark grey, medium to light greyish brown, or brown above and below; underside may be slightly lighter although not conspicuously so.

Size

Maximum total length about 164 cm.



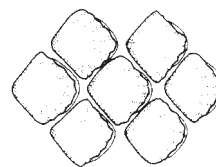
Photo: © Paul Clerkin



Photo: © Oddgeir Alvheim, IMR

Similar species

All other *Centrophorus* species can be distinguished from *Centrophorus squamosus* by the fact that they have lateral trunk denticles with flat sessile crowns on the denticle bases, without separate pedicels, and crowns usually with or sometimes without a posterior medial cusp but no lateral cusps.



Dermal denticles
(Dorsal view)



Dermal denticle
(Lateral view)

Bio-Ecology and Distribution of *Centrophorus squamosus*

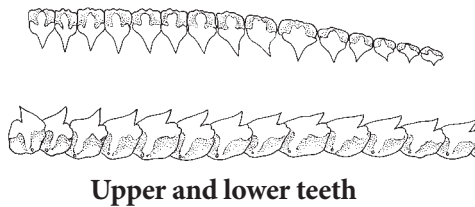
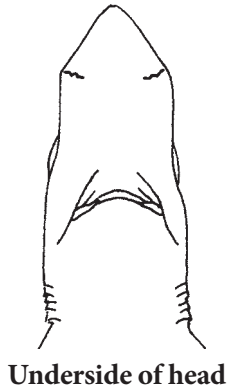
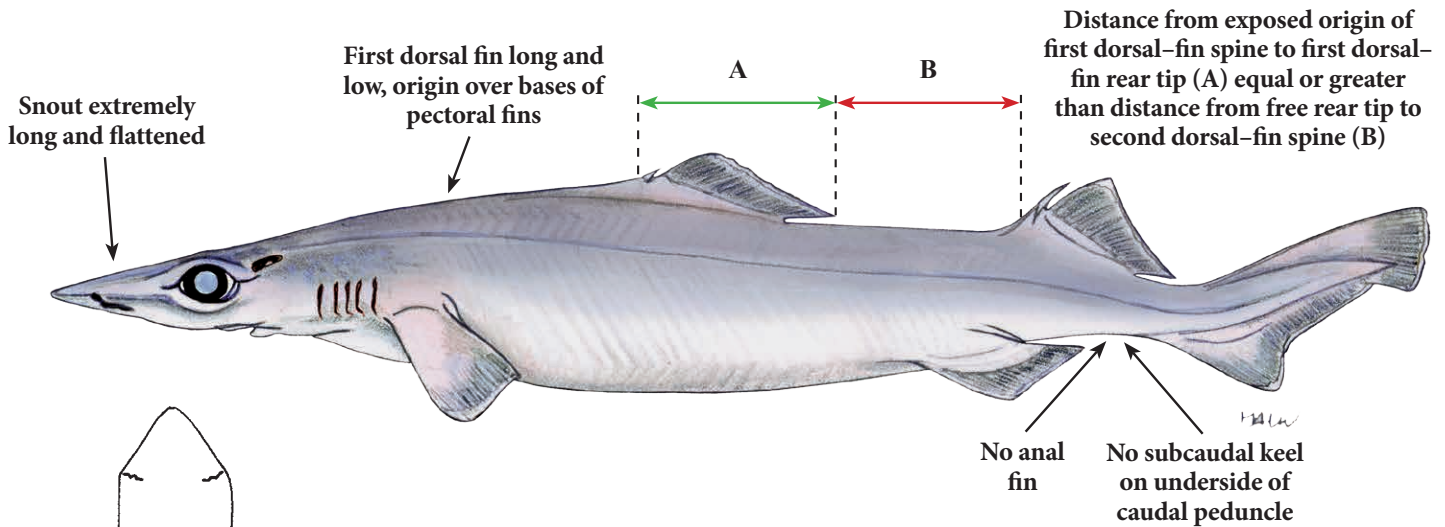
A common species in some localities where it occurs. Viviparous with a yolk-sac, with litters of four to eight or possibly nine young. In FAO Area 47 it is known to occur off Namibia, South Africa (Western and Northern Cape) and likely Angola, on the continental slopes from 229 to 2359 m deep, but off the coast of Namibia and west and south coast of South Africa it occurs in water 370 to 809 m deep, with most records between 400 and 660 m deep.

Deania calcea (Lowe, 1839)

Birdbeak dogfish – Squale savate – Tollo pajarito

Hera-tsunozame (Jpn)

DCA

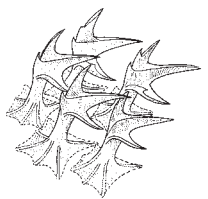


Colour

Varying from uniform light or dark grey or grey-brown above and below to dark brown; fins darker, fin webs dusky to blackish.

Size

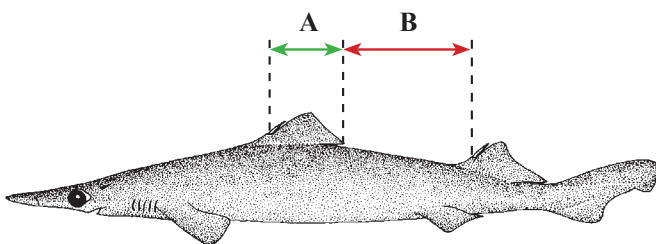
Maximum total length about 122 cm.



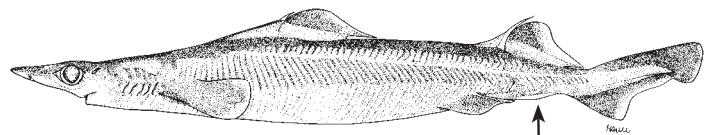
Similar species

Deania quadrispinosa

First dorsal fin rather high, angular, and short; distance from its spine origin to free rear tip (A) about one-half to two-thirds of distance from free rear tip to origin of second dorsal-fin spine (B)



Deania profundorum



A subcaudal keel on the lower surface of the caudal peduncle

Bio-Ecology and Distribution of *Deania calcea*

A common deepwater dogfish of the outer continental and insular shelves and upper, middle, and lower slopes from 60 to 1490 m depth, on or near the bottom or well above it.

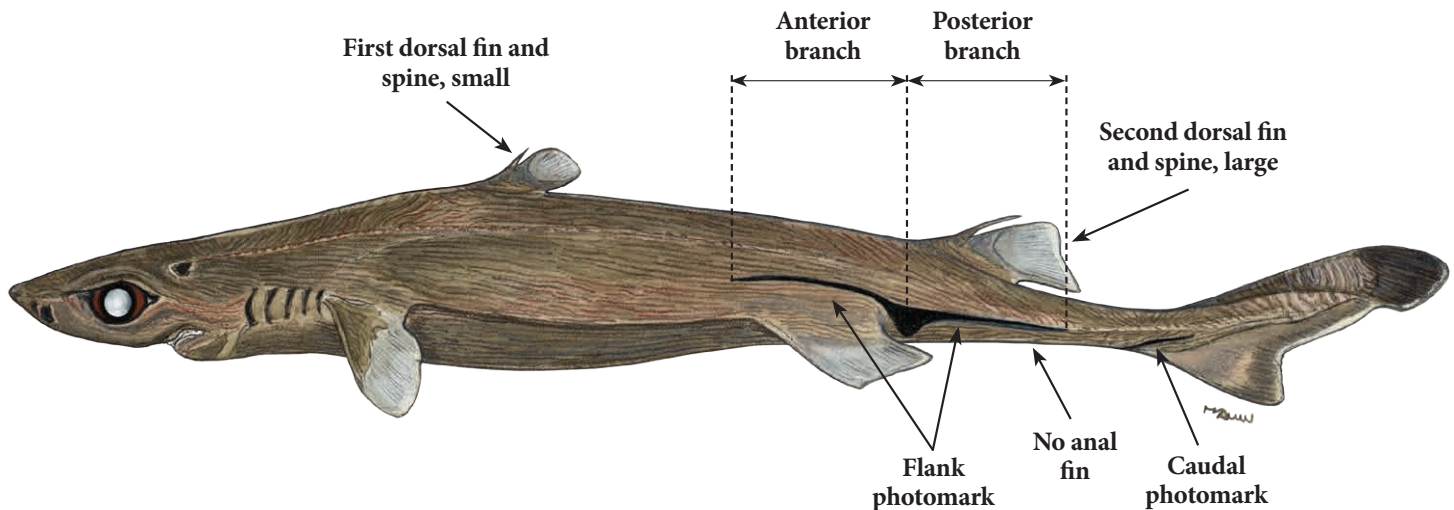
In FAO Area 47 it is known to occur from off Namibia to the south coast of KwaZulu-Natal, South Africa, at 275 to at least 1014 m with most records between 400 and 899 m.

Etmopteridae – Lantern sharks

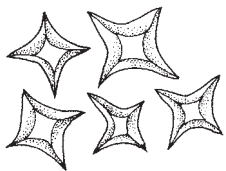
Two genera of lanternsharks, *Etmopterus* and *Centroscyllium*, are present in the Southeastern Atlantic Ocean.

It is an *Etmopterus* if:

- It does not have an anal fin
- Upper and lower teeth are not similar
- Second dorsal fin and fin-spine are larger than the first dorsal fin and fin-spine
- Usually underside of body, flanks, and tail with more or less conspicuous black photomarks with light organs



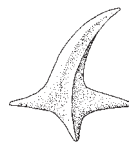
Types of Denticles



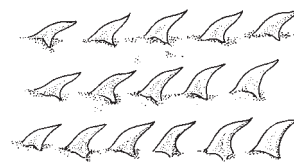
Flat
(make the skin feel smooth)



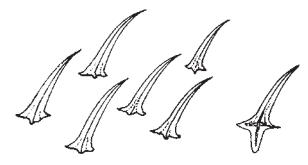
Pointed
(make the skin feel rough)



Stout

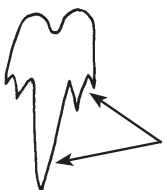


In longitudinal lines



Randomly arranged

Teeth



Upper teeth with a slender cusp and one or more pairs of cusplets

Upper tooth

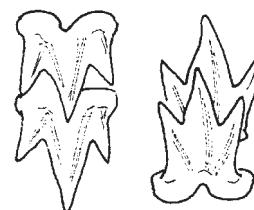


Lower teeth compressed and knife-like

Lower tooth

Note: Because the teeth in the lower jaw have oblique cusps pointing away from the midline, things (e.g. finger) slide easily towards side of mouth, but not towards middle of mouth.

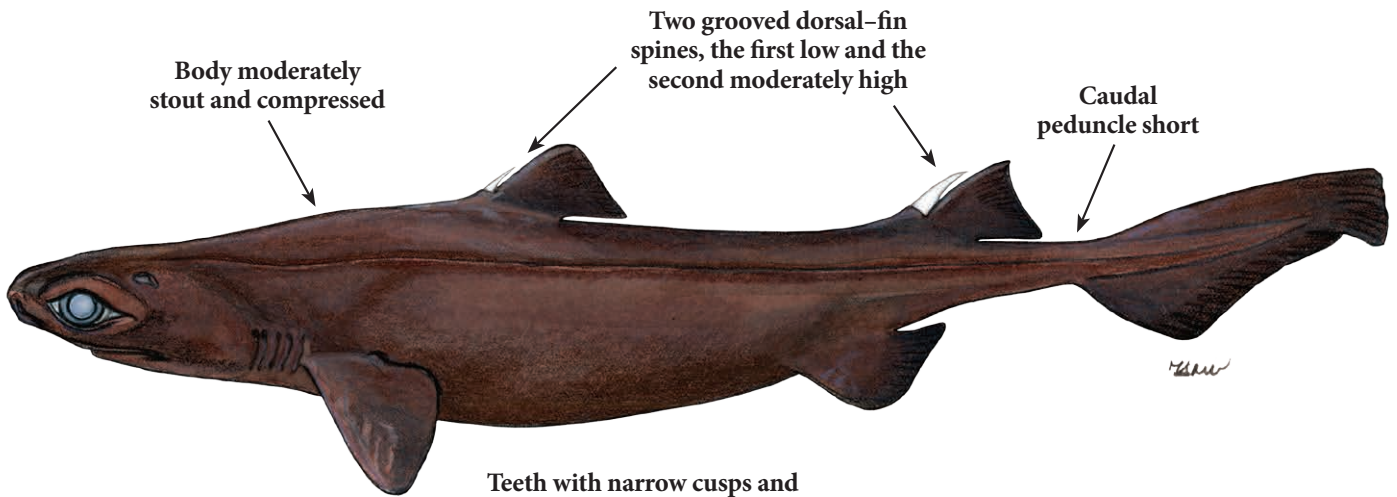
The genus *Centroscyllium* can be distinguished from *Etmopterus* by looking at the upper and lower teeth which are similar shaped in the upper and lower jaws.



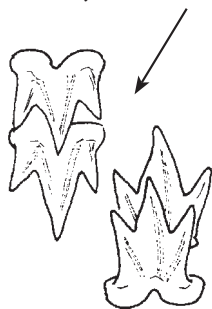
Centroscyllium spp.
Upper and lower teeth

Centroscyllium fabricii (Reinhardt, 1825)

Black dogfish – Aiguillat noir – Tollo negro merga



Teeth with narrow cusps and cusplets in both upper and lower jaws, similar in both jaws



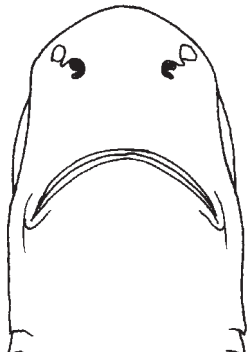
Upper and lower teeth

Colour

Blackish brown above and below, without conspicuous black photomarks on ventral surface or sides of tail; fins without white markings.

Size

Maximum total length about 84 cm in the Southeastern Atlantic.



Underside of head

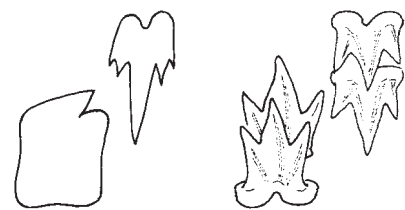


Photo © Rob Leslie

Similar species

Etmopterus species

Centroscyllium is most similar to the species belonging to the genus *Etmopterus*, but can be distinguished by its teeth being similar shaped in the upper and lower jaws, while the teeth in the *Etmopterus* species are dissimilar in the upper and lower jaws.



Etmopterus spp. *Centroscyllium* spp.

Upper and lower teeth

Bio-Ecology, Distribution and Fisheries of *Centroscyllium fabricii*

An abundant deepwater schooling shark of the outermost continental shelves and slopes at depths ranging from 180 to 2250 m, but mostly below 275 m. Off the west coast of Southern Africa it is most common below 700 m to at least 1016 m and is one of the most commonly encountered deep-sea sharks recorded in surveys.

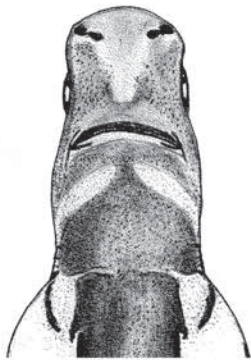
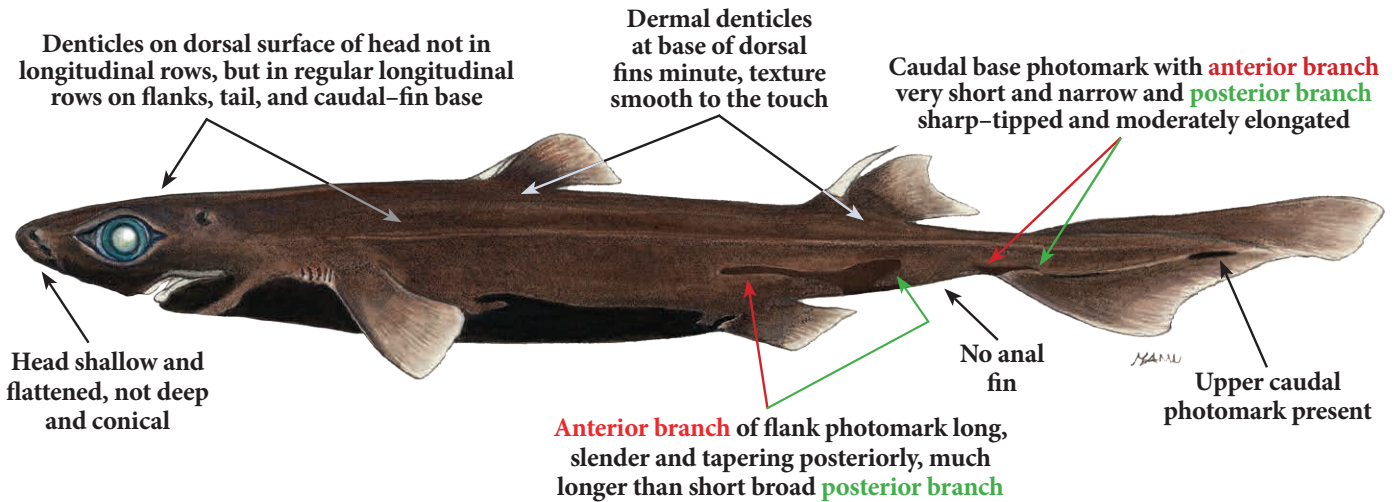
In FAO Area 47 it is known to occur off the west coast of Southern Africa from Quoin Point, South Africa, to at least the Cunene River, Angola. The species is commonly taken by bottom trawls, but is a discarded bycatch in Southern Africa.

Etmopterus granulosus (Günther, 1880)

Southern lanternshark (Lucifer) – Sagre long nez
Tollo negro narigón

Toge-nise-karasuzame (Jpn)

ETM



Underside of head

Note: The region above pelvic fin, below anterior branch of flank marking is naked (no dermal denticles). Trawl-caught specimens usually have scuff marks – white patches where the skin has rubbed off.

Colour

Grey-brown on dorsal surface, underside of snout, branchial region and abdomen abruptly black.

Size

Maximum total length about 88 cm.



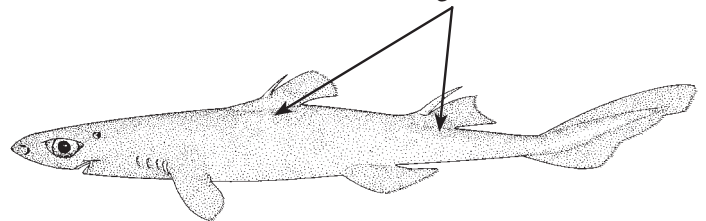
Photo: © Paul Clerkin

Similar species

Etmopterus polli shares with *Etmopterus granulosus* the following characteristic: the denticles on **dorsal surface of head are not in longitudinal rows**, but are in regular longitudinal rows on tail, caudal-fin base and/or flanks.

Etmopterus polli

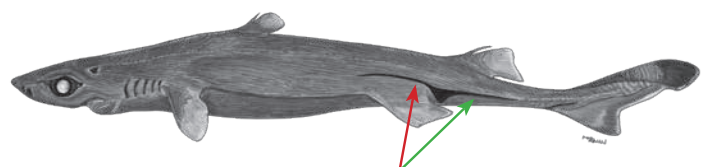
Dermal denticles at base of dorsal fins bristle-like, texture rough to the touch



A very small *Etmopterus* species with a maximum total length of 24 cm

Etmopterus sculptus

Etmopterus sculptus can be distinguished from *Etmopterus granulosus* by the fact that it has the denticles on **dorsal surface of head arranged in linear rows**, which extend to the flanks, caudal peduncle and caudal-fin base.



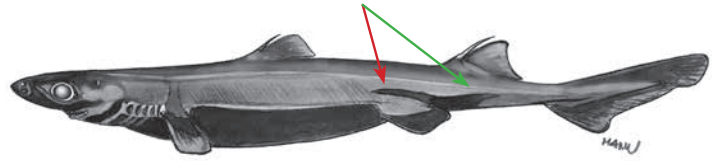
Lateral flank photomark with **anterior branch** about equal to or slightly longer than **posterior branch**

Other similar species

The following species can be distinguished from *Etmopterus granulosus* by the fact that they have the denticles on both dorsal surface of head and on sides of body randomly arranged, e.g. not in regular longitudinal lines.

Etmopterus spinax

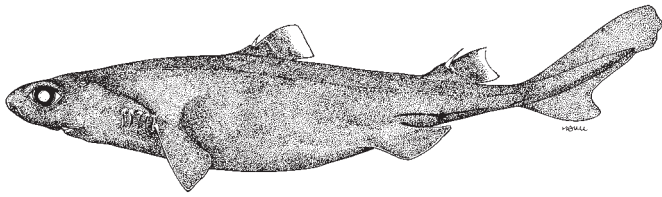
Lateral flank photomark, inconspicuous, not thin, **anterior branch** extends anteriorly over pelvic fins, **posterior branch**, short, truncated not extending to past second dorsal-fin base



Dorsal back of body trunk brown abruptly transitioning to black below

Etmopterus viator

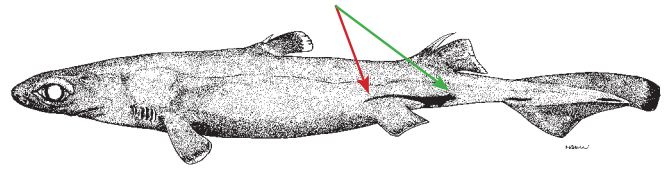
Dermal denticles not dense or bristle-like



Coloration a uniform dark brown to brownish-black above and below without a rather abrupt transition from dorsal to ventral surface

Etmopterus compagnoi

Lateral flank photomark, inconspicuous, broad or thin, **anterior branch** extends over or slightly beyond pelvic-fin base and **posterior branch** to past second dorsal-fin base



Coloration brown above becoming dark to blackish below with a rather abrupt transition

Bio-Ecology, Distribution and Fisheries of *Etmopterus granulosus*

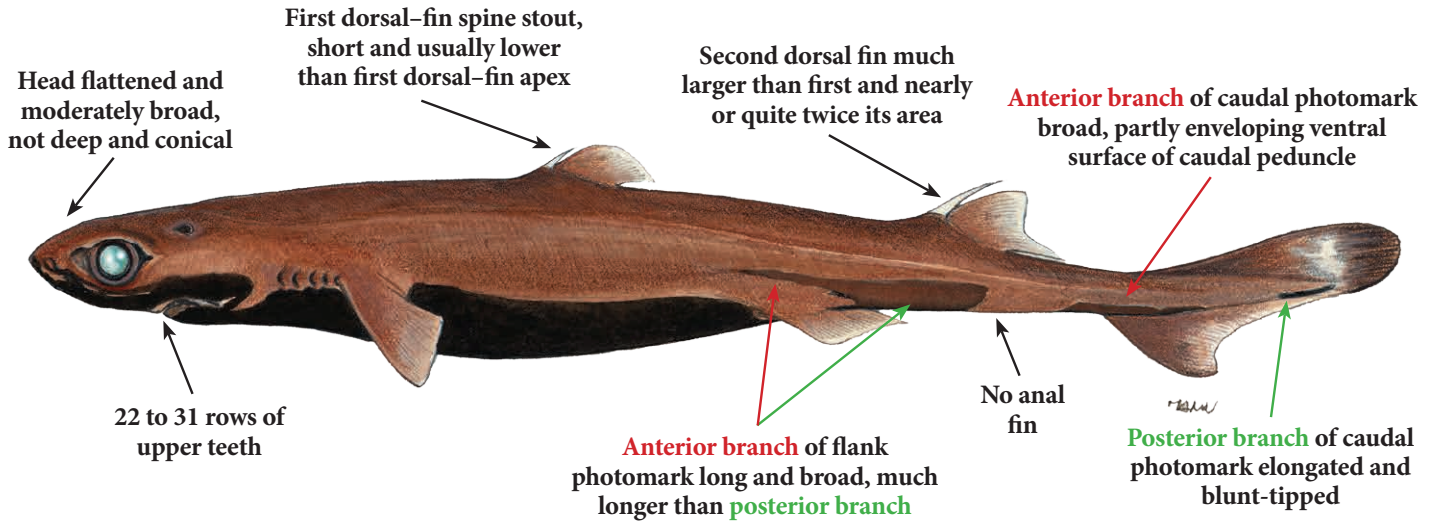
A large lanternshark from the upper continental and insular slopes, found on or near the bottom at depths of about 220 to 1500 m, commoner below 600 m, recorded at 383 to 1300 m off South Africa. In FAO Area 47 it is known to occur off South Africa, from Orange River to the Eastern Cape Province, and Namibia, and also possibly off Inaccessible Island, Tristan da Cunha Island group. Also recorded from a number of offshore seamounts and banks of the Southeastern Atlantic Ocean.

Interest to fisheries none at present, although taken as an incidental bycatch of trawl fisheries for the Deep-water Cape hake (*Merluccius paradoxus*) fisheries off the west coast of South Africa, and probably caught in deep water trawl fisheries for Orange roughy (*Hoplostethus atlanticus*). This species is discarded from bottom trawl catches off South Africa.

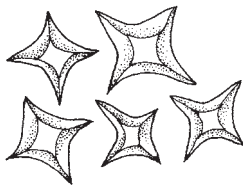
Etmopterus pusillus (Lowe, 1839)

Smooth lanternshark – Sagre nain
Tollo lucero liso

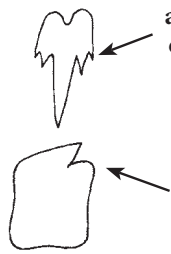
Karasuzame (Jpn)



Lateral trunk denticles cusplous, truncated and wide-spaced, giving the body a smooth texture



Dermal denticles (Dorsal view)



Upper and lower tooth

Upper teeth with a slender cusp and one or more pairs of cusplets

Lower teeth compressed and blade-like

Colour

Pale or dark brown to blackish on dorsal surface, underside of snout and abdomen abruptly black. Precaudal fins light distally.

Size

Size moderate with adults to about 48 cm total length.



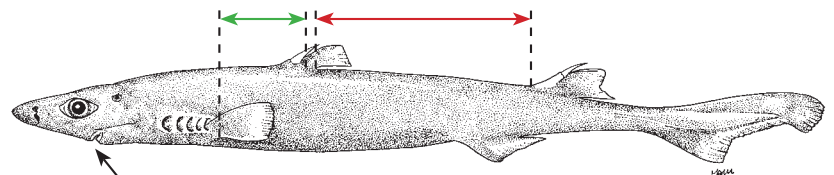
Photos: © Dave Ebert

Similar species

Etmopterus bigelowi

Etmopterus bigelowi has in common with *E. pusillus* the smooth skin due to denticles with low, flat, concave, sessile crowns atop low bases.

First dorsal fin more anterior, distance from pectoral-fin insertion to first dorsal-fin base three or more times in interdorsal space



19 to 24 rows of upper teeth

Maximum total length at least 67 cm



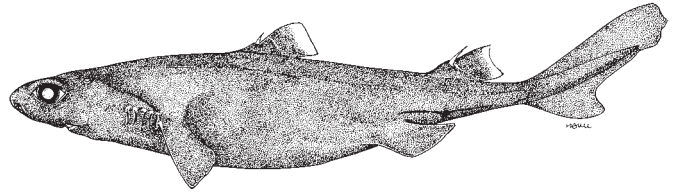
Photo: © NOAA

Other similar species

The following species can be distinguished from *Etmopterus pusillus* by the fact that their skin has a fuzzy or rough texture due to denticles with erect, thorn-like, cuspidate crowns, more or less elevated from their bases. Moreover, the denticles on both dorsal surface of head and on sides of body are randomly arranged, and not in regular longitudinal lines.

Etmopterus viator

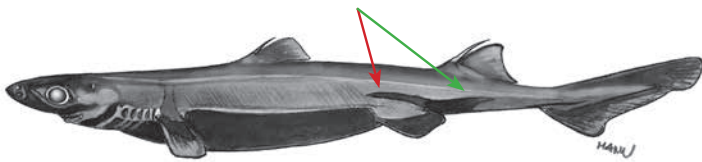
Dermal denticles not dense or bristle-like



Coloration a uniform dark brown to brownish black above and below, without a rather abrupt transition from dorsal to ventral surface

Etmopterus spinax

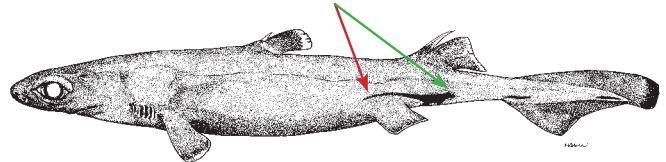
Lateral flank photomark, inconspicuous, not thin, **anterior branch** extends anteriorly over pelvic fin, **posterior branch**, short, truncated not extending to past second dorsal-fin base



Dorsal back of body trunk brown abruptly transitioning to black below

Etmopterus compagnoi

Lateral flank photomark, inconspicuous, broad or thin, **anterior branch** extends over or slightly beyond pelvic-fin base and **posterior branch** to past second dorsal-fin base



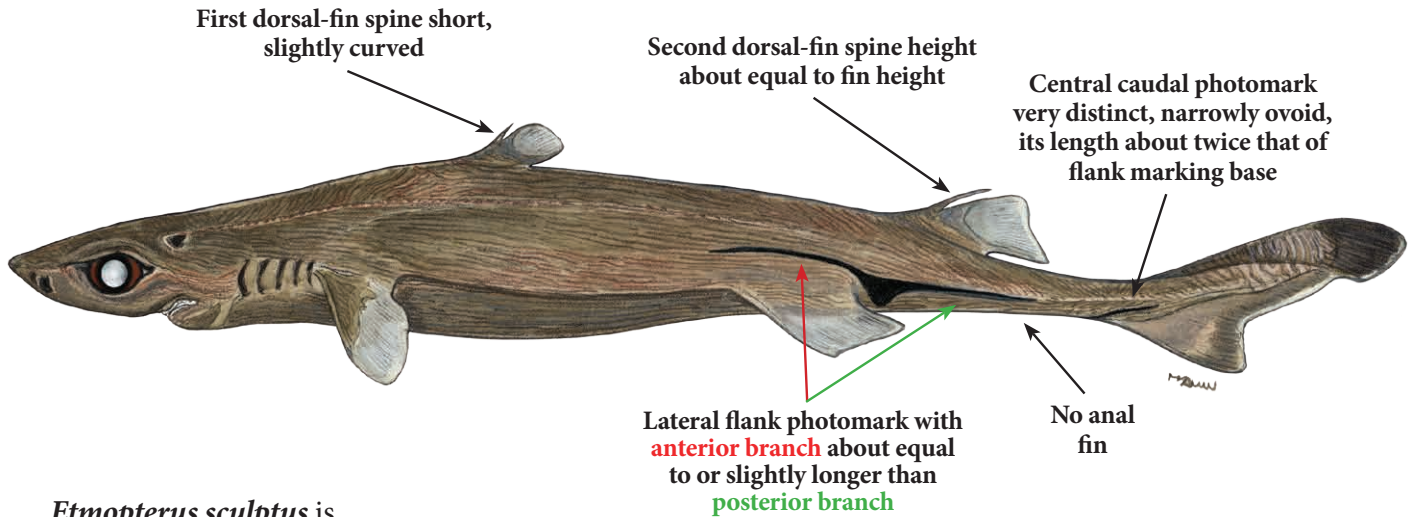
Coloration brown above becoming dark to blackish below with a rather abrupt transition

Bio-Ecology and Distribution of *Etmopterus pusillus*

A common deep-water dogfish occurring in FAO Area 47 off Angola, Namibia, and the west coast of South Africa. Also recorded from a number of offshore seamounts and banks of the Southeastern Atlantic Ocean.

It is sometimes collected in large groups, on the outer continental and insular shelves and upper, middle, and lower slopes from 60 to 1490 m depth, on or near the bottom or well above it. Also oceanic in the central South Atlantic at depths between the surface and 110 to 708 m over deep water.

Sculpted lanternshark



Etmopterus sculptus is characterized by having the denticles on dorsal surface of head arranged in linear rows, which extend to the flanks, caudal peduncle and caudal-fin base.

Colour

In life a dark grey brown above, ventral surface black with narrow, elongated black margin above, in front of and behind pelvic fins. Upper caudal-fin lobe black, lower lobe and tips of fins whitish, not translucent.

Size

Maximum total length attained by females 53 cm and by males 48 cm.



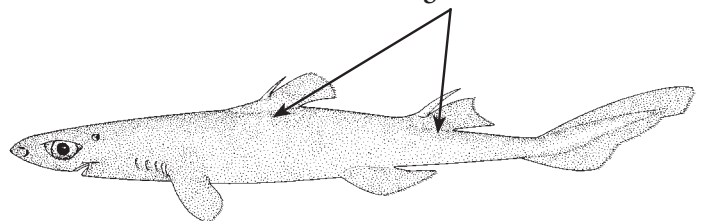
Photo: © Oddgeir Alvheim, IMR

Similar species

Etmopterus polli

Etmopterus polli can be distinguished from *Etmopterus sculptus* by the fact that it has the denticles on dorsal surface of head not in longitudinal rows, but in regular longitudinal rows on tail, caudal-fin base and/or flanks.

Dermal denticles at base of dorsal fins bristle-like, texture rough to the touch



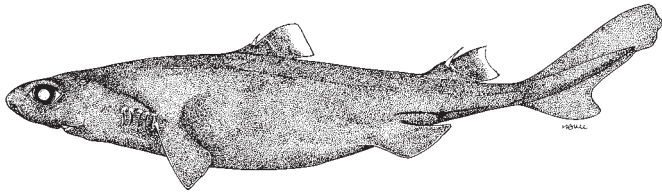
A very small *Etmopterus* species with a maximum total length of 24 cm

Other similar species

The following species can be distinguished from *Etmopterus sculptus* by the fact that they have the denticles on **dorsal surface of head and side of body not arranged in linear rows.**

Etmopterus viator

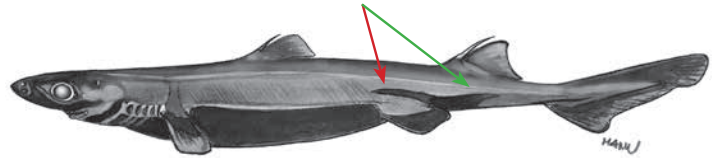
Dermal denticles not dense or bristle-like



Coloration a uniform dark brown to brownish black above and below, without a rather abrupt transition from dorsal to ventral surface

Etmopterus spinax

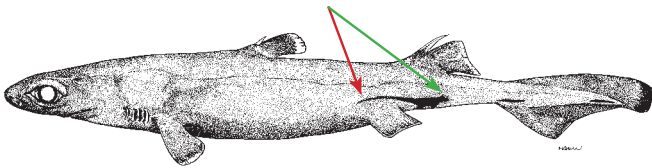
Lateral flank photomark, inconspicuous, not thin, **anterior branch** extends anteriorly over pelvic fins, **posterior branch**, short, truncated not extending to past second dorsal-fin base



Dorsal back of body trunk brown abruptly transitioning to black below

Etmopterus compagnoi

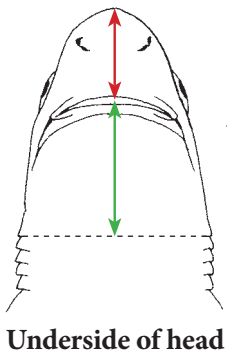
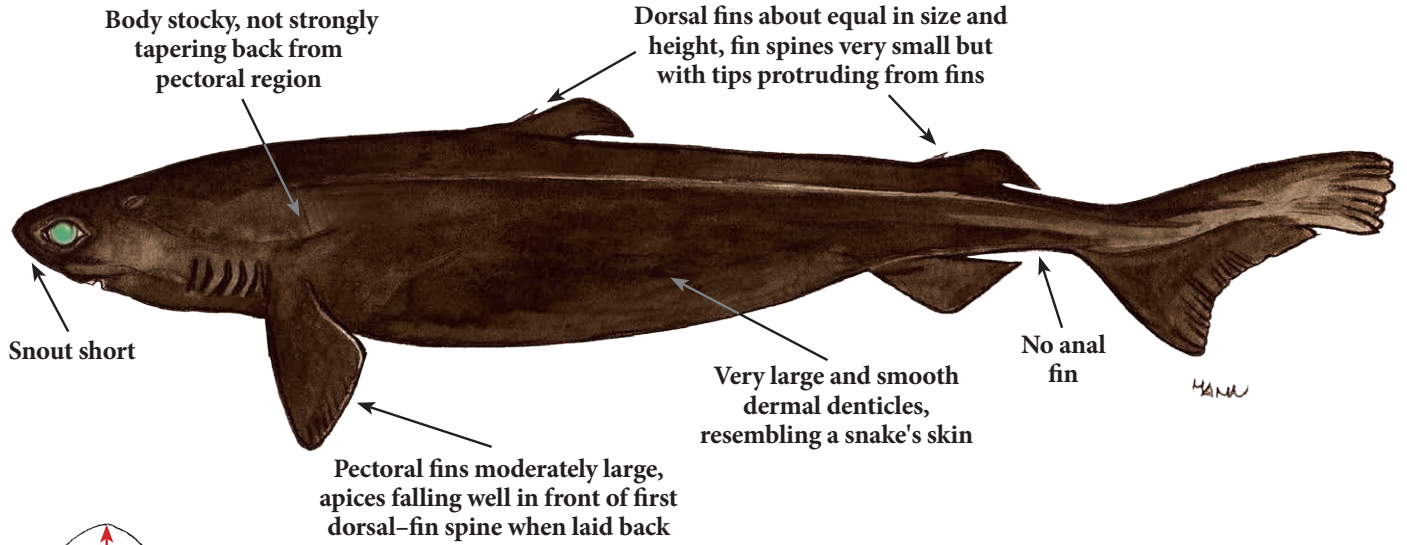
Lateral flank photomark, inconspicuous, broad or thin, **anterior branch** extends over or slightly beyond pelvic-fin base and **posterior branch** to past second dorsal-fin base



Coloration brown above becoming dark to blackish below with a rather abrupt transition

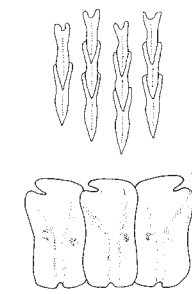
Bio-Ecology and Distribution of *Etmopterus sculptus*

This species is known to occur in FAO Area 47 from off Namibia and South Africa to the south coast of KwaZulu-Natal, South Africa, on or near bottom at depths of 240 to 1023 m, mostly below 450 m. Also recorded from a number of offshore seamounts and banks of the Southeastern Atlantic Ocean.



Preoral length much less than distance from mouth to first gill slits and less than mouth width

Lower teeth with very short, strongly oblique cusps and high, narrow roots



Colour

Uniformly golden brown to blackish brown.

Size

Moderately large, up to 122 cm total length.



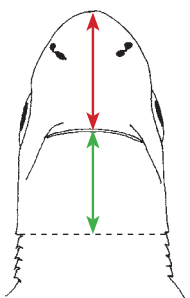
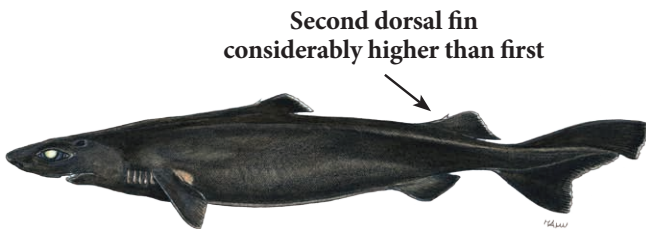
Dermal denticle (Dorsal view)



Photo: © Paul Clerkin

Similar species

Centroscyrnus owstonii



Snout moderately long, preoral length about as long as distance from mouth to first gill slits and about equal to mouth width

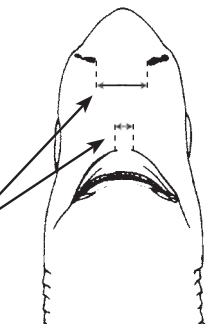
Underside of head

Centroselachus crepidater



Snout greatly elongated, preoral length about equal to distance from mouth to pectoral-fin origin

Upper labial furrows extremely long, separated by less than the distance between nostrils



Underside of head

Other similar species

Zameus squamulosus



Lower teeth with relatively high, more or less erect cusps



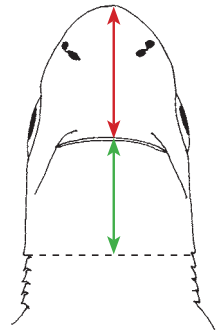
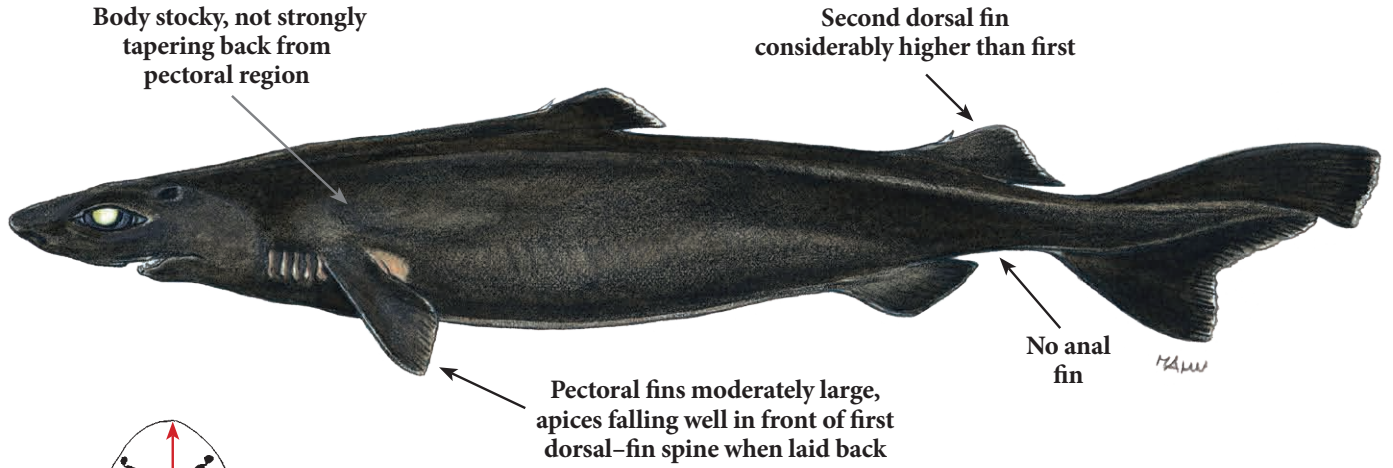
Lower teeth

Bio-Ecology, Distribution and Fisheries of *Centroscymnus coelolepis*

This species is known to occur in FAO Area 47 off Angola, Namibia and South Africa (Eastern and Western Cape), and is wide-ranging in the Atlantic, Indian and Western Pacific Oceans.

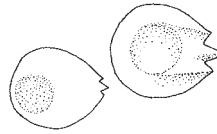
Although common and wide-ranging, it is a little-known deepwater shark, found on or near the bottom on the continental slopes and upper and middle rises, mostly at depths below 400 m, but with a depth range of 128 to 3675 m. Bottom water temperatures where this species has been captured range from 5 to 13 °C.

It is caught in bottom trawls, fixed bottom nets, and longline gear, in targeted deepwater shark fisheries and as bycatch in other deepwater demersal fisheries. This species is not targeted in the Southeastern Atlantic Ocean, but is taken incidentally as bycatch.



Underside of head

Snout moderately long, **preoral length** about as long as **distance from mouth to first gill slits** and about equal to mouth width



Dermal denticles (Dorsal view)

Colour

Light grey or brown to dark brown or black, without any conspicuous markings.

Size

Moderately large, up to 120 cm total length.



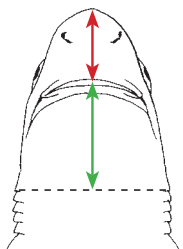
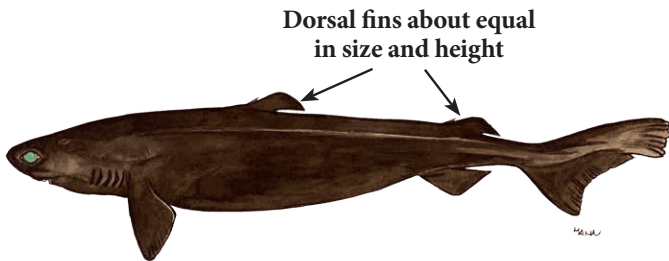
Note: When placed on side, the skin on the belly typically forms a ridge-like fold between pectoral and pelvic fins. Depending on how the animal is positioned it can be very prominent.



Photo: © Paul Clerkin

Similar species

Centroscyrnus coelolepis



Underside of head

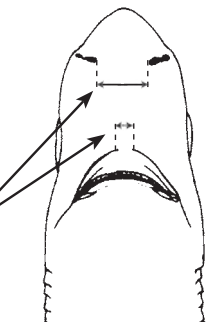
Preoral length much less than **distance from mouth to first gill slits** and less than mouth width

Centroselachus crepidater



Snout greatly elongated, **preoral length** about equal to **distance from mouth to pectoral-fin origin**

Upper labial furrows extremely long, separated by less than the distance between nostrils



Underside of head

Other similar species

Zameus squamulosus



Lower teeth with relatively high, more or less erect cusps



Lower teeth

Bio-Ecology, Distribution and Fisheries of *Centroscymnus owstonii*

A little known deepwater dogfish of the outer continental shelves and upper continental slopes on or near bottom at depths of 150 to 1459 m, but mostly below 600 m. In FAO Area 47 it is known to occur off Namibia and South Africa.

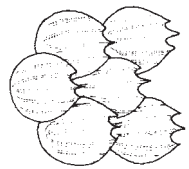
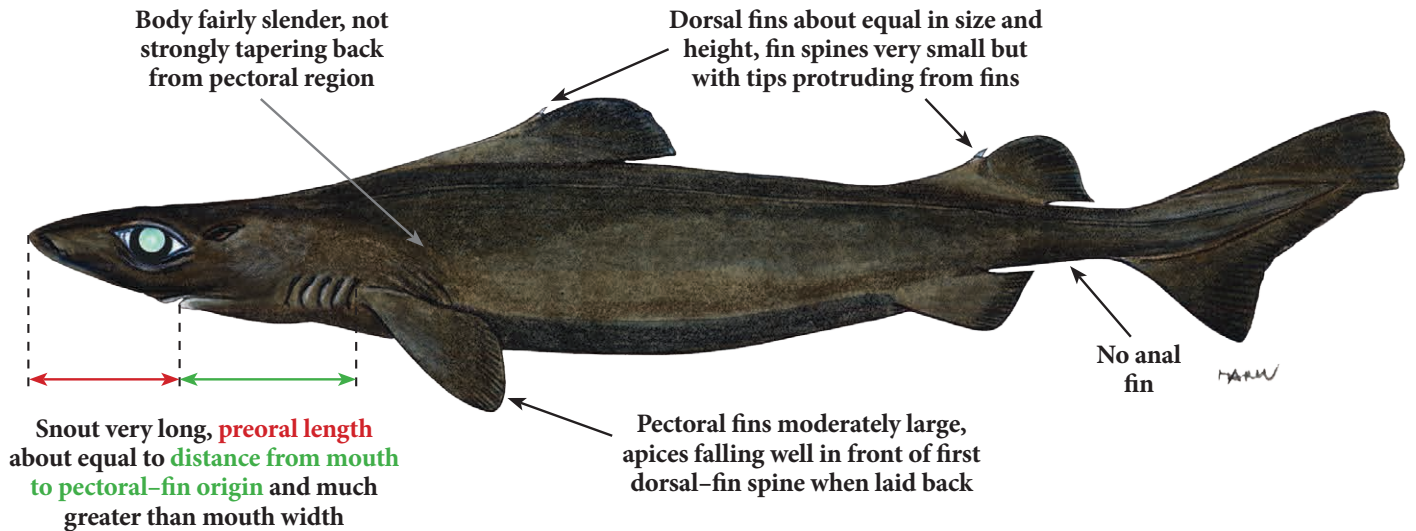
Of no interest to fisheries in Southern Africa, it is mostly a discarded bycatch. It is not considered very common in the region, but this may be due to misidentification with *Centroscymnus coelolepis* or *Centroselachus crepidater*.

Centroselachus crepidater (Bocage & Capello, 1864)

Longnose velvet dogfish – Pailona à long nez
Sapata negra

Fun-naga-yumezame (Jpn)

CYP



Dermal denticles (Dorsal view)



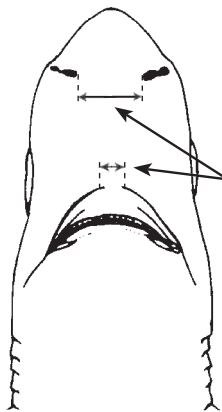
Upper and lower teeth

Colour

Uniform black or blackish brown.

Size

Moderate sized, with a maximum length of 105 cm total length.



Underside of head

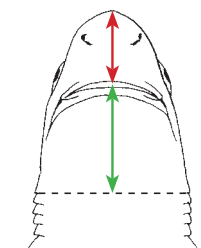
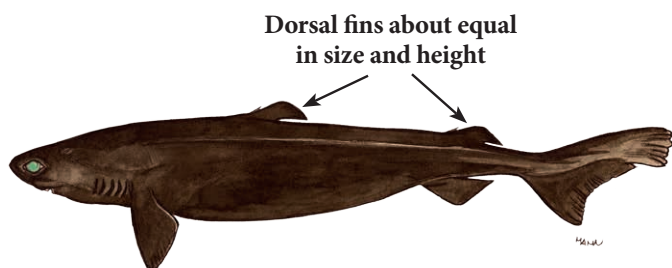
Upper labial furrows extremely long, separated by less than the distance between nostrils



Photo: © Paul Clerkin

Similar species

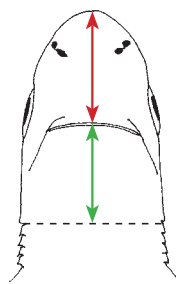
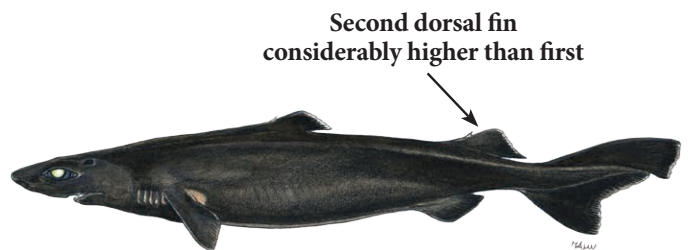
Centroscymnus coelolepis



Underside of head

Preoral length much less than distance from mouth to first gill slits and less than mouth width

Centroscymnus owstonii



Underside of head

Snout moderately long, preoral length about as long as distance from mouth to first gill slits and about equal to mouth width

Other similar species

Zameus squamulosus



Lower teeth with relatively high, more or less erect cusps



Lower teeth

Bio-Ecology, Distribution and Fisheries of *Centroselachus crepidater*

In FAO Area 47 found on the upper continental and insular slopes off Namibia and the west coast of South Africa, on or near the bottom at depths of 200 to 1500 m. Elsewhere, wide-ranging in the Eastern Atlantic and Indo-Pacific.

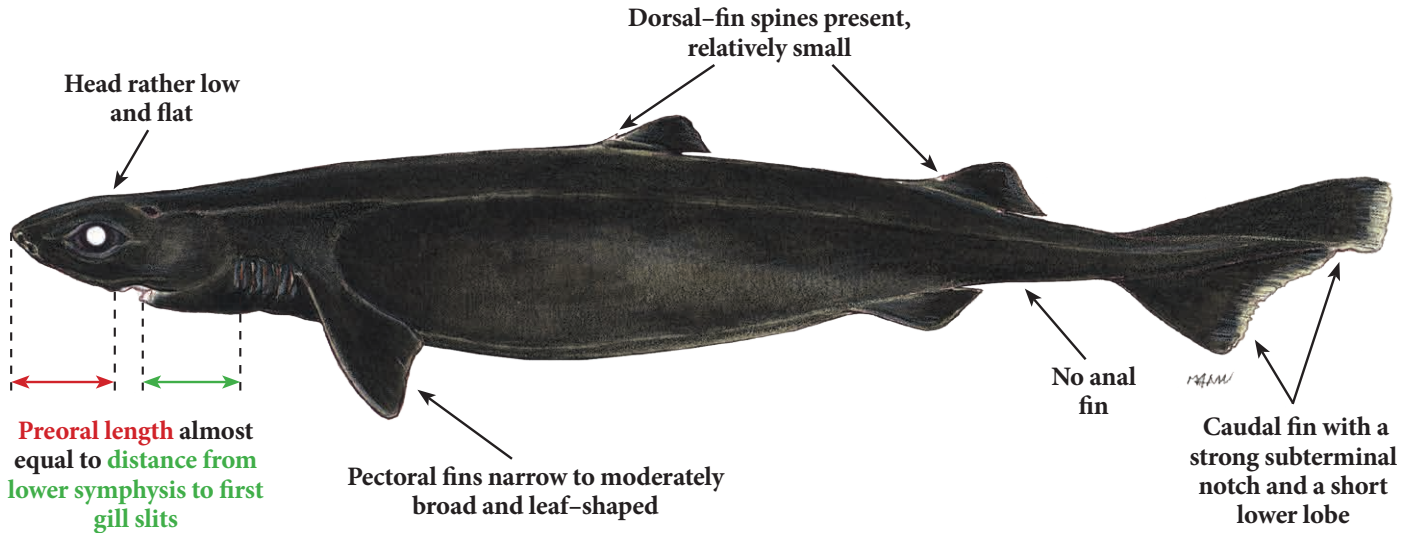
Interest to fisheries limited, it is caught as bycatch, but not utilized in the Southeastern Atlantic Ocean.

Zameus squamulosus (Günther, 1877)

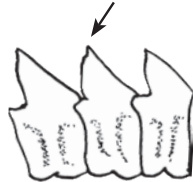
Velvet dogfish – Squale-grogneur velouté
Bruja terciopelo

Biroudozame (Jpn)

SSQ



Lower teeth with relatively high, more or less erect cusps



Lower teeth

Colour

Uniformly black to dark brownish with no conspicuous markings.

Size

Moderate size with a maximum total length of 84 cm.



Photo: © Paul Clerkin

Underside of head

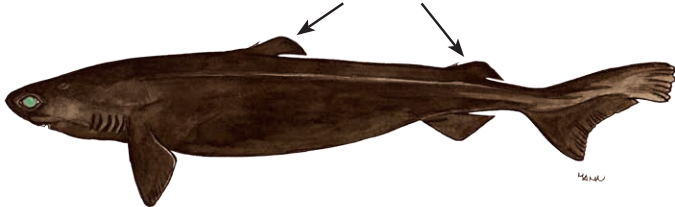


Photo: © Evgeny Romanov, CAP RUN-ARDA

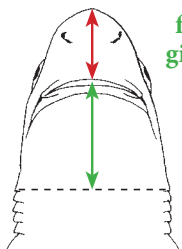
Similar species

Centroscymnus coelolepis

Dorsal fins about equal in size and height



Preoral length much less than distance from mouth to first gill slits and less than mouth width



Underside of head

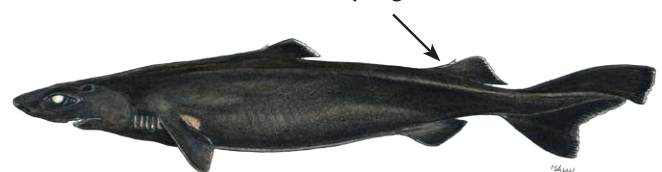
Lower teeth with very short, strongly oblique cusps and high, narrow roots



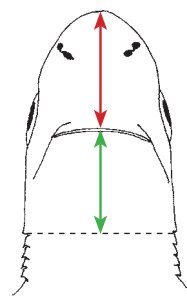
Lower teeth

Centroscymnus owstonii

Second dorsal fin considerably higher than first



Snout moderately long, preoral length about as long as distance from mouth to first gill slits and about equal to mouth width



Underside of head

Other similar species

Centroselachus crepidater

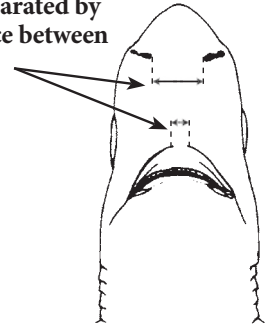


Lower teeth with moderately long, semioblique cusps and moderately high, fairly broad roots



Lower teeth

Upper labial furrows extremely long, separated by less than the distance between nostrils



Underside of head

Bio-Ecology, Distribution and Fisheries of *Zameus squamulosus*

A poorly known epipelagic and oceanic deepwater shark usually found off continental and insular slopes, on or near the bottom at depths of 550 to 1450 m, but also well off the bottom at depths between 0 to 580 m in water 2000 to 6000 m deep. In FAO Area 47 it is known to occur off Namibia and the west coast of South Africa. Elsewhere, it occurs throughout the Atlantic, Indian, and Pacific Oceans.

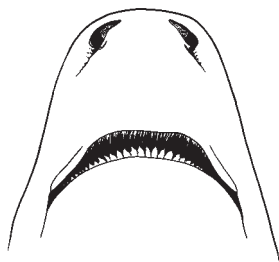
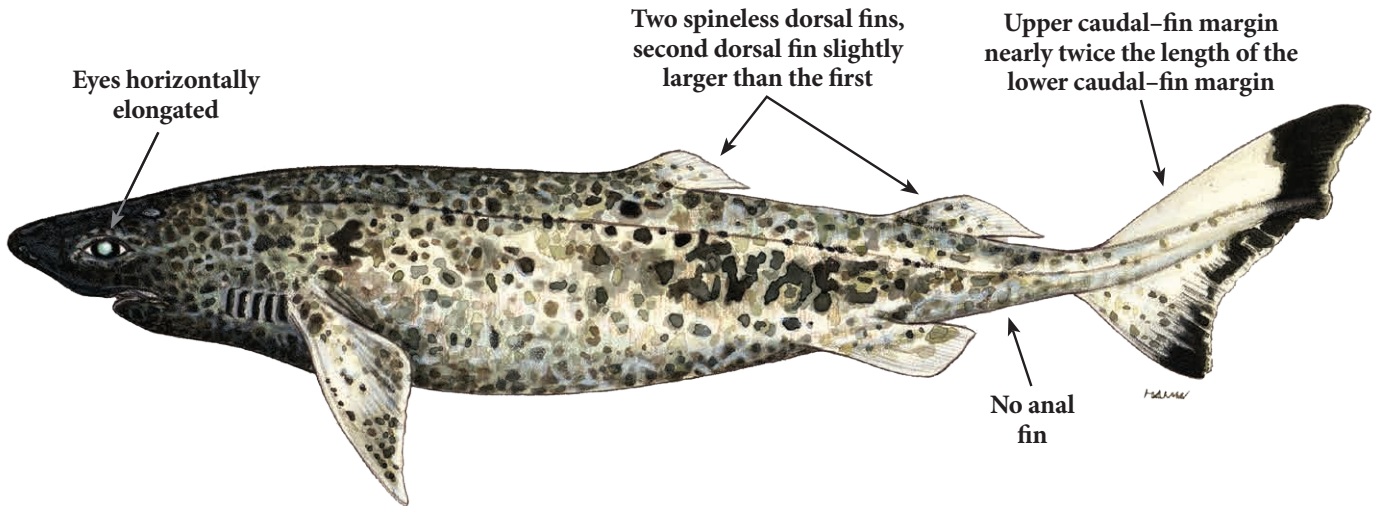
This relatively small somniosid is of limited interest to fisheries. It is caught incidentally by bottom trawls and by bottom and pelagic longline gear. There is no species-specific information on the number of these sharks that are caught as bycatch, but it is likely low since they do not seem to be abundant where they are known to occur. Also caught infrequently by tuna longliners in the epipelagic zone.

Scymnodalotias albicauda Taniuchi & Garrick, 1986

Whitetail dogfish – *Squale grogneur à queue blanche*
Bruja cola blanca

Ojirozame (Jpn)

YSA



Underside of head

Colour

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

Size

A moderate sized shark that reaches 111 cm total length.

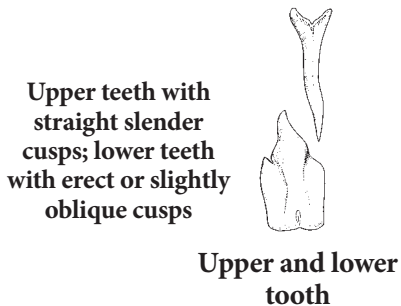
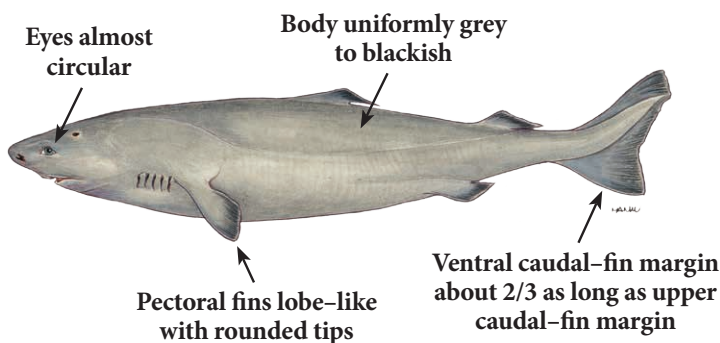


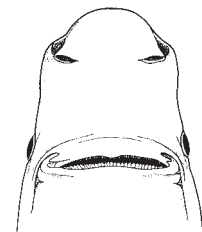
Photo: © Dave Ebert

Similar species

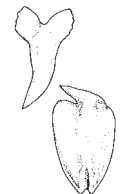
Somniosus antarcticus



Upper teeth long, slender; cusps of lower teeth short and low, strongly oblique, roots very high



Underside of head



Upper and lower tooth

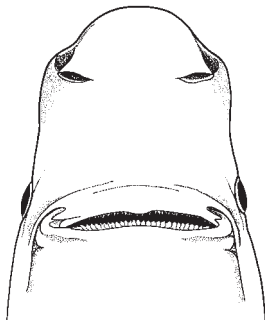
Bio-Ecology and Distribution of *Scymnodalotias albicauda*

This species is known from only a few scattered records including the Southeastern Atlantic (southwest of South Africa). Oceanic in the epipelagic zone, where it is a rare catch of tuna longlines from 0 to approximately 200+ m in water approximately 1400 to 4000 m deep, also off a submarine ridge at 512 m near the bottom. It may be mesopelagic or bathypelagic as suggested by its dark body coloration, and could rise to near the surface at night, but this is speculative.

Somniosus antarcticus Whitley, 1939

Southern sleeper shark – Laimargue de l'Antarctique
Tollo meridional dormilón

Blimp shark (South Africa)
Minami-ondenzame (Jpn)

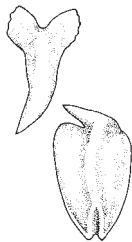


Underside of head

Pectoral fins lobe-like with rounded tips

Snout short and broadly rounded

Upper teeth long, slender; cusps of lower teeth short and low, strongly oblique, roots very high



Upper and lower tooth

Colour

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

Size

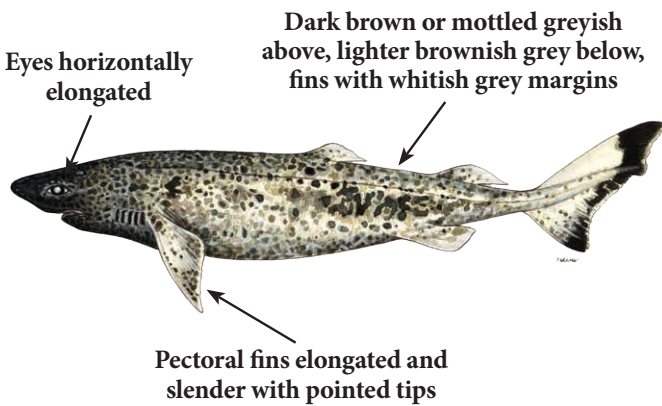
Size large, to at least 456 cm, and possibly 600 cm total length.



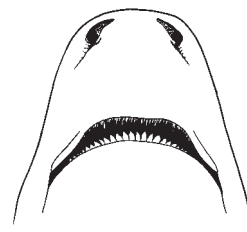
Photo: © Pablo Reyes

Similar species

Scymnodalatias albicauda



Upper teeth with straight slender cusps; lower teeth with erect or slightly oblique cusps



Underside of head



Upper and lower tooth

Bio-Ecology and Distribution of *Somniosus antarcticus*

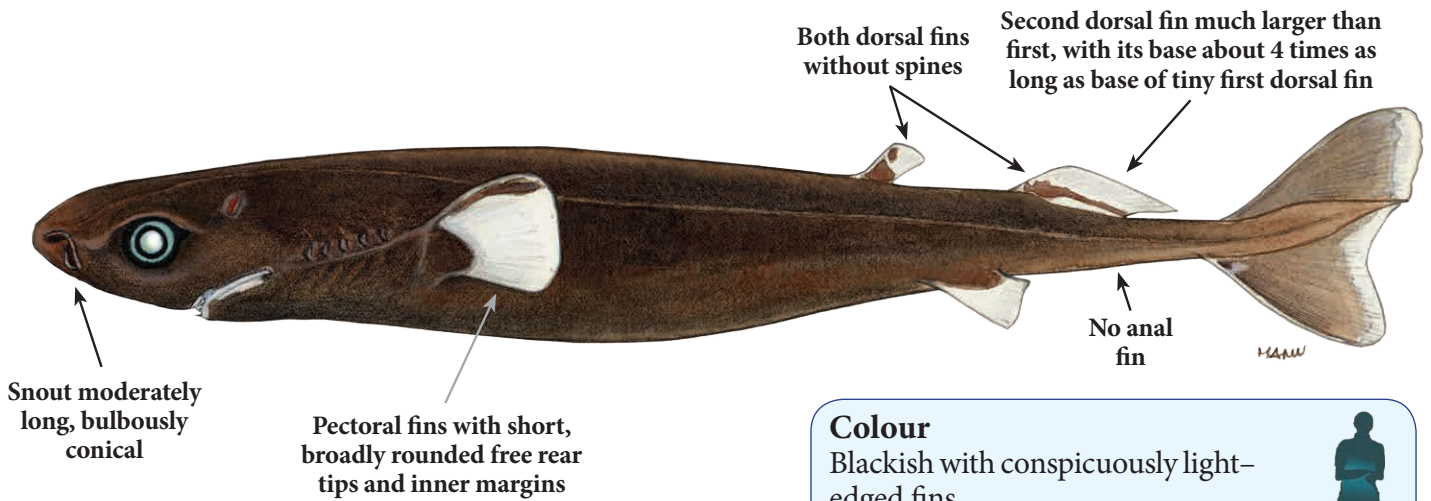
In FAO Area 47 it is known to occur off Namibia and South Africa (Cape Columbine). It is an abundant littoral and epibenthic shark of the continental and insular shelves and upper slopes down to at least 1440 m. In the Southern Hemisphere it is found in deepwater (677 m) off South Africa, in 245 to 370 m depth off Kerguelen Island, and off Macquarie Island between 300 to 1440 m. Water temperatures of places inhabited by these sharks range from 0.6 to 12 °C.

Euprotomicrus bispinatus (Quoy & Gaimard, 1824)

Pigmy shark – *Squale pygmée* – *Tollo pigmeo*

Dwerghaai (Afr)
Oki-kobitozame (Jpn)

EUP



Colour

Blackish with conspicuously light-edged fins.

Size

Very small up to 27 cm total length.



Bio-Ecology and Distribution of *Euprotomicrus bispinatus*

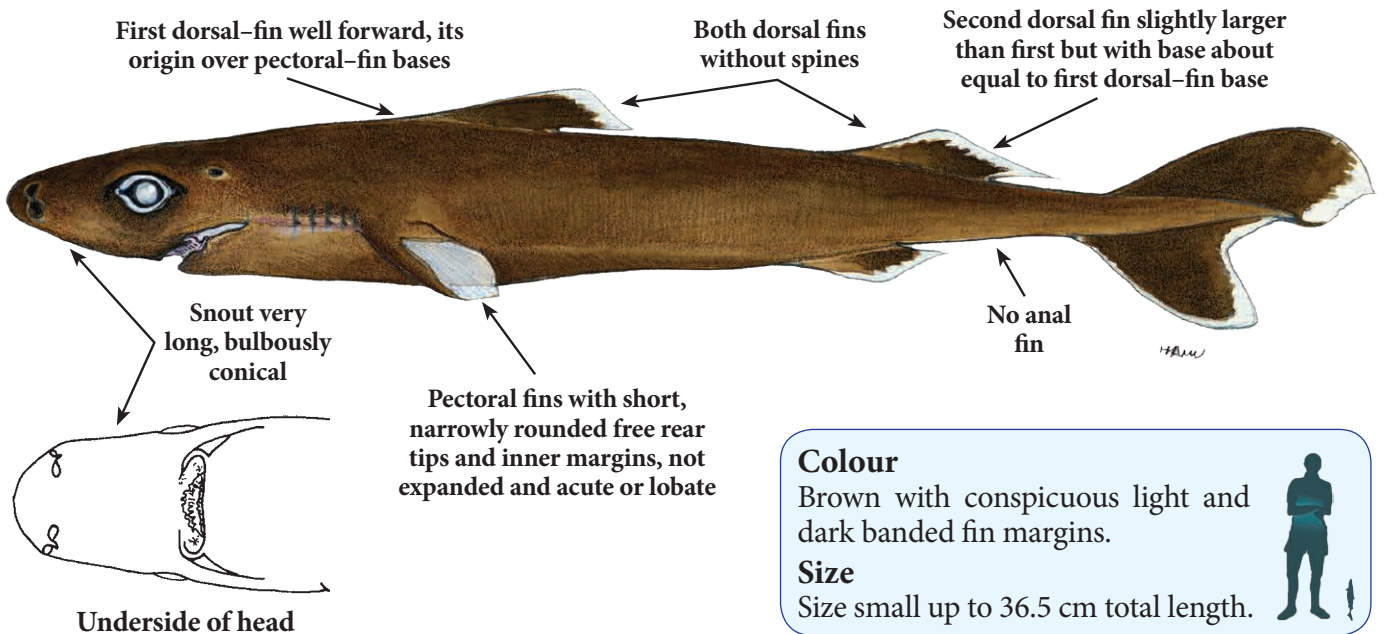
The pigmy shark is an epipelagic, mesopelagic, and perhaps bathypelagic inhabitant of the central water masses of the North and South Pacific, South Atlantic, and Southern Indian Ocean, at water depths from 1829 to 9938 m. It occurs at or near the surface at night and apparently descends to at least midwater depths during the day.

Heteroscymnoides marleyi Fowler, 1934

Longnose pigmy shark – *Squale mignon*
Tollo pigmeo trompudo

Nagahana-kobitozame (Jpn)

HYY



Colour

Brown with conspicuous light and dark banded fin margins.

Size

Size small up to 36.5 cm total length.



Bio-Ecology and Distribution of *Heteroscymnoides marleyi*

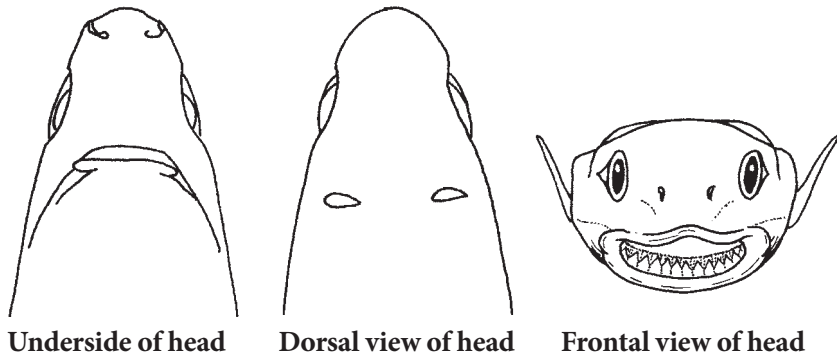
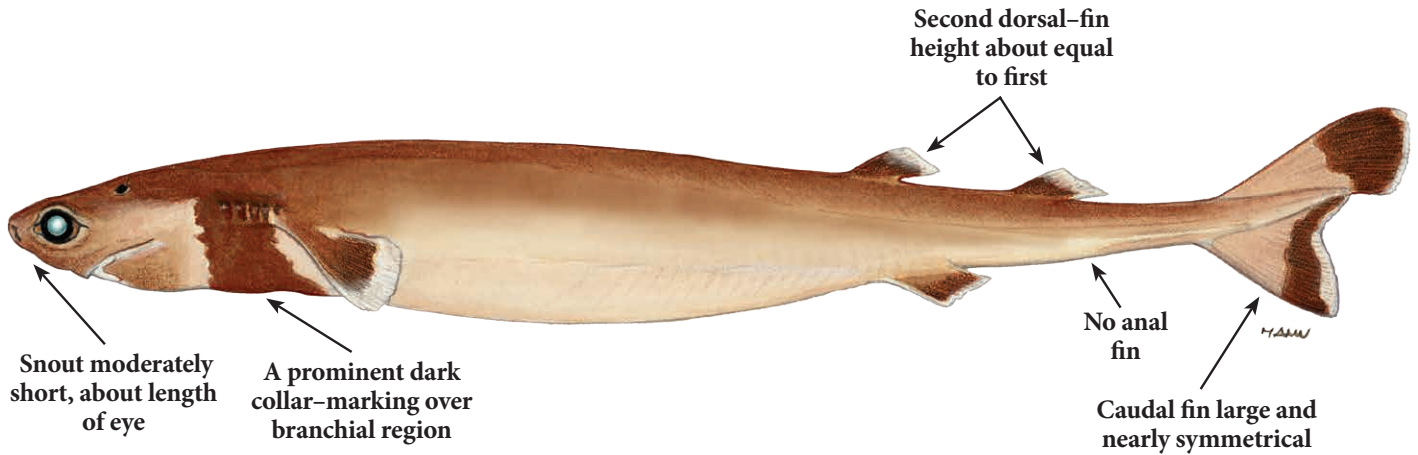
A dwarf oceanic shark. The first specimen belonging to this species was found on a beach in a subtropical area (KwaZulu-Natal, South Africa), but additional specimens have been collected in the open ocean in the epipelagic zone in cold southern waters, in the South Atlantic and Eastern South Pacific, between the surface and 502 m in water over 830 to over 4000 m deep.

Isistius brasiliensis (Quoy & Gaimard, 1824)

Cookie cutter shark – *Squalelet féroce* – *Tollo cigarro*

Darumazame (Jpn)

ISB



Colour

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

Size

A small shark with a maximum total length of about 56 cm.

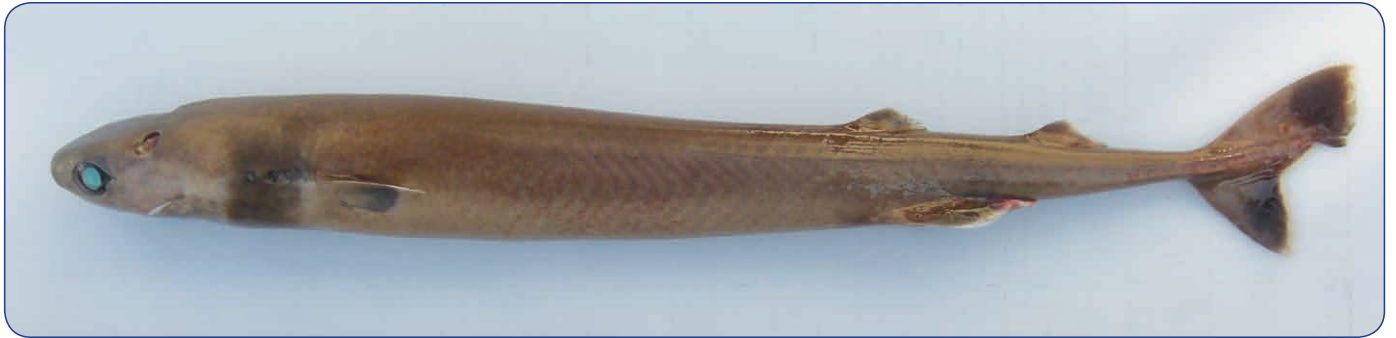


Photo: © Evgeny Romanov, CAP RUN-ARDA

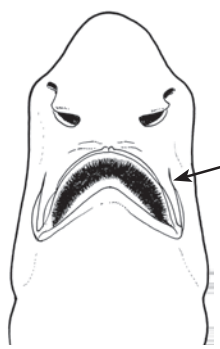
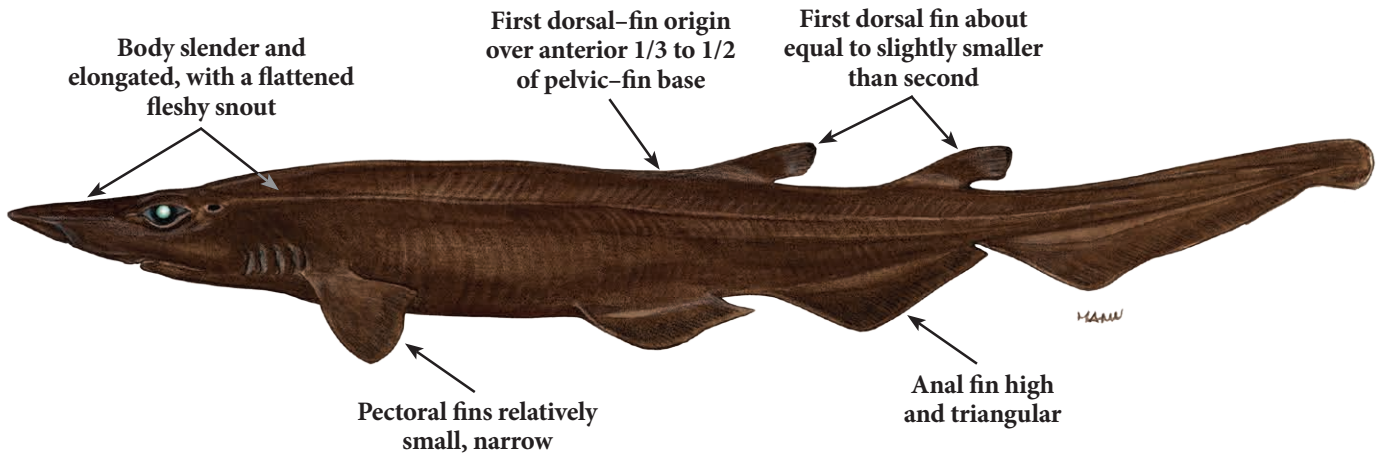
Similar species

Isistius brasiliensis can be distinguished from other similar species for the fact that it has the first dorsal-fin insertion about over pelvic-fin origins and a conspicuous dark collar-like marking around the gill region.

Bio-Ecology and Distribution of *Isistius brasiliensis*

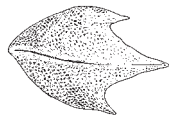
A wide-ranging tropical epipelagic to bathypelagic oceanic shark, recorded in FAO Area 47 off Southern Angola and South Africa; also recorded off Ascension Island, Tristan da Cunha Island group. Elsewhere, known from scattered records throughout the Atlantic, Indian, and Pacific Oceans. It is caught at night, sometimes at the surface, but usually below it at depths between 85 to 3500 m, however its preferred depth range and maximum depth are uncertain. Apart from those captured at the surface, specimens are generally taken in midwater nets fished over a wide depth range, and it is difficult to tell at what depth these sharks were captured. This shark is thought to be a vertical migrator on a diel cycle, coming to the surface and to the level of midwater trawl hauls at night and presumably dropping below this during the daytime as few if any of these sharks have been taken during the daytime. This implies a long vertical distance travelled, in excess of 2000 to 3000 m up and down in the ocean basins.

Black roughscale catshark



Underside of head

Mouth moderately large, broadly arched, with well developed labial furrows, uppers longer than lowers



Dermal denticle



Upper and lower tooth

Teeth similar in upper and lower jaws, with single erect, high, medial cusp flanked by 1 to 2 smaller lateral cusplets on anterior teeth

Colour

Uniformly dark brown to black; naked fin apices black.

Size

Maximum total length at least 79 cm.



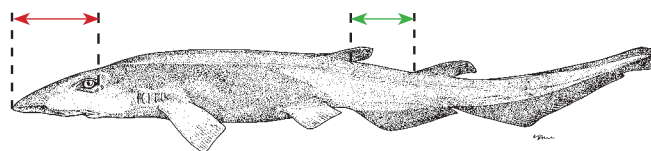
Photo © P. Porché

Similar species

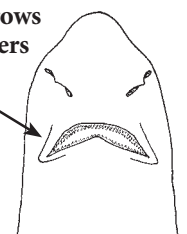
Apristurus saldanha

Apristurus saldanha shares with *Apristurus melanoasper* the following characteristics: the **body is slender** and the **upper labial furrows are longer than the lowers**.

Interdorsal space very long, about equal to **prespiracular head**



Upper labial furrows longer than lowers

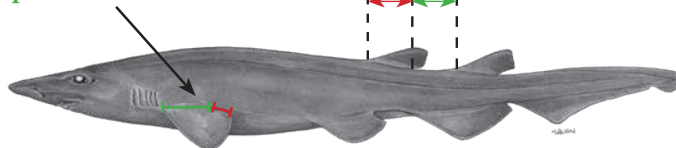


Underside of head

Apristurus microps

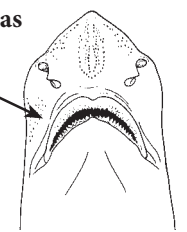
Apristurus microps can be distinguished from *Apristurus melanoasper* by the fact that it has a **stout body** and the **upper labial furrows about as long as lowers**.

Pectoral-fin inner margins very short, about 1/3 of pectoral-fin bases



Interdorsal space equal or slightly less than first dorsal-fin base

Upper labial furrows about as long as lowers

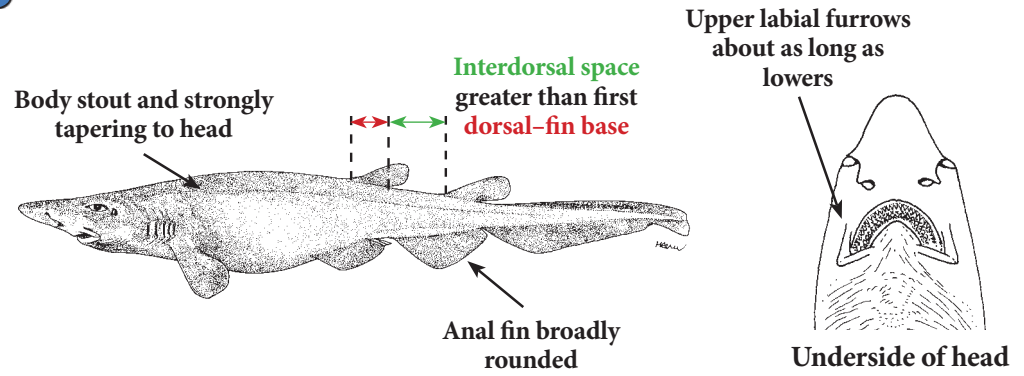


Underside of head

Other similar species

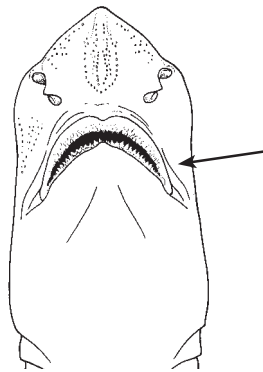
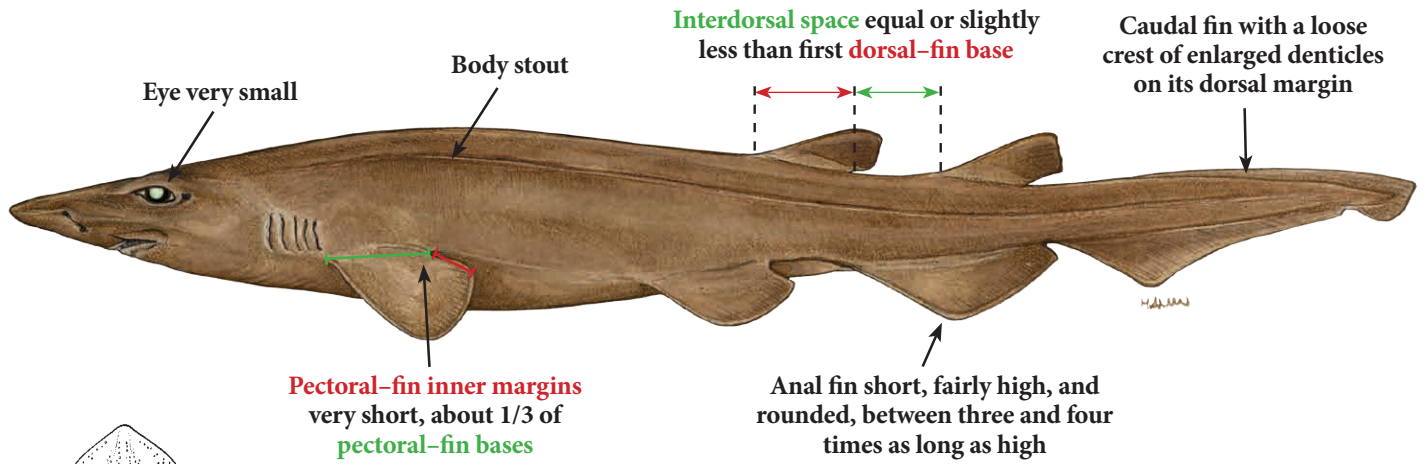
Apristurus manis

Apristurus manis can be distinguished from *Apristurus melanoasper* by the fact that it has a **stout body** and the **upper labial furrows about as long as lowers**.



Bio-Ecology and Distribution of *Apristurus melanoasper*

This species occurs on the continental mid-slopes and seamounts from 512 to 1520 m. In FAO Area 47 it is known to occur off Namibia.



Underside of head

Mouth long, large, and broadly arched with upper labial furrows about as long as lowers

Colour

Dusky brown or grey-brown to purplish-black, without conspicuous markings on fins.

Size

Maximum total length at least 61 cm.

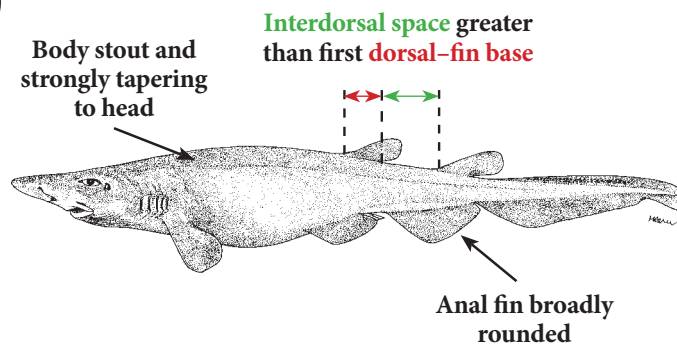


Photo © Rob Leslie

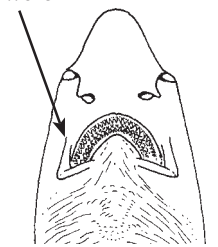
Similar species

Apristurus manis

Apristurus manis shares with *Apristurus microps* the following characteristics: the body is stout and the upper labial furrows are about as long as lowers.



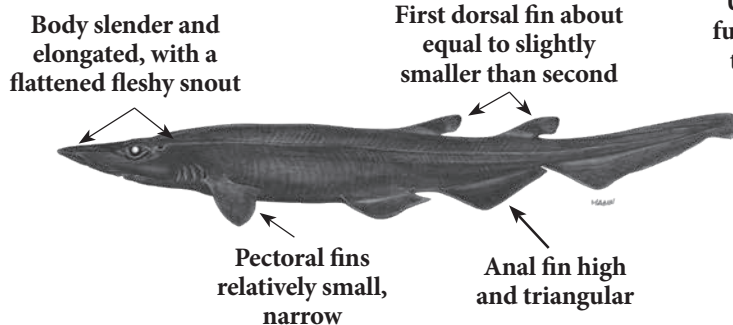
Upper labial furrows about as long as lowers



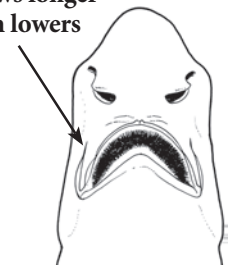
Underside of head

Apristurus melanoasper

Apristurus melanoasper can be distinguished from *Apristurus microps* by the fact that it has a slender body and the upper labial furrows longer than the lowers.



Upper labial furrows longer than lowers

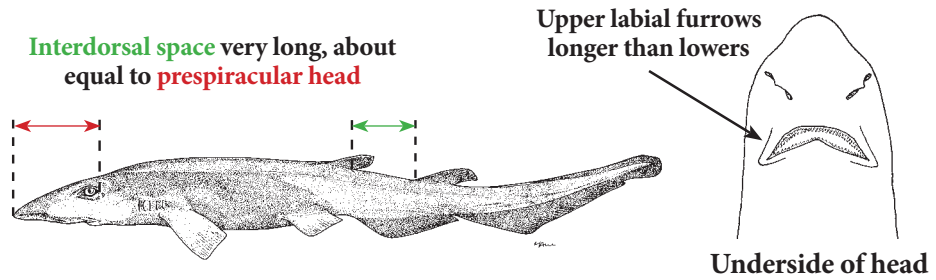


Underside of head

Other similar species

Apristurus saldanha

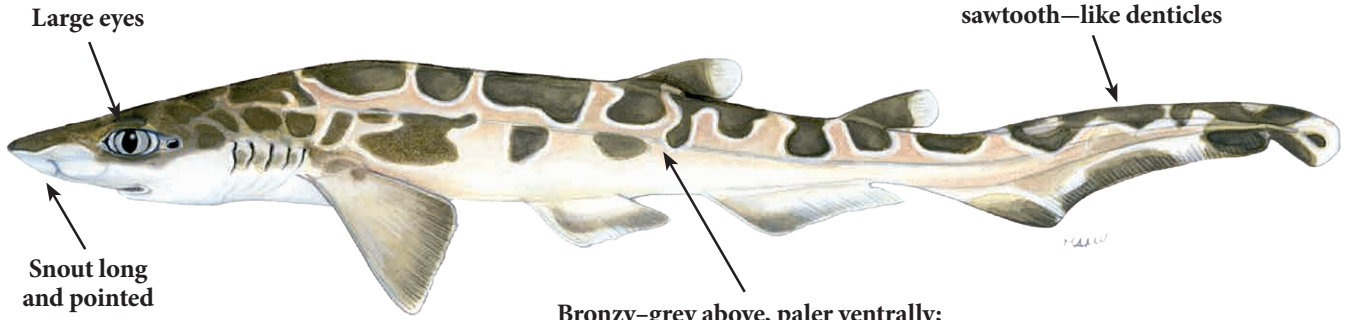
Apristurus saldanha can be distinguished from *Apristurus microps* by the fact that it has a slender body and the upper labial furrows longer than the lowers.



Bio-Ecology and Distribution of *Apristurus microps*

A bottom shark of continental slopes, known to occur in FAO Area 47 off the west coast of South Africa. Found on or near the bottom at depths of 700 to 2200 m. South African specimens have been collected on soft bottom between 700 to 1200 m deep.

Adult males have cuts and scars suggesting bites by conspecifics. Diet includes small midwater bony fishes, shrimps, and squids. A small unidentified squaloid was found in the stomach of one individual. Several prey items are midwater inhabitants suggesting that these shark may forage at times far off the bottom.



Large eyes

Snout long and pointed

Upper caudal fin margin with prominent crest of enlarged sawtooth-like denticles

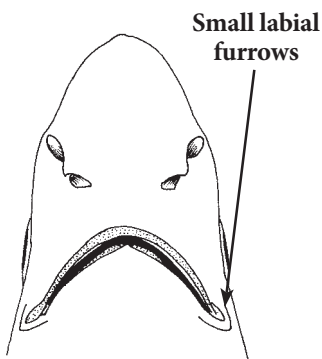
Bronzy-grey above, paler ventrally; juveniles have dark saddles that become less prominent in adults

Depth range
200–720 m

Distribution

A deepwater bottom dwelling shark known to occur in FAO Area 47 on the upper continental slope off Namibia and South Africa (Northern Province).

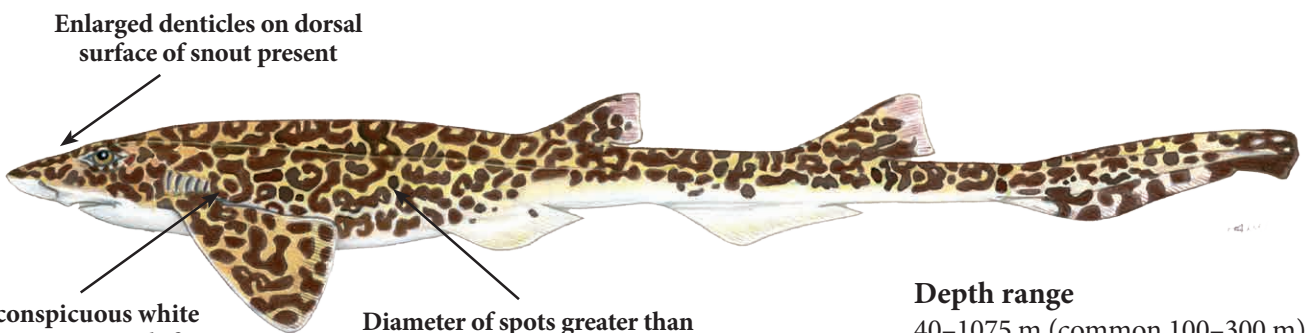
Size
Maximum total length 43 cm.



Underside of head



Photo © Oddgeir Alvheim



Enlarged denticles on dorsal surface of snout present

No conspicuous white spot over pectoral-fin insertion in adults

Diameter of spots greater than eye diameter, forming 'horseshoe' shaped markings

Depth range
40–1075 m (common 100–300 m)

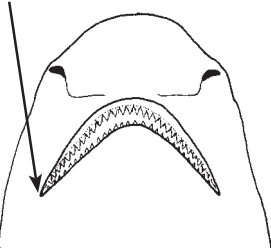
Distribution

A deepwater shark, common in FAO Area 47 on the outer continental shelf and upper slope off Southern Namibia and South Africa.

Size
Maximum total length 69 cm.



Extremely broad head and no labial furrows



Underside of head



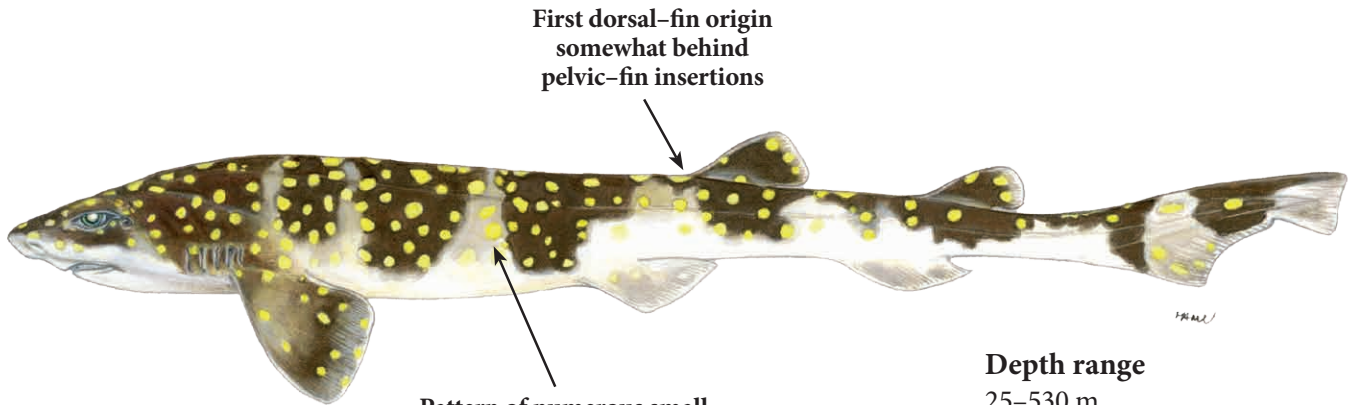
Photo © Oddgeir Alvheim

Scyliorhinus capensis (Müller & Henle, 1838)

Yellowspotted catshark – Roussette à taches jaunes
Alitán de manchas amarillas

Geelspikkel-kathaai (Afr)

SYP



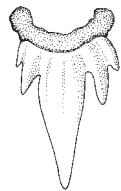
First dorsal-fin origin somewhat behind pelvic-fin insertions

Pattern of numerous small bright yellow spots about size of eye pupil or more

Labial furrows on lower jaw only



Underside of head



Upper tooth

Size
Maximum total length 122 cm.



Depth range

25–530 m

Distribution

A common inshore to offshore temperate benthic catshark on the continental shelf and upper slope of South Africa, uncommon to rare northeastwards to Namibia.

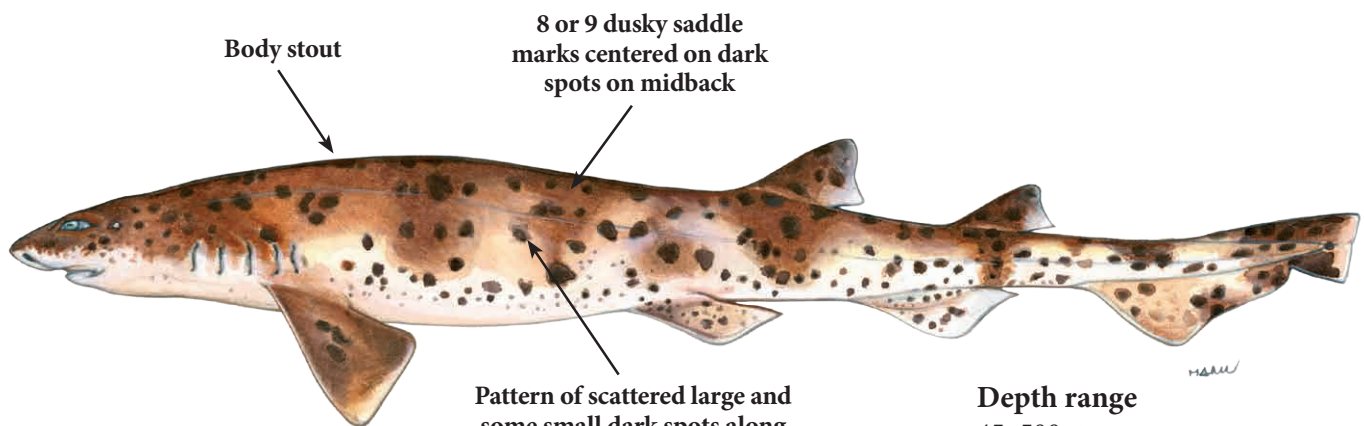


Photo © Oddgeir Alvheim

Scyliorhinus cervigoni Maurin & Bonnet, 1970

West African catshark – Roussette thalassa – Alitán africano

SYE

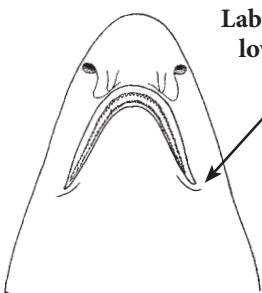


Body stout

8 or 9 dusky saddle marks centered on dark spots on midback

Pattern of scattered large and some small dark spots along body but no light spots

Labial furrows on lower jaw only



Underside of head

Size
Maximum total length 76 cm.



Depth range

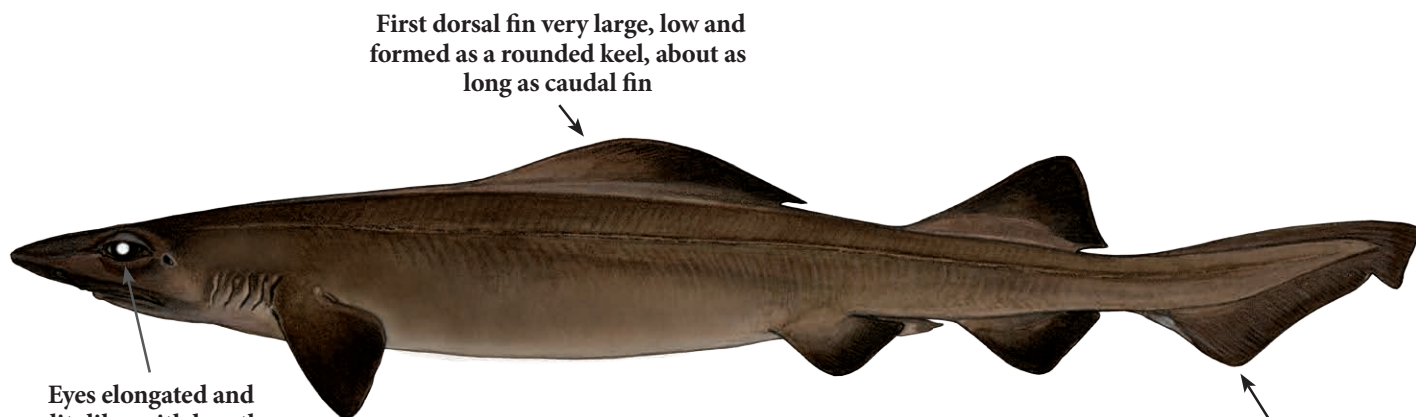
45–500 m

Distribution

In FAO Area 47 it is known to occur on the continental shelf and upper slope off Angola.



Photo © Oddgeir Alvheim

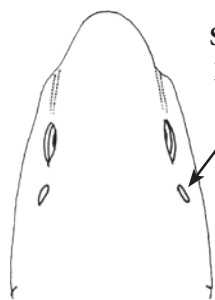


First dorsal fin very large, low and formed as a rounded keel, about as long as caudal fin

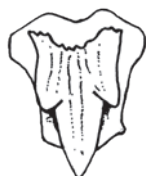
Eyes elongated and slit-like, with length over two times height

Ventral caudal-fin lobe absent or very weak

Teeth small, with acute narrow cusps, lateral cusplets, and strong basal ledges and grooves, not bladelike and similar in both jaws



Spiracles are present and very large



Upper tooth

Colour

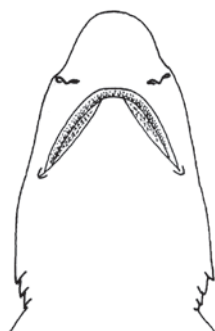
Uniform plain dark brown to blackish except for darker fins.

Size

Maximum length to about 295 cm TL.



Dorsal view of head



Underside of head



Photo: © Paul Clerkin

Similar species

This is a very distinctive species and the only false catshark species known to occur in the Southeastern Atlantic Ocean.

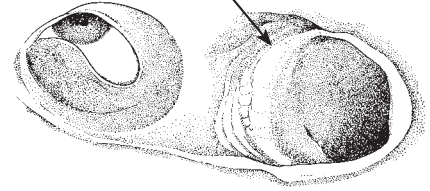
Bio-Ecology and Distribution of *Pseudotriakis microdon*

A large deepwater bottom shark of the continental and insular slopes at depths from 100 to 1890 m; occasionally wandering onto continental shelves. This species is known to occur in FAO Area 47 from two specimens, both recorded on the Valdivia bank, off Namibia.

Front margin curved, with overall disc shape ovate

Totally smooth on both surfaces, without dermal denticles or thorns

Spiracles with smooth margins, without tentacles or papillae (diagnostic feature of genus *Tetronarce*)



Detail of eye and spiracle

Caudal fin large, paddle-like, with upper and lower lobes of about equal size

Dorsal fins distinct and large, the first one about twice the size of the second one



Photo: © Dave Ebert



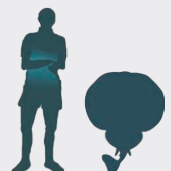
Ventral view

Colour

In life dorsal surface a uniform shiny black or dark grey, without distinct darker dots or whitish spots; ventral surface white to creamy-white. After death and preservation dorsal surface fades to a brownish grey.

Size

Maximum total length of Southeastern Atlantic population about 120 cm for females; size at maturity about 100.5 cm for females and 58.2 cm for males.



Bio-Ecology and Distribution of *Tetronarce cowleyi*

A deep-sea species occurring off South Africa and Namibia from Algoa Bay, Eastern Cape, South Africa to Walvis Bay, Namibia; records from Namibia are very rare. It inhabits the outer continental shelf and upper slopes from 110 to nearly 500 m depth, but most common below 200 m. Yolk-sac viviparous, but nothing known about its litter size or reproductive cycle in Southern Africa. The diet of this electric ray consists mainly of large bottom and pelagic bony fishes and small sharks. Smaller juveniles feed mostly on smaller benthic fish and invertebrates. Taken as bycatch in bottom and pelagic fisheries but usually discarded. Fishermen use to handle these rays with respect trying to avoid their powerful electric shocks.

GUIDE TO THE FAMILIES OF SOUTHEASTERN ATLANTIC DEEP-SEA RAJIFORMES

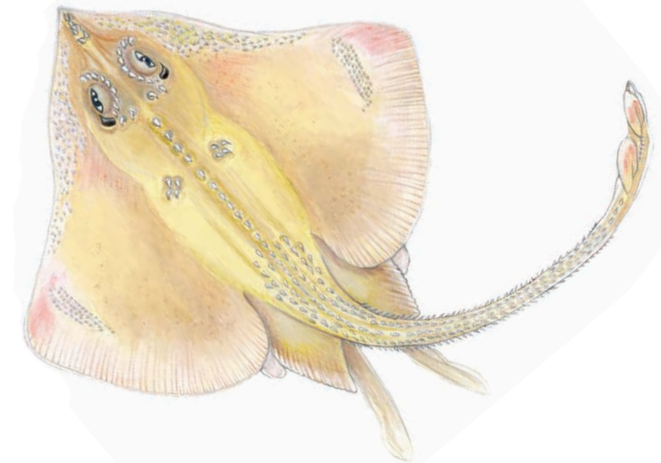
RAJIFORMES

Pectoral fins completely fused with sides of head and greatly flattened dorsoventrally to form a large disc. Tail distinctly marked off from body disc, rather slender and, if present, dorsal fin(s) and caudal fin very small to rudimentary

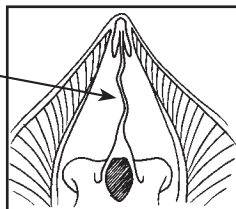
Snout soft, flabby, flexible, due to delicate, flexible rostral cartilage



Snout rigid, stiff, not flexible, due to solid, stiff rostral cartilage



Flexible and delicate rostral cartilage, when present

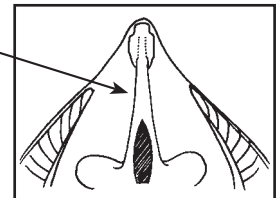


Detail of snout skeleton

After Stehmann and Bürkel in Whitehead *et al.* (1984)

ARHYNCHOBATIDAE – p. 52

Stiff rostral cartilage extended to snout tip



Detail of snout skeleton

After Stehmann and Bürkel in Whitehead *et al.* (1984)

RAJIDAE – p. 53

Bathyraja smithii (Müller & Henle, 1841)

African softnose skate – Raie de Smith – Raya de Smith

Rog (Afr)
Skate (Namibia)

BYZ

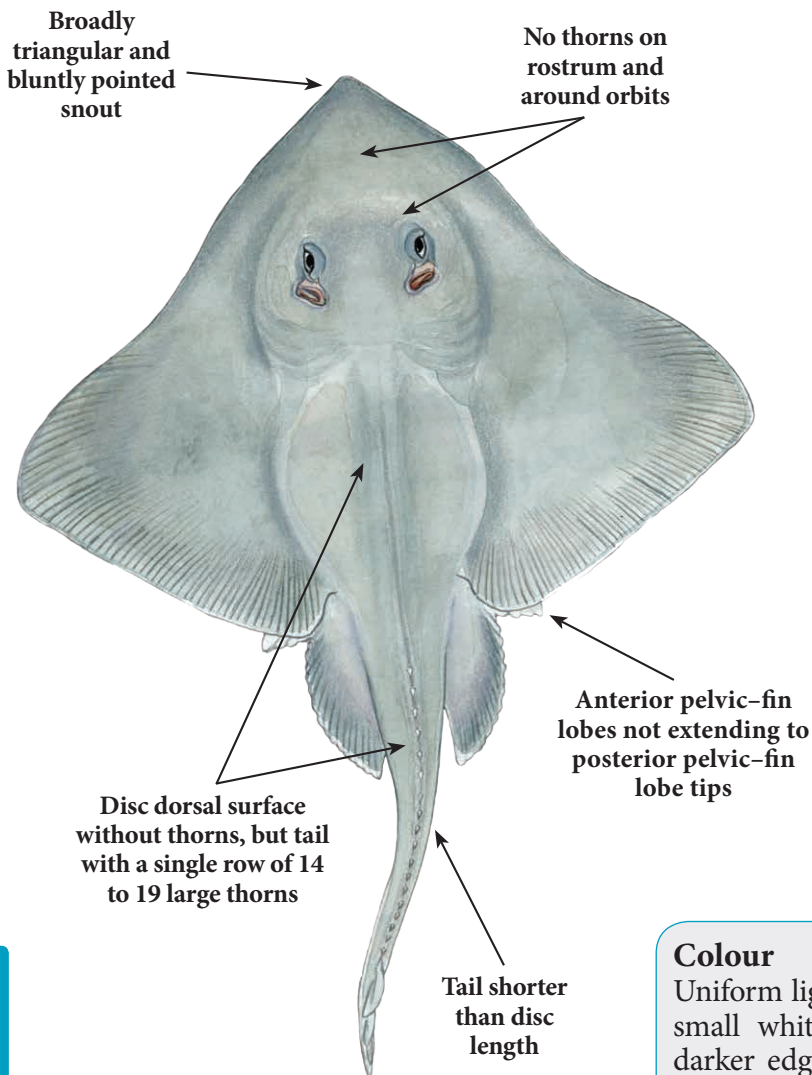


Photo © Oddgeir Alvheim, IMR

Note: juveniles have 3 small orbital thorns, 2 nuchal thorns, 3 to 4 scapular thorns, followed by a row of about 30 midback thorns from nuchal region to first dorsal-fin origin, and 1 interdorsal thorn

Colour

Uniform light to medium grey above, sometimes with small white spots; underside white to cream with darker edges around disc and blotches between gills and around vent.

Size

Maximum total length about 120 cm. Males mature between 95 to 100 cm, and females mature at about 87.5 cm.



Similar species

This is the only deep-sea softnose skate species known from FAO Area 47.

Bio-Ecology, Distribution and Fisheries of *Bathyraja smithii*

This species is distributed in FAO Area 47 from off Angola, south to Namibia and the west coast of South Africa, with its range extending to the Eastern Cape, South Africa.

It occurs in deepwater along upper continental slopes between 295 and 1040 m depth, but mostly below 600 m; neonates usually below 700 m.

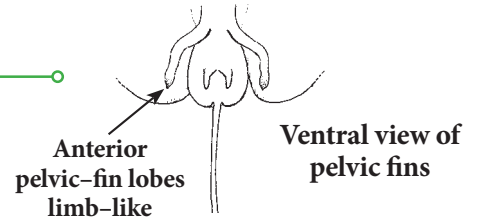
Oviparous, with very large egg cases and very long horns. Nothing is known about the reproductive cycle for this species. The diet consists of invertebrates including crustaceans and cephalopods, but larger individuals prefer bony fishes including hake; this skate species appears to be a formidable predator in its habitat.

This deepwater skate is taken mostly in small numbers as bycatch by bottom trawlers targeting hake (*Merluccius* spp.) around Southern Africa.

GUIDE TO THE GENERA OF SOUTHEASTERN ATLANTIC DEEP-SEA RAJIDAE

Anterior pelvic-fin lobes elongated, limb-like, separated externally from posterior fin-like lobes

YES



Cruriraja sp. – p. 56

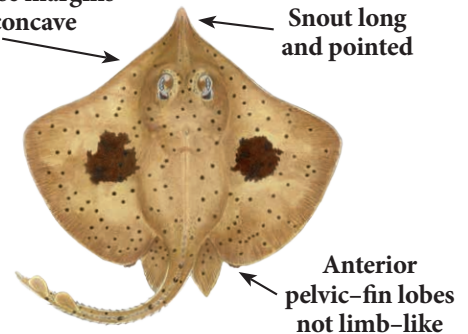
NO

Snout distinctly elongated, pointed; anterior disc margins deeply concave; internarial width usually less than 70% of distance from nostril to snout tip

YES

Anterior disc margins deeply concave

Snout long and pointed



Dipturus sp. – p. 57

NO

Dorsal disc surface and tail finely covered with dense dermal denticles giving it a velvet-like texture; ventral surface of tail partially to completely covered with dermal denticles. Median row of tail thorns decreasing rearwards in size and disappearing completely on posterior third of tail among dense dermal denticles

Snout moderately elongated, pointed; disc typically inverse heart-shaped, much wider than long, with anterior margins at most weakly undulated in mature males. Upper disc with very dense, velvet-like dermal denticles coverage and extremely reduced thorn pattern

YES



Malacoraja spinacidermis – p. 60

Snout short, bluntly angled; disc typically subrhombic to subcircular, with anterior margins strongly undulated in mature males. Upper disc rough, prickly always with defined pattern of distinct thorns



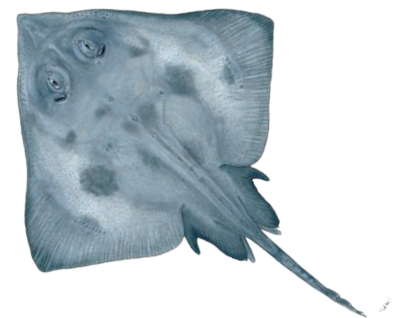
Neoraja stehmanni – p. 61

NO

Tail short, stout, length about equal to or shorter than precaudal length

YES

Thorns very large, with a distinctly ribbed basal cone; 2 to 3 scapular thorns on each shoulder; median row of enlarged thorns extending from nuchal area to first dorsal fin may be incomplete or interrupted, but always present



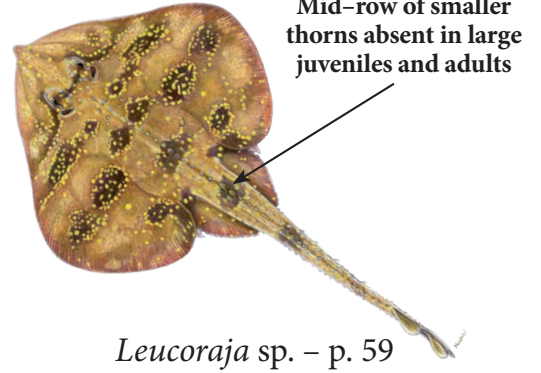
Amblyraja sp. – p. 55

NO, go to next page

GUIDE TO THE GENERA OF SOUTHEASTERN ATLANTIC DEEP-SEA RAJIDAE

Multiple rows of median thorns along midback of disc and tail, with mid-row thorns smaller than those in lateral row(s), absent in large juvenile and adult specimens

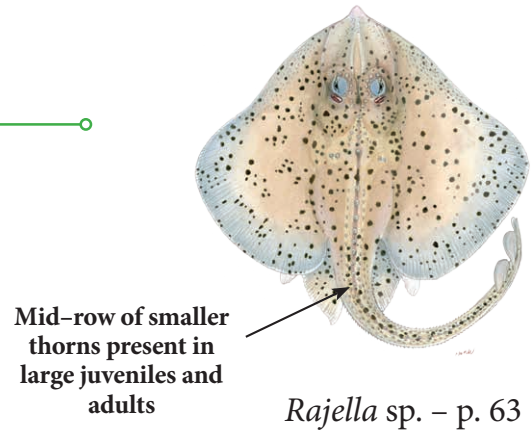
YES

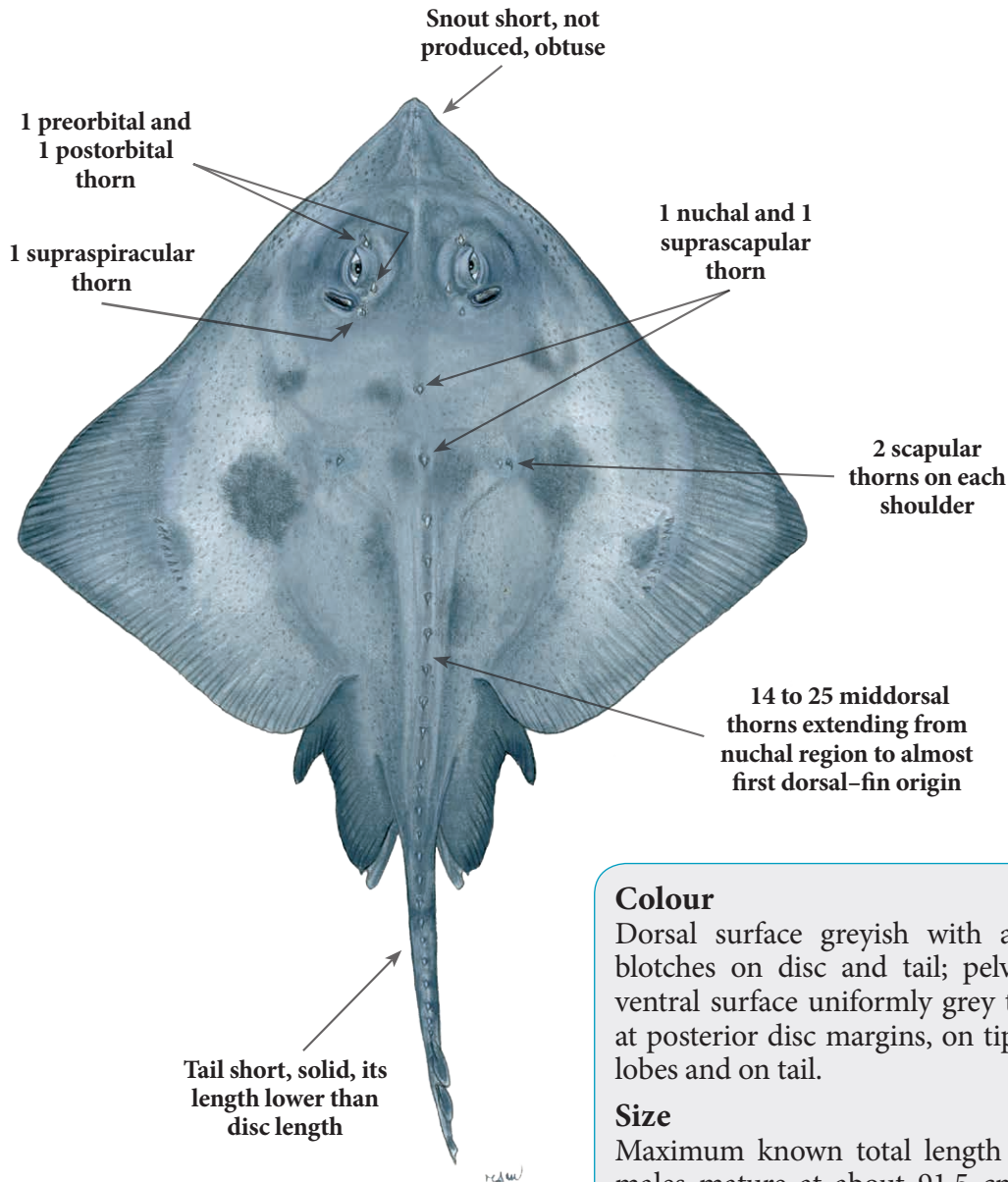


NO

One to several rows of similar sized thorns along midback of disc and tail in juvenile and adult specimens

YES





Colour

Dorsal surface greyish with a few scattered darker blotches on disc and tail; pelvic fins slightly darker; ventral surface uniformly grey to black, slightly darker at posterior disc margins, on tips of anterior pelvic-fin lobes and on tail.

Size

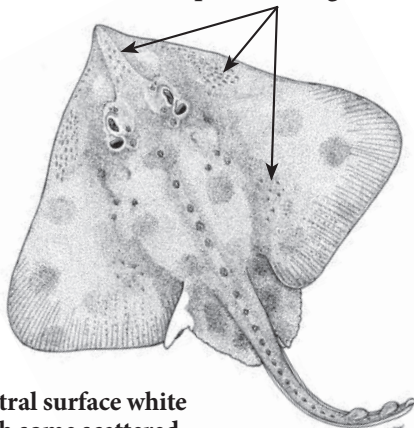
Maximum known total length is 91.5 cm; males mature at about 91.5 cm in length, immature at 77.3 cm; females not reported for this species.



Similar species

Amblyraja taaf

Stellate-based thorns on anterior margins, rostral cartilage and posterior angles



Ventral surface white with some scattered darker blotches

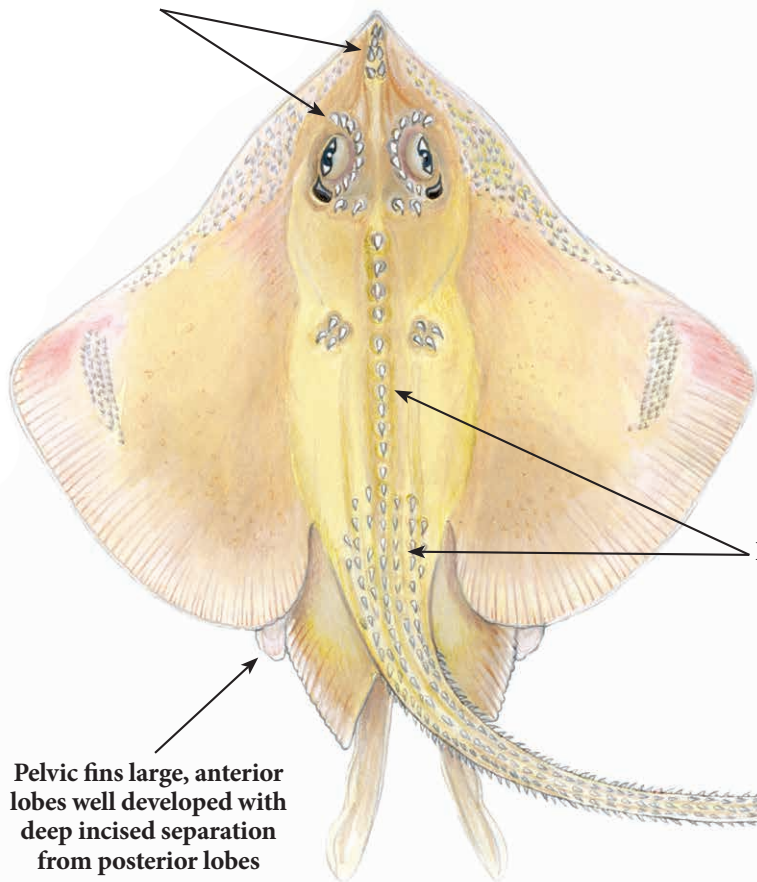
Bio-Ecology, Distribution and Fisheries of *Amblyraja robertsi*

This species is only known from off Cape Town, South Africa between 1141 and 1350 m depth.

Oviparous, with egg capsules measuring 130 mm in length, excluding the horns; surfaces are striated and rough to the touch. Four egg cases trawled up off Cape Town each had near-term embryos of this species.

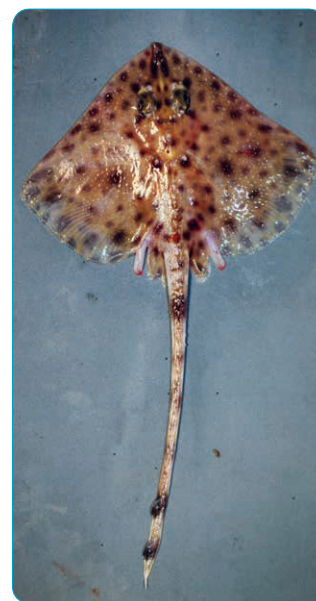
A rare skate species taken on occasion as bycatch in deepwater bottom trawls, mostly discarded.

Acute snout covered with large conspicuous light coloured thorns that are also around the eyes



Adult

Mid-back thorns arranged in 1 to 5 linear rows followed by tail thorns usually in 5 linear rows



Juvenile

Photos: © Rob Leslie

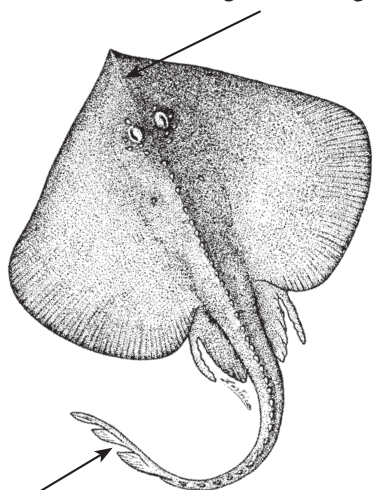
Pelvic fins large, anterior lobes well developed with deep incised separation from posterior lobes

6 inter-dorsal thorns

Similar species

Cruriraja durbanensis

Thorns absent on snout tip, and along rostral ridge



No thorns between dorsal fins

Colour

Dorsal surface yellowish to sandy brown, lighter near fin margins and lateral to rostral cartilage; conspicuous dark brown blotches and spots in juveniles; ventral surface creamy to white.

Size

Maximum total length 59.4 cm (female), 58 cm (male); females mature between 46 and 50 cm; males between 45 and 50 cm.



Bio-Ecology, Distribution and Fisheries of *Cruriraja hulleyi*

This species is only known to occur off Southern Africa, from Lüderitz, Namibia to Algoa Bay, and possibly East London, South Africa.

It is moderately common on the outer continental shelf and upper slope from 39 to 545 m, but most common between 200 and 500 m.

A common bycatch on trawl fisheries, it is discarded due to its small size.

Dipturus pullopunctatus (Smith, 1964)

Slime skate – Raie baveuse – Raya limosa

Rog (Afr)
Skate (Namibia)

JAL

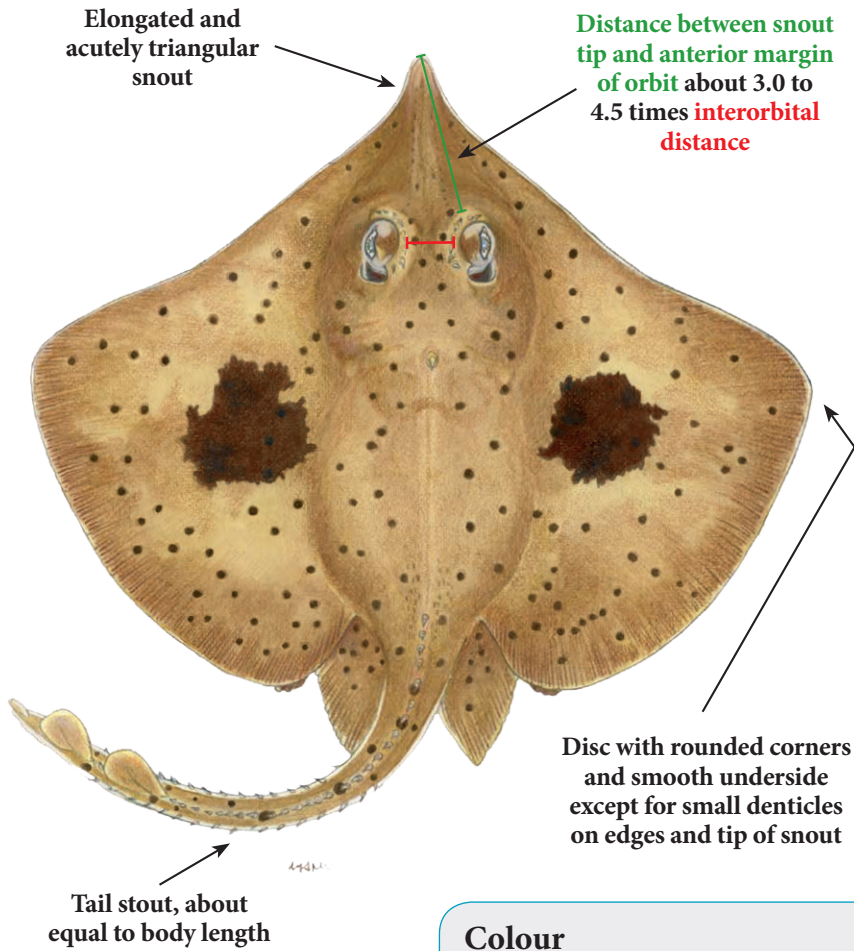


Photo: © Oddgeir Alvheim, IMR

Colour

Medium brown above, with a large conspicuous brown blotch on upper base of each pectoral fin and with numerous smaller dark spots; greyish ventrally with dark mucus pores appearing as black spots and streaks.

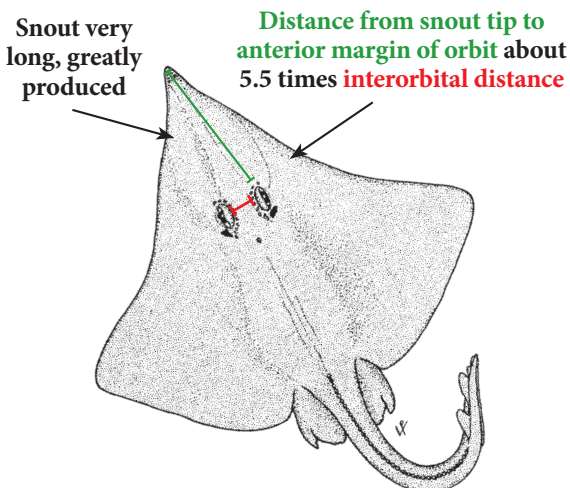
Size

Maximum total length 124.5 cm (female); size at maturity differs between the west and south coasts of South Africa; west coast males mature at 96.6 cm TL and on the south coast at about 87.9 cm TL. Females on the west coast mature at about 100 to 112 cm TL, while on the south they mature at about 81.2 cm TL.

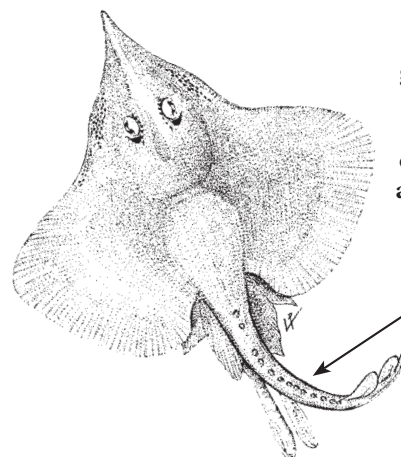


Similar species

Dipturus sternorhynchus



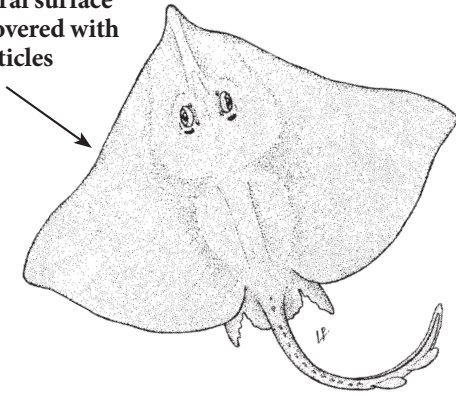
Dipturus doutrei



Tail relatively short, distance from snout tip to posterior margin of cloaca equal to or greater than sum of distance from posterior margin of cloaca to tip of tail plus distance from tip of snout to anterior margin of upper jaw

Dipturus springeri

Disc ventral surface
broadly covered with
denticles



Bio-Ecology, Distribution and Fisheries of *Dipturus pullopunctatus*

The slime skate is known to occur in Southern Africa, from Lüderitz and possibly Walvis Bay, Namibia, to at least Algoa Bay, South Africa. Records of it from off Durban, South Africa need to be confirmed as they may be based on *Dipturus campbelli*, a Southwestern Indian Ocean species.

It is common mostly in South African waters on the outer continental shelves and upper slopes from 15 to 457 m depth, but appears to be most common between 200 and 300 m.

Oviparous, with large-sized egg cases measuring over 130 mm, excluding horns, with a striated surface covered with dense fibers, and with broad lateral keels, making up about 19% of the maximum width. There does not appear to be a defined breeding season as females with egg cases in utero have been observed year-round. The age at maturity has been estimated at about nine years, with an estimated longevity of 18 years. The diet of this skate mostly includes small bony fishes and to a less extent crustaceans; large individuals, over 70 cm total length consume large mobile fish species such as hake, *Merluccius* species.

This species is taken as bycatch in bottom trawl fisheries, but there is no information on trends in catches of this species where it is known to occur.

Leucoraja wallacei (Hulley, 1970)
 Yellowspotted skate – Raie de Wallace
 Raya de Wallace

Blancmange skate (Namibia)
 Witpoeding-rog (Afr)

JAK

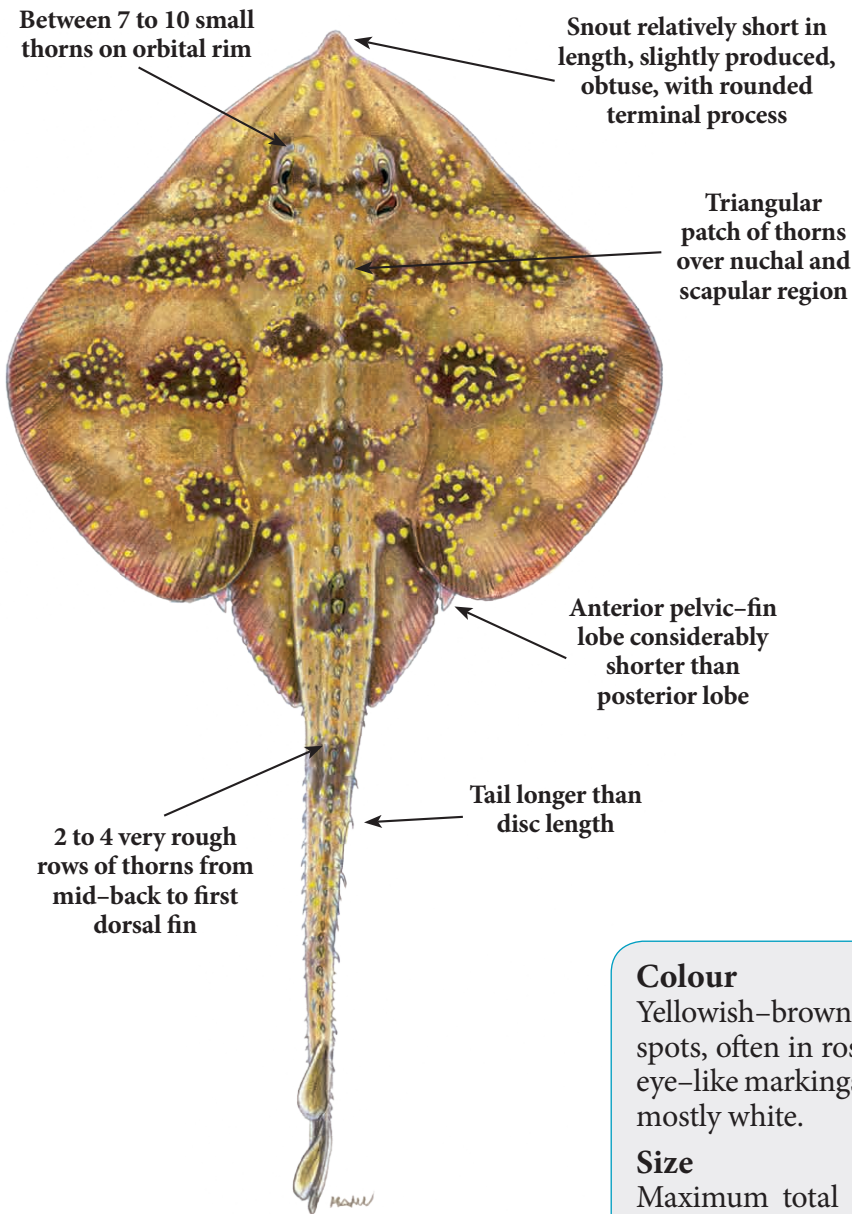


Photo: © Oddgeir Alvheim, IMR

Colour

Yellowish-brown with very distinctive bright yellow spots, often in rosettes and whorls, sometimes forming eye-like markings on pectoral-fin bases; ventral surface mostly white.

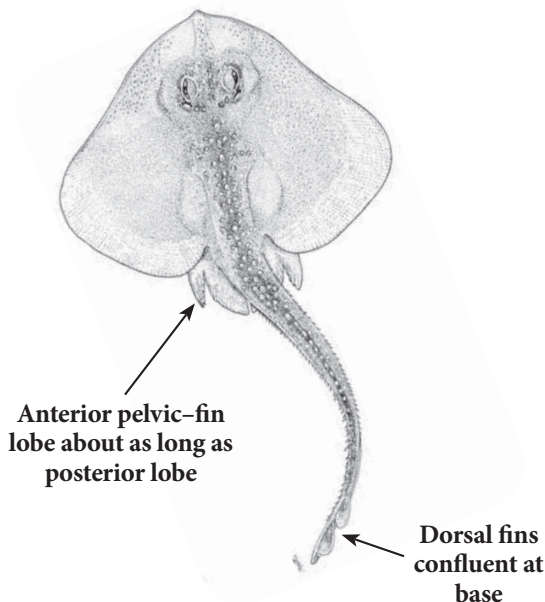
Size

Maximum total length is 87.0 cm (males) and 96.3 cm (females); size at maturity is between 64 and 77 cm for males and 64 to 73 cm for females.



Similar species

Leucoraja compagnoii



Bio-Ecology, Distribution and Fisheries of *Leucoraja wallacei*

This species is known to occur in FAO Area 47 from Southern Namibia to the south coast of KwaZulu-Natal, South Africa.

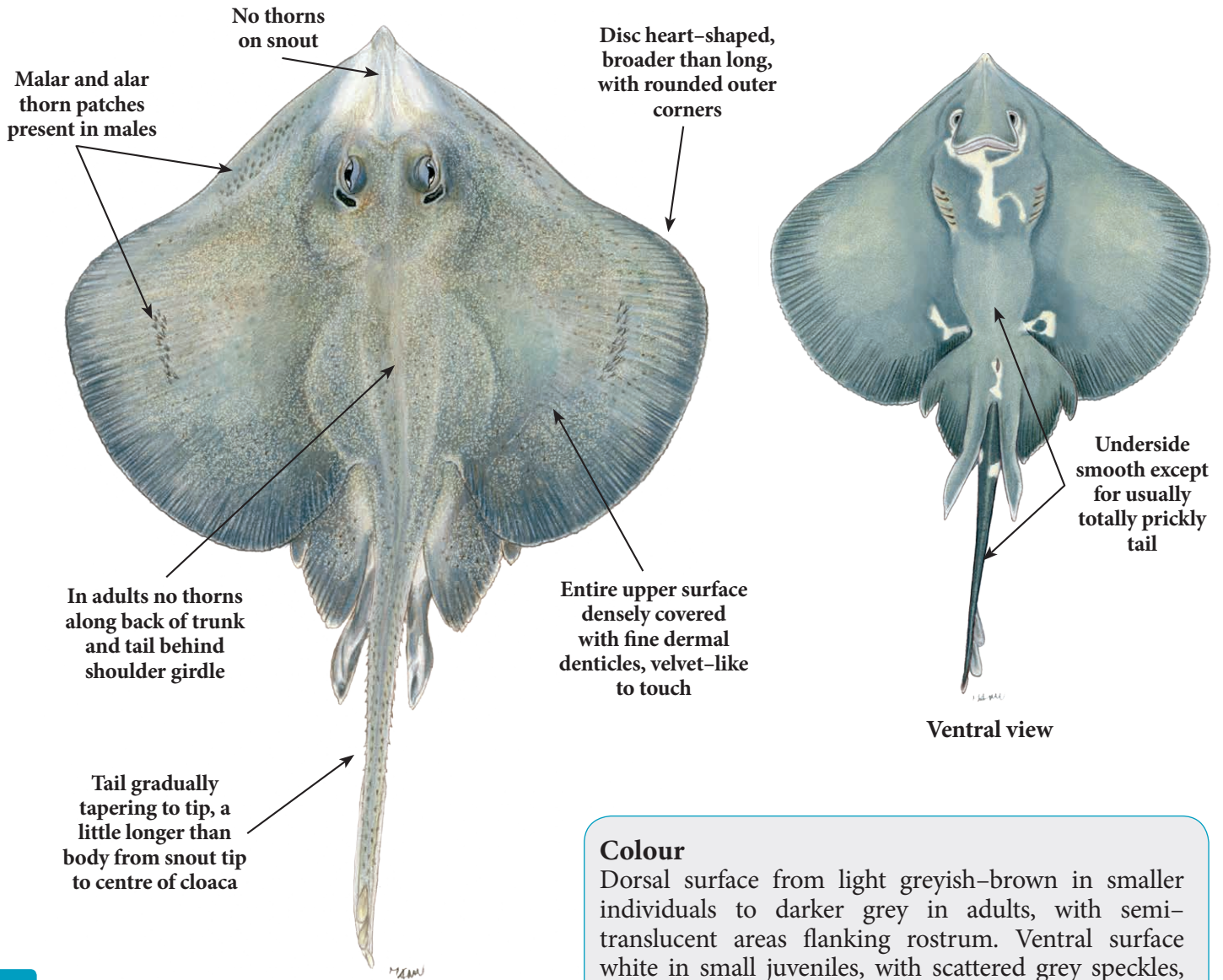
It occurs from the outer continental shelf to upper slopes from 73 to 517 m depth, with most records from between 150 and 300 m. The distribution of this species is bimodal off the west and southeast coasts of South Africa, with the highest concentrations between the Orange River and Cape Columbine, and between Cape Point and Cape Agulhas to Algoa Bay.

This moderate-sized skate species is a common bycatch species, but is usually discarded.

Malacoraja spinacidermis (Barnard, 1923)
Soft skate – Raie peau hérissée – Raya piel áspera

Roughskin skate, Prickled skate
(South Africa)
Ruwevel-roog (Afr)

RJP



In adults no thorns along back of trunk and tail behind shoulder girdle

Tail gradually tapering to tip, a little longer than body from snout tip to centre of cloaca

Note: juveniles have 1 to 2 small pre- and postorbital thorns, 1 small mid-nape and mid-shoulder thorn, and 1 to 2 small shoulder thorns which may become reduced with growth or get lost in adults

Colour

Dorsal surface from light greyish-brown in smaller individuals to darker grey in adults, with semi-translucent areas flanking rostrum. Ventral surface white in small juveniles, with scattered grey speckles, but underside of tail always totally dark grey; larger specimens becoming increasingly dark on disc and pelvic fins to nearly match colour of underside of tail, but creamy-white patches remain medially.

Size

Maximum total length about 71 cm. Size at maturity is about 59 cm for females, and 58 cm for males.

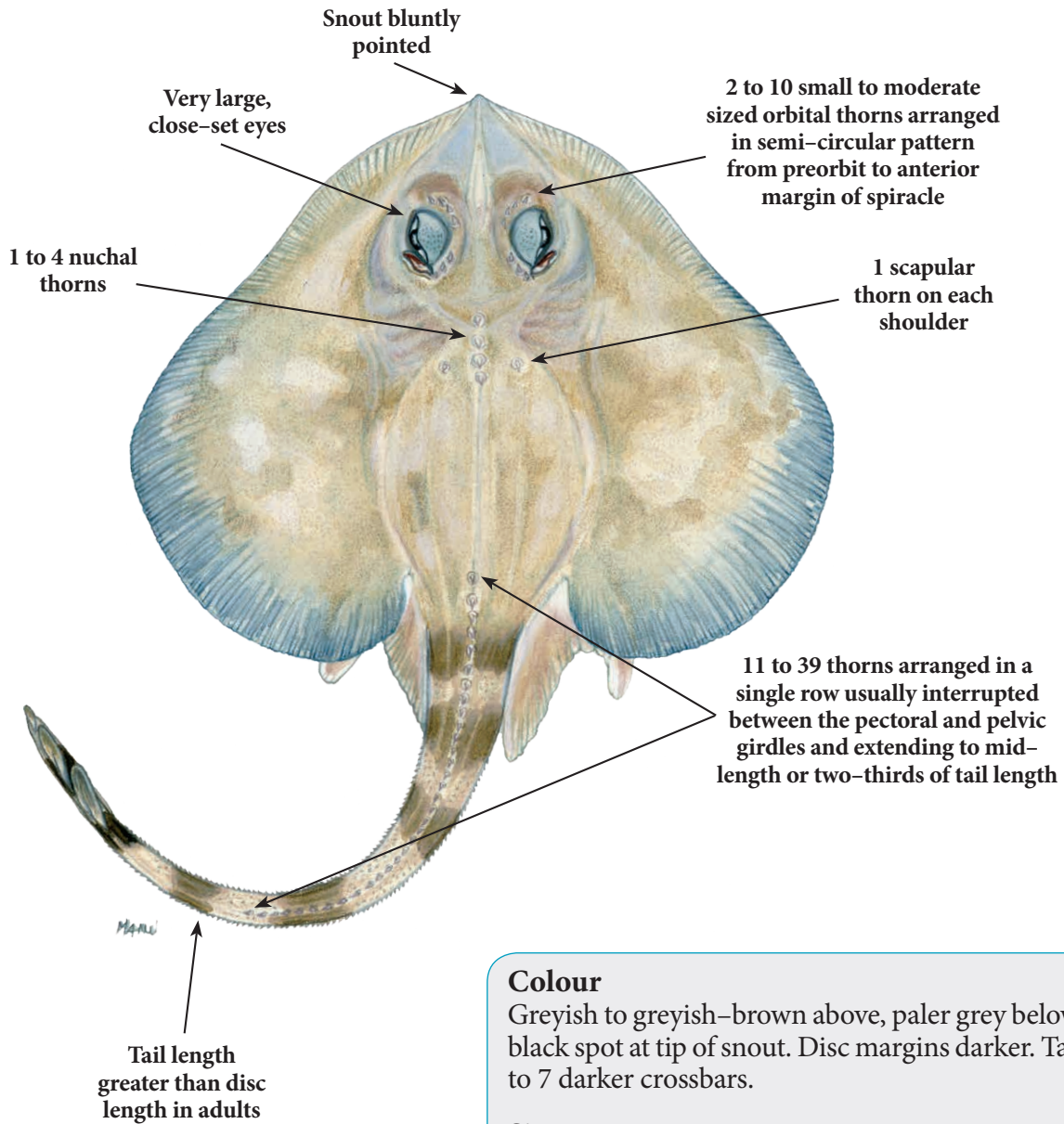


Bio-Ecology, Distribution and Fisheries of *Malacoraja spinacidermis*

This rare deepwater skate occurs in FAO Area 47 from off Southern Namibia to Cape Point, South Africa. It is found in deepwater between 475 and 1570 m, usually deeper than 1000 m depth, and adults may live deeper than 1500 m and down to the abyssal plains.

Oviparous, egg cases small, partially described from South African specimens. The diet of this skate includes crustaceans, mainly shrimps, and small benthic fishes.

It is only sporadically taken by deepwater fisheries as bycatch and discarded or preserved for scientific reference.



Colour

Greyish to greyish-brown above, paler grey below, with a black spot at tip of snout. Disc margins darker. Tail with 6 to 7 darker crossbars.

Size

Maximum total length is 37.6 cm (males) and 36.8 cm (females); size at maturity is about 31 cm for males and 29.5 cm for females.



Dorsal view



Ventral view

Photos: © Rob Leslie

The African pigmy skate has a patchy distribution on the west and south coasts of South Africa. It was recorded from southwest of the Orange River mouth, Western Cape Province, to Algoa Bay, Eastern Cape Province.

It occurs from the outer continental shelf to upper slopes from 102 to 1025 m deep, with most records from below 600 m. The distribution of this species is unusually localized compared to other offshore southern African skates, but it may be that they have very specialized habitat requirements. Several records of this species have come from around offshore seamounts and may suggest an association with this habitat.

Of no commercial fishing interest, this rather small skate species is not likely taken in large numbers given its size and patchy distribution. Probably incidentally caught by hake bottom trawlers.

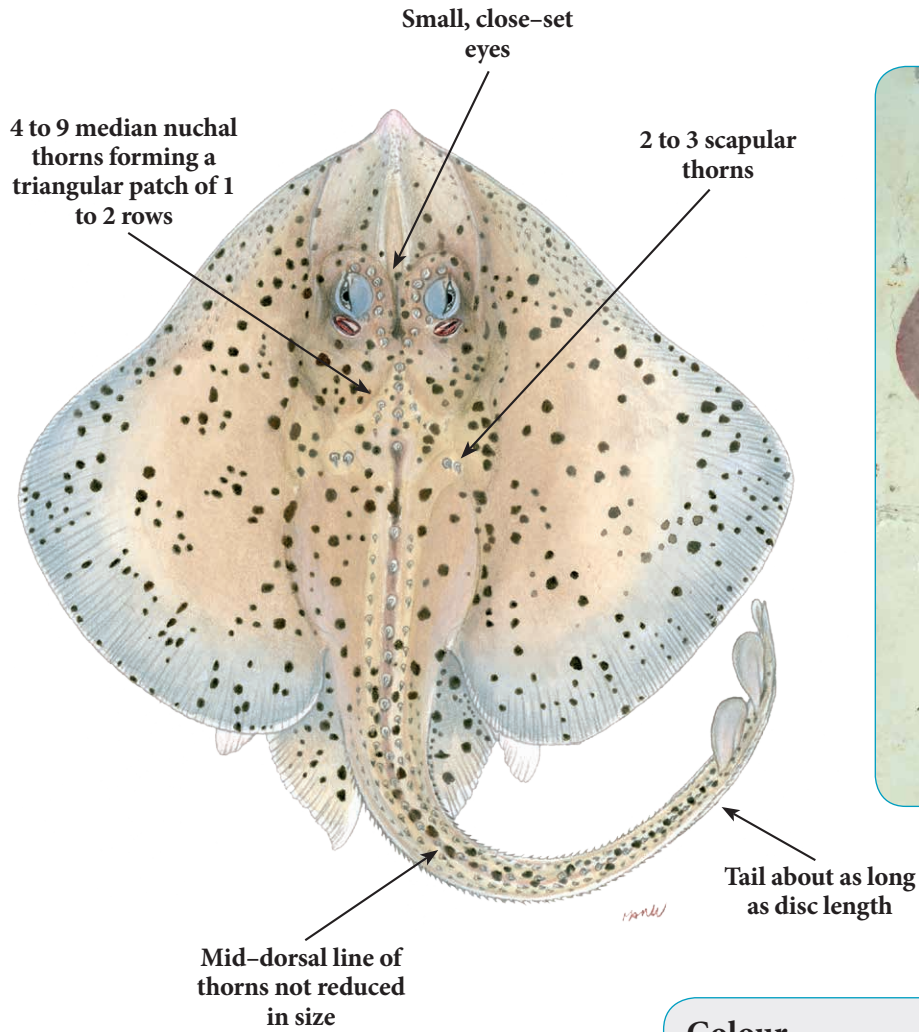


Photo: © Oddgeir Alvheim, IMR

Colour

Medium grey to brown above, with numerous dark spots more common in juveniles; pale below or mottled with dusky blotches and patches.

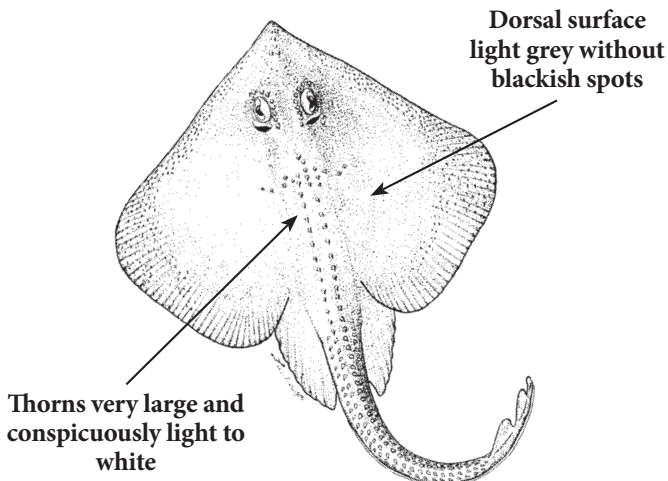
Size

Maximum total length is about 93 cm; males mature at about 61 to 73 cm, and females mature at about 61 to 70 cm.

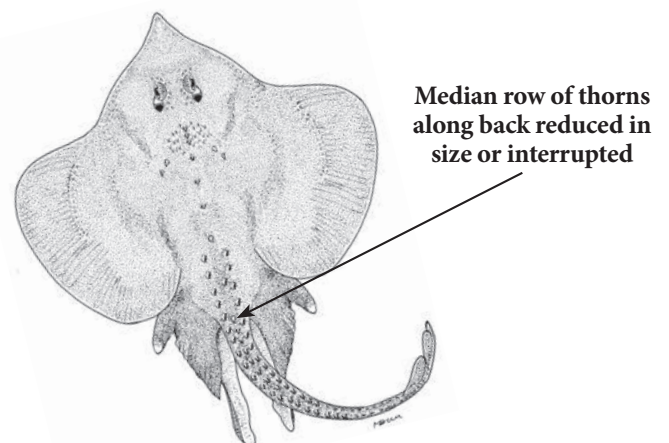


Similar species

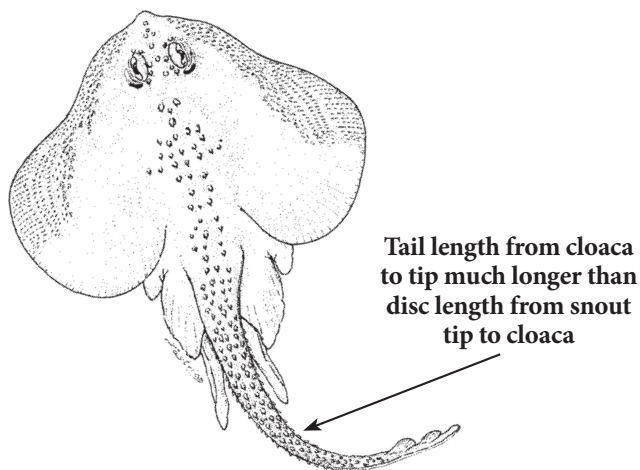
Rajella barnardi



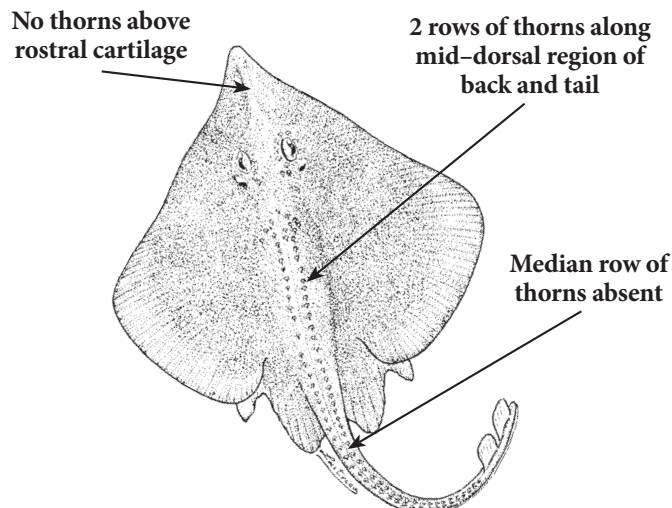
Rajella dissimilis



Rajella caudaspinosa



Rajella ravidula



Bio-Ecology, Distribution and Fisheries of *Rajella leoparda*

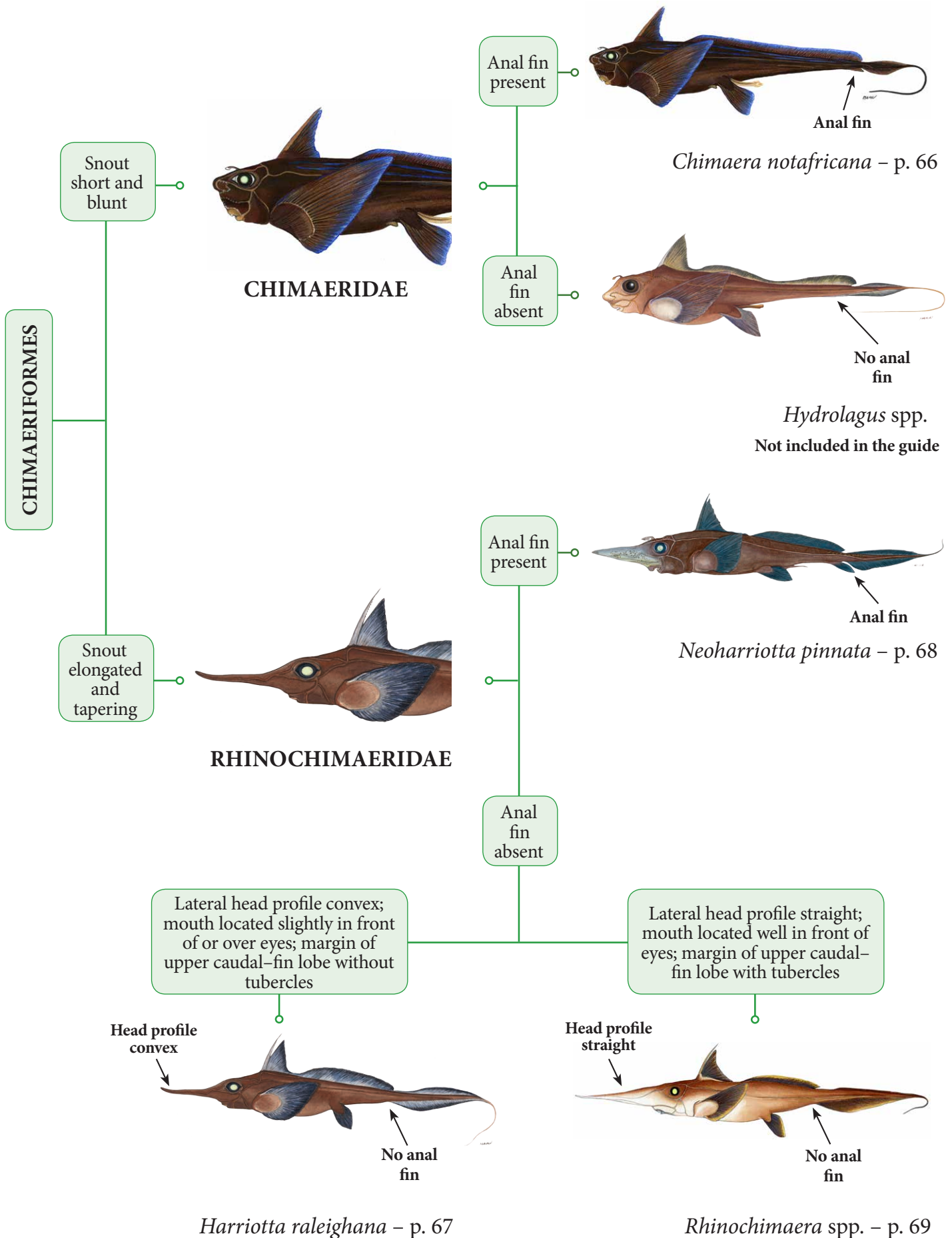
The leopard skate is known to occur in FAO Area 47 from Walvis Bay, Namibia to Cape Agulhas, South Africa, with a few scattered records to Algoa Bay and one record from KwaZulu-Natal. Most records are from central Namibia to Cape Point, South Africa. Also recorded in the Eastern Central Atlantic off Mauritania, Senegal, and Guinea.

It occurs on the outer shelf and slope at depths of 200 to 1023 m, with a few records from the outer shelf at 73 m, but with majority of records from 200 to 600 m. On the west coast of South Africa adults are most common below 700 m, while adolescent and juveniles are more common between 400 and 600 m. *Rajella leoparda* along with *R. barnardi* are the two most common deep-sea skates off the west coast of Southern Africa.

Oviparous, but little else known about its reproductive cycle. Egg cases have been described as being small, about 55 mm long excluding horns, with a smooth surface, and broad feathery lateral keels extending the length of the entire egg case from horn to tip; the latter has a fibrous tendril attachment. Females with egg cases in utero have been found during the summer months.

No interest to fisheries, except taken occasionally as bycatch in commercial bottom trawl fisheries.

GUIDE TO THE FAMILIES AND GENERA OF SOUTHEASTERN ATLANTIC DEEP-SEA CHIMAERIFORMES



Dorsal-fin spine when depressed extending past origin of second dorsal fin

Second dorsal fin long and continuous to upper caudal fin lobe, relatively straight along its length

Anal fin small, low and with pointed tip

Large triangular pectoral fin reaching to pelvic-fin origin when depressed



Photo: © Rob Leslie

Colour

Uniform blackish brown coloration with dark bluish streaking and longitudinal light and dark stripes along body flanks. Pectoral, pelvic, and dorsal fins moderate to dark brown, with a bluish hue near the fin edges.

Size

Maximum total length 93 cm for an adult female, and about 84 cm for an adult male. Size at birth is unknown.



Similar species

This is the only *Chimaera* species known to occur in the Southeastern Atlantic Ocean. Three other shortnose chimaeras, belonging to the genus *Hydrolagus*, are present, but their identification is still uncertain. These *Hydrolagus* species can be separated from the *Chimaera* species based on the fact that they lack the anal fin.

Bio-Ecology and Distribution of *Chimaera notafriicana*

The Cape chimaera is known only from off Lüderitz, Namibia, to the Cape of Good Hope and eastwards to Algoa Bay, Eastern Cape Province, South Africa. It occurs on the upper continental slope from 680 to at least 1016 m. It is occasionally caught by hake trawlers, but not utilized.

This species was previously referred to as *Chimaera monstrosa*, a common European chimaera species, but close examination of the southern African form with the European *C. monstrosa* revealed that it is a different species.

Harriotta raleighana Goode & Bean, 1895

Narrownose chimaera – Chimère de Raleigh
Quimera de Raleigh

Azuma-ginzame (Jpn)
Narrownose chimaera

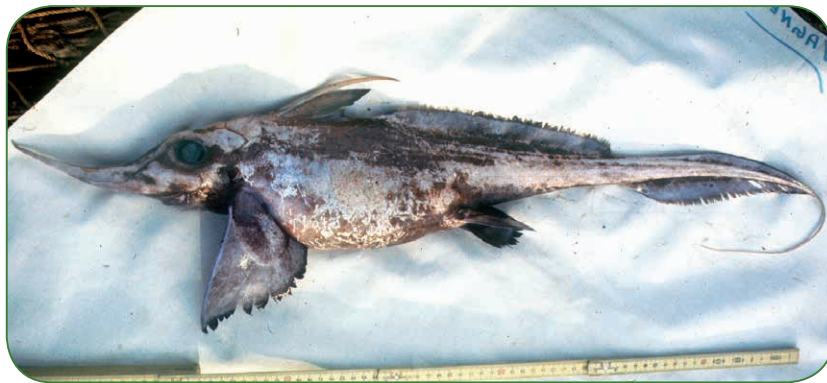
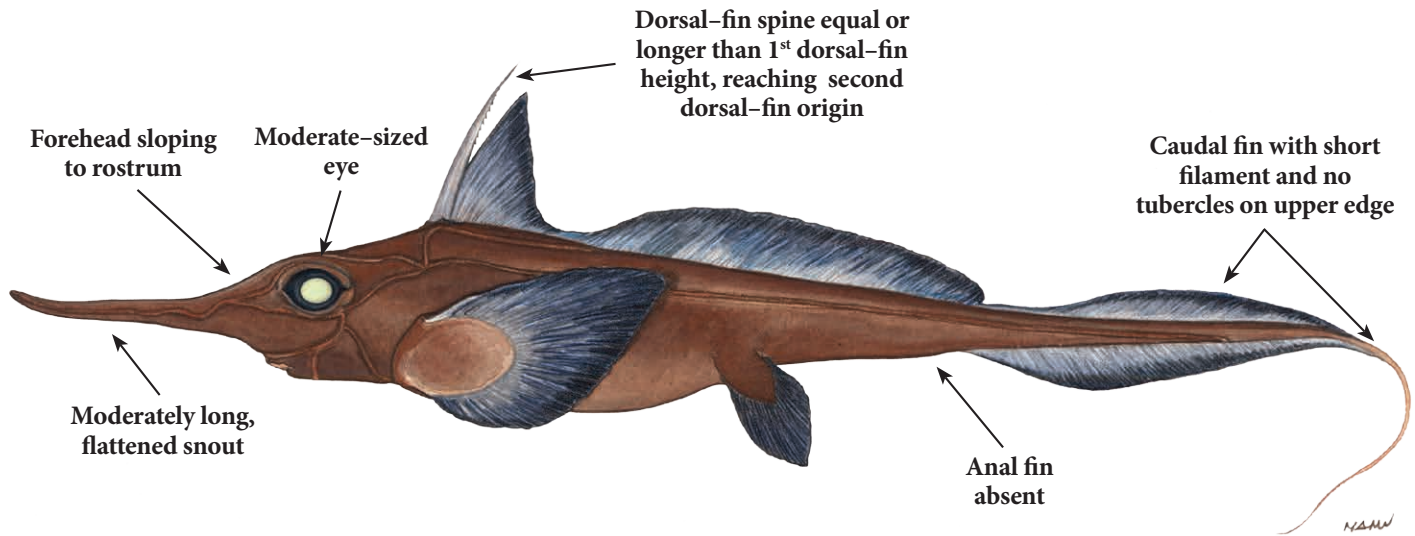


Photo: © M. Stehmann

Colour

Body colour uniform dark brown; fin edges much darker, pelvic fins blackish.

Size

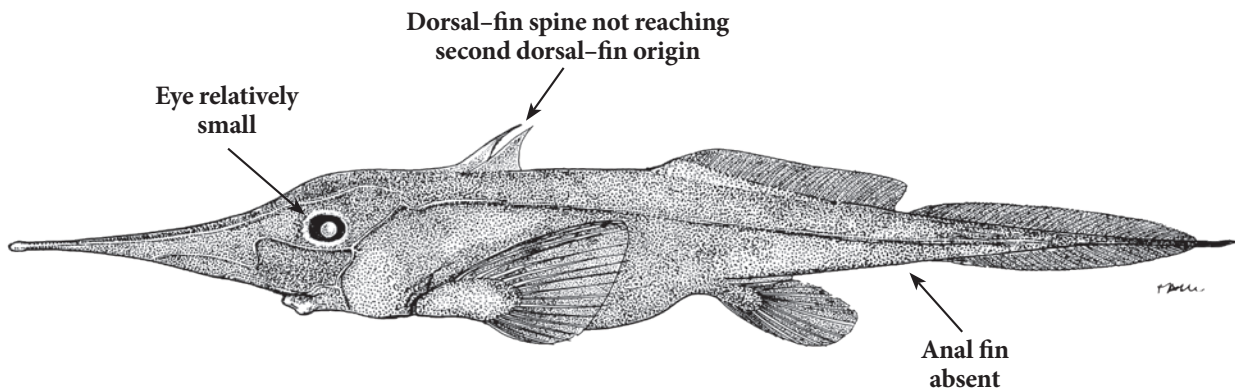
Maximum total length about 120 cm. Males mature at about 25 to 30 cm body length; females at about 30 cm body length.



Similar species

Harriotta haeckeli

The smallspine spookfish, *Harriotta haeckeli* Karrer, 1972, given its spotty distribution and very deep-sea habitat may eventually be found to occur within the Southeastern Atlantic Ocean even it has still not been confirmed from this region.



Bio-Ecology and Distribution of *Harriotta raleighana*

A poorly known deepwater longnose chimaera with a depth range of 380 to 2600 m, although an unconfirmed Indian Ocean record was from only 100 m depth. In FAO Area 47 it occurs off Namibia and the Western Cape Province, South Africa. It has been observed at depth by remote operated vehicles over soft mud and gravelly bottom substrates and on occasion in association with other deepwater chimaeras (*Hydrolagus* spp.). There appears to be an ontogenetic shift between 300 and 1000 m depth with large individuals occurring deeper than smaller individuals.

Neoharriotta pinnata (Schnakenbeck, 1931)

Sicklefin chimaera – Chimère faucillée

Narigón aletas de haz

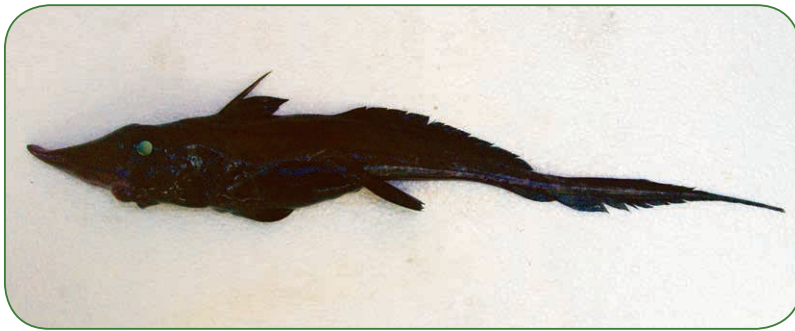
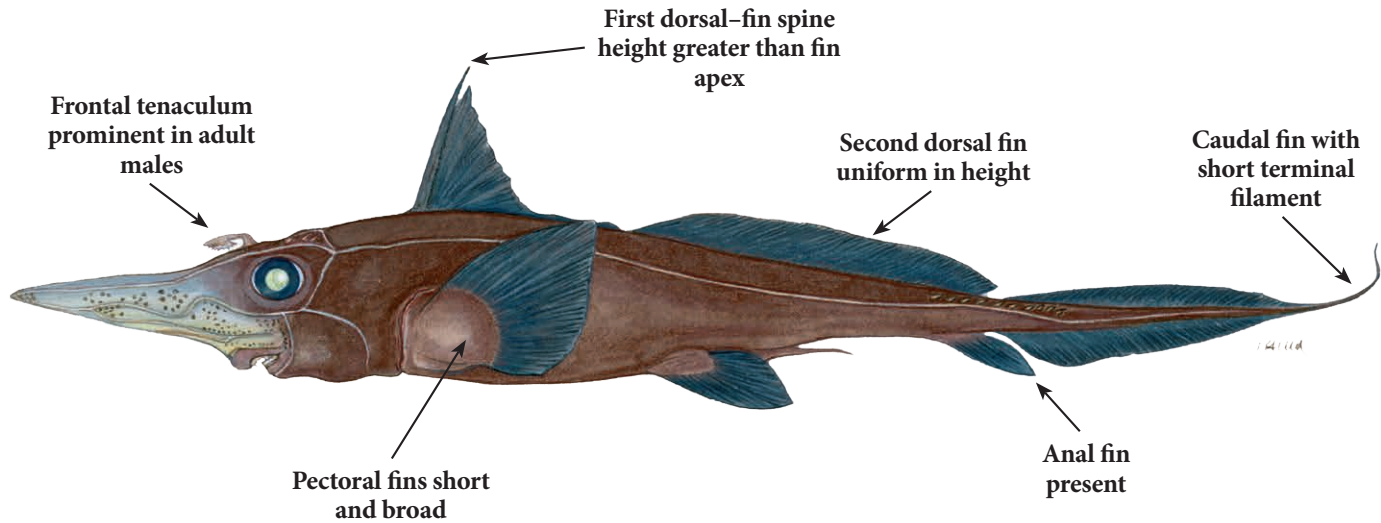


Photo: © Rob Leslie

Colour

Uniform dark chocolate brown without any distinctive blotches, spots or stripes.

Size

Maximum total length 127 cm (58 cm body length); males and females mature at 50 to 60 cm body length.



Similar species

This is the only longnose chimaera species with an anal fin known from this area.

Bio-Ecology, Distribution and Fisheries of *Neoharriotta pinnata*

In FAO Area 47, this long-nosed chimaera is only known from a few specimens from off Angola to Walvis Bay, Namibia. The species is most commonly found off the Southwestern coast of India. It occurs from 200 to 550 m, but nothing else is known.

Oviparous, but nothing else known. Diet includes small invertebrates and fishes.

Uncommon and of no fishery importance throughout most of its range, except off Southwestern India where this species is commonly taken in a deepwater fishery that includes other uncommon deep-sea elasmobranchs such as *Echinorhinus brucus*.

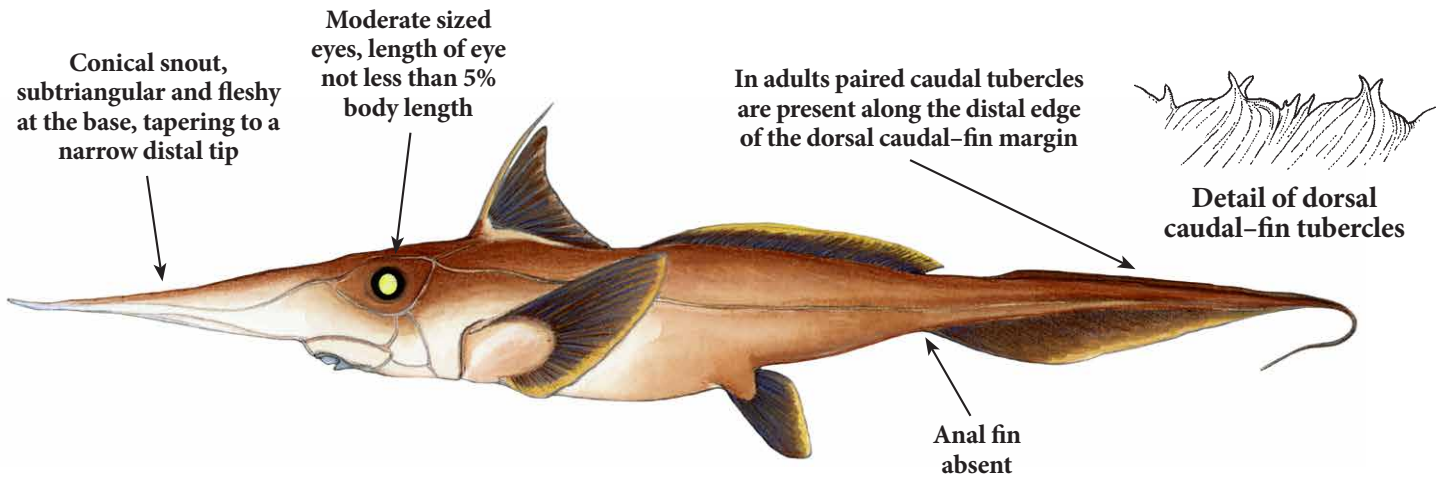


Photo: © Rob Leslie

Colour

Body uniform pale to light brown or greyish-brown with darker fins, ventral side of snout and oronasal region white.

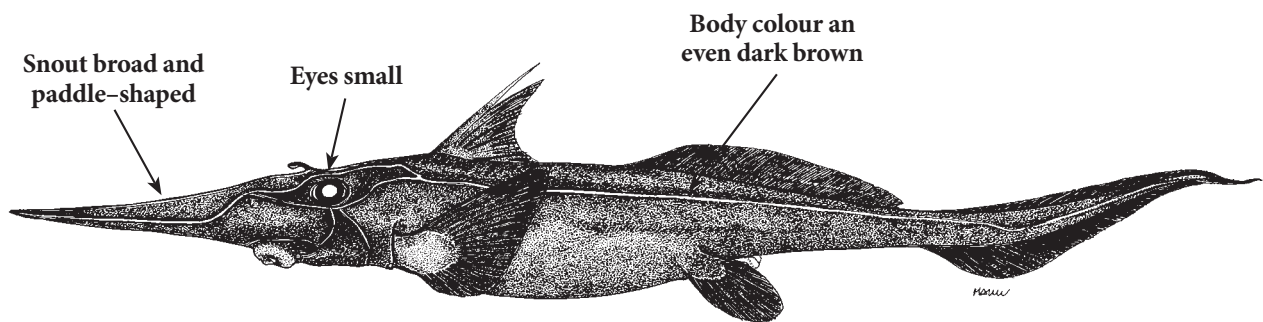
Size

Maximum total length about 140 cm. Males adult at 107 cm TL. Females adult at 127.4 cm TL.



Similar species

Rhinochimaera africana



Bio-Ecology, Distribution and Fisheries of *Rhinochimaera atlantica*

The straightnose rabbitfish is known to occur in FAO Area 47 off Namibia and the west and east coasts of South Africa.

Although little known, it is somewhat common from about 400 to at least 1500 m. It appears to occur mostly on soft-bottom habitats.

Oviparous, but nothing else known of its reproductive biology or feeding habits. This species appears to aggregate in large numbers, often grouping by size, sex, and maturity status.

Of no commercial value, it is taken occasionally as bycatch in bottom trawl fisheries.

DEEP-SEA CARTILAGINOUS FISH SPECIES INCLUDED IN THE GUIDE

SHARKS

HEXANCHIFORMES

<i>Chlamydoselachus africana</i> – African frilled shark	9
<i>Heptranchias perlo</i> – Sharpnose sevengill shark	9
<i>Hexanchus griseus</i> – Bluntnose sixgill shark	9

SQUATINIFORMES

<i>Squatina aculeata</i> – Sawback angelshark	10
---	----

PRISTIOPHORIFORMES

<i>Pliotrema warreni</i> – Sixgill sawshark	10
---	----

LAMNIFORMES

<i>Mitsukurina owstoni</i> – Goblin shark	11
<i>Pseudocarcharias kamoharai</i> – Crocodile shark	11
<i>Alopias superciliosus</i> – Bigeye thresher	12
<i>Cetorhinus maximus</i> – Basking shark	12

SQUALIFORMES

<i>Echinorhinus brucus</i> – Bramble shark	16
<i>Oxynotus centrina</i> – Angular roughshark	16
<i>Squalus acanthias</i> – Picked dogfish	17
<i>Squalus acutipinnis</i> – Bluntnose spiny dogfish	18
<i>Squalus cf. mitsukurii</i> – Shortspine spurdog	19
<i>Centrophorus granulosus</i> – Gulper shark	20
<i>Centrophorus squamosus</i> – Leafscale gulper shark	21
<i>Deania calcea</i> – Birdbeak dogfish	22
<i>Centroscyllium fabricii</i> – Black dogfish	24
<i>Etmopterus granulosus</i> – Southern lanternshark	25
<i>Etmopterus pusillus</i> – Smooth lanternshark	27
<i>Etmopterus sculptus</i> – Sculpted lanternshark	29
<i>Centroscymnus coelolepis</i> – Portuguese dogfish	31
<i>Centroscymnus owstonii</i> – Roughskin dogfish	33
<i>Centroselachus crepidater</i> – Longnose velvet dogfish	35
<i>Zameus squamulosus</i> – Velvet dogfish	37
<i>Scymnodalatias albicauda</i> – Whitetail dogfish	39
<i>Somniosus antarcticus</i> – Southern sleeper shark	40
<i>Euprotomicrus bispinatus</i> – Pigmy shark	41
<i>Heteroscymnoides marleyi</i> – Longnose pigmy shark	41
<i>Isistius brasiliensis</i> – Cookie cutter shark	42

CARCHARHINIFORMES

<i>Apristurus melanoasper</i> – Black roughscale catshark	43
<i>Apristurus microps</i> – Smalleye catshark	45
<i>Galeus polli</i> – African sawtail catshark	47
<i>Holohalaelurus regani</i> – Izak catshark	47
<i>Scyliorhinus capensis</i> – Yellowspotted catshark	48
<i>Scyliorhinus cervigoni</i> – West African catshark	48
<i>Pseudotriakis microdon</i> – False catshark	49

BATOIDS

TORPEDINIFORMES

<i>Tetronarce cowleyi</i> – Cowley's torpedo ray	50
--	----

RAJIFORMES

<i>Bathyraja smithii</i> – African softnose skate	52
<i>Amblyraja robertsi</i> – Bigmouth skate	55
<i>Cruriraja hulleyi</i> – Roughnose legskate	56
<i>Dipturus pullopunctatus</i> – Slime skate	57
<i>Leucoraja wallacei</i> – Yellowspotted skate	59
<i>Malacoraja spinacidervis</i> – Soft skate	60
<i>Neoraja stehmanni</i> – African pigmy skate	61
<i>Rajella leoparda</i> – Leopard skate	63

CHIMAERAS

CHIMAERIFORMES

<i>Chimaera notafriicana</i> – Cape chimaera	66
<i>Harriotta raleighana</i> – Narrownose chimaera	67
<i>Neoharriotta pinnata</i> – Sicklefins chimaera	68
<i>Rhinochimaera atlantica</i> – Straightnose rabbitfish	69

This fully illustrated guide is designed to assist with the identification of a selection of deep-sea cartilaginous fishes of the Southeastern Atlantic Ocean and that portion of Southwestern Indian Ocean from 18°42'E to 30°00'E (FAO Fishing Area 47), that are of major, moderate or minor importance to fisheries.

In this region, the deep-sea chondrichthyan fauna is currently represented by 50 shark, 20 batoid and 8 chimaera species. This guide includes full species accounts for 37 shark, 9 batoid and 4 chimaera species selected as being the more difficult to identify and/or commonly caught. Each species is described, depicted with a colour illustration and photo, and key distinguishing features of similar-looking species occurring in the same area are highlighted allowing for easy and accurate identification in the field. Keys to the shark and batoid orders and families, together with keys to chimaera and skate genera are also provided.

This guide is intended to help fishery workers collecting catch data in the field in the identification of the cartilaginous fish species they might encounter. It is conceived to be updatable, offering the possibility to add new species accounts as new species are described.

ISBN 978-92-5-108777-0



9 7 8 9 2 5 1 0 8 7 7 7 0

I4628E/1/05.15