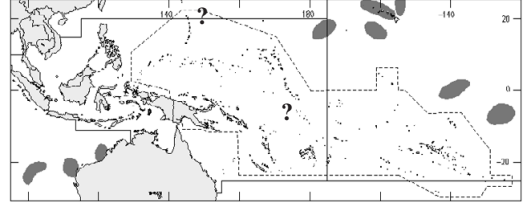


Euprotomicrus bispinatus (Quoy and Gaimard, 1824)

En - Pygmy shark; **Fr** - Squalé pygmée; **Sp** - Tollo pigmeo.

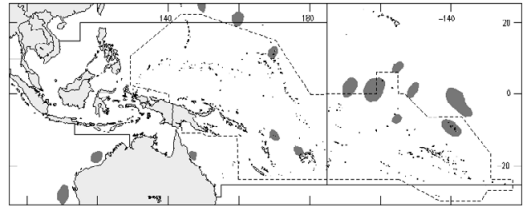
Maximum total length about 27 cm. Occurs at or near the surface at night and apparently descends to below 400 m (possibly as deep as 1 800 m) during the day. Feeds on squid, bony fishes, and crustaceans. Without interest to fisheries. Oceanic and circumglobal in the tropical and temperate oceans.



Isistius brasiliensis (Quoy and Gaimard, 1824)

En - Cookiecutter shark; **Fr** - Squalélet féroce; **Sp** - Tollo cigarro.

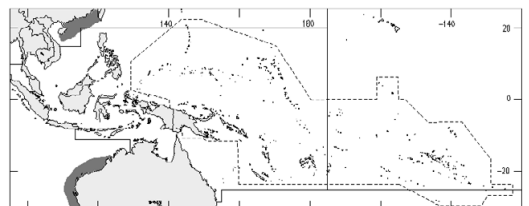
Maximum total length about 50 cm. Makes diurnal vertical migrations probably from below 1 000 m in the day to or near the surface at night. Feeds on free-living deep-water prey, but is also a facultative ectoparasite on larger marine organisms. Minor importance to fisheries in the area. Widespread oceanic in temperate and tropical oceans.



Scymnodon squamulosus (Günther, 1877)

En - Velvet dogfish; **Fr** - Squalé-grogneur velouté; **Sp** - Bruja terciopelo.

Maximum total length at least 84 cm. Demersal or pelagic near continental slopes and seamounts in depths of 550 to 2 000 m. Without interest to fisheries. Western Atlantic (Gulf of Mexico, Surinam, Brazil), eastern Atlantic from Iceland to Senegal, southern Africa and the western Pacific from Japan, South China Sea, Australia, and New Zealand.

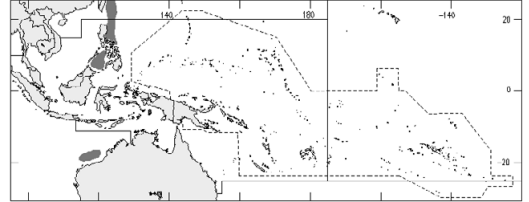


Squaliolus aliae Teng, 1959**En** - Smalleye pigmy shark.

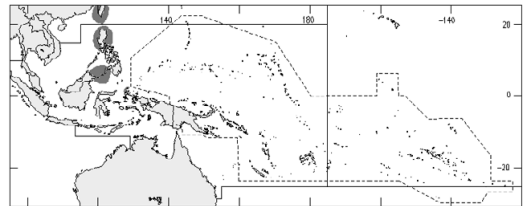
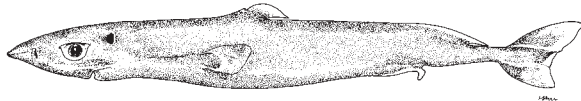
Maximum total length about 22 cm. Together with the following species possibly the smallest living shark. Epipelagic or mesopelagic near continental and island land masses; makes diurnal migrations probably from within 200 m of the surface at night down to about 2 000 m during the day. Feeds on cephalopods and small bony fish. Without interest to fisheries. Western Pacific from Japan to Australia.



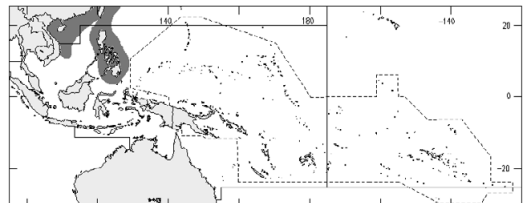
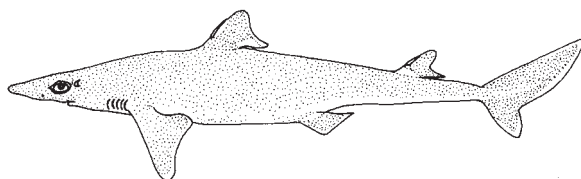
(after Last and Stevens, 1994)

***Squaliolus laticaudus*** Smith and Radcliffe, 1912**En** - Spined pygmy shark; **Fr** - Squalé nain; **Sp** - Tollo pigmeo espinudo.

Maximum total length about 25 cm. Epipelagic near continental and island land masses, usually over the slopes at depths of 200 to 500 m. Feeds on deep-water squid and bony fish. Without interest to fisheries. Oceanic and nearly circumtropical.

***Squalus japonicus*** Ishikawa, 1908**En** - Japanese spurdog; **Fr** - Aiguillat togari; **Sp** - Galludo japonés.

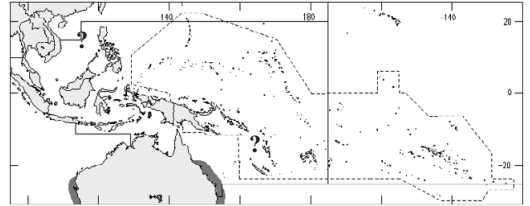
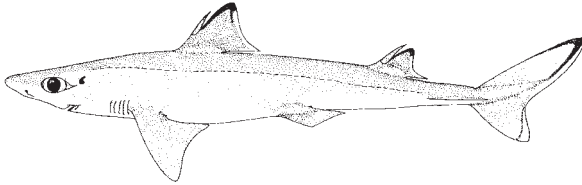
Maximum total length about 91 cm. On the outer continental and insular shelves and uppermost slopes at depths of 150 to 300 m, presumably on or near bottom. Interest to fisheries unknown. Southeastern Japan to the East China Sea, including Korea and the Philippines.



Squalus megalops (Macleay, 1881)

En - Shortnose spurdog; **Fr** - Aiguillat nez court; **Sp** - Galludo ñato.

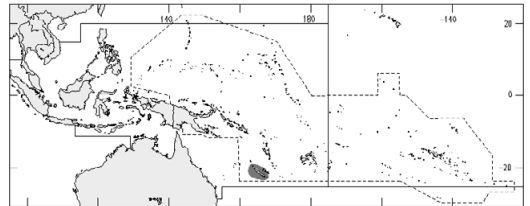
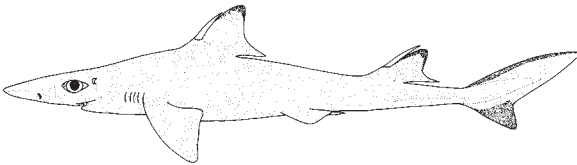
Maximum total length about 71 cm. On the outer continental shelves and slopes on or near the bottom at depths of 50 to 730 m. Schooling; feeds on bony fish, also on cephalopods, crustaceans and other elasmobranchs. Taken in bottom trawls, and by hook-and-line (sports catches); consumed fresh, dried salted, or smoked. Eastern Atlantic from Guinea to South Africa, in the Pacific from South Africa to Mozambique, from Japan to (possibly) Viet Nam and off Australia, and possibly New Caledonia and Vanuatu. Possibly a species complex. Western North Pacific representatives often recognized as *Squalus brevirostris*.



Squalus melanurus Fourmanoir and Rivaton, 1979

En - Blacktailed spurdog; **Fr** - Aiguillat à queue noire; **Sp** - Galludo cola negra.

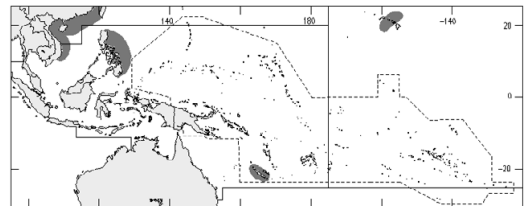
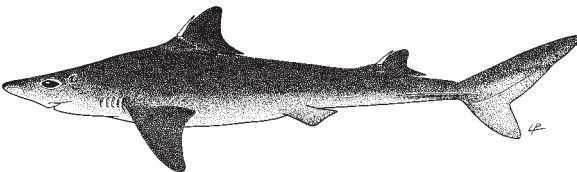
Maximum total length 75 cm (adult females). Occurs on the insular slopes of New Caledonia, at depths of 320 to 340 m. Feeds on lanternfishes, boarfishes, barracudinas, and flatheads. Without interest to fisheries at present. Known only from New Caledonia, from the Ad and Bulari passes.



Squalus mitsukurii Jordan and Snyder, 1903

En - Shortspine spurdog; **Fr** - Aiguillat épinette; **Sp** - Galludo espinilla.

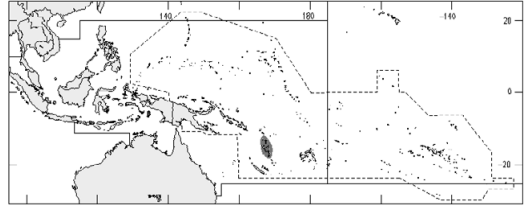
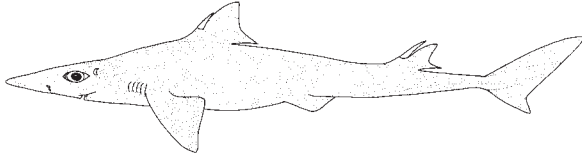
Maximum total length about 1.1 m; commonly to about 76 cm. On the continental and insular slopes and shelves and upper slopes at depths from 50 to 740 m. Feeds on bony fishes, cephalopods, and crustaceans. Caught in bottom trawls, but without importance to fisheries in the area. Considered to be widely distributed in temperate and subtropical parts of most oceans but possibly consisting of a species complex.



Squalus rancureli Fourmanoir and Rivanton, 1979

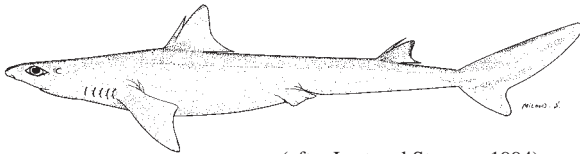
En - Cyrano spurdog; **Fr** - Aiguillat cyrano; **Sp** - Galludo cirann.

Maximum total length at least 77 cm. Occurs on the insular slopes of Vanuatu, at depths of 320 and 400 m. Without interest to fisheries at present. Known only from the vicinity of Vate, Vanuatu.

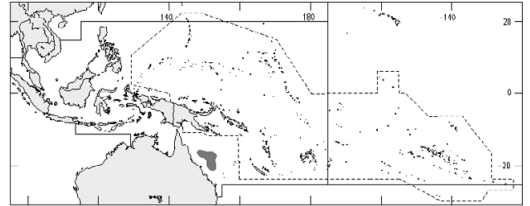
***Squalus* sp. A** [Last and Stevens, 1994]

En - Bartail spurdog.

Maximum total length at least 62 cm. Known only from a few specimens collected off Queensland between Cairns and Rockhampton in 220 to 450 m. Interest to fisheries unknown.

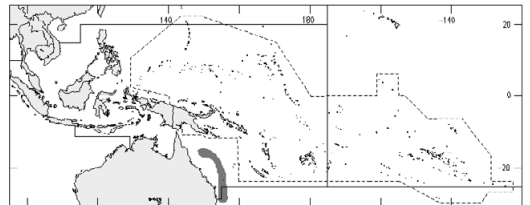
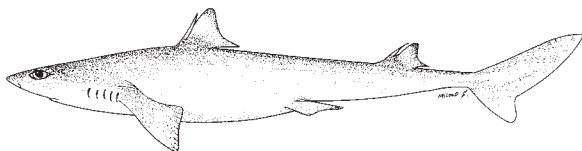


(after Last and Stevens, 1994)

***Squalus* sp. B** [Last and Stevens, 1994]

En - Eastern highfin spurdog.

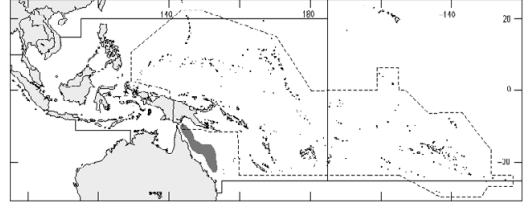
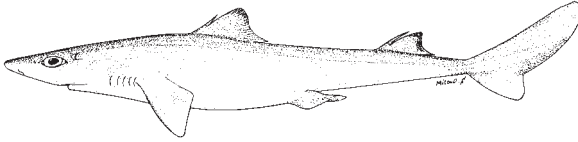
Maximum total length at least 65 cm. On the upper continental slopes in depths to 240 to 450 cm. Biology almost entirely unknown. Interest to fisheries unknown. Eastern Australia from the Queensland Plateau to Byron Bay. A similar and probably identical spurdog occurs off northern Papua New Guinea.



Squalus sp. F [Last and Stevens, 1994]

En - Eastern longnose spurdog.

Maximum total length about 64 cm. On the continental slope off Queensland between Cape York and Rockhampton in depths from 220 to 500 m. A similar small, long-nosed spurdog occurs off north and eastern Luzon, Philippines, from coastal waters less than a depth of 40 m to 385 m. Interest to fisheries limited. The Philippines spurdog is fished locally.

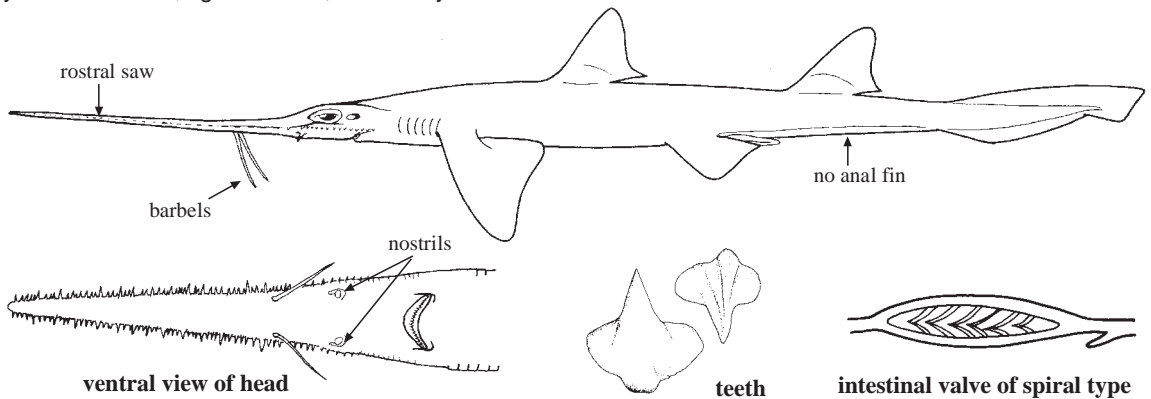


PRISTIOPHORIDAE

Saw sharks

by L.J.V. Compagno

Diagnostic characters: Small sharks with cylindrical to somewhat depressed bodies, without lateral ridges but **tail with long lateral folds reaching caudal fin**; precaudal tail about as long as trunk. Head not expanded laterally, considerably depressed; 5 or 6 small gill slits present, all in front of pectoral-fin origins, their upper ends not expanded onto upper surface of head; no gill sieves or complex rakers on internal gill slits; **spiracles present and very large, behind eyes**; nostrils without barbels, nasoral grooves or circumnarial grooves, far anterior to mouth; eyes dorsal on head, without nictitating eyelids; **snout extremely long, depressed and blade-like, with lateral teeth and unique rostral barbels** in front of nostrils; **mouth small, short, transversely arched, and well behind eyes**; labial furrows very short, confined to mouth corners; teeth small, not blade-like, with a single low cusp, similar in upper and lower jaws and weakly differentiated along the jaws. **Two dorsal fins, without spines**, the first dorsal fin moderately large, high and angular, much shorter than caudal fin, and with its base nearly equidistant between pectoral- and pelvic-fin bases; second dorsal fin about as large as first; **anal fin absent**; caudal fin strongly asymmetrical, much less than 1/2 of total length, without a rippled or undulated dorsal margin but with a strong subterminal notch; lower lobe not present or very short; vertebral axis of caudal fin slightly raised above body axis. Caudal peduncle depressed, without precaudal pits but with low lateral folds continuing from precaudal tail. Intestinal valve of spiral type. **Colour:** uniform or mottled grey, brown or yellowish above, lighter below, fins dusky.

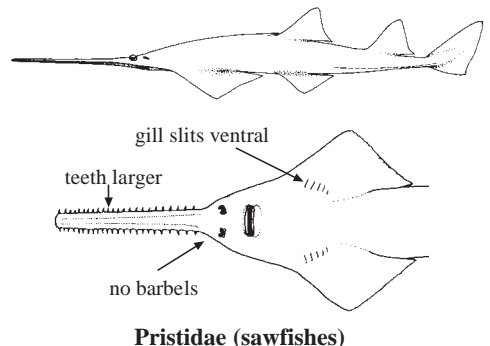


Habitat, biology, and fisheries: These are moderately abundant, primarily deep-water sharks, found on the outer continental shelves and upper slopes down to 915 m, sometimes inshore in shallow water. All species are ovoviviparous. They probably use their rostral saws to injure and kill small fishes and crustaceans, much as do the batoid sawfishes (Pristidae). They have a disjunct distribution at present from the western Pacific, western Indian Ocean, and western North Atlantic, but were formerly almost worldwide. Saw sharks are taken in bottom trawls, and are used fresh for human consumption, but are only of minor importance to fisheries in the area. Considerable fisheries exist in southern Australia, but also in the western North Pacific. Harmless sharks, not exceeding 1.4 m total length.

Similar families occurring in the area

No other sharks have a rostral saw with barbels.


Sawfishes (Pristidae, a family of batoid fishes) are (or formerly were) common in the area and also have a rostral saw, but differ from the sawsharks in having the pectoral fins expanded anteriorly over the gill openings and fused to the sides of the head, so that the head and pectoral fins form a distinct pectoral disc with the gill openings ventral (as in other batoids); additionally, the trunk is shorter and more depressed, the first dorsal fin is partially or entirely above the pelvic-fin bases, the rostral saw has relatively few, uniformly large, continuously growing teeth (small, varying in size along the rostrum, and not growing, but periodically replaced in Pristiophoridae) and no barbels. Furthermore, the species of sawfishes are much larger, reaching 6 m or more.





Key to the species of Pristiophoridae occurring in the area

- 1a. Barbels closer to rostral tip than mouth or approximately equidistant, prebarbel snout 45 to 51% of preoral snout; spiracles moderately large, width less than 0.5 of eye diameter; distance from nostrils to mouth more than 1.3 times internarial space; colour uniform pale yellowish brown above; maximum total length 80 cm, males mature at 62 cm (Australia) ***Pristiophorus* sp. B**
- 1b. Barbels slightly closer to mouth than rostral tip, prebarbel snout 51 to 55% of preoral snout. Spiracles large, width almost 0.75 of eye diameter; distance from nostrils to mouth about 1.1 to 1.2 times internarial space; colour uniform dark brown above; maximum total length at least 73 cm (females) (Philippines) ***Pristiophorus* sp.**

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Pristiophorus* sp. B [Last and Stevens, 1994] (Australia)
-  *Pristiophorus* sp. (Philippines)

References

Compagno, L.J.V. 1984. FAO species catalogue. Vol.4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.*, (125)Vol.4,Pt.1:150 p.

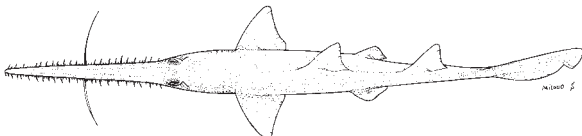
Last, P. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.

Springer, S. and H.R. Bullis, Jr. 1960. A new species of sawsharks, *Pristiophorus schroederi*, from the Bahamas. *Bull. Mar. Sci. Gulf Caribb.*, 10(2):241-254.

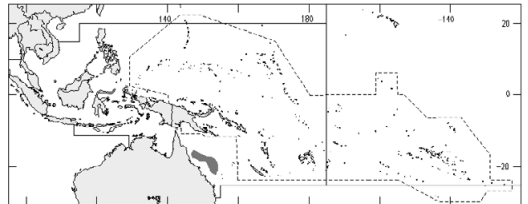
***Pristiophorus* sp. B [Last and Stevens, 1994]**

En - Tropical sawshark.

Maximum total length at least 84 cm. So far only known from the continental slope off tropical northeastern Australia between Rockhampton and Cairns in depths of 300 to 400 m. Interest to fisheries unknown.



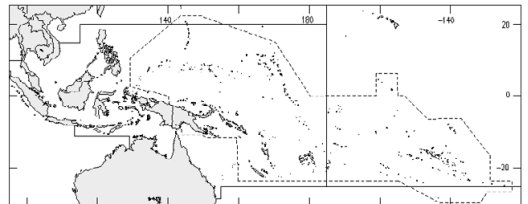
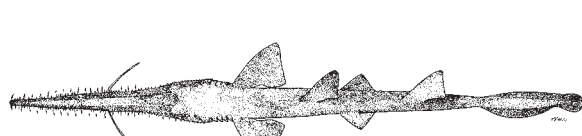
(after Last and Stevens, 1994)



***Pristiophorus* sp.**

En - Philippine sawshark.

Maximum total length at least 73 cm. A little-known deep-water sawshark, so far only known from the upper continental slope off southern Luzon (Balayan Bay, Ragay Gulf) and between Negros and Siquijor in the Philippines at depths of 229 to 593 m. Interest to fisheries unknown. Previously confused with *Pristiophorus cirratus* and *P. japonicus*, which apparently do not occur in the area.

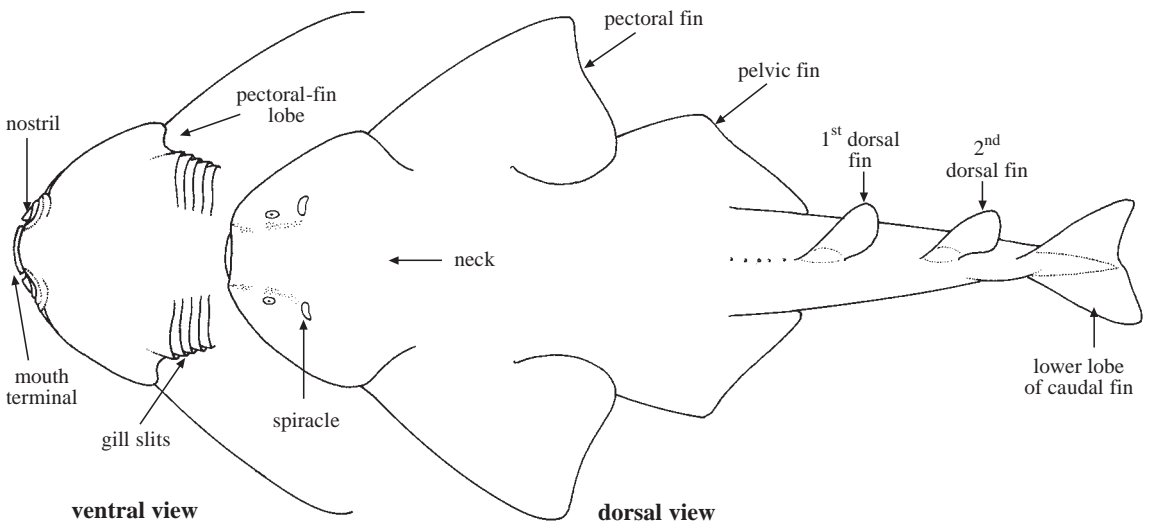


SQUATINIDAE

Angelsharks, sand devils

by L.J.V. Compagno and V.H. Niem

Diagnostic characters: Moderately large, **flattened, ray-like sharks**. Head transversely oval or round, **with a distinct neck at the pectoral-fin bases**; 5 pairs of moderately long gill slits situated ventrolaterally and not visible dorsally; no gill rakers; nostrils at tip of snout, with anterior flaps shaped as elaborate barbels; eyes on dorsal surface of head, without nictitating eyelids; **mouth terminal**, short and angular, extending under front of eyes when jaws are not protruded; teeth small, similar in both jaws, with a single, strong, needle-sharp cusp and no cusplets. **Two equally small, spineless dorsal fins located far rearward on tail**, the first originating behind the pelvic-fin bases; **pectoral fins greatly enlarged, with a broad triangular lobe extending forward from their bases on either side of gill slits** (but not fused to sides of head as in rays); pelvic fins enlarged and wing-like; **anal fin absent**; caudal fin very short, nearly symmetrical but not lunate, **its lower lobe slightly longer than the upper**. Caudal peduncle moderately depressed, with a short, low, longitudinal keel on each side, but without precaudal pits. Intestine with an auger- or corkscrew-like spiral valve. **Colour:** grey or brownish above, white below, with irregular darker markings or light ocelli.

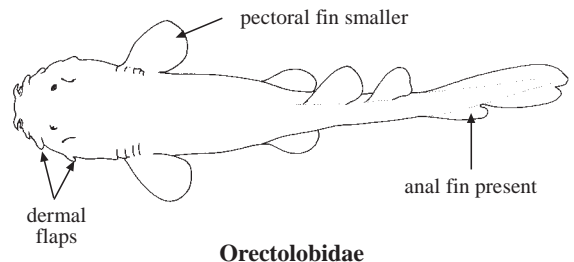


Habitat, biology, and fisheries: Angelsharks are widely distributed and often abundant in cool temperate to tropical seas, ranging in depth from shallow inshore waters down to the upper continental slope. They are bottom-dwelling sharks, often burying themselves in sand or mud, and feed on small fishes and bottom invertebrates. Ordinarily harmless, but aggressive when provoked and capable of causing serious cuts with their small but needle-sharp teeth and strong jaws. Angelsharks are commonly caught in trawls but their use varies from region to region; some are utilized for food and fishmeal; their skin makes good leather and shagreen for sanding wood.

Similar families occurring in the area

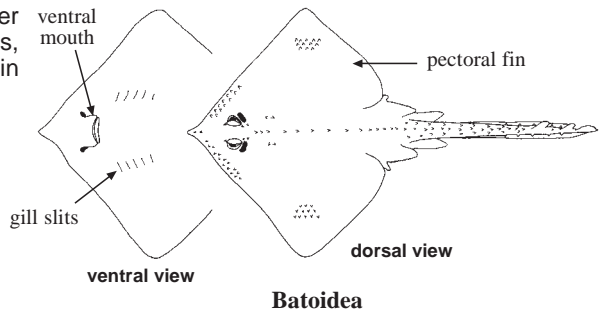
Orectolobidae: also with considerably depressed bodies, but pectoral fins much smaller and anal fin present.

The combination of characters in boldface readily distinguishes the angelsharks from all other shark families in the area.



Orectolobidae

Rays (Batoidea): pectoral fins fused to head over ventral gill slits, no neck at pectoral-fin bases, usually a ventral mouth, and lower lobe of caudal fin (when present) much shorter than the upper.



Key to the species of Squatinidae occurring in the area

- 1a. Anterior nasal barbels simple, with narrow spatulate tip *Squatina japonica*
- 1b. Anterior nasal barbels strongly fringed (Fig. 1) → 2
- 2a. Interorbital space flat or convex, orbital thorns absent (Fig. 1a); numerous dark spots on lower lobe of caudal fin *Squatina australis*
- 2b. Interorbital space concave, orbital thorns usually present (Fig. 1b) more pale spots than dark spots on lower lobe of caudal fin *Squatina sp. A*

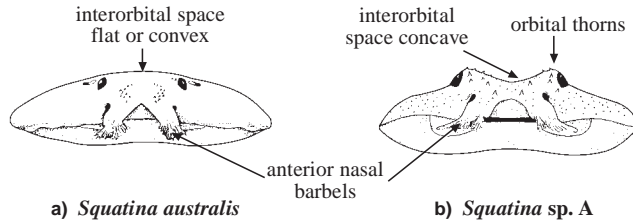


Fig. 1 frontal view of head
(after Last and Stevens, 1994)

List of species occurring in the area

The symbol is given when species accounts are included.

- Squatina australis* Regan, 1906
- Squatina japonica* Bleeker, 1858
- Squatina* sp. A [Last and Stevens, 1994]

References

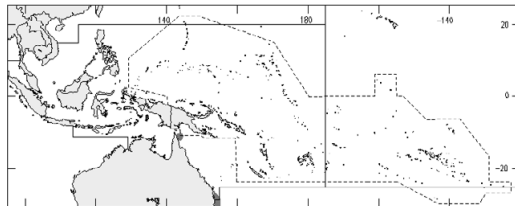
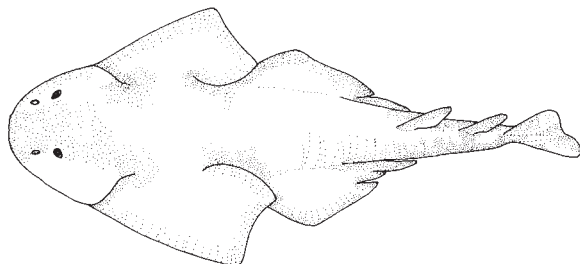
Compagno, L.J.V. 1984. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.*, (125)Vol.4,Pt.1:249 p.

Last, P. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.

Squatina australis Regan, 1906

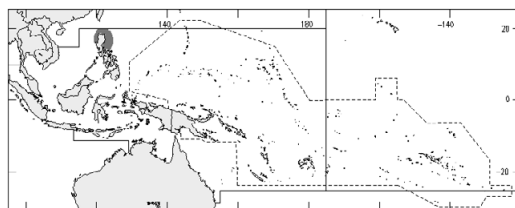
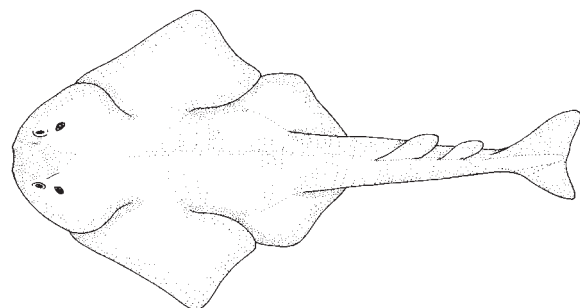
En - Australian angelshark; **Fr** - Ange de mer australien; **Sp** - Angelote australiano.

Maximum total length about 1.52 m. A common but little-known angelshark of the continental shelf and uppermost slope, on or near bottom from close inshore to a depth of 130 m. Taken by bottom trawlers in Australia for human consumption. Southern Australia from Rottnest Island (western Australia) to New South Wales, including Tasmania.

***Squatina japonica*** Bleeker, 1858

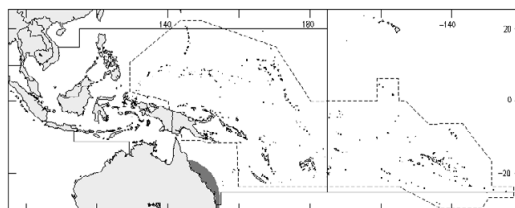
En - Japanese angelshark; **Fr** - Ange de mer Kasuzame; **Sp** - Angelote japonés.

Maximum total length about 2 m. A little known angelshark, found on or near the bottom mainly of temperate western North Pacific waters. Used for human consumption, but importance to fisheries in the area uncertain. Known from Japan, the Yellow Sea, Korea, northern China, and the Philippines.

***Squatina* sp. A** [Last and Stevens, 1994]

En - Eastern angelshark.

Maximum total length at least 63 cm. On the outer continental shelf and upper slope off eastern Australia between Cairns (Queensland) and Lakes Entrance (Victoria) in depths of 130 to 315 m. Utilized for human consumption, but at present of minor importance to fisheries.



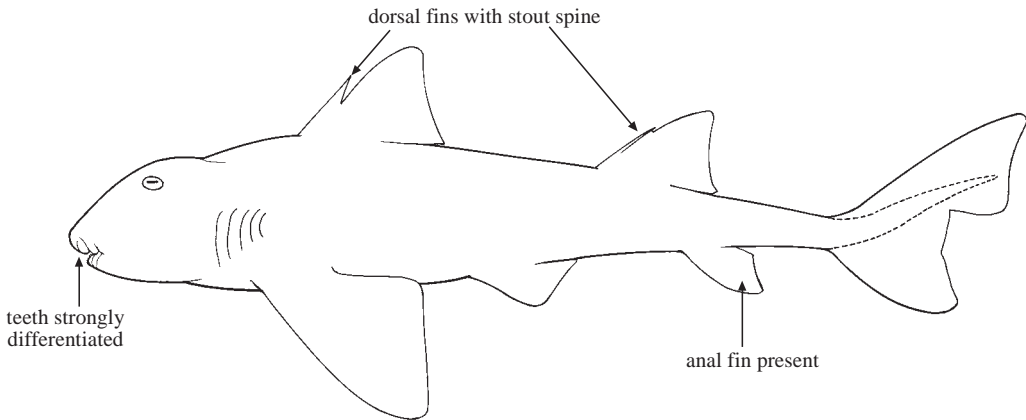
(after Last and Stevens, 1994)

HETERODONTIDAE

Bullhead sharks, horn sharks

by L.J.V. Compagno and V.H. Niem

Diagnostic characters: Small to medium-sized sharks, with cylindrical or slightly compressed bodies. Head conical and slightly elevated; 5 pairs of gill slits present on sides of head, the last 3 above the pectoral-fin bases; spiracles present and small, behind and below eyes; nostrils without barbels but with strong circumnarial grooves and with prominent nasoral grooves connecting nostrils to mouth; anterior nasal flaps elongated posteriorly and reaching mouth; **eyes on dorsolateral surface of head, without nictitating lower eyelids; snout very short and bluntly rounded;** mouth moderate, arched and short, well in front of eyes; labial furrows very large, present on both jaws; **teeth strongly differentiated along jaws, with anterior teeth small and cuspidate and posteriors enlarged, cuspidate and molariform;** no small intermediate teeth or a gap between anterior and lateroposterior teeth in upper jaw. **Two dorsal fins, each with a stout fin spine,** the first with its origin over the pectoral-fin bases or inner margins; pectoral fins moderately large, not ray-like and without triangular anterior lobes; pelvic fins moderately large, with vent continuous with their inner margins; **anal fin present;** caudal fin with a moderately long dorsal lobe and moderately long ventral lobe, the latter shorter than the dorsal lobe. Vertebral axis raised into caudal-fin lobe; intestinal valve of spiral type. **Colour:** brownish to greyish, with colour patterns of dark bars, stripes, or saddles in species of the area.



Habitat, biology, and fisheries: These are common, sluggish, warm-temperate and tropical bottom sharks of the continental and insular shelves and uppermost slopes of the western and eastern Pacific and western Indian Ocean. They are apparently night-active sharks and occur on or near the bottom from the intertidal to 275 m depth, but mostly in shallower water than 100 m. All species are oviparous. Bullhead sharks primarily feed on benthic invertebrates. They are of minimal interest to fisheries, being caught as a bycatch of bottom trawl and line fisheries and utilized for human consumption and for fishmeal. They are commonly caught by divers and in sport fisheries. These sharks can snap when provoked and occasionally pursue and bite their tormentors.

Similar families occurring in the area

None. No other living sharks combine fin spines in the dorsal fins with the presence of an anal fin. The tooth morphology of bullhead sharks is unique among sharks of the area.

Key to the species of Heterodontidae occurring in the area

- 1a. Supraorbital ridges very high, abruptly ending behind eyes (Fig. 1); body with broad blackish bands or saddle-markings *Heterodontus galeatus*
- 1b. Supraorbital ridges relatively low, not abruptly ending behind eyes; body with narrow bands or stripes → 2

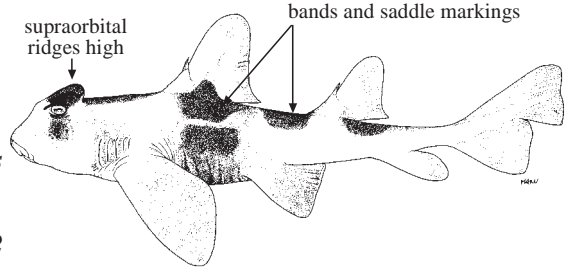


Fig. 1 *Heterodontus galeatus*

- 2a. Colour pattern with narrow, discrete brown or black vertical bands on a pale background (Fig. 2) *Heterodontus zebra*
- 2b. Colour pattern with a set of harness-like narrow dark stripes on the back (Fig. 3) *Heterodontus portusjacksoni*

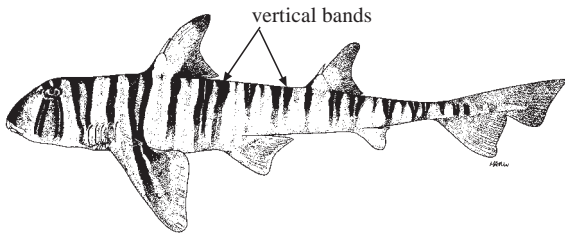


Fig. 2 *Heterodontus zebra*

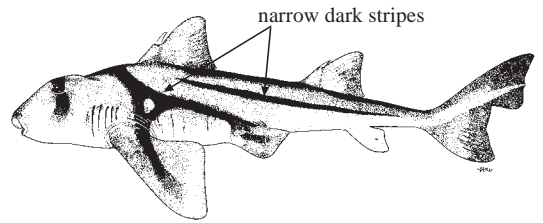





Fig. 3 *Heterodontus portusjacksoni*

List of species occurring in the area

The symbol  is are given when species accounts are included.

-  *Heterodontus galeatus* (Günther, 1870)
-  *Heterodontus portusjacksoni* (Meyer, 1793)
-  *Heterodontus zebra* (Gray, 1831)

References

Compagno, L.J.V. 1984. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.*, (125)Vol.4.Pt.1:249 p.

Last, P. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.

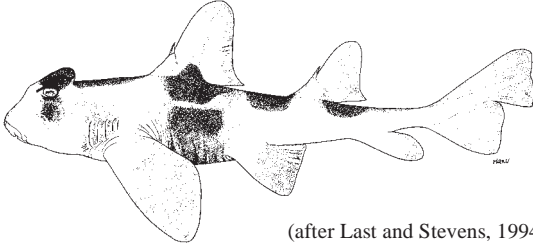
Regan, C.T. 1908. A synopsis of the sharks of the family Cestraciontidae. *Ann. Mag. Nat. Hist. (Ser:8)*, 1(69):493-497.

Taylor, L.R., Jr. 1972. *A revision of the shark family Heterodontidae (Heterodontiformes, Selachii)*. University of California, San Diego, Ph.D. Thesis, 176 p. Available from University Microfilms International, Ann Arbor, Michigan.

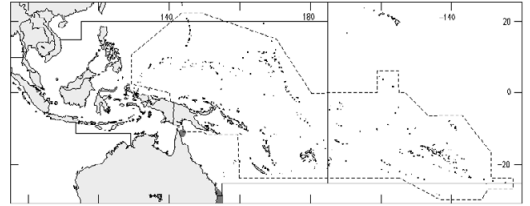
Heterodontus galeatus (Günther, 1870)

En - Crested bullhead shark; **Fr** - Requin dormeur à crête; **Sp** - Dormilón carenado.

Maximum total length about 1.3 m. A moderately common benthic and epibenthic shark of the continental shelves from close inshore to a depth of about 90 m. Feeds primarily on sea urchins (echinoids), but also on crustaceans, molluscs, and small fishes. Of minor interest to fisheries. Western South Pacific of Australia from southern Queensland to New South Wales.



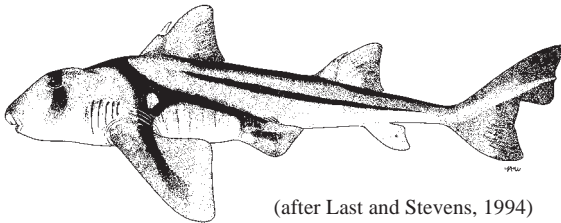
(after Last and Stevens, 1994)



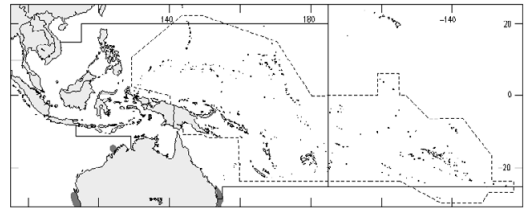
Heterodontus portusjacksoni (Meyer, 1793)

En - Port Jackson shark; **Fr** - Requin dormeur taureau; **Sp** - Dormilón toro.

Maximum total length about 1.65 m. A common shark of the continental shelves from close inshore to depths of at least 275 m. Feeds on benthic invertebrates, primarily echinoderms. Taken by bottom trawls, shrimp nets, beach seines, bottom longlines, and by rod and reel, but probably little utilized. Southern Australia from the Houtman Abrolhos (western Australia) to New South Wales, including Tasmania; a single record from New Zealand.



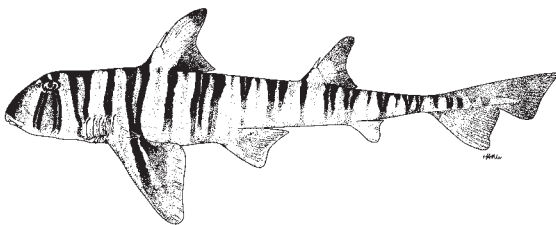
(after Last and Stevens, 1994)



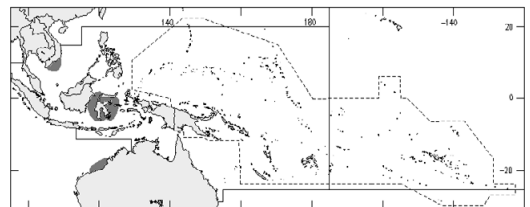
Heterodontus zebra (Gray, 1831)

En - Zebra bullhead shark; **Fr** - Requin dormeur zèbre; **Sp** - Dormilón acebrado.

Maximum total length about 1.22 m. A common but little-known bottom shark of the continental and insular shelves in depths down to at least 50 m. Probably feeds on bottom invertebrates. Of minor interest to fisheries. Distributed from Japan, Korea, China, and Viet Nam to Indonesia; also known from northern Australia.



(after Last and Stevens, 1994)

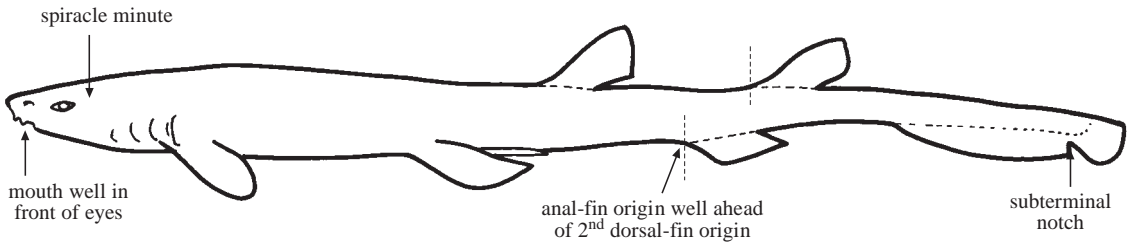


PARASCYLLIIDAE

Collared carpetsharks

by L.J.V. Compagno and V.H. Niem

Diagnostic characters: Small sharks with cylindrical or slightly depressed bodies, without ridges on sides. Head narrow and slightly flattened, without lateral flaps of skin; gill slits small, fifth overlapping fourth; internal gill slits without filter screens; **spiracles minute**, much smaller than eyes and not below them; **nostrils with short, pointed barbels and distinct circumnarial folds and grooves** around outer edges of incurrent apertures; eyes dorsolaterally on head, with subocular pockets; snout broadly rounded to slightly pointed; **mouth small, entirely in front of eyes**, and arched, without a symphyseal groove on chin; teeth not strongly differentiated in jaws, with a medial cusp, lateral cusplets and relatively strong labial root lobes; tooth rows 27 to 54/25 to 49. Dorsal fins equal sized, **first dorsal fin with origin and insertion well behind the pelvic-fin bases**; pectoral fins small, broad, and rounded, as large as pelvic fins or slightly larger; pelvic fins about as large as dorsal fins but slightly greater than anal fin; anal fin somewhat smaller than second dorsal fin, **with its origin well ahead of second dorsal-fin origin**; anal fin with broad base and angular apex, separated by a space greater than its base length from lower caudal-fin origin; caudal fin with its upper lobe not elevated above the body axis, less than a quarter as long as the entire shark, with a strong terminal lobe and subterminal notch but no ventral lobe. Caudal peduncle without lateral keels or precaudal pits. Supraorbital crests absent from cranium. Intestinal valve of spiral type. **Colour:** pattern of dark and light spots and saddle markings, in some species also a dark collar around gills.

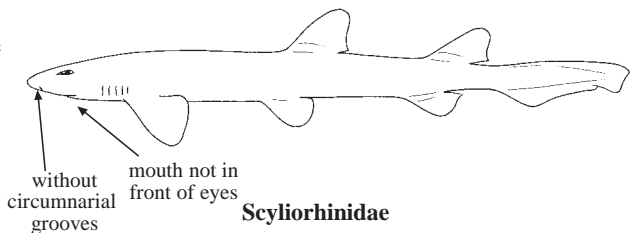


Habitat, biology, and fisheries: These are rare to common, harmless bottom sharks of often deepish temperate and tropical, continental waters of the western Pacific, occurring from close inshore down to at least 183 m offshore. They are found on muddy, sandy, or rocky bottom, and apparently can change colour somewhat to match the bottom type. All species are small, less than a metre long when mature. At least some of the species are ovoviviparous. They feed probably on small fish, crustaceans, and other bottom invertebrates. Several species are taken in bottom trawls, but utilization is probably minimal.

Similar families occurring in the area

Scyliorhinidae: mouth not entirely in front of eyes; no circumnarial folds and grooves around the nostrils.

Their mouth and nostril structures, 2 spineless dorsal fins and an anal fin, anal-fin origin well ahead of second dorsal-fin origin, and minute spiracles distinguish the Parascylliidae from all other sharks.



Key to the species of Parascylliidae occurring in the area

- 1a.** A pair of barbels on throat (Fig. 1a); gill region without collar marking *Cirrhoscyllium exolitum*
- 1b.** No barbels on throat (Fig. 1b); gill region with a prominent dark brownish collar *Parascyllium collare*

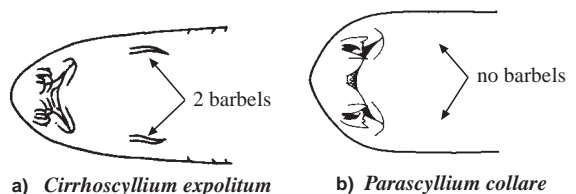



Fig. 1 ventral view of head

List of species occurring in the area

The symbol  is given when species accounts are included.

 *Cirrhoscyllium exolitum* Smith and Radcliffe, 1913

 *Parascyllum collare* Ramsay and Ogilby, 1888

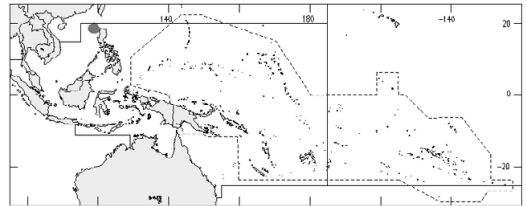
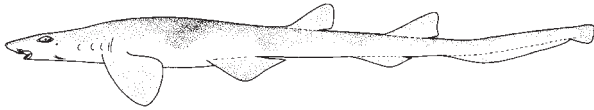
References

- Compagno, L.J.V. 1984. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.*, (125)Vol.4.Pt.1:249 p.
- Goto, T. and K. Nakaya. 1996. Revision of the genus *Cirrhoscyllium*, with the designation of a neotype for *C. japonicum* (Elasmobranchii, Parascylliidae). *Ichthyol. Res.*, 43(3):199-209.
- Last, P. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.
- Ogilby, J.D. and A.R. McCulloch. 1908. A revision of the Australian Orectolobidae. *J. Proc. R. Soc. N.S.W.*, 42:264-299.
- Regan, C.T. 1908. A revision of the sharks of the family Orectolobidae. *Proc. Zool. Soc. Lond.*, 1908:347-364.

Cirrhoscyllium exolitum Smith and Radcliffe, 1913

En - Barbelthroat carpetshark; **Fr** - Requin carpe à moustache; **Sp** - Alfombrera barbuda.

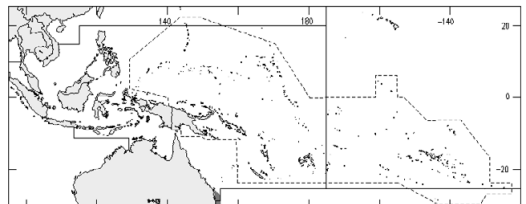
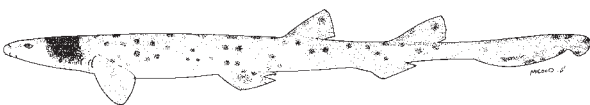
Maximum total length at least 33.5 cm. A little-known tropical shark of the continental shelf, offshore on or near the bottom at a depth of 180 m. Probably oviparous, but eggs are not known; food habits unknown. Interest to fisheries unknown. In the China Sea between Luzon, Philippines, and China.



Parascyllum collare Ramsay and Ogilby, 1888

En - Collared carpetshark; **Fr** - Requin carpe à collarette; **Sp** - Alfombrera collareja.

Maximum total length about 86 cm. A common but little-known temperate-water shark of the continental shelf, on or near rock reefs and on firm bottom at depths from 20 to 160 m. Oviparous. Probably of minor interest to fisheries, although commonly taken by bottom trawlers and sometimes with line gear. Western South Australia from Victoria to southern Queensland.



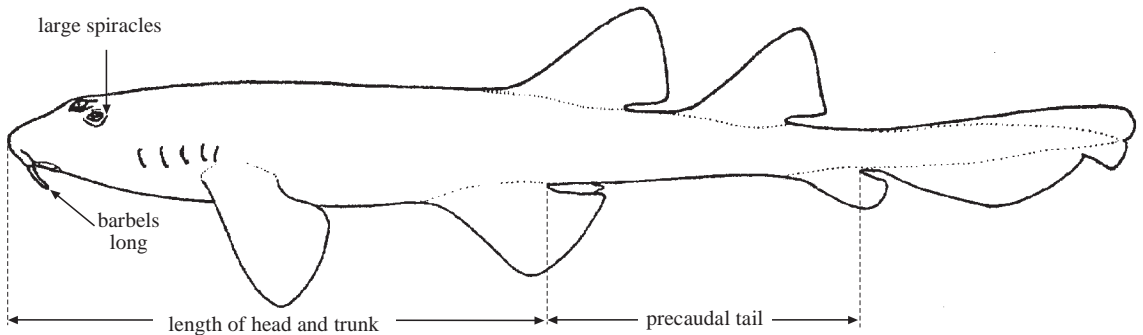
(after Last and Stevens, 1994)

BRACHAELURIDAE

Blind sharks

by L.J.V. Compagno and V.H. Niem

Diagnostic characters: Small sharks. Trunk cylindrical or moderately depressed, **precaudal tail shorter than head and trunk, lateral ridges on sides of trunk and tail absent.** Head broad and somewhat flattened, without lateral flaps of skin; gill slits small, fifth close to fourth but not overlapping it; internal gill slits without filter screens; **spiracles very large**, subequal or larger than eyes and somewhat below them; **nostrils with long, pointed barbels** and distinct circumnarial folds and grooves around outer edges of incurrent apertures; eyes dorsolaterally situated on head, with subocular pockets; snout broadly rounded; **mouth small, subterminal on head, and nearly transverse, with a symphyseal groove on chin;** teeth not strongly differentiated in jaws, with a medial cusp, lateral cusplets and weak labial root lobes; tooth rows 32/21. Dorsal fins equal sized, **first dorsal fin with origin over the pelvic-fin bases** and insertion well behind the pelvic fin rear tips; pectoral fins moderate sized, broad and rounded, as large as pelvic fins or slightly larger, with fin radials not expanded into fin web; pelvic fins about as large as dorsal fins but slightly greater than anal fin; anal fin as large as or somewhat smaller than second dorsal fin, **with its origin about opposite midbase of second dorsal fin or its insertion;** anal fin with broad base and angular apex, separated by a space or narrow notch much less than base length from lower caudal-fin origin; caudal fin with its upper lobe at a low angle above the body axis, less than 1/3 as long as the entire shark, with a strong terminal lobe and subterminal notch but no ventral lobe. Caudal peduncle without lateral keels or precaudal tails. Supraorbital crests present on cranium, not laterally expanded. Valvular intestine of spiral-ring type. **Colour:** colour pattern of dark saddles and light spots present, or colour plain.



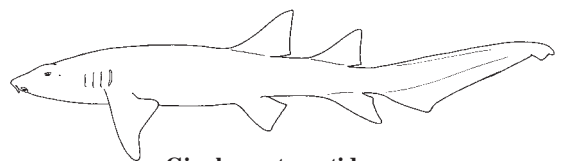
Habitat, biology, and fisheries: Blind sharks are common, harmless, inshore bottom sharks confined to temperate and tropical continental waters of Australia, in depths from the intertidal down to 110 m. They occur on rocky reefs or on coral close inshore, sometimes in water just sufficient to cover them. They are known to feed on small fishes, crustaceans, cuttlefish, and sea anemones. They are captured in bottom trawls but are not generally utilized; *Brachaelurus* is captured by sports fishermen.

Remark: The name "blind shark" stems not from lack of vision but because these sharks close their eyelids when removed from the water.

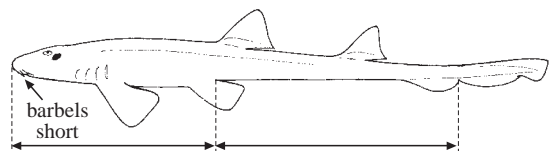
Similar families occurring in the area

Ginglymostomatidae: spiracles smaller than eyes, nostrils without circumnarial grooves, no symphyseal groove on chin, fins angular, second dorsal fin smaller than first.

Hemiscylliidae: nasal barbels shorter; no symphyseal groove on chin; precaudal tail greatly elongated, somewhat longer than head and trunk.



Ginglymostomatidae



Hemiscylliidae

Key to the species of Brachaeluridae occurring in the area

- 1a. Nostrils inferior on snout, nasal barbel bifurcated (Fig. 1); anal-fin origin below or in front of the second dorsal-fin origin; no white spots on body *Heteroscyllium colcloughi*
- 1b. Nostrils nearly terminal on snout, nasal barbel single lobed (Fig. 2); anal-fin origin just behind second dorsal-fin origin; mostly with white spots on body *Brachaelurus waddi*

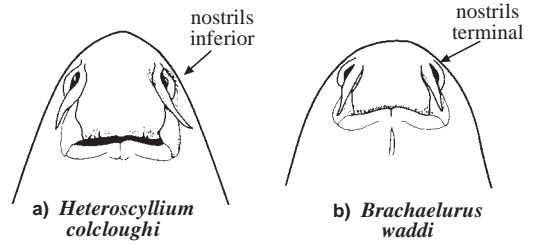


Fig. 1 underside of head
(after Last and Stevens, 1994)

List of species occurring in the area

The symbol is given when species accounts are included.

- Brachaelurus waddi* (Bloch and Schneider, 1801)
- Heteroscyllium colcloughi* (Ogilby, 1908)

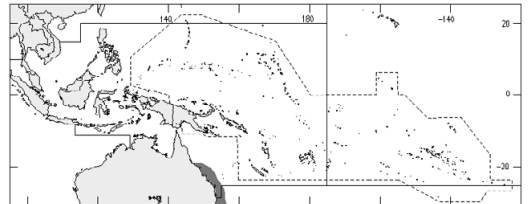
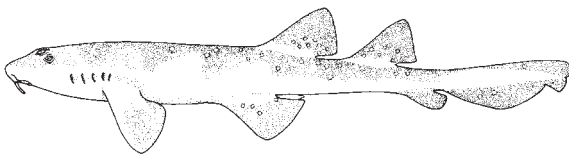
References

Ogilby, J.D. and A.R. McCulloch. 1908. A revision of the Australian Orectolobidae. *J. Proc. R. Soc. N.S.W.*, 42:264-299.
 Last, P. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.
 Regan, C.T. 1908. A revision of the sharks of the family Orectolobidae. *Proc. Zool. Soc. Lond.*, 1908:347-364.

***Brachaelurus waddi* (Bloch and Schneider, 1801)**

En - Blind shark; **Fr** - Requin aveugle des roches; **Sp** - Tiburón ciego de roca.

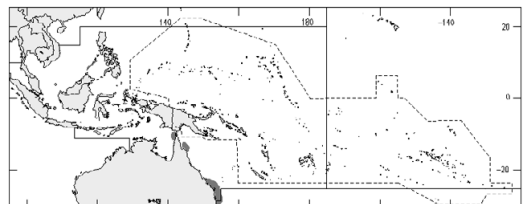
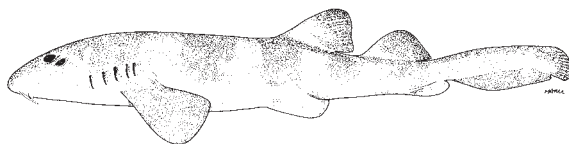
Maximum total length to about 1 m; commonly to 60 cm. A common bottom shark of the continental shelf from the intertidal zone to about 140 m depth; favours rocky shoreline areas and coral reefs. Feeds on small reef invertebrates and small fish. Taken in bottom trawls but not used commercially. Western South Australia from southern Queensland to New South Wales.



***Heteroscyllium colcloughi* (Ogilby, 1908)**

En - Bluegray carpetshark; **Fr** - Requin aveugle gris-bleu; **Sp** - Tiburón ciego gris.

Maximum total length to about 76 cm. A little-known tropical or subtropical inshore bottom shark of the Queensland continental shelf, and off York Peninsula and the Great Barrier Reef. Of minor interest to fisheries.

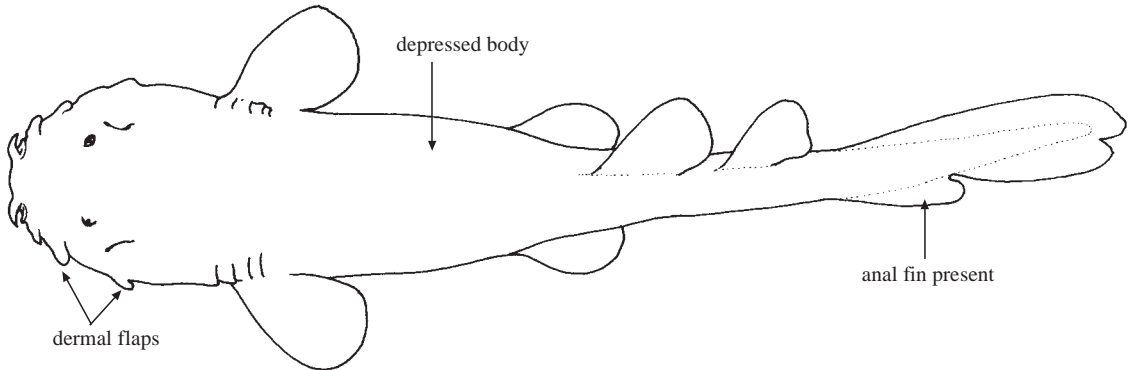


ORECTOLOBIDAE

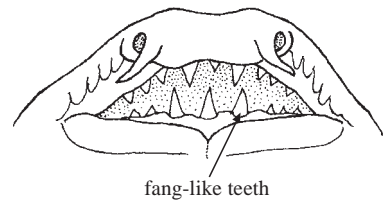
Wobbegongs

by L.J.V. Compagno and V.H. Niem

Diagnostic characters: Small to large sharks with **considerably depressed bodies**, without ridges on sides. **Head very broad and flattened, with unique lateral flaps of skin**; gill slits small, fifth well separated from fourth or close to it but not overlapping; internal gill slits without filter screens; **spiracles very large**, larger than eyes and somewhat below and lateral to them; **nostrils with long, pointed or branched barbels and distinct circumnarial folds and grooves** around outer edges of incurrent apertures; snout truncated; eyes dorsolaterally situated on head, with subocular pockets; **mouth fairly large, nearly terminal on head**, and nearly transverse, **with a symphyseal groove on chin**; teeth strongly differentiated in jaws, with **3 rows of fang-like teeth at the upper symphysis and 2 rows at the lower**; teeth with a median cusp, lateral cusplets variably present or absent, and weak labial root lobes; tooth rows 23 to 26/19. Dorsal fins equal sized, first dorsal fin with origin over or slightly behind the pelvic-fin insertions and insertion far behind rear tips of pelvic fins; **pectoral fins moderate sized or large**, broad and rounded, slightly larger than pelvic fins, with fin radials not expanded into fin web; pelvic fins larger than dorsal and anal fins; anal fin somewhat smaller than second dorsal fin, **with its origin about opposite rear 1/3 of second dorsal-fin base or insertion**; **anal fin with broad base and subrectangular apex, separated by a narrow notch much less than base length from lower caudal-fin origin**; caudal fin with its upper lobe hardly elevated above the body axis, less than 1/4 as long as the entire shark, **with a strong terminal lobe and subterminal notch** but without a ventral lobe. Caudal peduncle without lateral keels or precaudal pits. Supraorbital crests present on cranium, not laterally expanded. Intestine valve of ring type. **Colour:** colour pattern highly developed, including dark and light spots, dark saddles, rings, and reticulations on back.



Habitat, biology, and fisheries: These are common bottom sharks of warm-temperate to tropical continental waters of the western Pacific, occurring from the intertidal down to at least 110 m. They are often found on rocky and coral reefs or on sandy bottom, where they lurk and are concealed in part by their cryptic coloration and dermal lobes on their heads. All species are ovoviviparous, with large litters of 20 or more young. They are sluggish sharks and known to feed on bottom fishes and invertebrates. They are utilized for food and for their colourful skins which are sometimes used for leather. Wobbegongs of all sizes, but especially the larger individuals, should be regarded as potentially dangerous and should be treated with due respect.

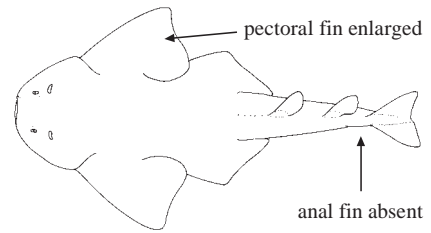


**anteriormost part of head
(ventral view)**

Similar families occurring in the area

Squatinae: also with considerably depressed bodies, but pectoral fins much larger and anal fin absent.

The distinctive flattened body and the narrow dermal flaps of skin around mouth and head distinguish the wobbegongs from other shark families in the area.



Squatinae

Key to the species of Orectolobidae occurring in the area

- 1a. Dermal lobes highly branched, present on sides of head and on chin (Fig. 1a); body with a reticular pattern of narrow dark lines *Eucrossorhinus dasypogon*
- 1b. Dermal lobes weakly branched, present on sides of head but absent from chin (Fig. 1b); colour pattern variable, but without a reticular pattern of narrow dark lines. → 2
- 2a. Nasal barbels not branched (Fig. 2a); dermal lobes of head very broad-based, only 2 or 3 in front of eyes; colour pattern simple, dark rounded saddles with light outlining widely spaced by dusky areas and with a few dark spots; saddles on head and trunk forming conspicuous eyespots *Orectolobus wardi*
- 2b. Nasal barbels branched (Fig. 2b); dermal flaps narrow-based and more numerous, 5 or more in front of eyes; colour pattern with elaborate variegated spots and saddles → 2
- 3a. Back dark, with light O-shaped markings obscuring darker saddles; about 6 to 10 dermal flaps below and in front of eyes (Fig. 2b) *Orectolobus maculatus*
- 3b. Back with dark colour variegated with light blotches and prominent saddle markings; about 5 or 6 dermal flaps below and in front of eyes → 3
- 4a. Back with light areas between dark saddles marked with broad reticulated dark lines *Orectolobus japonicus*
- 4b. Back with light areas between dark saddles marked with dark, light-centred blotches and spots, not reticulated lines *Orectolobus ornatus*

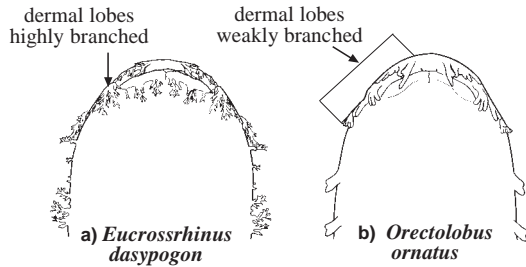


Fig. 1 head (ventral view)

(after Last and Stevens, 1994)

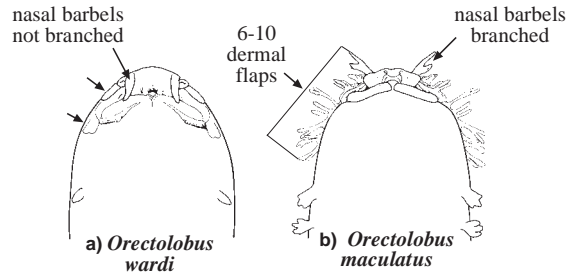


Fig. 2 head (ventral view)

List of species occurring in the area

The symbol is given when species accounts are included.

- Eucrossorhinus dasypogon* (Bleeker, 1867)
- Orectolobus japonicus* Regan, 1906
- Orectolobus maculatus* (Bonnaterre, 1788)
- Orectolobus ornatus* (de Vis, 1883)
- Orectolobus wardi* Whitley, 1939

References

Compagno, L.J.V. 1984. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.*, (125)Vol.4.Pt.1:249 p.

Last, P and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.

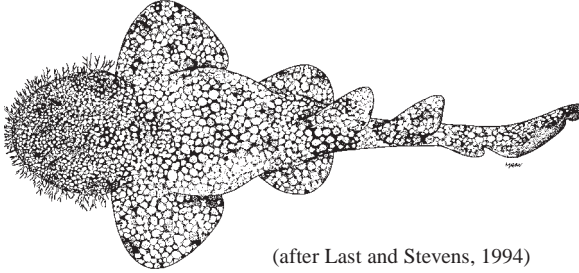
Ogilby, J.D. and A.R. McCulloch. 1908. A revision of the Australian Orectolobidae. *J. Proc. R. Soc. N.S.W.*, 42:264-299.

Regan, C.T. 1908. A revision of the sharks of the family Orectolobidae. *Proc. Zool. Soc. Lond.*, (1908):347-364.

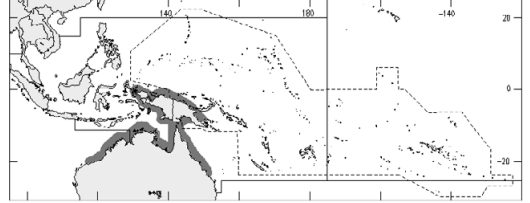
Eucrossorhinus dasyogon (Bleeker, 1867)

En - Tasselled wobbegong; **Fr** - Requin-tapis barbu; **Sp** - Tapicero barbudo.

Maximum total length about 1.25 m. A little-known inshore bottom shark, present on coral reefs. Probably feeds on bottom invertebrates and fishes. Of minor importance to fisheries; the tough skin is sometimes used for leather. Known from Indonesia, Papua New Guinea, and northern Australia.



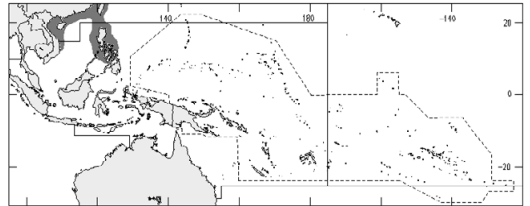
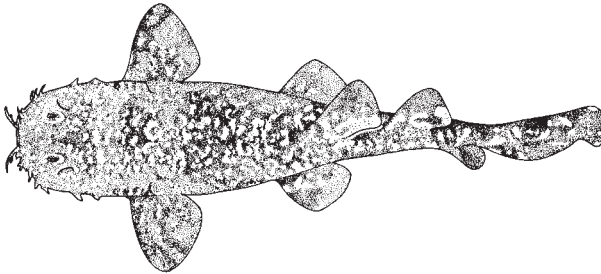
(after Last and Stevens, 1994)



Orectolobus japonicus Regan, 1906

En - Japanese wobbegong; **Fr** - Requin-tapis moustache; **Sp** - Tapicero japonés.

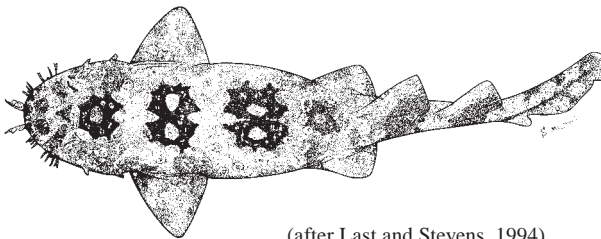
Maximum total length at least 1 m. A little-known inshore bottom shark, nocturnal in habits. Feeds on fish, and presumably on bottom invertebrates. Interest to fisheries probably limited; caught in set nets in Japan and used for human consumption; also taken in China, Korea, and Viet Nam. Distributed from Japan and Korea southward to Viet Nam and the Philippines.



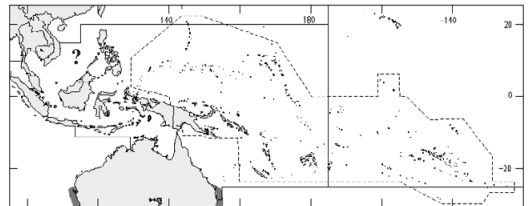
Orectolobus maculatus (Bonnaterre, 1788)

En - Spotted wobbegong; **Fr** - Requin-tapis tacheté; **Sp** - Tapicero manchado.

Maximum total length about 3.2 m; commonly between 1.5 and 1.8 m. An abundant, mostly inshore bottom shark but taken in depths to at least 110 m. Nocturnal, feeds on bottom invertebrates and fishes. Interest to fisheries limited, sometimes utilized for its meat and leather; commonly caught in trawls, beach seines, trammel nets, in lobster pots and traps, and with line gear. Western Australia to southern Queensland; possibly Japan and South China Sea.



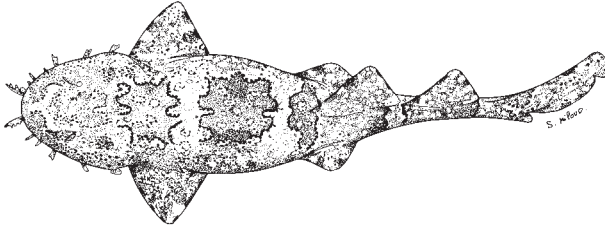
(after Last and Stevens, 1994)



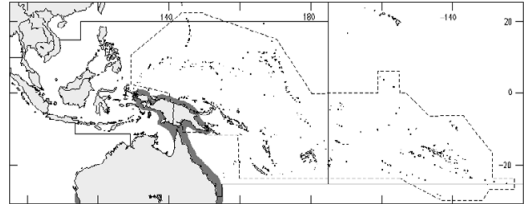
Orectolobus ornatus (de Vis, 1883)

En - Ornate wobbegong; **Fr** - Requin-tapis paste; **Sp** - Tapicero ornamentado.

Maximum total length to about 2.9 m. A common bottom-shark of continental waters, found on algal-covered rocky areas and coral reefs to depths of at least 100 m. Nocturnal, probably feeds on bottom invertebrates and fishes. Interest to fisheries limited; skin very tough and attractively patterned, and making a good leather. Western Pacific from Indonesia, Papua New Guinea and Australia (Queensland, New South Wales, Victoria, South Australia).



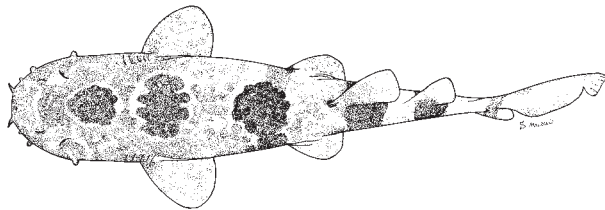
(after Last and Stevens, 1994)



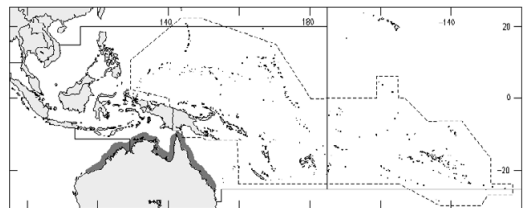
Orectolobus wardi Whitley, 1939

En - Northern wobbegong; **Fr** - Requin-tapis savetier; **Sp** - Tapicero zapatilla.

Maximum total length at least 63 cm. A little-known, but possibly common tropical inshore bottom shark of the continental shelf. Presumably feeds on bottom invertebrates and fishes, but diet unrecorded. Of minor interest to fisheries at present. Northern Australia from Queensland to Onslow (western Australia).



(after Last and Stevens, 1994)

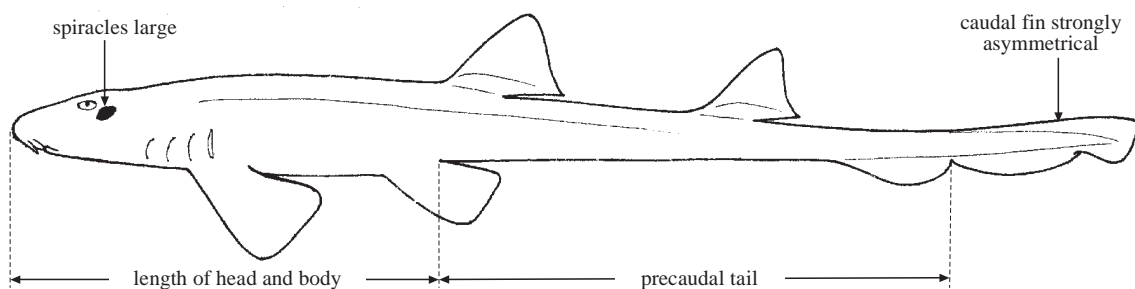


HEMISCYLLIIDAE

Longtail carpetsharks

by L.J.V. Compagno and V.H. Niem

Diagnostic characters: Small sharks. Trunk cylindrical or moderately depressed, **precaudal tail** cylindrical and **somewhat longer than head and trunk**, lateral ridges on sides of trunk and tail present or absent. Head not expanded laterally, cylindrical or moderately depressed; 5 small gill slits present, the last 3 over the pectoral-fin base, their upper ends not expanded onto upper surface of head; no gill sieves or rakers on internal gill slits; **spiracles very large and located behind and below eyes**; **nostrils with barbels, nasoral grooves, and circumnarial grooves**, close in front of mouth; eyes above and medial to sides of head, without nictitating eyelids; snout short to moderately long, slightly depressed, parabolic to broadly rounded, not greatly flattened and blade-like and without lateral teeth or barbels; **mouth small, nearly transverse, and well in front of eyes, without a symphyseal groove on chin**; labial furrows present on both jaws and relatively large, with upper furrows extending in front of mouth; teeth small, not blade-like, with a single cusp on upper and lower teeth and with cusplets small or absent; teeth similar in both jaws, not differentiated into medials, anteriors, intermediates, laterals, or posteriors. Two dorsal fins without spines, the first moderate sized, subangular, much shorter than the caudal fin, and with its origin over or behind the pelvic-fin bases; **second dorsal fin about as large as the first and of similar shape**; **anal fin moderately large, very low, broad and rounded, with its origin well behind the second dorsal-fin base and its base separated by a notch from the caudal fin**; caudal fin strongly asymmetrical, much less than 1/2 of total length, without a rippled dorsal margin or lower lobe but with a strong subterminal notch; vertebral axis of caudal fin hardly raised above body axis. Caudal peduncle cylindrical, without precaudal pits or keels. Intestinal valve of ring type. **Colour:** back yellowish, brownish or grey-brown, lighter below, with dark or light spots or dark saddles, sometimes absent in adults.

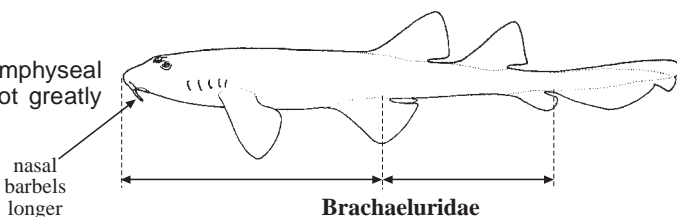


intestinal valve of ring type

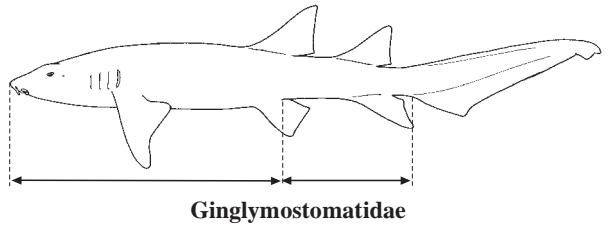
Habitat, biology, and fisheries: Longtail carpetsharks are a small group of inshore tropical sharks of the Indian Ocean and western Pacific, being confined to continental waters and continental islands. They are slow-swimming bottom-dwellers, often clambering with their muscular paired fins on coral and rocky reefs. At least some of the species are oviparous. They feed on invertebrates and small fishes and are harmless to people. *Hemiscyllium* species are little utilized for fisheries, but *Chiloscyllium* species are commonly caught in small-scale artisanal fisheries and by bottom trawlers in the western and eastern Pacific and eastern central Indian Ocean.

Similar families occurring in the area

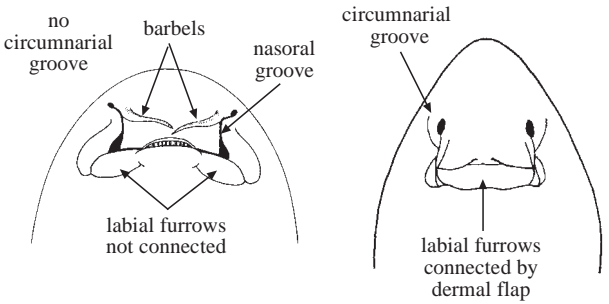
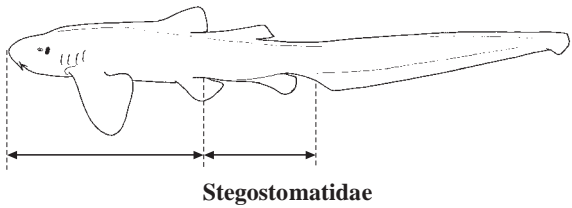
Brachaeluridae: nasal barbels longer; symphyseal groove present on chin; precaudal tail not greatly elongated, shorter than head and trunk.



Ginglymostomatidae: precaudal tail not greatly elongated, shorter than head and trunk; no circumnarial grooves around nostrils; head more depressed and flattened; spiracles minute; labial furrows not connected across chin by a dermal flap (present in Hemiscylliidae); anal fin higher, more angular, and separated from the lower caudal-fin origin by a space; origin of anal fin under second dorsal-fin base.



Stegostomatidae: precaudal tail not greatly elongated, shorter than head and trunk; no circumnarial grooves around nostrils, labial furrows not connected across chin by a dermal flap; first dorsal-fin origin far anterior to pelvic-fin bases, its insertion over or slightly anterior to pelvic-fin insertions (far posterior to pelvic-fin insertions in Hemiscylliidae), second dorsal fin much smaller than first dorsal fin; pelvic fins much smaller than pectoral fins; anal-fin origin under second dorsal-fin base; caudal fin about as long as rest of shark.

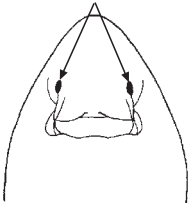


Ginglymostomatidae **Hemiscylliidae**
(ventral view of head)

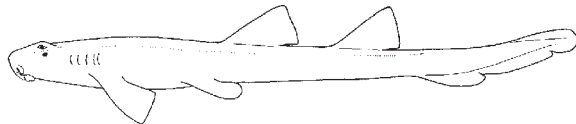
Key to the species of Hemiscylliidae occurring in the area

- 1a. Nostrils subterminal on snout (Fig. 1a); eyes and supraorbital ridges hardly elevated; preoral snout long, mouth closer to eyes than snout tip; no black hood on head or large dark spot or spots on sides of body above pectoral fins (Fig. 1b) (*Chiloscyllium*) → 2
- 1b. Nostrils terminal on snout (Fig. 2a); eyes and supraorbital ridges prominently elevated; preoral snout short, mouth closer to snout tip than eyes; a large spot or spots on sides of body above pectoral fins, or a black hood on head (Fig. 2b) (*Hemiscyllium*) → 6

nostrils subterminal on snout



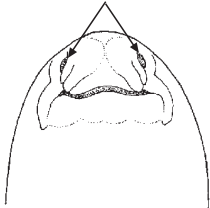
a) ventral view of head



b) lateral view

Fig. 1 *Chiloscyllium*

nostrils terminal on snout



a) ventral view of head



b) lateral view

Fig. 2 *Hemiscyllium*

- 2a. Body and tail very slender; length of anal fin from origin to free tip subequal to length of hypural caudal-fin lobe from lower caudal-fin origin to subterminal notch (Fig. 3) *Chiloscyllium indicum*
- 2b. Body and tail moderately slender to relatively stout; length of anal fin considerably shorter than hypural caudal-fin lobe (Figs 4 and 5) → 3
- 3a. Body with lateral dermal ridges; young and adults with transverse dark bands and numerous white spots (Fig. 4) *Chiloscyllium plagiosum*
- 3b. Body without lateral dermal ridges; adults usually without colour pattern, dark transverse bands in young only → 4

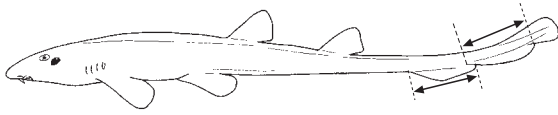


Fig. 3 *Chiloscyllium indicum*

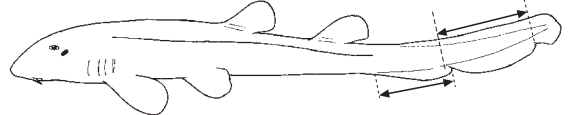


Fig. 4 *Chiloscyllium plagiosum*

- 4a. Dorsal fins larger than pelvic fins, with projecting free rear tips (Fig. 5) *Chiloscyllium punctatum*
- 4b. Dorsal fins smaller than pelvic fins, without projecting free rear tips → 5

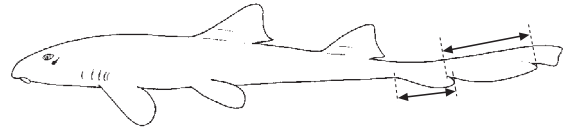


Fig. 5 *Chiloscyllium punctatum*

- 5a. First to second dorsal-fin distance usually more than 9.3% of total length; first dorsal-fin height more than 6.6% of total length; second dorsal-fin height usually more than 5.8% of total length; dark bands of juveniles not outlined in black (Fig. 6) *Chiloscyllium griseum*
- 5b. First to second dorsal-fin distance less than 9.3% of total length; first dorsal-fin height less than 6.6% of total length; second dorsal-fin height usually less than 5.8% of total length; dark bands of juveniles outlined in black (Fig. 7) *Chiloscyllium hasselti*

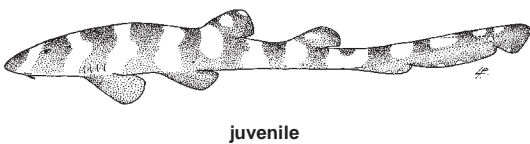


Fig. 6 *Chiloscyllium griseum*

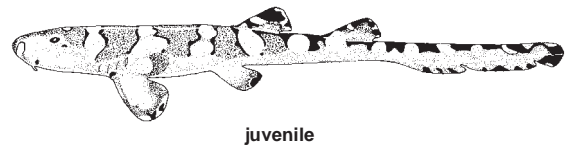


Fig. 7 *Chiloscyllium hasselti*

- 6a. Head and snout with an abrupt black hood; body with conspicuous large white spots (Fig. 8) *Hemiscyllium strahani*
- 6b. Head and snout light, without a black hood but with conspicuous black spots above pectoral fins; body with light spots inconspicuous or absent → 7

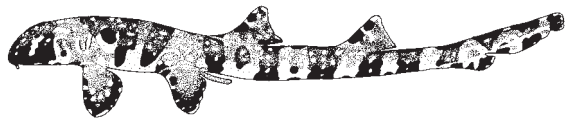


Fig. 8 *Hemiscyllium strahani*

- 7a. Black spot behind gills small, not in the form of a conspicuous ocellus (Fig. 9) *Hemiscyllium freycineti*
 → 8
- 7b. Black spot behind gills large, in the form of a conspicuous ocellus, ringed with white
 (Figs 10 to 12) → 9
- 8a. Body covered with numerous, densely clustered dark small and large spots that form a
 reticular network of light ground colour between them; dark crossbands strong on ventral
 surface of tail (Fig. 10) *Hemiscyllium trispeculare*
- 8b. Body with sparse, large spots that do not form a reticular network of light ground colour
 between them; dark crossbands not reaching ventral surface of tail → 9



Fig. 9 *Hemiscyllium freycineti*

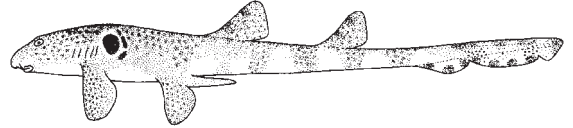


Fig. 10 *Hemiscyllium trispeculare*

- 9a. Lateral ocellus not surrounded by large spots; spots present on head in front and below
 eyes (Fig. 11) *Hemiscyllium ocellatum*
- 9b. Lateral ocellus surrounded by large black spots; spots absent from head in front and
 below eyes (Fig. 12) *Hemiscyllium hallstromi*

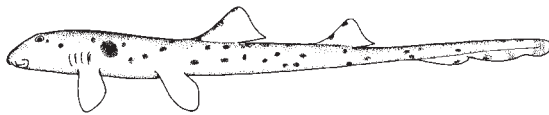













Fig. 11 *Hemiscyllium ocellatum*



Fig. 12 *Hemiscyllium hallstromi*

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Chiloscyllium griseum* Müller and Henle, 1839
-  *Chiloscyllium hasselti* Bleeker, 1852
-  *Chiloscyllium indicum* (Gmelin, 1789)
-  *Chiloscyllium plagiosum* (Bennett, 1830)
-  *Chiloscyllium punctatum* Müller and Henle, 1838
-  *Hemiscyllium freycineti* (Quoy and Gaimard, 1824)
-  *Hemiscyllium hallstromi* Whitley, 1967
-  *Hemiscyllium ocellatum* (Bonnaterre, 1788)
-  *Hemiscyllium strahani* Whitley, 1967
-  *Hemiscyllium trispeculare* Richardson, 1845

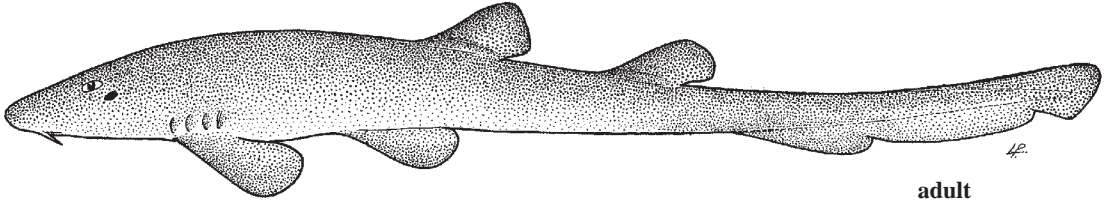
Reference

- Compagno, L.J.V. 1984. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.*, (125)Vol.4.Pt.1:249 p.
- Dingerkus, G. and T.C. DeFino. 1983. A revision of the orectolobiform shark family Hemiscylliidae (Chondrichthyes, Selachii). *Bull. Am. Mus. Nat. Hist.*, 176(1):1-93.
- Regan, C.T. 1908. A revision of the sharks of the family Orectolobidae. *Proc. Zool. Soc. Lond.*, (1908):347-364.

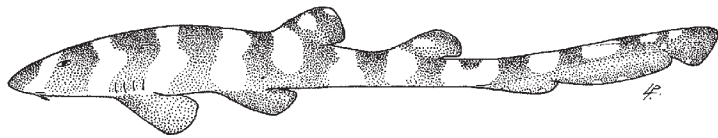
Chiloscyllium griseum Müller and Henle, 1839

Frequent synonyms / misidentifications: None / *Chiloscyllium hasselti* Bleeker, 1852; *C. plagiosum* (Bennett, 1830); *C. punctatum* Müller and Henle, 1838.

FAO names: En - Grey bambooshark; Fr - Requin-chabot gris; Sp - Bamboa gris.



adult



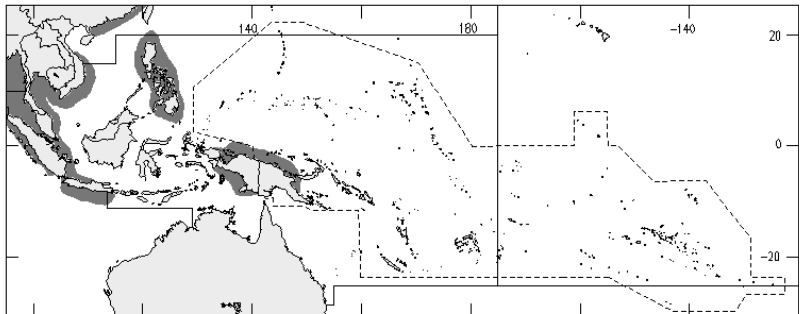
juvenile

Diagnostic characters: A small shark; **body moderately stout, without lateral ridges**; precaudal tail moderately stout, longer than head and trunk. Snout broadly rounded; 5 small gill slits; spiracles large and below eyes; eyes hardly elevated, with a low supraorbital ridge above them, without nictitating eyelids; nostrils subterminal, with short barbels, nasoral grooves, and circumnarial grooves; mouth small, transverse, and well in front of eyes; teeth small, similar in both jaws, with a single small cusp. **Two dorsal fins, slightly smaller than pelvic fins and without attenuated, projecting free rear tips; origin of first dorsal fin varying from over last 1/3 of pelvic-fin bases to over pelvic-fin insertions, second dorsal fin almost as large as first; anal fin long, low and broadly rounded, with its origin behind free rear tip of second dorsal fin and with its insertion at lower caudal-fin origin; caudal fin strongly asymmetrical, with a pronounced caudal subterminal notch but without a ventral lobe, its length less than 1/3 the length of rest of shark. Caudal peduncle cylindrical, without keels or precaudal pits. Intestinal valve of ring type. Colour: light brown, yellow-brown or grey-brown above, cream below, with 12 or 13 prominent saddle marks in young, fading out with growth and absent in adults.**

Size: Maximum total length at least 74 cm.

Habitat, biology, and fisheries: A common, sluggish inshore bottom dweller. Oviparous, deposits eggs in small, oval egg cases on the bottom. Probably feeds mainly on invertebrates. Caught in bottom trawls and in fixed bottom gill nets, drifting bottom gill nets, and occasionally pelagic gill nets; in the area regularly taken in inshore fisheries off Thailand, and utilized for human consumption.

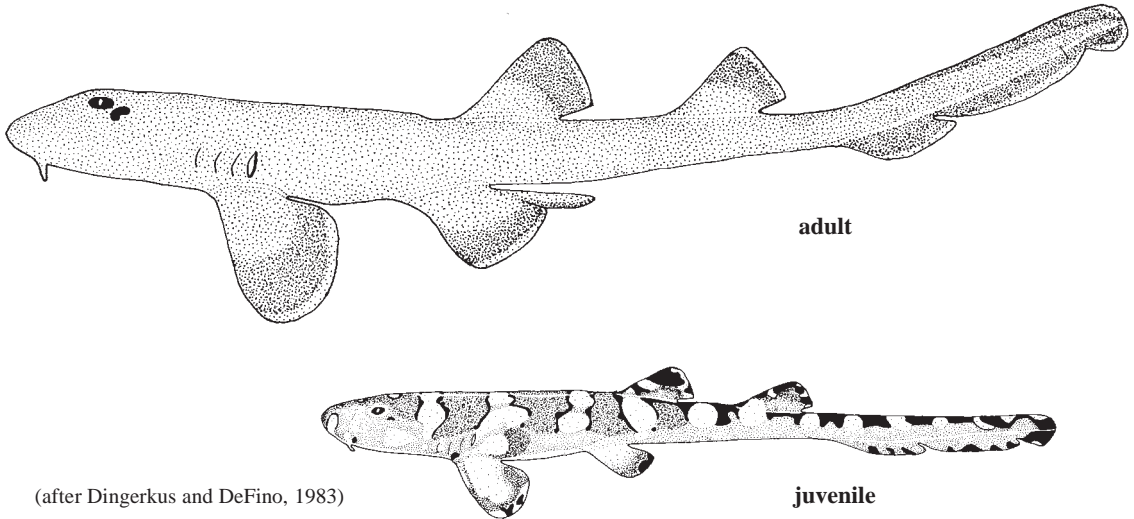
Distribution: Western Indian Ocean from the Arabian Sea eastward to Pakistan, India, and probably Sri Lanka; in the eastern Indian Ocean and western Central Pacific extending eastward to Malaysia, Thailand, Indonesia, Viet Nam, South China, Japan, Philippines, and New Guinea, but many records need confirmation.



Chiloscyllium hasselti Bleeker, 1852

Frequent synonyms / misidentifications: None / *Chiloscyllium griseum* Müller and Henle, 1839; *C. plagiosum* (Bennett, 1830); *C. punctatum* Müller and Henle, 1838.

FAO names: En - Hasselt's bambooshark.

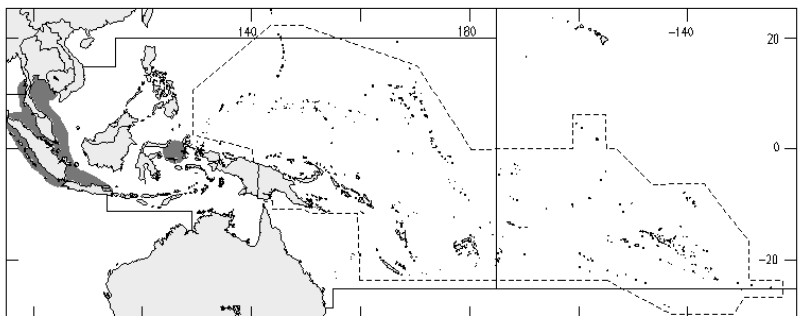


Diagnostic characters: A small shark, **body moderately slender, without lateral ridges**, precaudal tail moderately slender, longer than head and trunk. Snout broadly rounded; 5 small gill slits; spiracles large and below eyes; eyes hardly elevated, with a low supraorbital ridge above them, without nictitating eyelids; nostrils subterminal, with short barbels, nasoral grooves and circumnarial grooves; mouth small, transverse, and well in front of eyes; teeth small, similar in both jaws, with a single small cusp. **Two dorsal fins, smaller than pelvic fins and without attenuated, projecting free rear tips; first dorsal-fin origin over pelvic-fin bases; second dorsal fin almost as large as first; anal fin long, low, and broadly rounded, with its origin behind free rear tip of second dorsal fin and with its insertion at lower caudal-fin origin;** caudal fin strongly asymmetrical with a pronounced subterminal notch but without a ventral lobe; caudal fin less than 1/3 the length of rest of shark. Caudal peduncle cylindrical, without keels or precaudal pits. Intestinal valve of ring type. **Colour: juveniles with dark grey-brown bands outlined in black, adult specimens with uniform medium- to dark-brown colour, the black edgings being the last parts of the colour pattern to disappear.**

Size: Maximum total length about 60 cm.

Habitat, biology, and fisheries: A common inshore bottom-dweller. Biology little known. Presumably oviparous and primarily an invertebrate-feeder as with other *Chiloscyllium* species. Caught in bottom trawls and in fixed bottom gill nets, possibly traps and with line gear. Utilized for human consumption in the area.

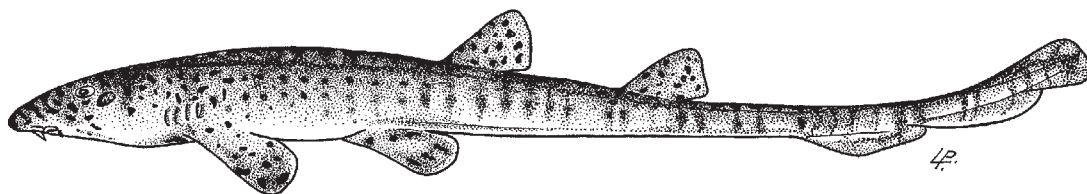
Distribution: Western Pacific from Thailand, Malaysia, and Indonesia (Sumatra, Java, and Moluccas).



Chiloscyllium indicum (Gmelin, 1789)

Frequent synonyms / misidentifications: *Chiloscyllium colax* (Meuschen, 1781) / *Chiloscyllium plagiosum* (Bennett, 1980).

FAO names: En - Slender bambooshark; Fr - Requin-chabot élégant; Sp - Bamboa elegante.

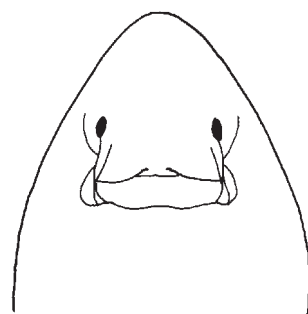
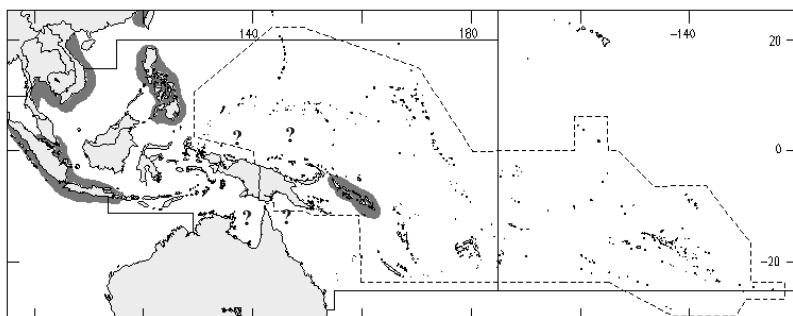


Diagnostic characters: Small sharks, **body slender, with low lateral ridges**, precaudal tail slender, longer than head and trunk. Snout narrowly rounded or almost pointed; 5 small gill slits; spiracles large and below eyes; eyes hardly elevated, nostrils subterminal, with short barbels, nasoral grooves and circumnarial grooves; mouth small, transverse, and well in front of eyes, teeth small, similar in both jaws, with a single small cusp. **Two dorsal fins, about as large as pelvic fins and without attenuated, projecting free rear tips; first dorsal-fin origin over inner margins of pelvic fins and behind pelvic-fin insertions;** second dorsal fin almost as large as first; **anal fin long, low, and broadly rounded, with its origin far behind free rear tip of second dorsal fin** and with its insertion at lower caudal-fin origin, caudal fin strongly asymmetrical with a pronounced subterminal notch but without a ventral lobe; caudal fin less than 1/3 the length of rest of shark. Caudal peduncle cylindrical, without keels or precaudal pits. Intestinal valve of ring type. **Colour: light brown above, cream below, with numerous dark spots on body, tail, and fins, these often forming indistinct vertical bars and saddles.**

Size: Maximum total length about 65 cm.

Habitat, biology, and fisheries: A common, but little-known inshore sluggish bottom dweller. Oviparous, deposits eggs in small, oval egg cases on bottom. Probably feeds mainly on invertebrates. Caught in bottom trawls and in fixed bottom gill nets, drifting bottom gill nets, and occasionally pelagic gill nets; utilized fresh for human consumption, but relatively unimportant to fisheries in the area.

Distribution: Indo-West Pacific from the Arabian Sea eastward to India, Sri Lanka, Singapore, Thailand, Indonesia, Viet Nam, Taiwan Province of China, the Philippines, Solomon Islands, and possibly Korea and Japan.

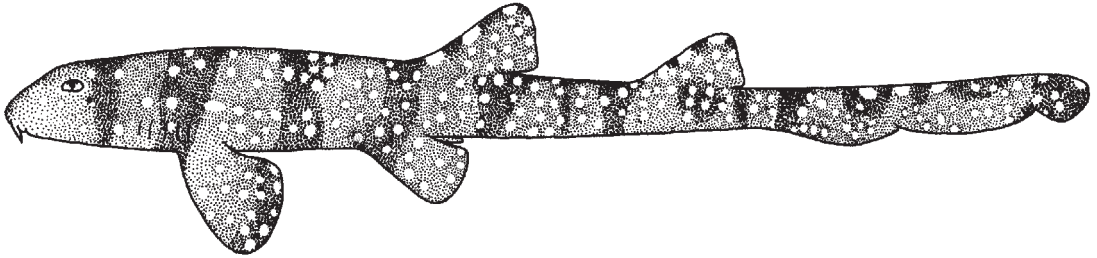


ventral view of head

Chiloscyllium plagiosum (Bennett, 1830) |

Frequent synonyms / misidentifications: *Scyllium ornatum* Gray, 1832 / *Chiloscyllium griseum* Müller and Henle, 1839; *C. hasselti* Bleeker, 1852; *C. indicum* (Gmelin, 1789); *C. punctatum* Müller and Henle, 1839.

FAO names: **En** - Whitespotted bambooshark; **Fr** - Requin-chabot à taches blanches; **Sp** - Bamboa punteada.

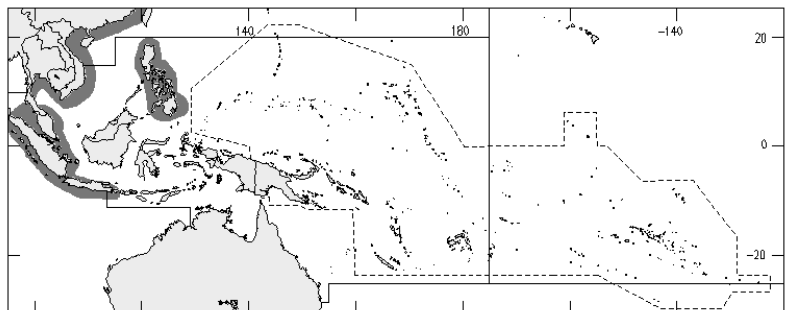


Diagnostic characters: A small shark, **body fairly stout, with lateral ridges**, precaudal tail stout, longer than head and trunk. Snout rounded anteriorly; 5 small gill slits; spiracles large and below eyes; eyes hardly elevated, with a low supraorbital ridge above them, without nictitating eyelids; nostrils subterminal, with short barbels, nasoral grooves and circumnarial grooves; mouth small, transverse, and well in front of eyes; teeth small, similar in both jaws, with a single small cusp. **Two dorsal fins, about equal in size to pelvic fins and without attenuated, projecting free rear tips; first dorsal-fin origin over or behind pelvic-fin bases;** second dorsal fin almost as large as first; **anal fin long, low and broadly rounded, with its origin somewhat behind free rear tip of second dorsal fin** and with its insertion at lower caudal-fin origin; caudal fin strongly asymmetrical with a pronounced subterminal notch but without a ventral lobe; caudal fin less than 1/3 the length of rest of shark. Caudal peduncle cylindrical, without keels or precaudal pits. Intestinal valve of ring type. **Colour:** a prominent colour pattern of **numerous white spots on a dark brown background, with darker brown or blackish transverse bands.**

Size: Maximum total length about 95 cm; adult males 67 to 69 cm, an adult female 95 cm.

Habitat, biology, and fisheries: A common but little-known inshore bottom shark. Oviparous. Regularly taken in inshore fisheries in India, Thailand, China, and probably elsewhere where it occurs, and utilized for human consumption.

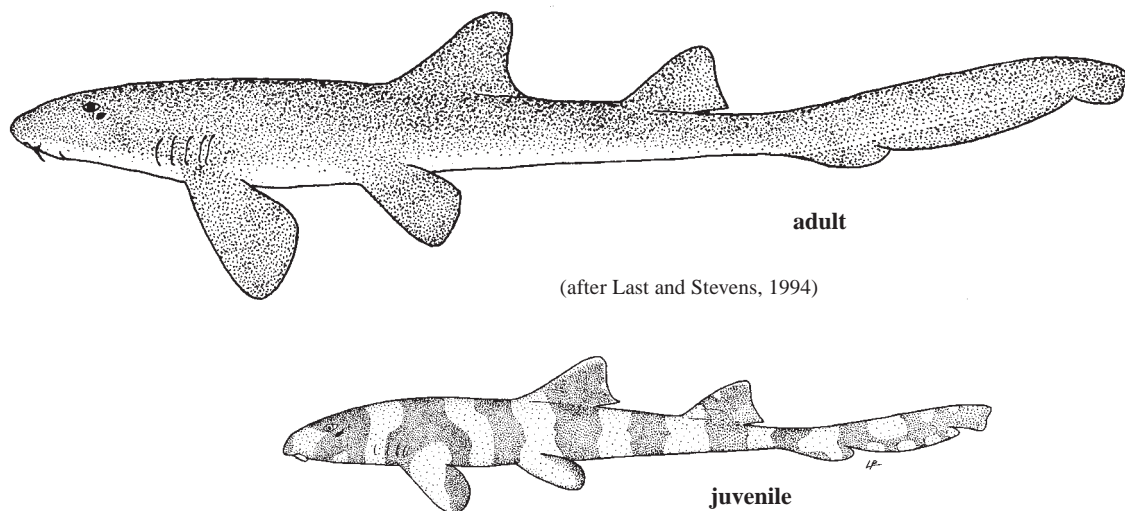
Distribution: Indo-West Pacific: India, Sri Lanka, Singapore, possibly Malaysia, Thailand, Indonesia, Viet Nam, China (including Taiwan Province), Japan, and the Philippines.



***Chiloscyllium punctatum* Müller and Henle, 1838**

Frequent synonyms / misidentifications: *Chiloscyllium margaritiferum* Bleeker, 1964 / *Chiloscyllium griseum* Müller and Henle, 1839; *C. hasselti* Bleeker, 1852; *C. plagiosum* (Bennett, 1830).

FAO names: **En** - Brownbanded bambooshark; **Fr** - Requin-chabot bambou; **Sp** - Bamboa estriada.

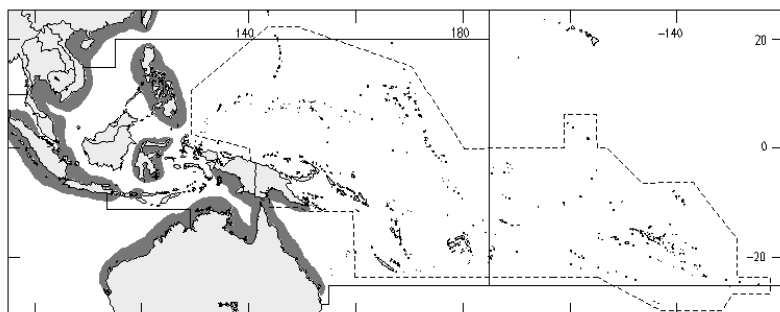


Diagnostic characters: A small shark, **body moderately slender, without lateral ridges**, precaudal tail moderately slender, longer than head and trunk. Snout rounded anteriorly; 5 small gill slits; spiracles large and below eyes; eyes hardly elevated, with a low supraorbital ridge above them, without nictitating eyelids; nostrils subterminal, with short barbels, nasoral grooves and circumnarial grooves; mouth small, transverse, and well in front of eyes; teeth small, similar in both jaws, with a single small cusp. **Two dorsal fins, somewhat larger than pelvic fins and with attenuated, projecting free rear tips; first dorsal fin origin over anterior halves of pelvic-fin bases; second dorsal fin almost as large as first; anal fin long, low, and broadly rounded, with its origin somewhat behind free rear tip of second dorsal fin** and with its insertion at lower caudal-fin origin; caudal fin strongly asymmetrical with a pronounced subterminal notch but without a ventral lobe; caudal fin less than 1/3 the length of rest of shark. Caudal peduncle cylindrical, without keels or precaudal pits. Intestinal valve of ring type. **Colour: young with dark transverse bands** and usually a scattering of a few dark spots; **adults light-brown**, usually without a colour pattern.

Size: Maximum total length about 1.04 m.

Habitat, biology, and fisheries: A common inshore bottom shark found on coral reefs, often in tidepools. Very tenacious of life, can survive out of water for a long period (half a day). Oviparous, deposited in rounded egg cases. Gills sometimes infested by larval isopods (Praniza-larva of the isopod *Gnathia*). Regularly taken in inshore fisheries in India and Thailand, and utilized for human food. In Australia it is taken in beach seines and on hook-and-line and is said to prefer squid bait; it is little utilized by Australians but regarded as good eating.

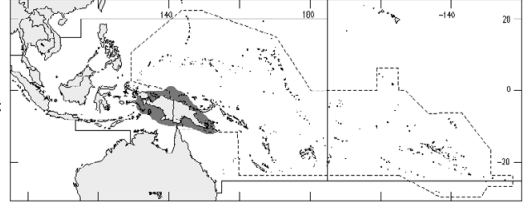
Distribution: Indo-West Pacific: India, Thailand, Malaysia, Singapore, Indonesia (Java, Sumatra, Komodo, Sulawesi), Philippines, New Guinea, and northern Australia (Northern Territory, western Australia, Queensland); also Viet Nam, China (including Taiwan Province), and Japan.



Hemiscyllium freycineti (Quoy and Gaimard, 1824)

En - Indonesian speckled carpetshark; **Fr** - Requin-chabot grivelé; **Sp** - Bamboa jaspeada.

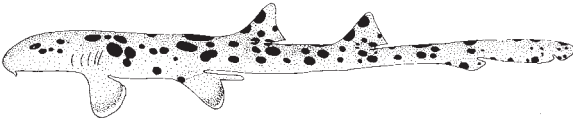
Maximum total length at least 46 cm. A little-known bottom shark, probably common on coral reefs. Of minor interest to fisheries at present. Western South Pacific from Indonesia (Irian Jaya, Waigeo) and Papua New Guinea.



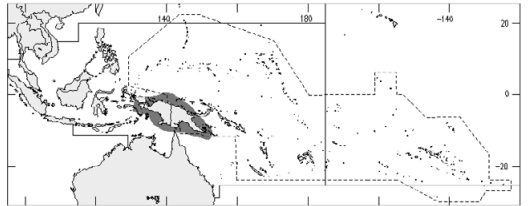
Hemiscyllium hallstromi Whitley, 1967

En - Papuan epaulette shark; **Fr** - Requin-chabot épaulette; **Sp** - Bamboa hombrera.

Maximum total length at least 75 cm. A little-known inshore bottom shark, probably on coral reefs. Of minor interest to fisheries at present. Western South Pacific from Papua New Guinea and Indonesia (Irian Jaya).



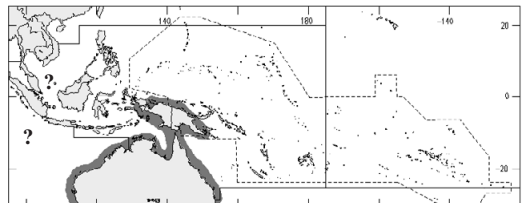
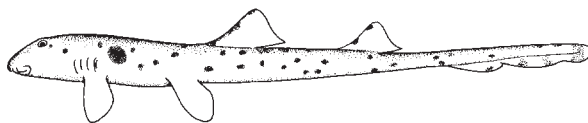
(after Dingerkus and DeFino, 1983)



Hemiscyllium ocellatum (Bonnaterre, 1788)

En - Epaulette shark; **Fr** - Requin-chabot ocellé; **Sp** - Bamboa ocelada.

Maximum total length about 1 m. An abundant, small, harmless tropical shark found on coral reefs in shallow water, often in tidepools. Oviparous, feeding on benthic invertebrates. Survives well in aquaria, but otherwise not used commercially. Known from New Guinea and Australia (Northern Territory, western Australia, Queensland, and New South Wales); possibly also Malaysia, Indonesia (Sumatra), and Solomon Islands.



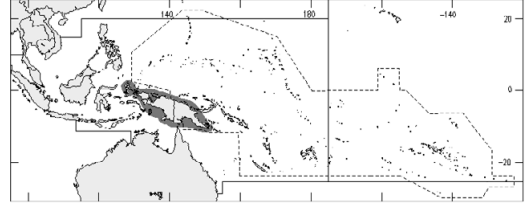
Hemiscyllium strahani Whitley, 1967

En - Hooded carpetshark; **Fr** - Requin-chabot moine; **Sp** - Bamboa capuchona.

Maximum total length about 75 cm. A little-known inshore bottom shark of singular and unique appearance, probably on coral reefs. Of minor importance to fisheries at present. Western South Pacific from Papua New Guinea and Indonesia (Irian Jaya).



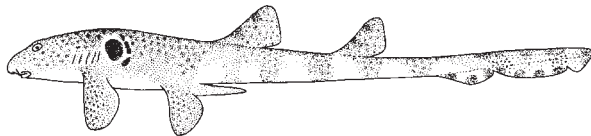
(after Dingerkus and DeFino, 1983)



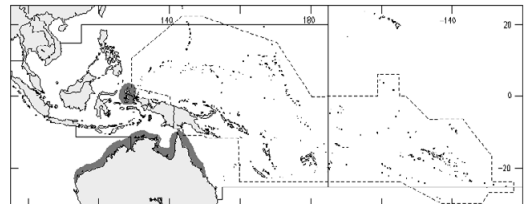
Hemiscyllium trispeculare Richardson, 1845

En - Speckled carpetshark; **Fr** - Requin-chabot marqueterie; **Sp** - Bamboa moteada.

Maximum total length about 64 cm. A common, small, harmless tropical continental shelf shark that is found on coral reefs in shallow water. Oviparous, probably mainly feeding on benthic invertebrates. Of minor interest to fisheries. Australia (Northern Territory, Western Australia, and Queensland) and possibly Indonesia (Moluccas).



(after Dingerkus and DeFino, 1983)



GINGLYMOSTOMATIDAE

Nurse sharks

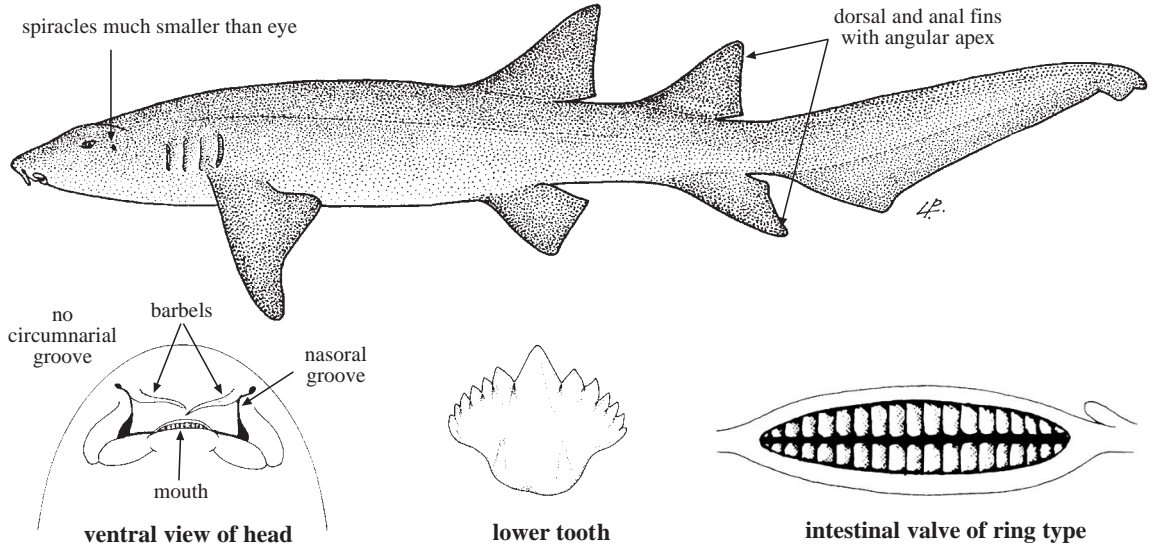
by L.J.V. Compagno

A single species of interest to fisheries occurring in the area.

Nebrius ferrugineus (Lesson, 1830)

Frequent synonyms / misidentifications: *Ginglymostoma ferrugineum* (Lesson, 1830); *Nebrius concolor* Rüppell, 1837; *N. doldi* Smith, 1953 / None.

FAO names: En - Tawny nurse shark; Fr - Requin-nourrice fauve; Sp - Gata nodriza atezada.



Diagnostic characters: A large, relatively stout-bodied shark, without lateral ridges; **precaudal tail shorter than trunk**. Head with 5 moderate gill slits, the last 2 behind pectoral-fin origin and very close to each other, no gill rakers; **spiracles much smaller than eyes**; nostrils close to front of snout, **with short barbels and nasoral grooves connecting them with the mouth but without circumnarial grooves and folds**; no nictitating lower eyelids; snout very short, broad, and very broadly rounded or truncated; mouth moderately large, nearly transverse and far forward on head, well in front of eyes; teeth small, weakly differentiated in different regions of the mouth, somewhat compressed, with short medial cusps and short cusplets on sides; tooth rows 24 to 38/22 to 32. **Two dorsal fins, both with angular apices, the origin of the first about over the pelvic-fin origins and its insertion slightly behind the pelvic-fin insertions; second dorsal fin slightly smaller than first**; anal fin present, high and with an angular apex, and with its origin about under the midbase of the second dorsal fin; **caudal fin about 1/3 of total length, strongly asymmetrical**, with a strong subterminal notch but with ventral lobe weak to short. Caudal peduncle not strongly depressed, without lateral keels or precaudal pits. Supraorbital crests present on cranium, these laterally expanded. Valvular intestine of ring type. **Colour:** no colour pattern, tan above, lighter below, fins slightly dusky.

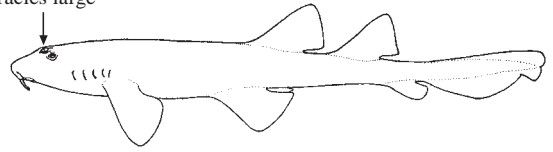
Similar families occurring in the area

Brachaeluridae: spiracles very large, subequal or larger than eyes, nostrils with circumnarial grooves, a symphyseal groove present on chin, fins broadly rounded, dorsal fins equal sized.

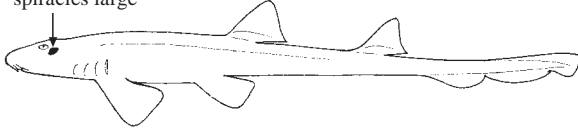
Hemiscylliidae: precaudal tail longer than trunk; spiracles large, nearly or quite eye length; nostrils with circumnarial grooves; anal fin very low and arcuate.

Stegostomatidae: body with lateral ridges; spiracles as large as eyes; first dorsal fin with origin far anterior to pelvic-fin origins; caudal fin about 1/2 of total length.

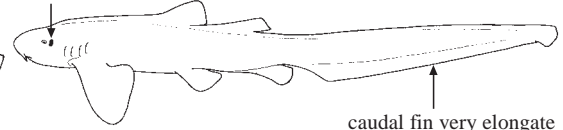
spiracles large

**Brachaeluridae**

spiracles large

**Hemiscylliidae**

spiracles large



caudal fin very elongate

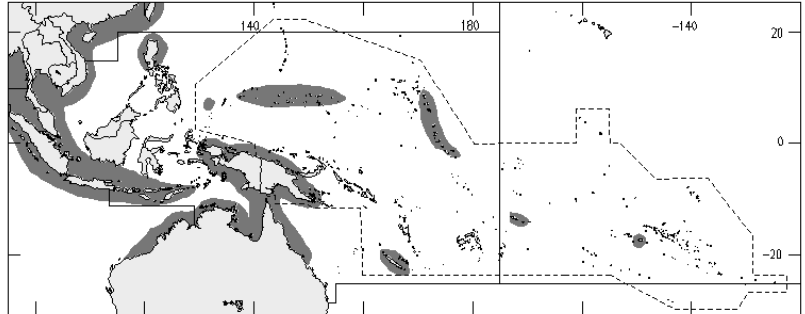
Stegostomatidae

The combination of characters such as the nasoral grooves, the presence of barbels, the anterior mouth, the posterior position of the first dorsal fin, the absence of nictitating lower eyelids, the absence of body ridges, caudal keels and precaudal pits, and the asymmetrical caudal fin with ventral lobe weak or absent readily distinguishes this family from all others in the area.

Size: Maximum total length about 3.2 m; commonly to 2.5 m.

Habitat, biology, and fisheries: A sluggish, nocturnal and sometimes diurnal shallow-water bottom shark common on coral and rocky reefs, in lagoons and on sand flats, at depths from the intertidal zone to at least 70 m. Ovoviviparous, size at birth about 60 cm. Feeds on a wide variety of bottom invertebrates and small fishes; capable of capturing small reef fishes with its powerful suction feeding mechanism. Caught inshore in Pakistan, India, Thailand, Philippines, and probably elsewhere where it occurs; taken in bottom trawls, in floating and fixed bottom gill nets, and with longlines; utilized fresh and dried-salted for human food; livers are processed for vitamins; fins dried for the oriental sharkfin trade; also processed for fishmeal.

Distribution: In the Indian Ocean and western Pacific from southeastern Africa and the Red Sea eastward to Japan, Australia, and Tahiti.

**References**

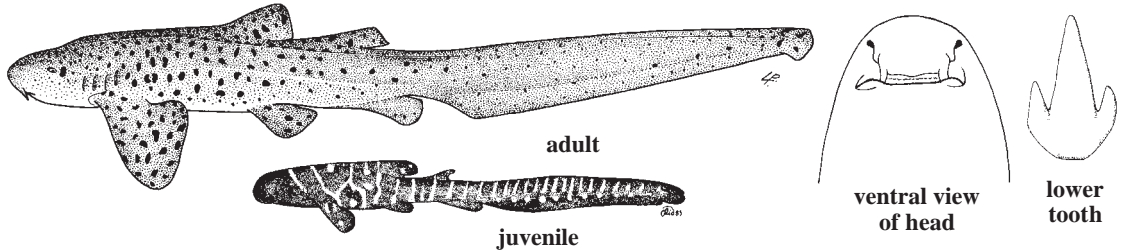
- Compagno, L.J.V. 1984. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.*, (125)Vol.4.Pt.1:249 p.
- Dingerkus, G. 1986. Interrelationships of orectolobiform sharks (Chondrichthyes: Selachii). *Proc. 2nd Int. Conf. Indo-Pacific Fish.*, 1986:227-245.
- Regan, C.T. 1908. A revision of the sharks of the family Orectolobidae. *Proc. Zool. Soc. Lond.*, (1908):347-364.

STEGOSTOMATIDAE

Zebra sharks

by L.J.V. Compagno

A single species in this family.

Stegostoma fasciatum (Hermann, 1783)**Frequent synonyms / misidentifications:** *Stegostoma varium* (Seba, 1758); *S. tygrinus* (Bonnaterre, 1788) / None.**FAO names:** En - Zebra shark; Fr - Requin zèbre; Sp - Tiburón acebrado.

Diagnostic characters: A large, moderately stout-bodied shark with prominent ridges on side. Head with 5 small gill slits, the last 3 behind pectoral-fin origin and the last 2 very close to each other; no gill rakers; **spiracles subequal in size to eyes**; **nostrils close to front of snout, with short barbels and nasoral grooves connecting them with the mouth but without circumnarial grooves and folds**; no nictitating lower eyelids; snout very short, broad and bluntly rounded; **mouth short**, nearly transverse, and far forward on head, **well in front of eyes**; **teeth small**, poorly differentiated in different regions of the mouth, **with moderately long medial cusps and short cusplets on sides**; tooth rows 28 to 33/22 to 32. **Two dorsal fins, the base of the first extending forward of pelvic-fin origins as a low keel that reaches level of pectoral-fin bases** but with insertion posterior to pelvic-fin origins; **second dorsal fin 1/2 the size of first or less**; anal fin present, rounded but not keel-shaped with its origin under rear 1/3 of second dorsal-fin base; **caudal fin nearly or quite 1/2 of total length**, strongly asymmetrical, with a deep subterminal notch but **with the lower lobe hardly developed**. Caudal peduncle not strongly depressed, without lateral keels or precaudal pits, **but with dermal ridges extending forward onto sides**. Supraorbital crests present on cranium, these laterally expanded. Intestinal valve of ring type. **Colour:** **young below 60 cm with the back dark brown or blackish, with vertical yellow bars, spots and reticulations**, and the underside of the head, abdomen and tail whitish; in subadults and adults the dark areas break up into scattered dark spots on a yellowish background, shading into the whitish ventral surface.

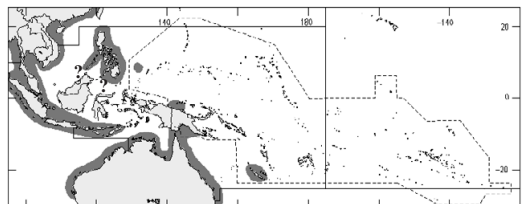
Similar families occurring in the area

None. The barbels, nasoral grooves, anterior mouth, teeth, anteriorly elongated dorsal fin, lateral ridges on the sides, greatly elongated caudal fin about 1/2 the total length, and distinctive colour patterns of young and adults separate this shark from all others in the area.

Size: Maximum total length at least 2.35 m; possibly to 3.54 m.

Habitat, biology, and fisheries: Common in inshore waters of the continental and insular shelves, often found on coral reefs, on or near the bottom. Oviparous, depositing eggs in rounded oblong egg cases 10 to 17 cm long; size at birth between 20 and 36 cm. Probably nocturnal, feeds primarily on molluscs but also takes small fishes. Caught in bottom trawls, in floating and fixed bottom gill nets, and with longlines; utilized fresh and dried-salted for human consumption; livers are processed for vitamins; fins dried for the oriental sharkfin trade; also processed for fishmeal.

Distribution: In the Indian Ocean and western Pacific from South Africa and the Red Sea eastward to Japan, Palau, western and northern Australia, and New Caledonia.

**References**

- Compagno, L.J.V. 1984. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.*, (125)Vol.4.Pt.1:249 p.
- Dingerkus, G. 1986. Interrelationships of orectolobiform sharks (Chondrichthyes: Selachii). *Proc. 2nd Int. Conf. Indo-Pacific Fish.*, 1986:227-245.
- Regan, C.T. 1908. A revision of the sharks of the family Orectolobidae. *Proc. Zool. Soc. Lond.*, (1908):347-364.

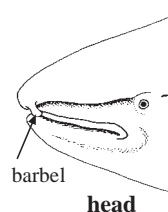
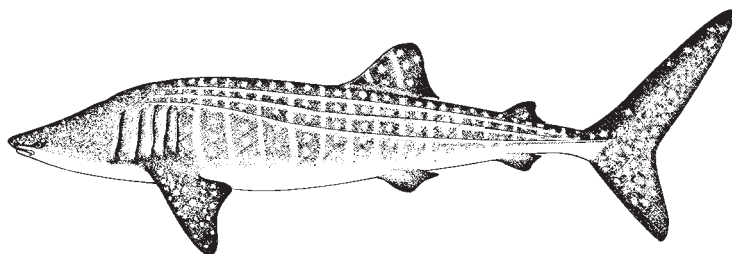
RHINCODONTIDAE

Whale sharks

by L.J.V. Compagno

A single species in this family.*Rhincodon typus* Smith, 1828**Frequent synonyms / misidentifications:** *Rhiniodon typus* Smith, 1828 / None.**FAO names:** En - Whale shark; Fr - Requin baleine; Sp - Tiburón ballena.

Diagnostic characters: A very large shark with cylindrical or moderately depressed body. **Head very broad and flattened**, with 5 large gill slits, the posterior 3 over the pectoral-fin bases; no gill rakers but filter grids of transverse bars and lobes across the internal gill slits; spiracles much smaller than eyes; nostrils with short, quadrate anterior nasal flaps, minute barbels, and shallow nasoral grooves; no nictitating eyelids; **snout extremely short, truncated**; mouth nearly subterminal, very wide, **transverse** and short, not reaching backward to eyes; **teeth very small and extremely numerous**, similar in both jaws, not bladelike and **with hooked cusps**. Two dorsal fins, the first with rear 1/3 of base over pelvic-fin bases, the second less than half the size of first; anal fin present; **caudal fin asymmetrical, crescentic, with a strong lower lobe but no subterminal notch**. **Caudal peduncle depressed, with a strong keel on each side continuing forward onto the back and over the gill slits as a small ridge and flanked by 2 additional ridges above**; upper precaudal pit present. Supraorbital crests present on cranium, these laterally expanded. Valvular intestine of ring type. **Colour:** dark grey, reddish, or greenish grey above, **with white or yellow spots and transverse stripes**; white or yellowish below.

**Similar families occurring in the area**

None. The combination of characters such as the truncated snout, the transverse mouth in front of eyes, the numerous small teeth, the lateral ridges, the precaudal keels and the colour pattern distinguishes the whale shark from all other sharks in the area.

Size: Maximum total length at least 12 m; possibly to 21.4 m.

Habitat, biology, and fisheries: This huge pelagic filter feeder occurs singly or in schools, often at or near the surface, near shore or on the open sea. Oviviparous, can have as many as 300 fetuses. Feeds on small pelagic crustaceans, schooling fishes including anchovies, sardines, and even albacores, and squids. Often seen in a vertical position with head at or near the surface when feeding. Usually harmless, and permitting close approach by divers; rarely ramming small boats, possibly when excited by fish hooked from the boats, but more often struck by ships while basking at the surface. The whale shark was formerly of limited interest to fisheries worldwide, but recently became the subject of a high value fishery off Taiwan Province of China and the Philippines for fins, flesh, and other products. Captured in gill nets and sometimes in trawls, and often harpooned. Utilized fresh and dried-salted for human consumption, liver processed for oil, fins used for soup base, and offal probably used for fishmeal. These sharks are increasingly popular as the subject of ecotouristic dive tours, as they migrate seasonally along coasts and concentrate in inshore tropical areas during part of the year. This shark is listed on the IUCN Red List of Threatened Animals (data deficient).

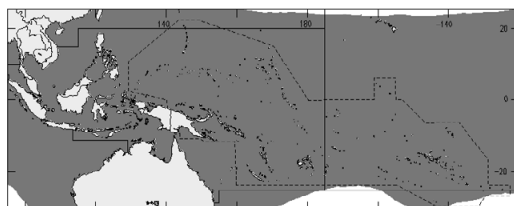
Distribution: Circumglobal in the tropical and warm temperate Pacific and Atlantic Oceans, oceanic and coastal.

References

Compagno, L.J.V. 1984. FAO species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish. Synop.*, (125)Vol.4.Pt.1:249 p.

Wolfson, F.H. 1986. Occurrences of the whale shark, *Rhincodon typus* Smith. *Proc. 2nd Int. conf. Indo-Pacific Fish.*, 1986:208-226.

Wolfson, F.H. and G. Notarbartolo di Sciarra. 1981. The whale shark, *Rhiniodon typus* Smith, 1828; an annotated bibliography (Selachii Rhinodontidae). *Atti Soc. Ital. Sci. Nat. Mus. Civ. Stor. Nat. Milano*, 122(3-4):171-203.

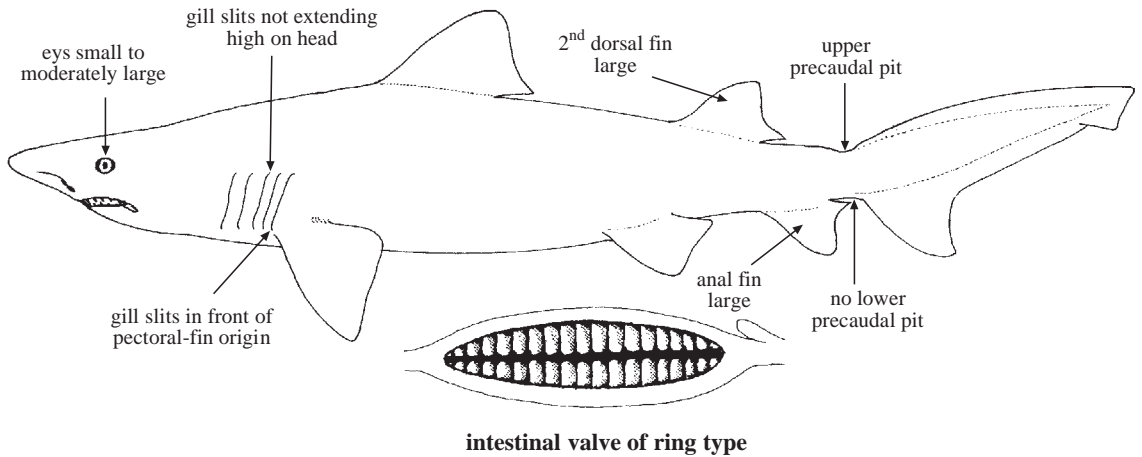


ODONTASPIDIDAE

Sand tiger sharks

by L.J.V. Compagno and V.H Niem

Diagnostic characters: Large sharks. Head with 5 medium-sized gill slits, all in front of pectoral-fin bases, **their upper ends not extending onto dorsal surface of head**; gill arches without rakers; spiracles present but very small; no nasal barbels or nasoral grooves; eyes small or moderately large, without nictitating eyelids; snout conical or moderately depressed, not blade-like; mouth very long and angular, extending well behind eyes when jaws are not protruded; **lower labial furrows usually present at mouth corners**; anterior teeth enlarged, with long, narrow, sharp-edged but unserrated cusps and small basal cusplets (absent in young of at least 1 species), the upper anteriors separated from the laterals by a gap and tiny intermediate teeth. Two moderately large, **high dorsal fins, the first originating well in advance of the pelvic fins**, the second as large as or somewhat smaller than the first; anal fin as large as second dorsal fin or slightly smaller; caudal fin short, asymmetrical, with a strong subterminal notch and a short but well-marked ventral lobe. Caudal peduncle not depressed, **without keels**; **a deep upper precaudal pit present but no lower pit**. Intestinal valve of ring type, with turns closely packed like a stack of washers. **Colour:** grey or grey-brown above, white or lighter below, with round or oval spots on at least 1 species.

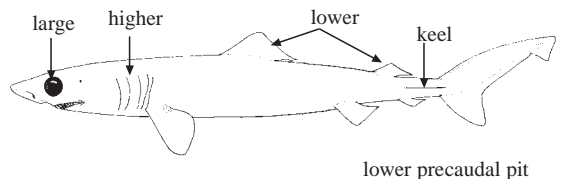


Habitat, biology and fisheries: These are wide-ranging, tropical to cool-temperate sharks, found inshore and down to moderate depths on the edge of the continental shelves and around some oceanic islands, but not oceanic. Development is ovoviparous. They feed on small bony fishes other sharks, squids, and occasionally bottom crustaceans. Normally inoffensive, but potentially dangerous if provoked. In the area, at least 1 species is regularly caught for food, liver oil, and processed for fishmeal.

Similar families occurring in the area

Pseudocarchariidae: body slimmer, gill slits higher and reaching onto dorsal sides of head, eyes larger, no true labial furrows, dorsal and anal fins lower, a weak lateral keel on caudal peduncle and both upper and lower precaudal pits present.

Proscylliidae, Triakidae, Hemigaleidae, and Carcharhinidae: nictitating eyelids present, anterior teeth not greatly enlarged, no intermediate teeth between anteriors and laterals, intestinal valve of spiral or scroll type.



Pseudocarchariidae

Key to the species of Odontaspidae occurring in the area

- 1a. Snout short and somewhat flattened (Fig. 1a); eyes very small; 3 rows of anterior teeth on either side of upper symphysis (Fig. 2b); dorsal and anal fins about equal in size, first dorsal fin closer to pelvic fin than to pectoral-fin bases (Fig. 3) *Carcharias taurus*
- 1b. Snout longer, bulbous and conical (Fig. 1b); eyes relatively large; 2 rows of large anterior teeth on either side of upper symphysis (Fig. 2b); first dorsal fin markedly larger than the second, closer to pectoral than to pelvic-fin bases; second dorsal fin considerably larger than anal fin (Fig. 4) *Odontaspis ferox*

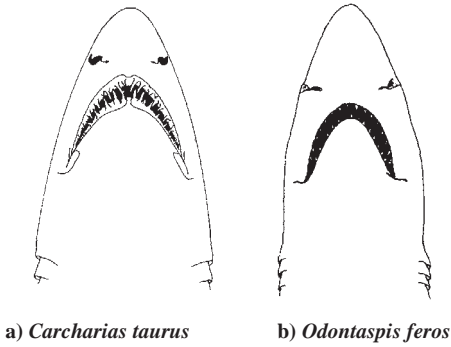


Fig. 1 ventral view of head

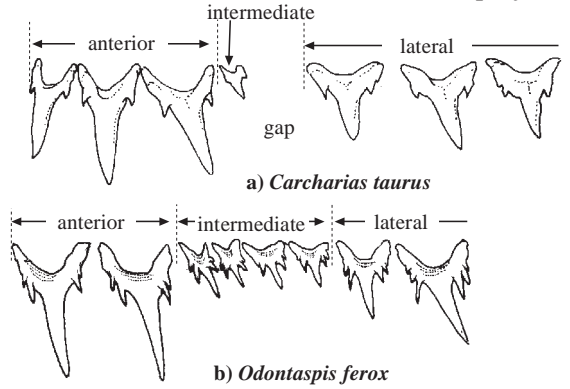


Fig. 2 upper teeth of left side

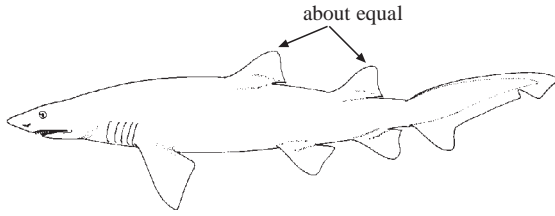


Fig. 3 *Carcharias taurus*

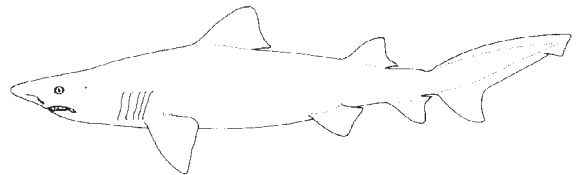





Fig. 4 *Odontaspis ferox*

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Carcharias taurus* Rafinesque, 1810
-  ? *Odontaspis ferox* (Risso, 1810)

References

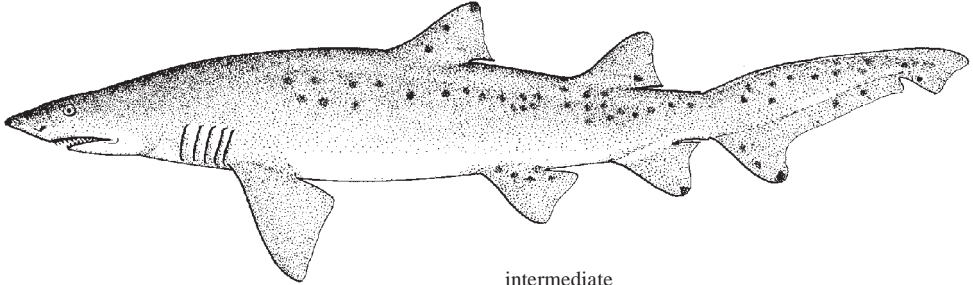
Compagno, L.J.V. 1984. FAO Species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish Synop.*, (125)Vol.4, Pt.1:249 p.

Last, P.R. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.

Carcharias taurus Rafinesque, 1810

Frequent synonyms / misidentifications: *Odontaspis taurus* (Rafinesque, 1810); *Eugomphodus taurus* (Rafinesque, 1810) / *Odontaspix ferox* (Risso, 1810).

FAO names: **En** - Sandtiger shark; **Fr** - Requin taureau (= Requin sable tacheté, Fishing Area 31); **Sp** - Toro bacota (= Pez toro).



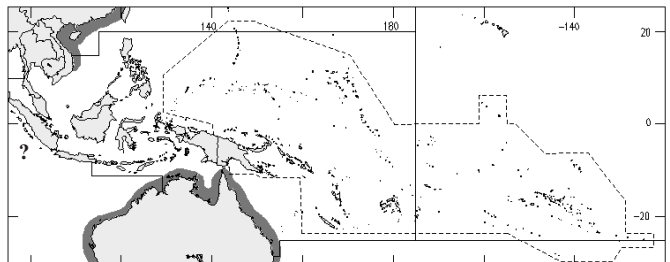
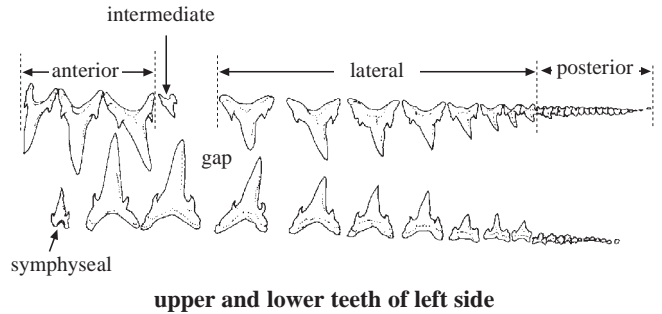
Diagnostic characters: A large shark. Head with 5 medium to large gill slits, all in front of pectoral-fin bases, no gill rakers; **snout very short, moderately flattened**; no nasal barbels or nasoral grooves; **eyes small, without nictitating eyelids**; mouth very long and angular, extending well behind eyes; anterior teeth in **3 rows on either side of symphysis**, large, with long, narrow, hooked, sharp-edged but non-serrated cusps and usually 1 short cusplet on each side; upper anteriors separated from the smaller laterals by a single row of tiny intermediate teeth (lacking in lower jaw); lower anteriors separated at front by 2 rows of small symphyseal teeth (**generally** lacking in upper jaw). Two dorsal fins, the base of first just in front of pelvic-fin bases and well posterior to **pectoral fins**; **second dorsal fin about as large as first dorsal and anal fins**; caudal fin short, strongly asymmetrical, with a pronounced subterminal notch and a short ventral lobe. No keels on caudal peduncle, but with a strong upper precaudal pit. Intestinal valve of ring type.

Colour: light grey-brown above, white below, often with round or oval, yellow, or yellow-brown spots.

Size: Maximum total length about 3.18 m; adults between 2.2 to 3 m.

Habitat, biology, and fisheries: A common littoral shark found inshore from the surf zone and in shallow bays to at least 191 m on the outer continental shelves in tropical and (mostly) temperate waters. It commonly lives near or on the bottom but occurs at midwater and at the surface. It is a slow but strong swimmer that can readily halt and hover motionless in midwater, and is the only known shark to gulp and store air in its stomach to maintain neutral buoyancy while swimming. Oviviviparous, with litters of 2 young recorded. Feeds on a wide variety of bony fishes, small sharks, rays, squids, crabs, and lobsters. This species previously had a bad reputation as a "maneater" in Australian waters ("gray nurse shark"), probably in large part by confusion with certain requiem sharks (Carcharhinidae) and with the white shark. It is apparently mostly inoffensive, but occasionally can become aggressive and nips divers without attempting to feed. It is caught by a large variety of fishing gear including line gear, bottom gill nets, and in pelagic and bottom trawls and is utilized for its flesh, liver oil, fins, and hides for leather. It is now protected in Australian waters after suffering local declines due to divers killing this easily-approached shark for "sport" with powerheads. This shark is listed on the IUCN Red List of Threatened Animals (vulnerable).

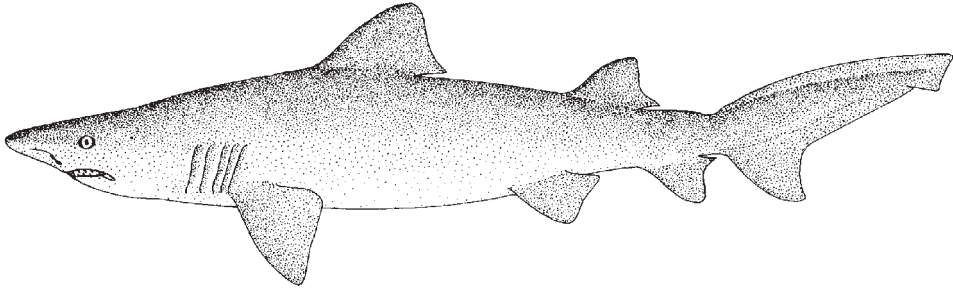
Distribution: Found in all warm seas except perhaps the eastern Pacific. In the Indo-West Pacific, off South Africa and in the Red Sea westwards to Japan, Korea, and Australia. In the area, along the entire northern coast of Australia, off the south coast of Viet Nam, and Indonesia (Aru and Obi Islands, possibly more widespread). Nominally recorded as *Carcharias tricuspidatus* from the Philippines.



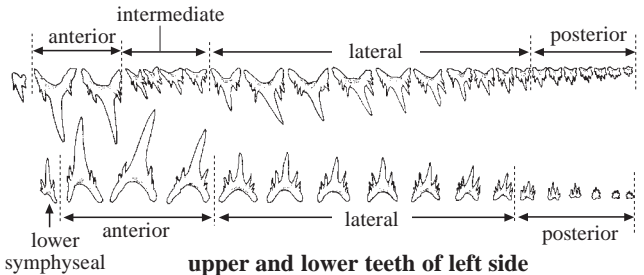
Odontaspis ferox (Risso, 1810)

Frequent synonyms / misidentifications: *Odontaspis herbsti* Whitley, 1950 / *Carcharias taurus* Rafinesque, 1810.

FAO names: En - Smalltooth sand tiger; Fr - Requin féroce; Sp - Solrayo.



Diagnostic characters: A large shark. Head with 5 medium to large gill slits, all in front of pectoral-fin bases; no gill rakers; **snout moderately elongated, bulbously conical**; no nasal barbels or nasal grooves **eyes moderately large, without nictitating eyelids**; mouth very long and angular, extending well behind eyes; anterior teeth moderately large, with long, narrow, hooked, sharp-edged but non-serrated cusps and **2 or 3 moderately long cusplets on each side**, separated in front by **2 rows of small symphyseal teeth in both jaws**; **upper anteriors set in 2 rows** on either side of symphysis and separated from the smaller laterals by **3 or 4 rows of tiny intermediate teeth**; lower anteriors set in 3 rows on either side of symphysis and not followed by small intermediate teeth. Two dorsal fins, the **first large and situated closer to the pectoral fins than to the pelvic fins, its free rear tip well ahead of pelvic-fin origins**, the second dorsal fin smaller than the first and usually slightly larger than anal fin; caudal fin short, strongly asymmetrical, with a pronounced subterminal notch and a short ventral lobe. No keels on caudal peduncle, but a strong upper precaudal pit. Intestinal valve of ring type. **Colour:** grey above, paler below, tips of dorsal, anal, pectoral, and pelvic fins may be dark-tipped in young; dark spots present on sides in some individuals.

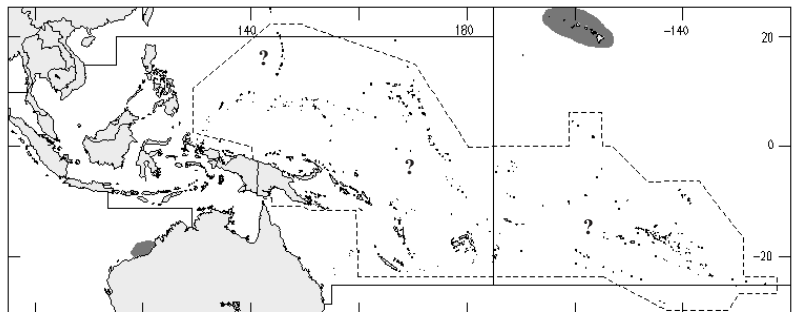


Size: Maximum total length about 3.6 m.

Habitat, biology, and fisheries: An uncommon, little-known, primarily deep-water species found at depths between 15 and 420 m from inshore waters to the upper continental and insular slopes. Probably ovoviparous. Bottom-dwelling, feeds on small bony fishes, squids, and crustaceans. The large oily liver presumably has a hydrostatic function. This species is not implicated in attacks on people. Taken with bottom gill nets, line gear and bottom trawls, primarily in the Mediterranean Sea and off Japan; used for its meat and for its squalene-rich liver.

Distribution: Known from the Mediterranean Sea and eastern Atlantic; Indo-West Pacific off South Africa and Maldives, Madagascar, southern Japan, Australia (New South Wales and northwestern Australia just adjacent to the area), and New Zealand; Central Pacific off Hawaii; and eastern Pacific off southern California and Baja California. Probably has a wider range than is known and is to be expected inside the area.

Remarks: Unspotted individuals have been distinguished as *Odontaspis herbsti*, but apparently presence of spots is a matter of individual variation in 1 species. *Carcharias taurus* is also variable in having or lacking spots. A somewhat similar deepwater and possibly oceanic species, *Odontaspis noronhai*, has been recorded off Hawaii in deep water and may eventually be recorded for the area.



PSEUDOCARCHARIIDAE

Crocodile sharks

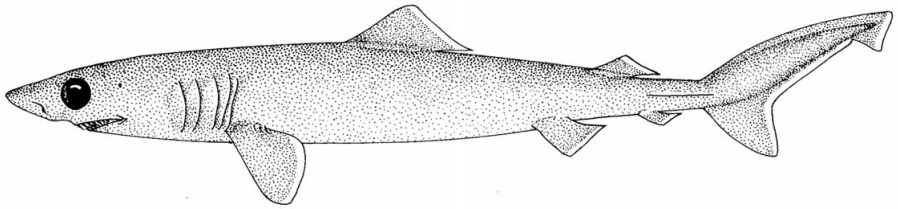
by L.J.V. Compagno

A single species in this family.

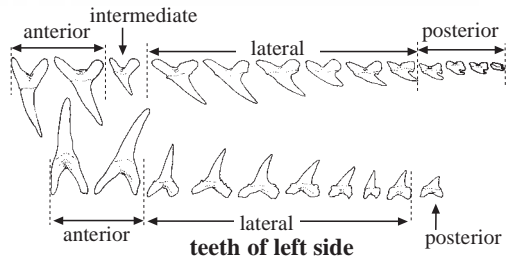
Pseudocarcharias kamoharai (Matsubara, 1936)

Frequent synonyms / misidentifications: *Odontaspis kamoharai* (Matsubara, 1936) / None.

FAO names: **En** - Crocodile shark; **Fr** - Requin crocodile; **Sp** - Tiburón cocodrilo.



Diagnostic characters: A small relatively slender shark. Head with 5 large gill slits, all in front of pectoral-fin bases, their upper ends extending onto dorsal surface of head; no gill rakers; spiracles usually present but very small; no nasal barbels or nasoral grooves; **eyes very large, without nictitating eyelids**; snout conical (not greatly elongated or flattened and blade-like); **mouth very long and angular, extending well behind eyes**; no true labial furrows; anterior teeth very large, with long, narrow, hooked, sharp-edged but unserrated cusps and no cusplets, set in 2 rows on either side of symphysis in both jaws, and not separated in front by small symphyseal teeth; upper anteriors separated from the smaller laterals by a gap and tiny intermediate teeth. Two low dorsal fins, the first about midway between the pectoral and pelvic fins, and well in front of pelvic fin bases, the second somewhat smaller than the first, but larger than anal fin; caudal fin short, strongly asymmetrical, with a pronounced subterminal notch and a short ventral lobe. Caudal peduncle slightly depressed, with a low keel on each side and upper as well as lower precaudal pits. Intestinal valve of ring type, with close-set turns resembling a stack of washers. **Colour:** light or dark grey above, lighter below, fins white-edged, sometimes small white spots on body and a white blotch between the mouth and gill slits.



Similar families occurring in the area

None. The combination of the characters described above separates this species from all other sharks.

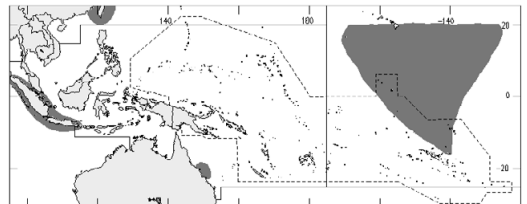
Size: Maximum total length to about 1.1 m; commonly between 75 cm and 1 m.

Habitat, biology, and fisheries: A rare to locally abundant oceanic and possibly mesopelagic shark, usually found offshore from the surface to at least 300 m. Its habits are little known. Ovoviviparous. Feeds on oceanic fishes, cephalopods, and crustaceans. Most frequently caught by pelagic longline fisheries, but usually discarded due to its small size; utilized for its large, squalene-rich liver.

Distribution: Possibly circumtropical; known from the eastern and southwestern Atlantic, southwestern and perhaps northeastern Indian Ocean, northwestern, central and eastern Pacific. In the Indo-West Pacific, off South Africa and the Mozambique Channel near Madagascar, possibly the Bay of Bengal, New Zealand, Indonesia (Java, Sumatra), Taiwan Province of China, Korea, Japan, Australia (Queensland), and Coral Sea.

References

- Compagno, L.J.V. 1984. FAO Species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish Synop.*, (125)Vol.4, Pt.1:249 p.
- Last, P.R. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.

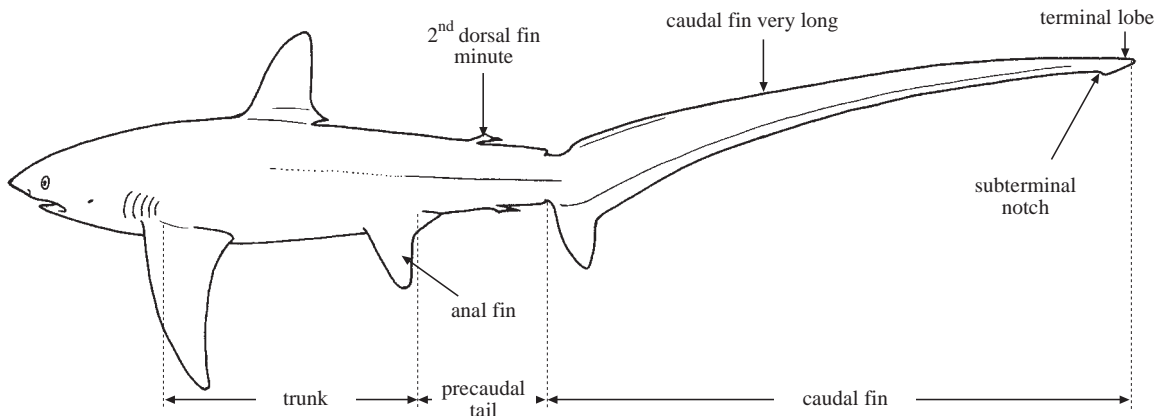


ALOPIIDAE

Thresher sharks

by L.J.V. Compagno

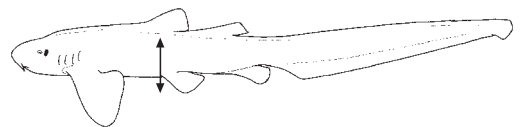
Diagnostic characters: Large sharks. Trunk and precaudal tail cylindrical, not depressed and without lateral ridges; **precaudal tail much shorter than trunk**. Head not expanded laterally, not depressed; 5 small to medium-sized gill slits present, the last 2 behind pectoral-fin origins, their upper ends not expanded onto upper surface of head; no gill rakers or sieves on internal gill slits; spiracles present and minute; nostrils without barbels, nasoral grooves, or circumnarial grooves, well separated from mouth; eyes on sides of head, without nictitating lower eyelids; snout moderately long, bluntly conical, not flattened and without lateral teeth or barbels; mouth small but arched and elongate, extending well behind eyes; labial furrows present on lower jaw only or absent, when present not reaching front of mouth; teeth small, blade-like and compressed, with erect to oblique cusps and cusplets very small or absent; anterior teeth in upper jaw slightly larger than lateral teeth and sometimes separated from them by a row of smaller intermediate teeth on each side. Two dorsal fins, without spines, the first moderately large, high and angular, much shorter than the caudal fin, and with its base located over the interspace between pelvic and pectoral-fin bases; second dorsal fin low, minute, and less than 1/10 the size of the first dorsal fin; anal fin present, very small, with its origin under or behind the second dorsal-fin insertion; caudal fin strongly asymmetrical, **the upper lobe enormously enlarged, about 1/2 the total length and with a subterminal notch**, and an undulated or rippled dorsal margin, the lower lobe short but strong; vertebral axis of caudal fin raised above body axis. Caudal peduncle not depressed, without keels; precaudal pits present. Intestinal valve of ring type. **Colour:** bluish, blackish, grey, or brown above, shading to white or grey below.



Habitat, biology, and fisheries: These are active, strong-swimming, pelagic, coastal and deep-water sharks, with the young of 1 species occurring close inshore and inside bays. They feed mainly on small to moderately large schooling fishes and squid, which may be herded and stunned by the long, strap-like tail. Threshers are circumtemperate and tropical in all warm oceans. This monogeneric family comprises only 3 or 4 species worldwide, 3 of which occur in the area. Thresher sharks form an important component of the oceanic shark fishery, particularly because of their high-quality meat which is utilized fresh, frozen, smoked, and dried-salted. Their fins are used for shark-fin soup, livers for vitamin extraction, and hides for leather. Thresher sharks are primarily captured by offshore longline fisheries but also offshore and near shore with line gear (including rod and reel) and fixed bottom gill nets.

Similar families occurring in the area

Stegostomatidae: this is the only other family of sharks with the caudal fin about as long as the body; it differs from Alopiidae in numerous characters, including its striped or barred colour pattern, nasal barbels, transverse mouth in front of eyes, small tricuspid teeth, broad rounded pectoral fins, first dorsal fin over pelvic-fin bases, larger second dorsal and anal fins, broad upper lobe on caudal fin, no ventral caudal-fin lobe, and axis of caudal fin not raised.



Stegostomatidae

No other sharks in the area have the caudal fin about 1/2 the total length.

Key to the species of Alopiidae occurring in the area

- 1a. Head nearly flat between eyes; a deep horizontal groove on nape of each side above gills; eyes very large, with orbits expanded onto dorsal surface of head; teeth larger, less than 25 rows in each jaw; first dorsal-fin base closer to pelvic-fin bases than pectoral-fin bases (Fig. 1) *Alopias superciliosus*
- 1b. Head strongly arched between eyes; no horizontal groove or an inconspicuous one on nape of each side; eyes smaller, with orbits not expanded onto dorsal surface of head; teeth smaller, 29 or (usually) more rows in each jaw; first dorsal-fin base about equidistant between pectoral and pelvic-fin bases or closer to pectoral-fin bases (Figs 2 and 3) → 2

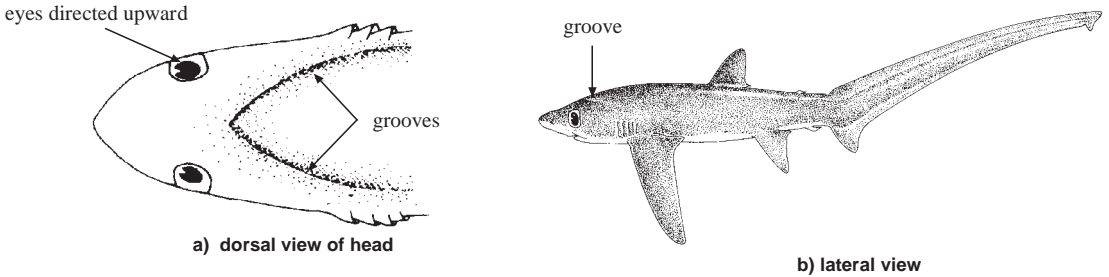


Fig. 1 *Alopias superciliosus*

- 2a. Sides above pectoral-fin bases dark, without an extension of the white abdominal area; head narrow, snout more elongated, forehead nearly straight; labial furrows absent; pectoral fins nearly straight and broad-tipped; distance between pelvic and caudal-fin bases shorter than prebranchial length; terminal lobe of caudal fin shorter, its length from subterminal notch to caudal tip about equal to second dorsal-fin base (Fig. 2) *Alopias pelagicus*
- 2b. Sides above pectoral-fin bases marked with a white patch extending forward from the abdominal area; head broad, snout shorter, forehead strongly arched; labial furrows present; pectoral fins falcate and narrow-tipped; distance between pelvic and caudal-fin bases greater than prebranchial length; terminal lobe of caudal fin longer, its length from subterminal notch to caudal tip over twice second dorsal-fin base (Fig. 3) *Alopias vulpinus*

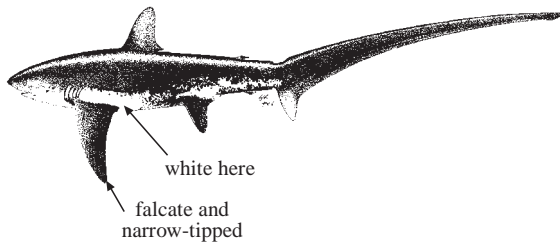


Fig. 2 *Alopias vulpinus*

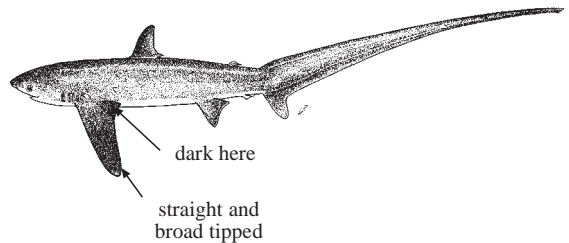


Fig. 3 *Alopias pelagicus*

List of species occurring in the area

The symbol is given when species accounts are included.

- Alopias pelagicus* Nakamura, 1935
- Alopias superciliosus* (Lowe, 1839)
- Alopias vulpinus* (Bonnaterre, 1788)

References

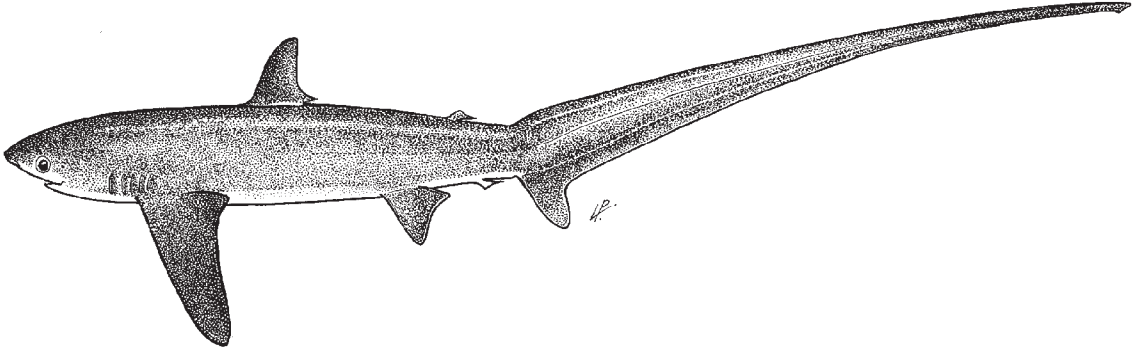
Compagno, L.J.V. 1984. FAO Species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish Synop.*, (125)Vol.4, Pt.1:249 p.

Last, P.R. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.

Alopias pelagicus Nakamura, 1935

Frequent synonyms / misidentifications: None / *Alopias superciliosus* (Lowe, 1839); *A. vulpinus* (Bonnaterre, 1788).

FAO names: **En** - Pelagic thresher; **Fr** - Renard pélagique; **Sp** - Zorro pelágico.

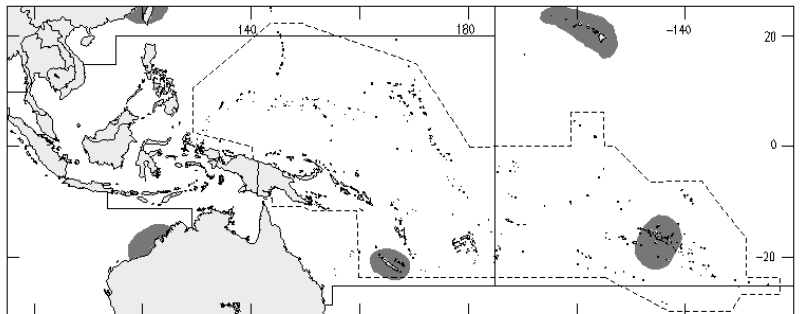


Diagnostic characters: A large shark. Head with 5 medium-sized gill slits, the last 2 above pectoral-fin bases; a weak horizontal groove on nape on each side from level of mouth to pectoral fins; no nasal barbels or nasal grooves on nostrils; snout moderately long and conical; **forehead nearly straight in lateral view, broadly arched between eyes**; head narrow; no nictitating eyelids; eyes moderately enlarged in adults and subadults, but greatly enlarged in young, **not expanded onto dorsal surface of head**; mouth moderately long and semicircular, placed below eyes, with labial furrows rudimentary or absent; teeth small, **more than 29 rows in each jaw**, sharp-edged, with a single, narrow, nearly erect or distally oblique cusp and often a distal cusplet; anterior teeth not greatly enlarged, uppers separated from the large laterals by smaller intermediate teeth. Two dorsal fins, the first moderately large and **located about equidistant between the pectoral and pelvic-fin bases or slightly closer to the pectoral-fin bases**; second dorsal fin minute and positioned well ahead of the small anal fin; **pectoral fins narrow, long and nearly straight, broad-tipped, and not falcate**; upper lobe of caudal fin very long and strap-like, about as long as the rest of the shark; lower lobe short but strong; terminal lobe very small. Upper precaudal pit present but caudal keels absent. Intestinal valve of ring type. **Colour:** bluish or grey above, white below, with a silvery sheen in gill region; **white colour from belly not expanded over pectoral-fin bases.**

Size: Maximum total length at least 3.3 m (adult females).

Habitat, biology, and fisheries: A little-known species, primarily oceanic and epipelagic, but sometimes caught near-shore, ranging from the surface to a depth of at least 150 m. An active, strong-swimming species. Ovoviviparous, with at least 2 young; apparently a uterine cannibal like other species of *Alopias*. Presumably feeds on small fishes and squid, but no details are known. Harmless to people. Formerly exploited by the longline fishery in the northwestern Indian Ocean (primarily by Russia), but is also fished in the Central and eastern Pacific. Utilized for its meat (for human consumption), liver oil for vitamin extraction, hides for leather, and fins for shark-fin soup.

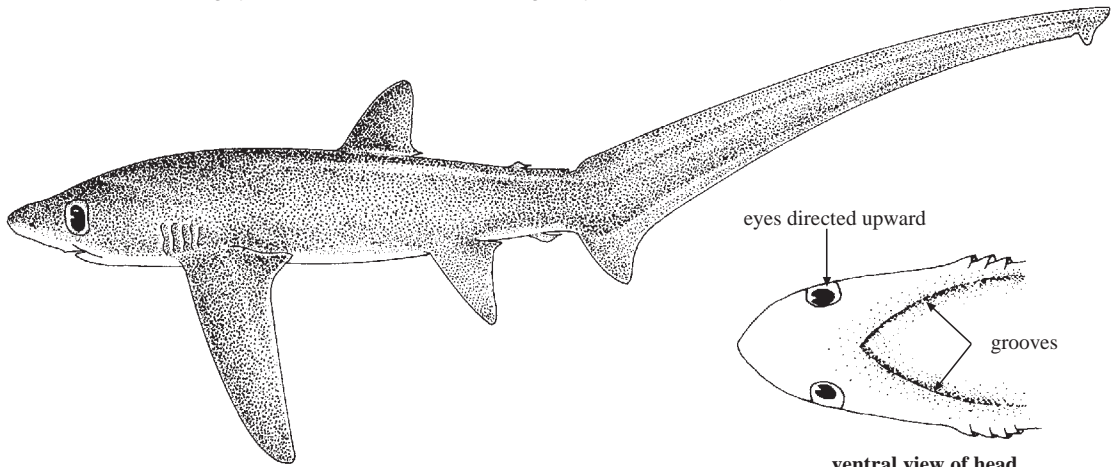
Distribution: Wide-ranging in the tropical and subtropical Indo-Pacific.



Alopias superciliosus (Lowe, 1839)

Frequent synonyms / misidentifications: *Alopias profundus* Nakamura, 1935 / *Alopias pelagicus* Nakamura, 1935; *A. vulpinus* (Bonnaterre, 1788).

FAO names: En - Bigeye thresher; Fr - Renard à gros yeux; Sp - Zorro ojón.



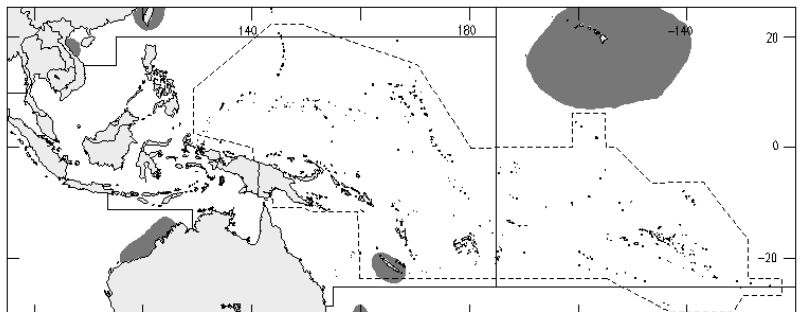
ventral view of head

Diagnostic characters: A large shark. Head with 5 medium-sized gill slits, the last 2 above pectoral-fin bases; **a deep horizontal groove on nape on each side** from the level of mouth to pectoral fins; no nasal barbels or nasoral grooves on nostrils; **snout moderately long and conical; profile of forehead distinctly indented over eyes; interorbital space nearly flat;** no nictitating eyelids; **eyes very large, expanding onto dorsal surface of head**, permitting upward vision; mouth moderately long and semicircular, placed below the eyes, with rudimentary labial furrows; teeth moderately large, **less than 25 rows in upper or lower jaws**, sharp-edged, with a single, broad, straight or posteriorly curved cusp and no cusplets; anterior teeth not greatly enlarged, uppers not separated from the large laterals by smaller intermediate teeth. Two dorsal fins, the first moderately large and **located just in front of the pelvic-fin origins**, closer to the pelvic fins than to the pectoral fins; second dorsal fin minute and positioned well ahead of the small anal fin; pectoral fins very narrow, long and falcate, broad-tipped; upper lobe of caudal fin very long and strap-like, almost or quite equal to the length of rest of shark; lower lobe short but well developed. Upper precaudal pit present but caudal keels absent. Intestinal valve of ring type. **Colour:** purplish grey above, cream below, posterior edges of pectoral and pelvic fins and sometimes first dorsal fin dusky; **light colour of abdomen not expanded over pectoral-fin bases.**

Size: Maximum total length about 4.6 m; commonly between 3 and 4 m.

Habitat, biology, and fisheries: Found in coastal waters over the continental shelves, sometimes close inshore in shallow waters, and on the high seas far from land, in deep water down to at least 500 m. Apparently strong-swimming. Ovoviviparous, with uterine cannibalism, number of young usually 2 per litter, but sometimes up to 4. Feeds on pelagic fishes (lancetfishes, clupeoids, scombroids, and small billfishes) and bottom fishes (hakes); also squids. Apparently stuns its prey with its long caudal fin, as individuals are often tail-hooked on longlines. Apparently harmless to people. Caught in oceanic longline fisheries; especially important areas for these fisheries are the North Atlantic, northwestern Indian Ocean, and the Central and eastern Pacific. The species is also taken in fixed bottom and pelagic gill nets, in trawls, and with sportsfishing gear (rod and reel). Its meat is utilized fresh, smoked, and dried-salted for human consumption, its liver oil is processed for vitamins, its skin for leather, and fins for shark-fin soup.

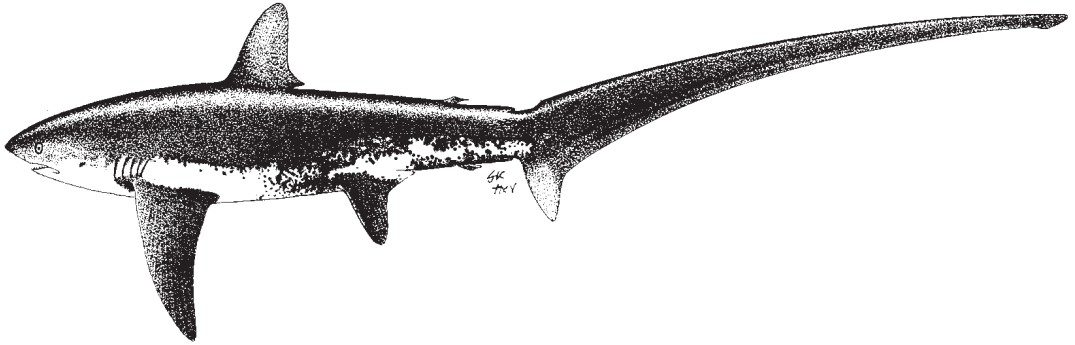
Distribution: Virtually circum-global in tropical and warm temperate seas.



Alopias vulpinus (Bonnaterre, 1788)

Frequent synonyms / misidentifications: None / *Alopias pelagicus* Nakamura, 1935; *A. superciliosus* (Lowe, 1839).

FAO names: En - Thresher shark; Fr - Renard; Sp - Zorro.

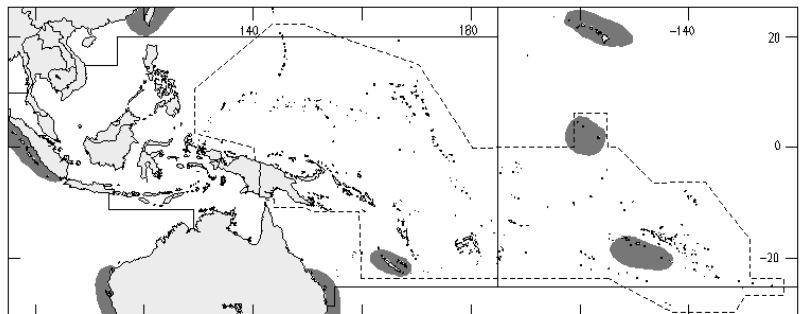


Diagnostic characters: A large shark. Head with 5 medium-sized gill slits, the last 2 above pectoral-fin bases; **no grooves on nape**; no gill rakers; no nasal barbels or nasoral grooves on nostrils; **snout short and conical**; forehead broadly convex in lateral view, not indented at nape; no nictitating eyelids; **eyes moderately large, not expanded onto dorsal surface of head**; mouth short and semicircular, below eyes, with short lower labial furrows; teeth small, **usually over 29 rows in upper and lower jaws**, sharp-edged, with a single, broad, straight or posteriorly curved cusp and usually no cusplets; anterior teeth not greatly enlarged, **uppers usually separated from the laterals by a small intermediate tooth**. Two dorsal fins, the first moderately large, **with its base well ahead of the pelvic-fin bases and farther from them than from the pectoral-fin bases**; second dorsal fin minute and positioned just in front of the small anal fin; **pectoral fins very long and falcate, with narrowly rounded (small juveniles) to acutely pointed, narrow tips**; upper lobe of caudal fin very long and strap-like, about as long as, or longer than, rest of shark; lower lobe short but well-developed. Upper precaudal pit present but caudal keels absent. Intestinal valve of ring type. **Colour:** brown, grey, blue-grey, or blackish on back and underside of snout, lighter on sides, and abruptly white below; **a white area extends from the abdomen over the pectoral-fin bases**; pectoral-, pelvic-, and dorsal fins blackish, white dots sometimes present on pectoral-, pelvic-, and caudal-fin tips.

Size: Maximum total length about 5.5 m; commonly between 4.3 and 4.9 m; apparently larger than *Alopias superciliosus* and *A. pelagicus*.

Habitat, biology, and fisheries: Coastal over the continental and insular shelves and epipelagic far from land in temperate to tropical waters; young often close inshore and in shallow bays, from the surface down to 370 m. An active, strong-swimming shark, sometimes leaping out of the water. Ovoviviparous and apparently a uterine cannibal, number of young 2 to 4 per litter (usually 2). Feeds mostly on small schooling fishes, including mackerels, bluefishes, clupeids, needlefishes, lancetfishes, and lanternfishes; also squids, octopuses and pelagic crustaceans, and rarely seabirds. Herds and stuns its prey with its long, whip-like caudal fin, and is often caught on longlines by being tail-hooked. Apparently harmless to people, though the size of adults of this species should invite respect. Caught in oceanic longline fisheries; especially important areas for these fisheries are or were the northwestern Indian Ocean and the Central Pacific. Also fished with anchored bottom and surface gill nets, floating gill nets and sportfishing gear (rod and reel). The meat is highly prized fresh for human consumption but is also eaten smoked and dried-salted; the fins are valuable for shark-fin soup; the hide is usable for leather and the liver oil can be processed for vitamins.

Distribution: Virtually circum-global in temperate to tropical waters.

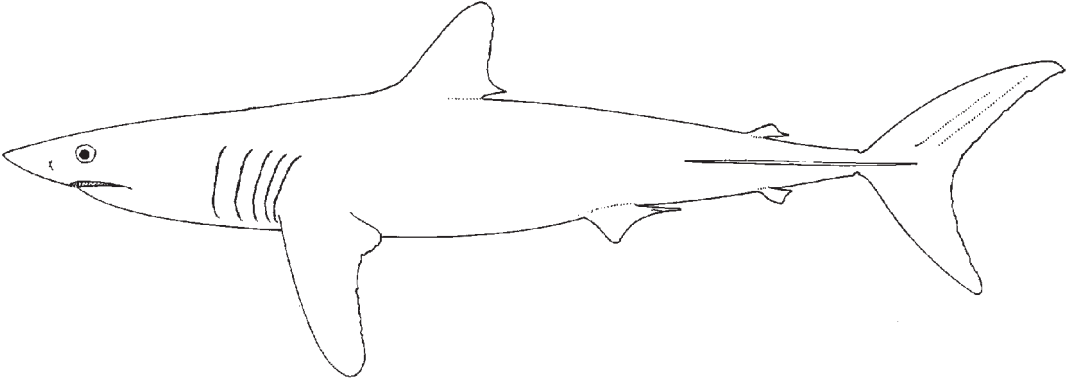


LAMNIDAE

Mackerel sharks, makos, white sharks, porbeagles

by L.J.V. Compagno

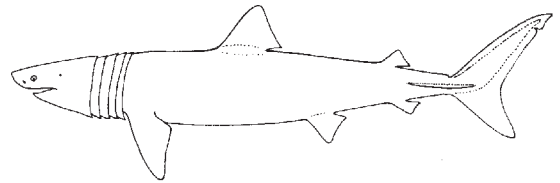
Diagnostic characters: Large-sized sharks with a fusiform body. Head with 5 gill slits, **all in front of pectoral-fin origins**; gill arches without rakers; no nictitating eyelids; **teeth long and few in number**, awl- or blade-like, with a single cusp. **Two dorsal fins**, the first much shorter at base than caudal fin and **far in advance of pelvic fins**; **second dorsal fin and anal fin much smaller than first dorsal fin**; **caudal fin lunate**, less than 1/3 of total length. **Caudal peduncle strongly depressed dorsoventrally** and expanded laterally, **with a prominent keel on each side, extending well out on caudal fin**. Intestinal valve of ring type. **Colour:** back greyish blue to black, or brownish; belly white.



Habitat, biology, and fisheries: Mackerel sharks inhabit temperate and tropical waters (oceanic as well as coastal) throughout the world. They are very fast swimmers and voracious predators, feeding mainly on fish and squid, but also other sharks, batoids, marine mammals, sea birds, and carrion; some species are dangerous to man. Mackerel sharks are often used for food or for production of liver oil, fishmeal and other shark products.

Similar families occurring in the area

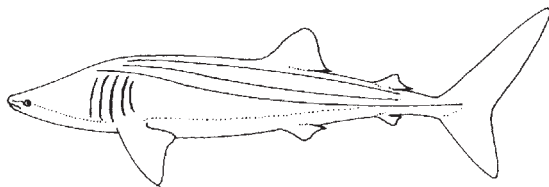
Cetorhinidae: the basking shark, *Cetorhinus maximus* (Gunnerus, 1765) is known to occur close to the area (western North Pacific southwards to Taiwan Province of China as well as southwestern Australia) and may eventually be found in the area. It can be distinguished from members of Lamnidae by having much longer gill openings, extending from upper surface of head to throat; gill rakers well developed on internal gill openings; teeth minute and hooked, not blade-like; anal fin and second dorsal fin larger; and size of adults larger (9 m or more).



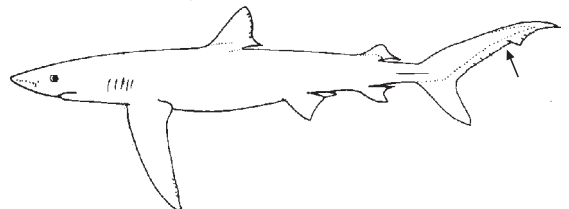
Cetorhinidae

Rhincodontidae: body with several prominent dermal ridges on either side; last gill slit well behind pectoral-fin origin; snout squared off anteriorly; mouth nearly terminal; at least half of first dorsal-fin base posterior to pelvic-fin origins; gill arches connected by masses of spongy tissue; and a spotted and striped colour pattern.

All other shark families: caudal fin strongly asymmetrical and not lunate, the upper lobe extending far beyond lower lobe; caudal peduncle not greatly flattened dorsoventrally.



Rhincodontidae



other shark families (e.g. Carcharhinidae)

Key to the species of Lamnidae occurring in the area

- 1a. Upper teeth triangular with serrate edges (Fig. 1a); origin of first dorsal fin opposite or slightly anterior to inner corners of pectoral fins when the latter are laid back; anal-fin origin posterior to second dorsal-fin base (Fig. 2) *Carcharodon carcharias*
- 1b. Upper teeth with smooth-edged cusps (Fig. 1b, c); origin of first dorsal fin posterior to inner corners of pectoral fins when the latter are laid back; anal-fin origin below midbase or insertion of second dorsal-fin base (Figs 3 and 4) → 3

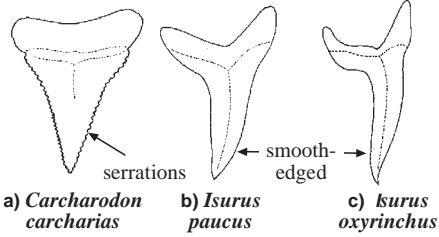


Fig. 1 upper tooth

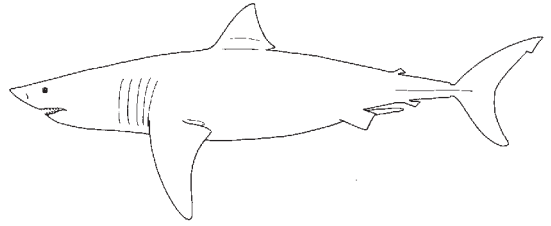


Fig. 2 *Carcharodon carcharias*

- 2a. Snout usually acutely pointed (Fig. 5a); cusps of upper and lower anterior teeth recurved at bases but with tips reversed and curving outward; pectoral fins considerably shorter than head, relatively narrow-tipped in young, acutely pointed in adults; origin of anal fin about under midbase of second dorsal fin (Fig. 3); underside of snout and mouth white *Isurus oxyrinchus*
- 2b. Snout narrowly to bluntly (usually not acutely) pointed (Fig. 5b); cusps of upper and lower anterior teeth straighter, with tips not reversed; pectoral fins about as long as head, relatively broad-tipped in young and adults; origin of anal fin about under insertion of second dorsal fin (Fig. 4); underside of snout and mouth dusky *Isurus paucus*

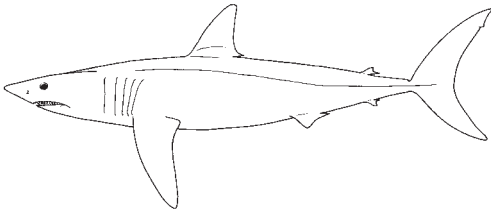


Fig. 3 *Isurus oxyrinchus*

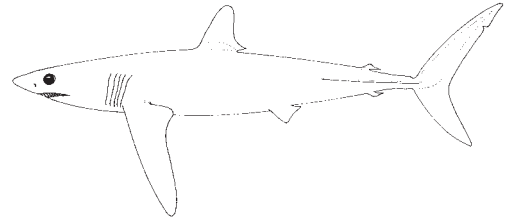


Fig. 4 *Isurus paucus*

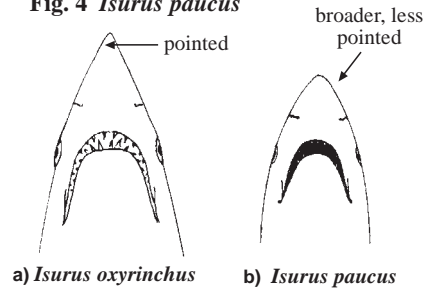


Fig. 5 ventral view of head

List of species occurring in the area

The symbol is given when species accounts are included.

- Carcharodon carcharias* (Linnaeus, 1758)
- Isurus oxyrinchus* Rafinesque, 1810
- Isurus paucus* Guitart Mandy, 1966

References

Bigelow, H.B. and W.C. Schroeder. 1948. Sharks. *Mem. Sears Found. Mar. Res.*, (1):56-576

Compagno, L.J.V. 1984. FAO Species catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes. *FAO Fish Synop.*, (125)Vol.4, Pt.1:249 p.

Garrick J.A.F. 1967. Revision of sharks of genus *Isurus* with description of a new species (Galeoidea, Lamnidae). *Proc. U.S. Natl. Mus.*, 118(3537):663-690.

Last, P.R. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.

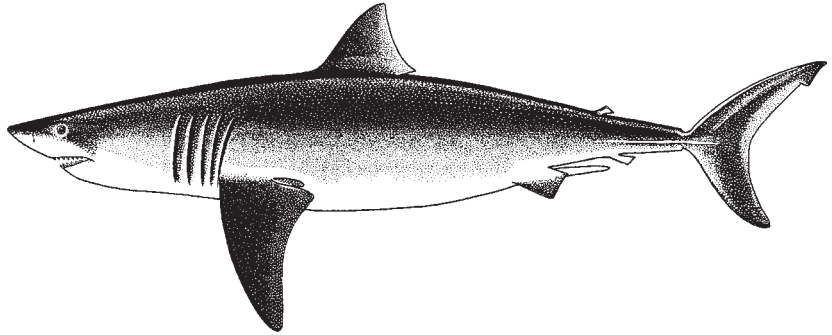
Carcharodon carcharias (Linnaeus, 1758)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Great white shark; Fr - Grand requin blanc; Sp - Jaquetón blanco (= Jaquetón).



ventral view of head

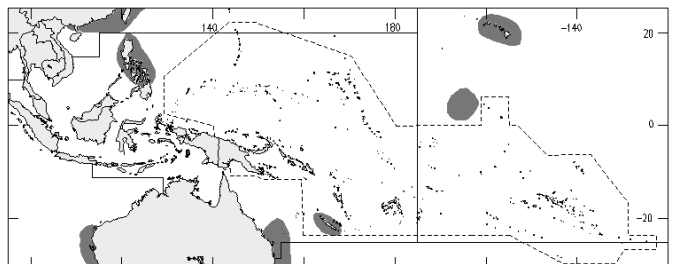
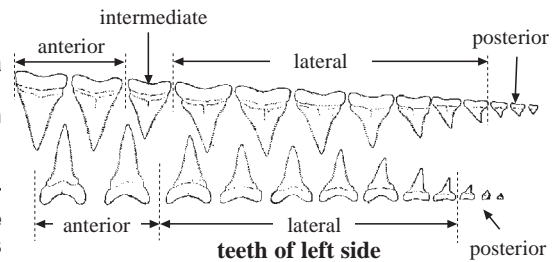


Diagnostic characters: A very large shark with a fusiform, usually heavy body and a moderately long, bluntly pointed snout. Head with 5 long gill slits, all in front of pectoral-fin origins; gill arches without rakers; spiracles very small; mouth long and broadly rounded; **teeth very large** and relatively few, narrower in the lower than in the upper jaw, pointed backwards, with a **single broad cusp and strong serrations** at most sizes (irregular in individuals below 1.5 m length, and with cusplets present up to about 2 m length, but lost in larger individuals); anterior teeth greatly enlarged in both jaws, in 2 rows on either side of symphysis, broadly triangular and compressed, not recurved; intermediate and first few lateral teeth a little smaller, the intermediate ones less differentiated from the anterior and lateral teeth than in other members of the family. Two dorsal fins, the first large, originating over inner margins of pectoral fins, the second very small; pectoral fins shorter than head and falcate; **anal-fin origin posterior to rear end of second dorsal-fin base**; caudal fin lunate, **its lower lobe strongly developed**. Caudal peduncle very much flattened dorsoventrally, expanded laterally, **with a prominent keel on either side extending well out on caudal fin** but with no secondary keel on the fin. **Colour:** grey-brown, dark grey, blue-grey, blackish, light grey or grey-white above, white below, fins with dusky margins below, black tips on underside of pectoral fins, a black spot present or lacking on pectoral-fin axils.

Size: Maximum total length possibly 6.4 to 7.2 m or more (a record of 10.98 m later proved incorrect); commonly between 5 and 6 m.

Habitat, biology, and fisheries: An inshore, offshore, and oceanic species, often occurring on the continental shelves off island and reefs, in enclosed shallow bays and off beaches; recorded from the surface and the intertidal down to 1 280 m. A powerful, strong swimmer. Ovoviviparous, possibly up to 10 fetuses in a litter. A powerful, highly opportunistic apical predator, feeding on a wide variety of marine animals, including other sharks, rays, chimaeras, bony fishes, seals, sea lions, dolphins, porpoises, sea birds, squid, crustaceans, and carrion. One of the most dangerous sharks, responsible for a number of unprovoked attacks on swimmers, divers, surfers, and boats. Of limited interest to fisheries, mostly taken as a bycatch with longlines, hook-and-line, fixed bottom gill nets, fish traps, herring weirs, and trammel nets, harpoons, and even bottom and pelagic trawls, as well as purse seines. Utilized fresh, dried-salted, and smoked for human consumption; the liver oil is extracted for vitamins; the carcass used for fishmeal; the skin for leather; the fins for shark-fin soup; and the teeth and jaws for decorations, with properly prepared large jaws bringing a high price. Protected in South Africa, Namibia, Israel, the USA, and Australia, threatened by targeted and bycatch fisheries. This shark is listed on the IUCN Red List of Threatened Animals (vulnerable).

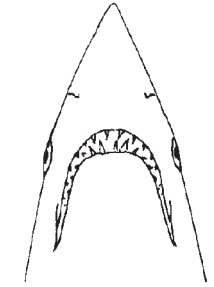
Distribution: Cosmopolitan in boreal to tropical seas, but apparently more abundant in cool to warm-temperate waters.



Isurus oxyrinchus Rafinesque, 1810

Frequent synonyms / misidentifications: *Isurus glaucus* (Müller and Henle, 1839) / *Isurus paucus* Guitart Manday, 1966.

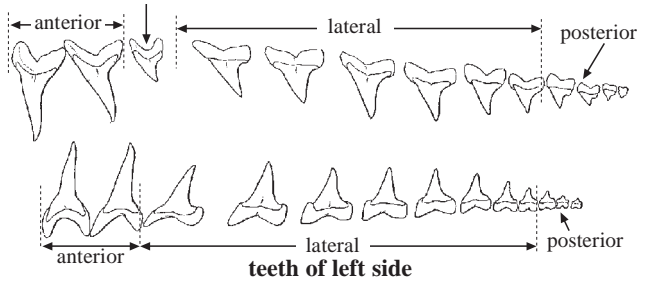
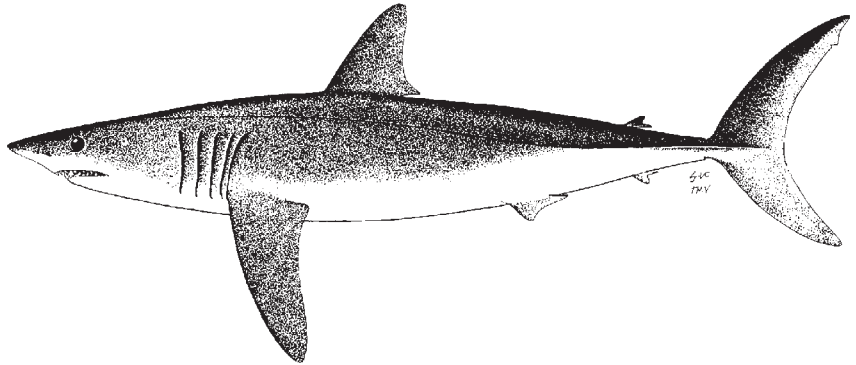
FAO names: En - Shortfin mako; Fr - Taupe bleu; Sp - Marrajo dientuso (= Marrajo).



ventral view of head



upper and lower teeth in natural position at tip of mouth (lateral view)

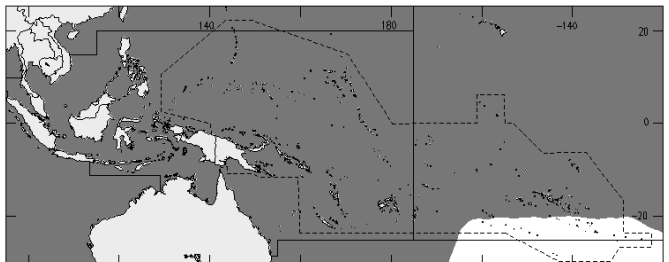


Diagnostic characters: A large shark with a fusiform and moderately slender body and a long and **acutely pointed snout**. Head with 5 long gill slits, all in front of pectoral-fin origins; gill arches without rakers; spiracles very small; mouth broadly rounded and notably long; **teeth strong and relatively few**, alike in both jaws, backward-pointing, somewhat flexuous in outline, **smooth-edged, with a single cusp**; the first 2 in each jaw much the largest, recurved at base but curve-reversed at tips. Two very unequal dorsal fins, **the first comparatively large, its origin posterior to inner corners of pectoral fins when latter are laid back**, its apex bluntly rounded (young) to acutely pointed (adults); **pectoral fins moderately long (shorter than head) and falcate**; **anal-fin origin below about middle of second dorsal-fin base**; caudal fin lunate, its lower lobe strongly developed. **Caudal peduncle very much flattened dorsoventrally, but expanded laterally, with a prominent keel on each side extending well out on caudal fin.** **Colour:** back grey-blue, occasionally deep blue; belly white.

Size: Maximum total length to about 4 m; commonly to 2.7 m.

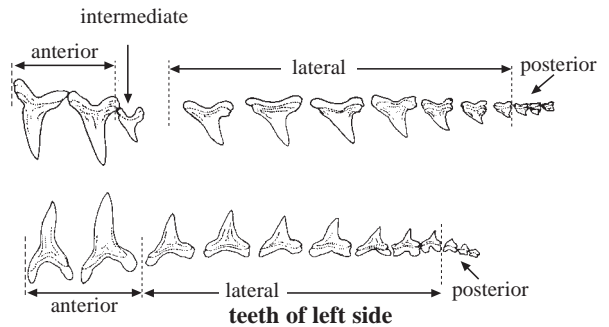
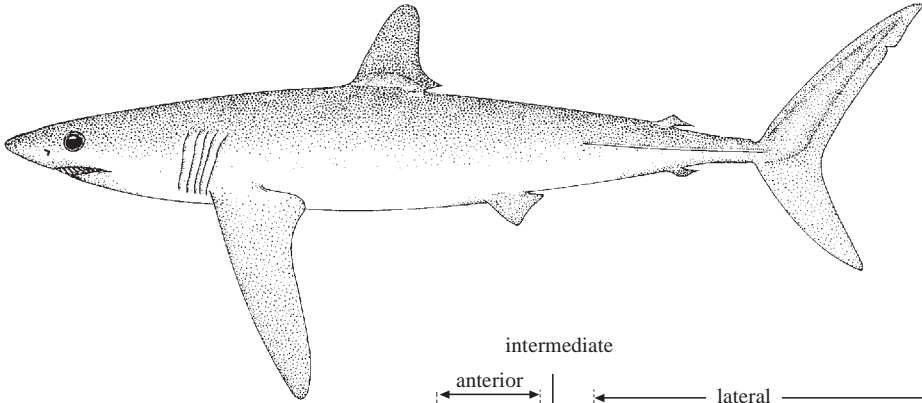
Habitat, biology, and fisheries: An oceanic and coastal species, usually in surface waters, approaching close inshore, but also in deeper water to at least 150 m. Perhaps the most active and strong-swimming of sharks, renowned for leaping out of the water, especially when hooked. Ovoviviparous, number of young in a litter 1 to 6, rarely 10. Feeds heavily on schooling fishes (mackerels, jacks, herrings, etc.), also small sharks and attacks larger species such as tunas and swordfishes. An aggressive, dangerous shark, responsible for unprovoked attacks on swimmers and boats; hooked individuals fight very hard and may leap into the boats of anglers. An important species for longline fisheries, because of its high-quality meat, and also it is also famed as one of the finest game fishes, highly prized by sport anglers. Caught in gill nets, and on pelagic longlines, and hook-and-line. The meat is utilized fresh, frozen, smoked, and dried-salted for human consumption; the oil is extracted for vitamins; the fins used for shark-fin soup; the hides processed into leather and the jaws and teeth used for ornaments.

Distribution: Cosmopolitan in warm-temperate and tropical seas.



Isurus paucus Guitart Manday, 1966

Frequent synonyms / misidentifications: *Isurus alatus* Garrick, 1966 / *Isurus oxyrinchus* Rafinesque, 1810.
FAO names: En - Longfin mako; Fr - Petit taupe; Sp - Marrajo carite.

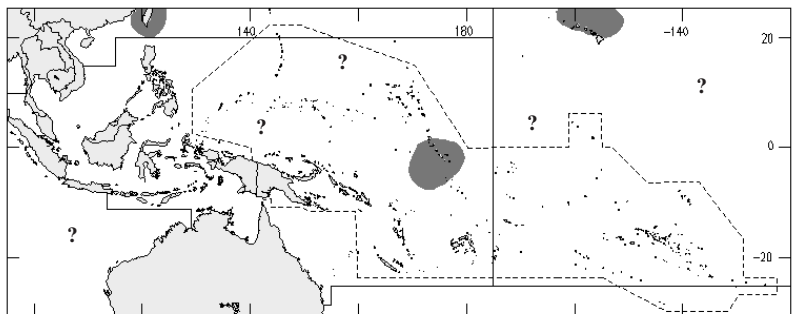


Diagnostic characters: A large shark with a fusiform and moderately slender body and a long, pointed snout. Head with 5 long gill slits, all in front of pectoral-fin origins; gill arches without rakers; spiracles very small; mouth long and broadly rounded; teeth large and relatively few, alike in both jaws, pointed backward, with a single cusp, but **without cusplets or serrations; anterior teeth greatly enlarged in both jaws**, in 2 rows on each side, **cusps recurved at bases but not reversed at tips**. Two dorsal fins, the first large, originating posterior to free rear tips of pectoral fins, **with a bluntly rounded apex**, the second very small; anal fin very small, **originating about under rear end of second dorsal-fin base**; pectoral fins about as long as head, straight to falcate, and broad-tipped; caudal fin lunate, **with a very long lower lobe**. Caudal peduncle **strongly flattened dorsoventrally and expanded laterally, with a prominent keel on each side** extending well onto caudal fin. **Colour:** back and sides intense blue in life, fading to blackish after death, abdomen white; **underside of snout and mouth partly to entirely dusky**; undersides of pectoral fins with dark blotches in larger individuals, pelvic fins dark with white posterior ends above, white- or dark-blotched below; anal fin with dark blotches or white with an anterior dark blotch.

Size: Maximum total length at least 4.17 m.

Habitat, biology, and fisheries: A little-known oceanic shark, possibly approaching land to give birth. Ovoviviparous, number of young 2. Probably feeds on oceanic schooling fishes as does *Isurus oxyrinchus*, but its large broad fins and slender body suggest that it is a slower, less active shark than that species. Not known to have attacked people or boats, but potentially dangerous because of its size and large teeth. Taken with longlines, hook-and-line, and anchored gill nets. It is utilized fresh, frozen, and dried-salted for human consumption.

Distribution: Western North Atlantic from eastern USA to Cuba and southern Brazil, eastern Atlantic from Guinea, Ghana, and possibly the Cape Verde Islands, western Indian Ocean from Madagascar, western Pacific off Taiwan Province of China and Central Pacific near Phoenix Island and north of Hawaii.

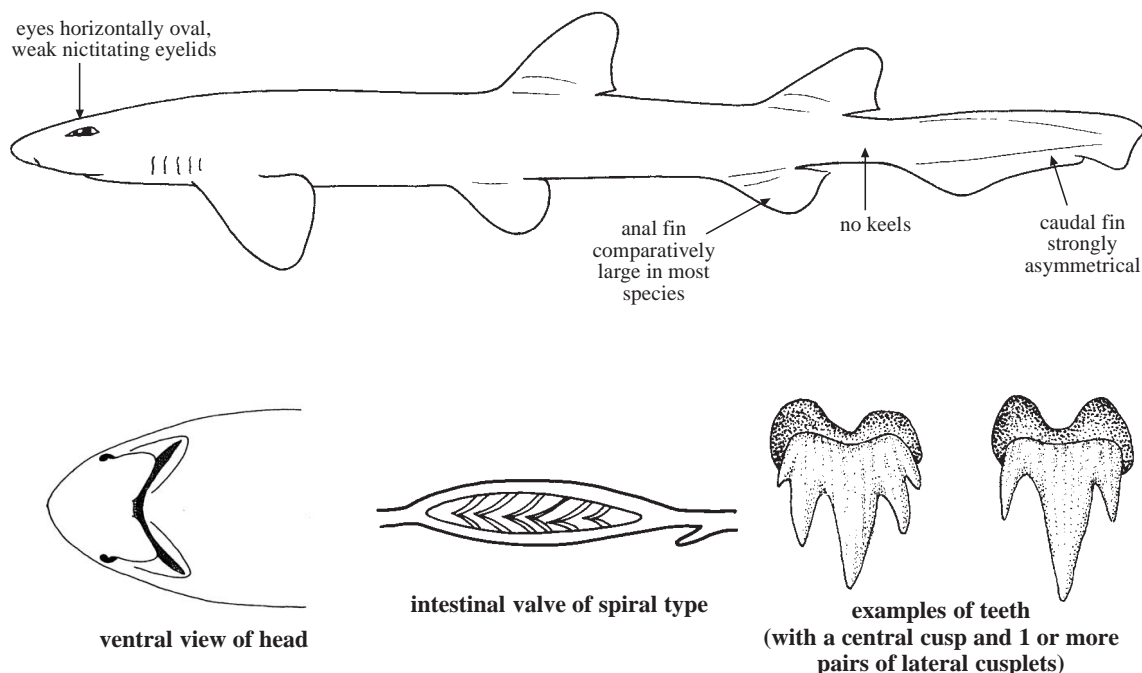


SCYLIORHINIDAE

Catsharks

by L.J.V. Compagno and V.H. Niem

Diagnostic characters: small sharks with slender and elongate to moderately stout bodies. Head with 5 gill slits, the last 2 posterior to pectoral-fin origins; gill arches with or without small papillose rakers; nostrils with or without barbels and lacking deep nasoral or circumnarial grooves; eyes horizontally oval, elongate, with weakly differentiated nictitating lower eyelids delimited below by a variably developed subocular pouch; mouth moderately large, with rear corners behind front margins of eyes; labial furrows present or absent (in species from the area); teeth very small, numerous, with a single medial cusp and usually 1 or more cusplets on each side near the centre of mouth, the rear teeth often comb-like. Two dorsal fins (only 1 dorsal fin in *Pentanchus*), the first originating over or posterior to pelvic-fin bases, the second dorsal fin smaller, as large, or larger than the first dorsal fin, but never greatly reduced; anal fin usually considerably longer than, and originating in advance of, second dorsal fin; caudal fin strongly asymmetrical, with a subterminal notch, its lower lobe absent or only weakly indicated, its upper edge unrippled or with a denticulated crest. Caudal peduncle not flattened dorsoventrally, without lateral keels or precaudal pits. Intestine with a corkscrew or auger-like spiral valve, with 5 to 22 turns. **Colour:** grey, brown, yellowish, or black, often with light or dark spots and dark blotches, bars, and saddles.



Habitat, biology, and fisheries: This is by far the largest family of sharks, with small to moderate-sized species (rarely reaching to 1 m total length) from tropical and temperate latitudes, ranging from shallow coastal waters to depths greater than 2 000 m. They are generally poor swimmers and do not migrate over great distances. Most species live on or near the bottom, feeding chiefly on invertebrates and small fishes. Some species are rather common and regularly taken as bycatch in trawl fisheries, and are used for fishmeal, oil, and lobster bait. Many are deep-water sharks, and are not known to be utilized to a great extent, although they may be a minor component of the catch of large, deep-fishing offshore trawlers.

Similar families occurring in the area

None. The catsharks are easily distinguished from superficially similar families by the combination of characters such as their small size, the location of the last 2 gill slits behind the pectoral-fin origins, the posterior position of the first dorsal fin, the comparatively large anal fin, the strongly asymmetrical caudal fin, the absence of keels or precaudal pits on the caudal peduncle and the presence of a spiral intestinal valve.

Key to the species of Scyliorhinidae occurring in the area

Note: this key does not include various undescribed species of the large and problematical genus *Apristurus* that occur in the area but which need further study to determine their validity and the means of separating them from described species. There are also several *Apristurus* species recently described from the South China Sea that may occur in the area but were not published with precise localities given and which are omitted from the key. There is an undescribed species of *Parmaturus* from Indonesia that could not be placed in the key.

- 1a. Supraorbital crests present on cranium, above eyes (Fig. 1a) → 2
- 1b. Supraorbital crests absent from cranium (Fig. 1b) → 14

- 2a. Second dorsal fin about as large as first. → 3
- 2b. Second dorsal fin considerably smaller than first → 6

- 3a. Anterior nasal flaps not expanded and not reaching mouth; nasoral grooves absent (Figs 2a and 3) *Aulohalaelurus kanakorum*
- 3b. Anterior nasal flaps greatly expanded, reaching mouth; nasoral grooves present (Fig. 2b) (*Atelomycterus*) → 4

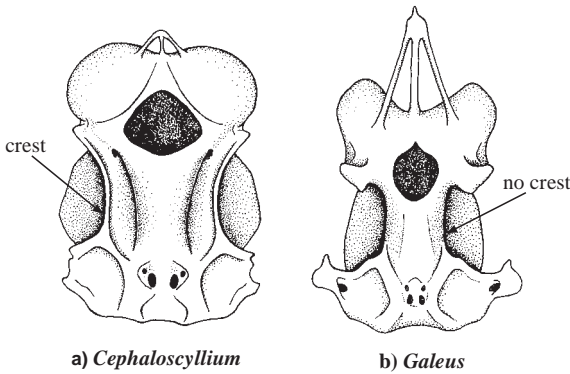


Fig. 1 cranium (dorsal view)

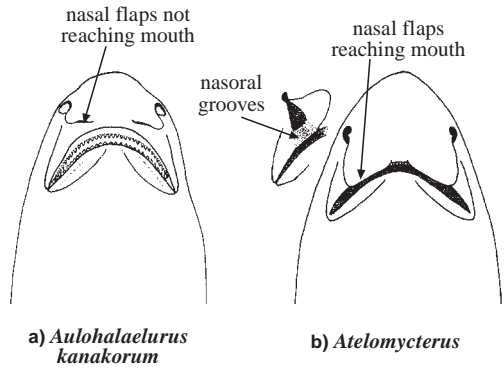


Fig. 2 ventral view of head

- 4a. Dorsal fins not angled rearwards, posterior margins sloping posteroventrally from fin apices; black spots and markings relatively few, small, and scattered, colour pattern dominated by greyish saddles and bands on light background (Fig. 4) . . . *Atelomycterus fasciatus*
- 4b. Dorsal fins angled rearwards, posterior margins sloping anteroventrally from fin apices; black spots and markings numerous and dominating colour pattern → 5

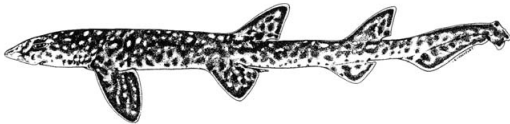


Fig. 3 *Aulohalaelurus kanakorum*

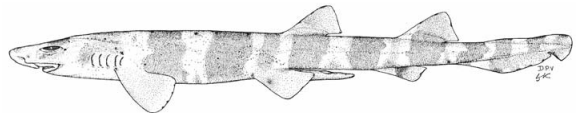


Fig. 4 *Atelomycterus fasciatus*

- 5a. Colour pattern of grey saddles separated by light areas and outlined by numerous small black spots (hatchlings have a simpler pattern of dusky saddles, remarkably similar to the coolie loach, *Acanthopthalmus semicinctus*) (Fig. 5) *Atelomycterus macleayi*
- 5b. Saddle markings obsolete, light grey and white spots outlined by large black spots, bars and lines (Fig. 6) *Atelomycterus marmoratus*

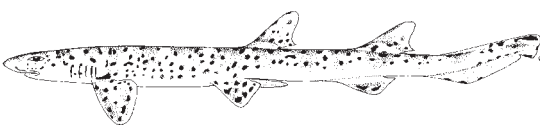


Fig. 5 *Atelomycterus macleayi*

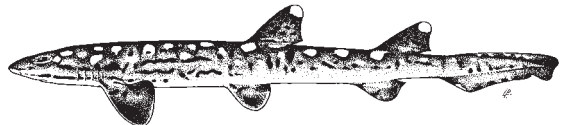


Fig. 6 *Atelomycterus marmoratus*

- 6a. Labial furrows present on 1 or both jaws (Fig. 7a) (*Scyliorhinus*) → 7
- 6b. Labial furrows absent or rudimentary (Fig. 7b) (*Cephaloscyllium*) → 8
- 7a. Colour pattern of dark spots on fins and body, with 7 dusky saddle marks, interspersed with dark and light spots (Fig. 8) *Scyliorhinus garmani*
- 7b. Colour pattern of 6 to 9 distinct dusky saddle marks, interspersed with dark and light spots; fins plain (Fig. 9) *Scyliorhinus torazame*

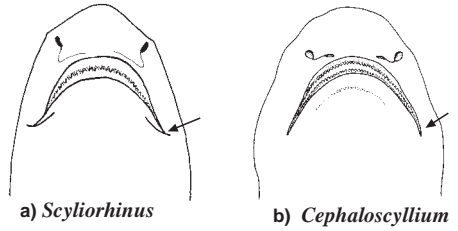


Fig. 7 ventral view of head



Fig. 8 *Scyliorhinus garmani*

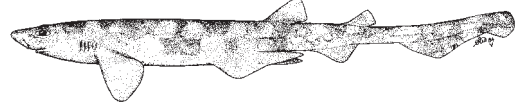


Fig. 9 *Scyliorhinus torazame*

- 8a. Colour pale with darker pattern of narrow lines → 9
- 8b. Body coloration not as above → 10
- 9a. Colour pattern of very narrow lines forming open-centred saddles, blotches and reticulations on back and sides (Fig. 10) *Cephaloscyllium fasciatum*
- 9b. Colour pattern of narrow, transverse bars on back and sides, not connected to form open-centred saddles, blotches and reticulations (northeastern Australia) (Fig. 11) *Cephaloscyllium* sp. D

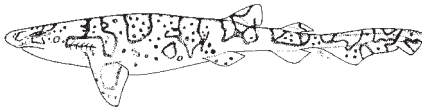


Fig. 10 *Cephaloscyllium fasciatum*



Fig. 11 *Cephaloscyllium* sp. D
(after Last and Stevens, 1994)

- 10a. A simple colour pattern, consisting of only a few broad dark saddles on back and sides, and without white spots → 11
- 10b. A strong colour pattern, mostly with scattered blotches and dark and white spots on body → 12
- 11a. First dorsal-fin origin about opposite pelvic-fin insertions; pectoral fin wide, posterior margin greater than mouth width; pelvic-anal space greater than anal-fin length in adults; a moderate-sized species, to at least 70 cm total length, males maturing at about 55 cm (northeastern Australia) (Fig. 12) *Cephaloscyllium* sp. B

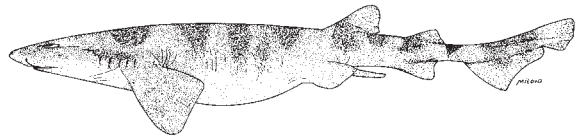


Fig. 12 *Cephaloscyllium* sp. B
(after Last and Stevens, 1994)

- 11b. First dorsal-fin origin just behind pelvic-fin origins; pectoral fin narrow, posterior margin less than mouth width; pelvic-anal space less than anal-fin length in adults; a dwarf species, to 44 cm total length, males mature at 39 cm, females maturing at 36 cm (South China Sea to Viet Nam) *Cephaloscyllium* sp.
- 12a. Ventral surface (including pectoral fins) prominently spotted with darker and light spots on grey background; dark blotches and saddles on tail and caudal fin outlined and dotted with large bright white spots; anal fin with prominent dark blotch (northeastern Papua New Guinea) *Cephaloscyllium* sp.
- 12b. Ventral surface plain grey or white; posterior dark blotches and saddles on tail and caudal fin with scattered outlined and dotted with bright white spots; anal fin plain → 13

- 13a. Pectoral fin broader than mouth width; upper surface of body with dark saddles, interspersed with light blotches and flecks that extend onto the fins (temperate eastern Australia) (Fig. 13) *Cephaloscyllium* sp. C
- 13b. Pectoral-fin width about equal to mouth width; upper surface of body heavily mottled, with saddles (tropical Australia) (Fig. 14) *Cephaloscyllium* sp. E

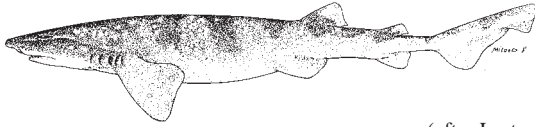


Fig. 13 *Cephaloscyllium* sp. C

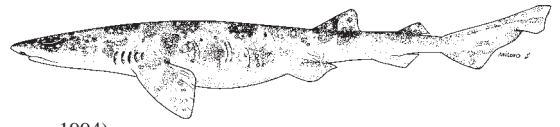


Fig. 14 *Cephaloscyllium* sp. E

(after Last and Stevens, 1994)

- 14a. Head broadly flattened and spatulate, snout elongated and usually longer than mouth width; labial furrows very long, uppers reaching upper symphysis (Fig. 15a) → 15
- 14b. Head moderately or little-flattened, not spatulate, snout equal or usually shorter than mouth width; labial furrows shorter or absent, when present not reaching upper symphysis (Fig. 15b) → 20

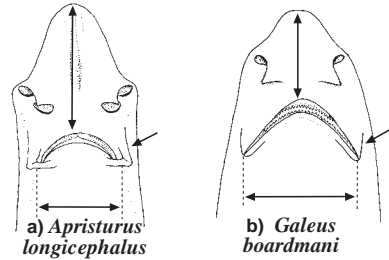


Fig. 15 ventral view of head

- 15a. One dorsal fin (Fig. 16) *Pentanchus profundicolus*
- 15b. Two dorsal fins (*Apristurus*) → 16
- 16a. First dorsal fin much smaller than second, about 1/2 its area or less, with its origin usually behind pelvic-fin insertions but over last 1/4 of pelvic-fin bases in some species → 17
- 16b. First dorsal fin nearly or quite as large as second, 2/3 to equal its area, with its origin about opposite pelvic-fin midbases or more posterior and about opposite last 1/3 of pelvic-fin bases → 19
- 17a. Origin of first dorsal fin somewhat in front of pelvic-fin insertions; distance between pectoral-and pelvic-fin bases extremely short, less than preoral snout, rear tips of pectoral fins about opposite or just in front of pelvic-fin origins (Fig. 17) *Apristurus herklotsi*
- 17b. Origin of first dorsal fin near or behind pelvic-fin insertions; distance between pectoral-and pelvic-fin bases long, at least length of preoral snout, rear tips of pectoral fins far in front of pelvic-fin origins → 18



Fig. 16 *Pentanchus profundicolus*

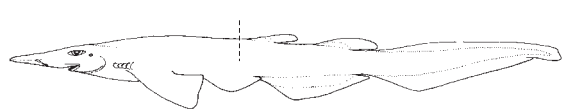


Fig. 17 *Apristurus herklotsi*

- 18a. Colour white or reddish white; snout relatively narrow and pointed; mouth extending well in front of eyes; eyes very small, about equal to longest gill slit (Fig. 18) *Apristurus sibogae*
- 18b. Colour black, brown, or grey; snout broad and rounded; mouth below eyes; eyes larger, their length much greater than widest gill slit (Fig. 19) *Apristurus verweyi*

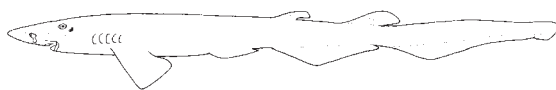


Fig. 18 *Apristurus sibogae*



Fig. 19 *Apristurus verweyi*

- 19a. Gill slits covered with grooves and pleats that extend to the epibranchial area and to the entire throat region behind the jaws; snout shorter, preoral length about 9% of total length (Fig. 20) *Apristurus spongiceps*
- 19b. Gill slits not covered with grooves and pleats; snout extremely long, preoral length about 12% of total length (Fig. 21) *Apristurus longicephalus*

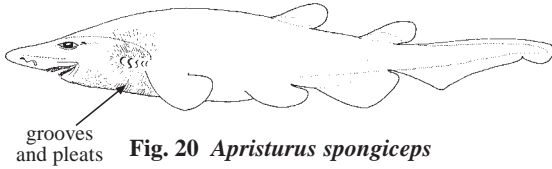


Fig. 20 *Apristurus spongiceps*



Fig. 21 *Apristurus longicephalus*

- 20a. Dorsal caudal-fin margin, and sometimes pre-ventral margin, with a crest of enlarged denticles (Fig. 22a) → 21
- 20b. No caudal-fin crests of denticles (Fig. 22b) → 28

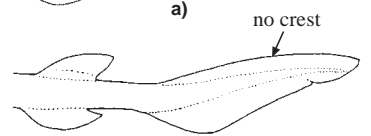
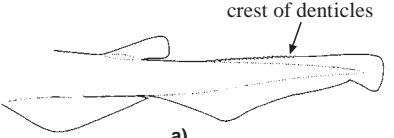


Fig. 22 caudal fin

- 21a. Pectoral fins relatively small, width of their posterior margins usually smaller than mouth width; subocular ridges well-developed, eyes dorsolateral; body soft; colour plain, no pattern (Figs 23 and 24) (*Parmaturus*) → 22
- 21b. Pectoral fins relatively large, width of their posterior margins usually larger than mouth width; subocular ridges obsolete or nearly so, eye lateral; body firm; colour pattern of blotches and spots often present (Figs 26 to 31) (*Galeus*) → 23

- 22a. Colour light brown with distal parts and anterior margins of fins, snout, nostrils, and gills blackish brown in young, possibly uniform blackish brown in adults; second dorsal fin about as large as anal fin (South China Sea, just adjacent to the area) (Fig. 23) *Parmaturus melanobranchius*
- 22b. Colour uniform pale yellowish brown; second dorsal fin noticeably smaller than anal fin (Australia) (Fig. 24) *Parmaturus* sp. A



Fig. 23 *Parmaturus melanobranchius*



Fig. 24 *Parmaturus* sp. A
(after Last and Stevens, 1994)

- 23a. A crest of denticles present on the pre-ventral caudal-fin margin (Fig. 25) → 24
- 23b. No crest of denticles on the pre-ventral caudal-fin margin → 25

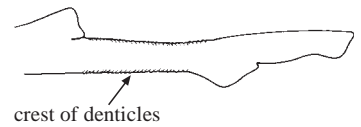


Fig. 25 caudal peduncle

- 24a. Three broad dark saddles in front of first dorsal fin, about as wide as eye diameter or wider (northeastern Australia) (Fig. 26) *Galeus boardmani*
- 24b. Ten to 16 narrow dark bands and saddles in front of first dorsal fin, about as wide as eye diameter (Fig. 27) *Galeus* sp. B

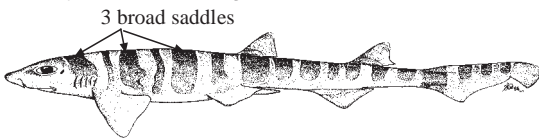


Fig. 26 *Galeus boardmani*



Fig. 27 *Galeus* sp. B
(after Last and Stevens, 1994)

25a. Labial furrows very short, confined to mouth corners; snout broadly rounded, usually considerably less than mouth width (Fig. 28) *Galeus schultzi*

25b. Labial furrows more elongated, extending well beyond mouth corners; snout more angular and pointed, usually nearly equal to, or about equal to mouth width (Fig. 29) → 26

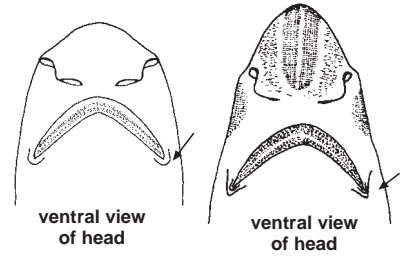


Fig. 28 *Galeus schultzi*

Fig. 29 *Galeus sauteri*

26a. Dorsal fins and sometimes upper and lower caudal-fin lobes with prominent black tips *Galeus sauteri*

26b. Dorsal and caudal fins without black tips, usually edged with white (Figs 30 and 31) → 27

27a. Eyes smaller and dorsolateral on head, length 3.2 to 3.3% total length; colour pattern of bold saddle markings on body and precaudal tail, but without dark markings on the terminal and hypural caudal-fin lobes (Fig. 30) *Galeus gracilis*

27b. Eyes larger and lateral on head, length 3.5 to 4.2% total length; colour pattern of obscure saddle markings on body and precaudal tail, and with dark markings on the terminal and hypural caudal-fin lobes (Fig. 31) *Galeus eastmani*

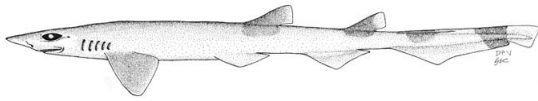


Fig. 30 *Galeus gracilis*

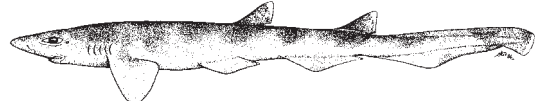


Fig. 31 *Galeus eastmani*

28a. Adult males with inner margins of pelvic fins fused over claspers, forming an “apron”; a colour pattern of spots present, but gill slits not elevated and snout rounded (Fig. 32) (*Asymbolus*) → 31

28b. Adult males without inner margins of pelvic fins fused over claspers; either no colour pattern or, if pattern of dark spots is present, gill slits elevated above level of mouth and snout pointed (Figs 33 to 35) (*Halaelurus*) → 29

29a. Snout bluntly rounded; gill slits not elevated above mouth level, lateral in position; body soft, skin thin with erect denticles that gives it a velvety texture; no colour pattern (Fig. 33) *Halaelurus immaculatus*
(occurrence in the area uncertain)

29b. Snout more or less pointed and wedge-shaped; gill slits elevated above level of mouth and dorsolateral in position; body firm, skin thick with low, flat, smooth denticles; colour pattern of dark spots, with saddles or vertical bars indistinct or absent (Figs 34 and 35) → 30



Fig. 32 *Asymbolus*

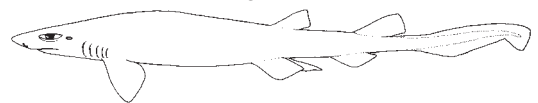


Fig. 33 *Halaelurus immaculatus*

30a. Dark spots few and mostly much larger than spiracles, sometimes in clusters around vague saddle blotches; labial furrows reduced or absent, lower furrows 2 mm long or less (Fig. 34) *Halaelurus buergeri*
(occurrence in the area uncertain)

30b. Dark spots small and very numerous, usually not much larger than spiracles, over or between weak saddles or bars; labial furrows moderately strong, lower furrows 5 mm long or more (Fig. 35) *Halaelurus boesemani*

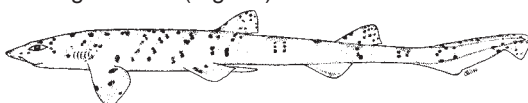


Fig. 34 *Halaelurus buergeri*

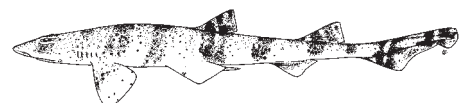























Fig. 35 *Halaelurus boesemani*

31a. Colour pattern of scattered dark brown spots on pale yellow-brown background (north-eastern Australia) *Asymbolus* sp. E

31b. Colour pattern of numerous small light spots and scattered small and large dark spots and blotches on a dark background (New Caledonia) *Asymbolus* sp.

List of species occurring in the area

The symbol  is given when species accounts are included.

- ? *Apristurus acanutus* Chu, Meng, and Li, In Meng, Chu, and Li, 1985
- ? *Apristurus gibbosus* Meng, Chu, and Li, 1985
-  *Apristurus herklotzi* (Fowler, 1934)
-  *Apristurus longicephalus* Nakaya, 1975
- ? *Apristurus macrostomus* Meng, Chu, and Li, 1985
- ? *Apristurus micropterygeus* Meng, Chu, and Li, In Chu, Meng, and Li, 1986
-  *Apristurus sibogae* (Weber, 1913)
- ? *Apristurus sinensis* Chu and Hu, In Chu, Meng, Hu, and Li, 1981
-  *Apristurus spongiceps* (Gilbert, 1895)
-  *Apristurus verweyi* (Fowler, 1934)
- Apristurus* sp. A. [Last and Stevens, 1994]
- Apristurus* sp. B. [Last and Stevens, 1994]
- Apristurus* sp. G. [Last and Stevens, 1994]
- Apristurus* sp. [Seret] (New Caledonia)
- Apristurus* sp. [Seret] (Philippines)
- Apristurus* sp. [Seret] (Indonesia)
- Asymbolus* sp. E. [Last and Stevens, 1994]
- Asymbolus* sp. [Seret] (New Caledonia)
-  *Atelomycterus fasciatus* Compagno and Stevens, 1993
-  *Atelomycterus macleayi* Whitley, 1939
-  *Atelomycterus marmoratus* (Bennett, 1830)
-  *Aulohalaelurus kanakorum* Seret, 1990
-  *Cephaloscyllium fasciatum* Chan, 1966
- Cephaloscyllium* sp. [Compagno, 1984, 1988]
- Cephaloscyllium* sp. [J.Randall, pers. comm. 1994] (Papua New Guinea)
- Cephaloscyllium* sp. [Seret] (New Caledonia)
- Cephaloscyllium* sp. B. [Last and Stevens, 1994]
- Cephaloscyllium* sp. C. [Last and Stevens, 1994]
- Cephaloscyllium* sp. D. [Last and Stevens, 1994]
- Cephaloscyllium* sp. E. [Last and Stevens, 1994]
-  *Galeus boardmani* (Whitley, 1928)
-  *Galeus eastmani* (Jordan and Snyder, 1904)
-  *Galeus gracilis* Compagno and Stevens, 1993
-  *Galeus sauteri* (Jordan and Richardson, 1909)
-  *Galeus schultzi* Springer, 1979
- Galeus* sp. B. [Last and Stevens, 1994]
- ? *Halaelurus immaculatus* Chu and Meng, 1982^{1/}
-  *Halaelurus boesemani* Springer and D'Aubrey, 1972
- ? *Halaelurus buergeri* (Mueller and Henle, 1838)^{2/}
-  *Parmaturus melanobranchius* (Chan, 1966)^{3/}
- Parmaturus* sp. A [Last and Stevens, 1994]
- ? *Parmaturus* sp. [Seret] (Indonesia)
-  *Pentanchus profundicolus* Smith and Radcliffe, 1912
-  *Scyliorhinus garmani* (Fowler, 1934)
-  *Scyliorhinus torazame* (Tanaka, 1908)

References

- Compagno, L.J.V. 1988. *Sharks of the order Carcharhiniformes*. Princeton, New Jersey, Princeton University Press, 572 p.
- Last, P.R. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.
- Regan, C.T. 1908. A synopsis of the sharks of the family Scyliorhinidae. *Ann. Mag. Nat. Hist. (Ser.8)*, 1(6):453-65.
- Springer, S. 1979. A revision of the catsharks, family Scyliorhinidae. *NOAA Tech. Rep., NMFS Circ.*, (422):152 p.

1/ Occurrence in the area uncertain, marginal in the South China Sea.

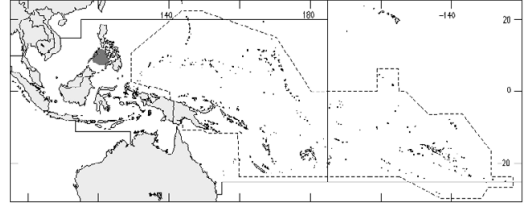
2/ This species was collected less than a degree west of the northwestern boundary of the area.

3/ This species was collected less than a degree north of the northwestern boundary of the area.

Apristurus herklotsi (Fowler, 1934)

En - Longfin catshark; **Fr** - Holbiche à longues nageoires; **Sp** - Pejegato aletón.

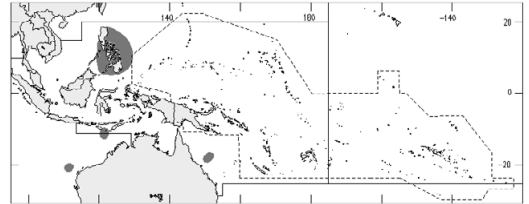
Maximum total length at least 48.5 cm. A poorly known deep-water bottom shark. Of minor interest to fisheries. Known from Japan, the East China Sea, and the Philippines.



Apristurus longicephalus Nakaya, 1975

En - Longhead catshark; **Fr** - Holbiche à grande tête; **Sp** - Pejegato cabezón.

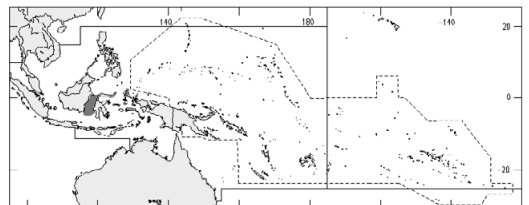
Maximum total length at least 50 cm. Inhabits deep water, probably near the bottom at depths to 900 m. Biology poorly known. Of minor interest to fisheries. Known from Japan, the East China Sea, Seychelles, the Philippines, and northern Australia.



Apristurus sibogae (Weber, 1913)

En - Pale catshark; **Fr** - Holbiche pâle; **Sp** - Pejegato paliducho.

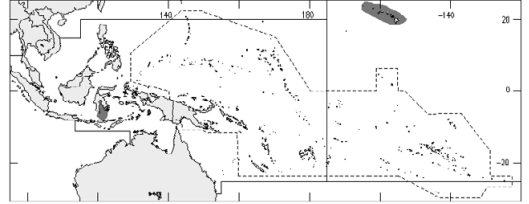
Maximum total length over 21 cm (juvenile). A rare catshark. Known only from the holotype taken at the Makassar Straits slope (between Borneo and Sulawesi) at a depth of 655 m. Without interest to fisheries.



Apristurus spongiceps (Gilbert, 1895)

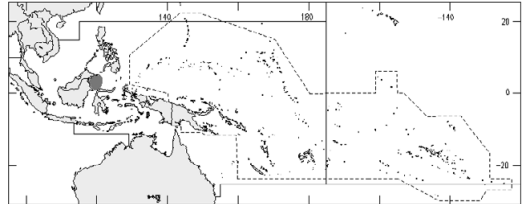
En - Spongehead catshark; **Fr** - Holbiche tête molle; **Sp** - Pejegato esponjoso.

Maximum size at least 50 cm. A rare shark known from 2 specimens taken on the insular slopes, on or near the bottom at depths of 572 to 1482 m. Probably oviparous; the holotype is a gravid female. Without interest to fisheries. Central Pacific off Hawaii and western South Pacific in the Banda Sea off southern Sulawesi.

***Apristurus verweyi*** (Fowler, 1934)

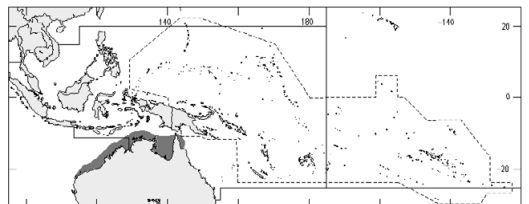
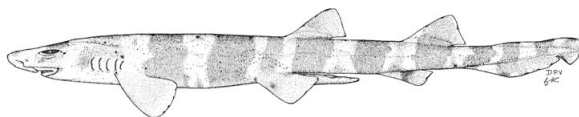
En - Borneo catshark; **Fr** - Holbiche malaise; **Sp** - Pejegato de Borneo.

Maximum total length at least 30 cm. A rare deep-water catshark, known only from the holotype. Without interest to fisheries. Known only from the type locality (southeastern Sabah, Borneo, Malaysia).

***Atelomycterus fasciatus*** Compagno and Stevens, 1993

En - Banded sand catshark.

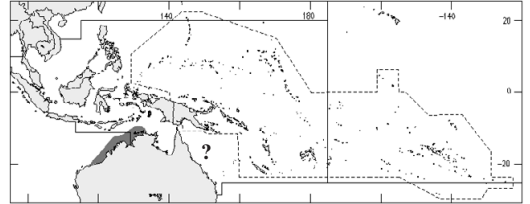
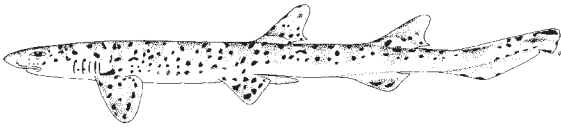
Maximum total length about 45 cm, with size at maturity between 30 to 39 cm. A common offshore catshark off northern Australia, on mud, sand, or shelly-sand bottom at depths of 27 to 122 m with most records shallower than 60 m. Oviparous. Confined to the northwestern shelf of Western Australia, and the Northern Territory and northern Queensland in the area. Western Australian specimens lack the white spots and are lighter coloured.



Atelomycterus macleayi Whitley, 1939

En - Australian marbled catshark; **Fr** - Chien marbré; **Sp** - Pejegato jaspeado.

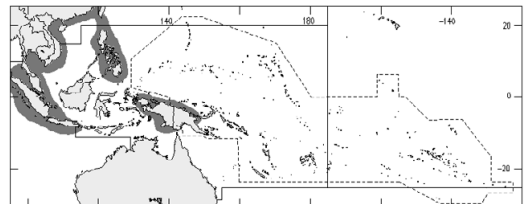
Maximum total length about 60 cm. A little-known inshore, shallow-water catshark, found on sandy and rocky bottom at depths of 0.5 to 3.5 m and presumably deeper. Oviparous. Of minor interest to fisheries at present. In the western South Pacific off northwestern Australia, and possibly Queensland.



Atelomycterus marmoratus (Bennett, 1830)

En - Coral catshark; **Fr** - Chien corail; **Sp** - Pintarroja coral.

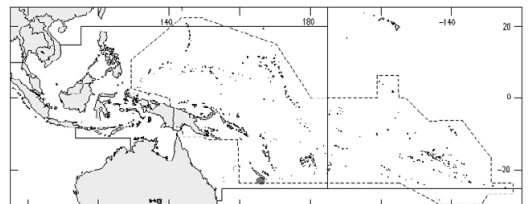
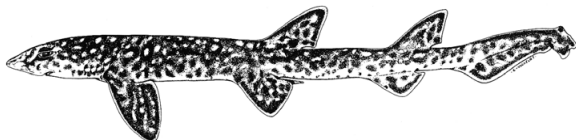
Maximum total length about 70 cm. A common but little-known, harmless inshore species, found on coral reefs, and thought to inhabit crevices and holes on reefs. Oviparous. Relatively unimportant for fisheries, forming a minor catch of inshore artisanal fisheries. From Pakistan and India eastward to Malaysia, Singapore, Indonesia, New Guinea, Thailand, Viet Nam, Philippines, South China, and Taiwan Province of China.



Aulohalaelurus kanakorum Seret, 1990

En - New Caledonia catshark.

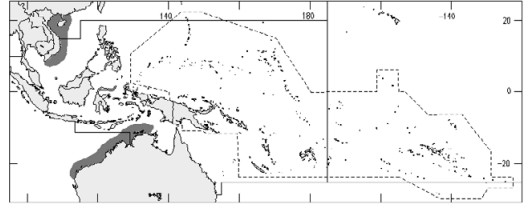
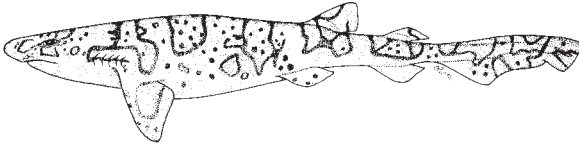
Maximum total length about 79 cm. A rare inshore catshark, found on coral reefs at a depth of 49 m. Mode of reproduction unknown. Known only from a single specimen, collected off southwestern New Caledonia.



Cephaloscyllium fasciatum Chan, 1966

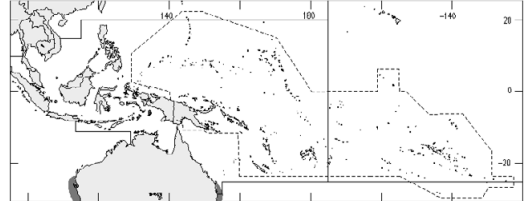
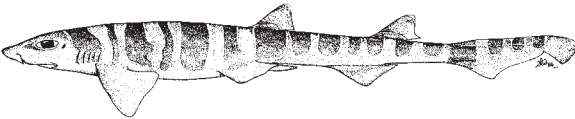
En - Reticulated swellshark; **Fr** - Holbiche bouffie; **Sp** - Pejegato mallero.

Maximum total length at least 42 cm. A tropical swellshark found in fairly deep water on or near the bottom on the outer continental shelf and uppermost slope, at depths of 220 to 450 m. Can expand itself with air or water. Oviparous. Of minor interest to fisheries at present, caught by commercial bottom trawlers. In the western Pacific off Viet Nam, China (Hainan Island), and northwestern Australia.

***Galeus boardmani*** (Whitley, 1928)

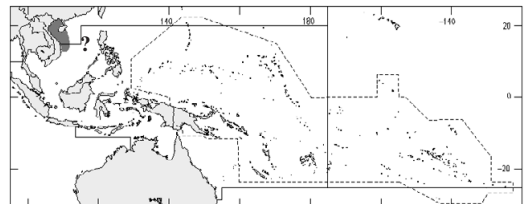
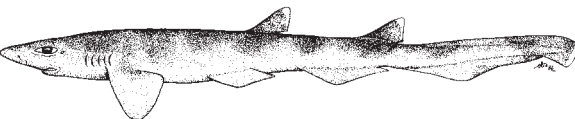
En - Australian sawtail catshark; **Fr** - Chien égoïne; **Sp** - Pintarroja australiana.

Maximum total length about 61 cm, males mature at 54 cm. A little-known but common Australian catshark of temperate and subtropical waters, from the outer continental shelf and upper slope, presumably on or near bottom at depths from 128 to 823 m. Frequently found in the demersal trawl bycatch, but of minor interest to fisheries at present. Southern coasts of Australia off western Australia (including Tasmania) to southern Queensland.

***Galeus eastmani*** (Jordan and Snyder, 1904)

En - Gecko catshark; **Fr** - Chien gecko; **Sp** - Pintarroja salamanquesa.

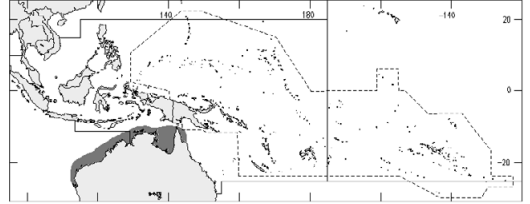
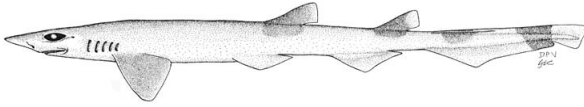
Maximum total length at least 40 cm; possibly to 50 cm. A little-known, but very common shark, found in deep water near the bottom. Oviparous. In Japanese waters, this species shows sexual segregation, with reported schools of mostly females. Of minor interest to fisheries at present. Western North Pacific off Japan, the East China Sea, and possibly Viet Nam.



Galeus gracilis Compagno and Stevens, 1993

En - Slender sawtail catshark.

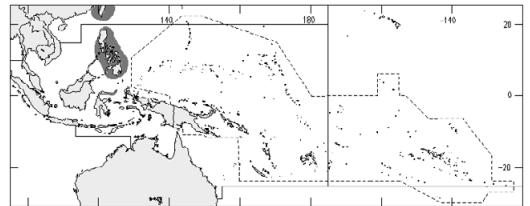
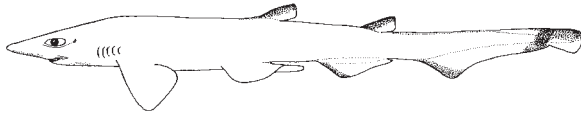
Maximum total length about 34 cm. A little-known bottom-dwelling catshark of the uppermost continental slopes at depths of 290 to 470 m. Mode of reproduction unknown. Rare and of no commercial interest at present. Confined to the tropics of Australia, from Western Australia to northern Queensland.



Galeus sauteri (Jordan and Richardson, 1909)

En - Blacktip sawtail catshark; **Fr** - Chien lime; **Sp** - Pintarroja rabonegro.

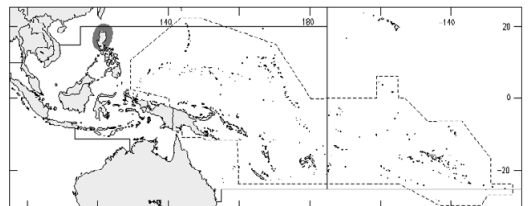
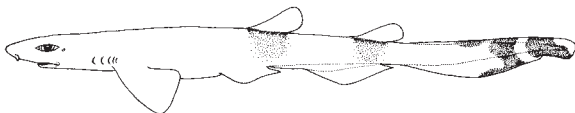
Maximum total length 45 cm. A little-known bottom-dwelling catshark of the continental shelves, offshore at depths of 60 to 90 m in the Taiwan Straits, but possibly deeper elsewhere. Apparently oviparous. Taken by bottom trawls in Taiwan Straits, but of limited interest to fisheries. Western North Pacific off Taiwan Province of China, the Philippines, and Japan.



Galeus schultzi Springer, 1979

En - Dwarf sawtail catshark; **Fr** - Chien nain; **Sp** - Pintarroja enana.

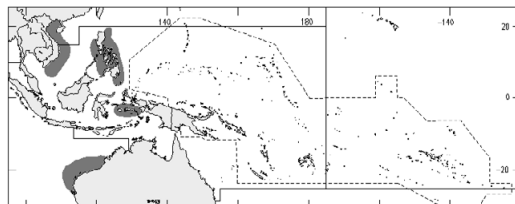
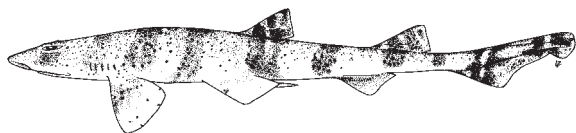
Maximum total length about 27 cm; one of the smallest sharks. A little-known bottom-dwelling shark of the continental slopes at depths of 329 to 431 m. Of minor interest to fisheries. Known from Luzon (Philippines).



Halaelurus boesemani Springer and D'Aubrey, 1972

En - Speckled catshark; **Fr** - Holbiche mouchetée; **Sp** - Pejegato pintado.

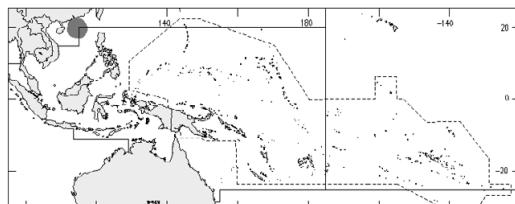
Maximum total length about 48 cm. A little-known but wide-ranging bottom-dwelling shark of the continental and insular shelves, at depths of 37 to 91 m. Of minor interest to fisheries at present. In the Indo-West Pacific off Somalia, the Gulf of Aden, Western Australia, Indonesia, the Philippines, and Viet Nam.



Parmaturus melanobranchius (Chan, 1966)

En - Blackgill catshark; **Fr** - Holbiche à joues noires; **Sp** - Pejegato de agallas negras.

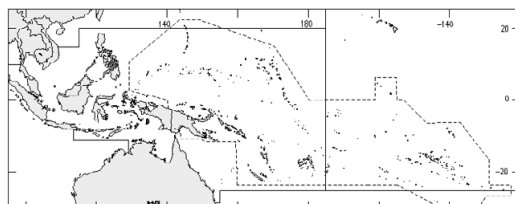
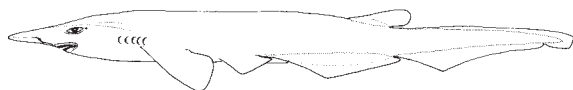
Maximum total length about 85 cm. A poorly known deep-water bottom-dwelling shark from the upper continental slopes off China, on mud bottom at depths of 549 to 810 m. Without interest to fisheries. Known only from 3 specimens taken in the South China Sea.



Pentanchus profundicolus Smith and Radcliffe, 1912

En - Onefin catshark; **Fr** - Holbiche voile; **Sp** - Pejegato velero.

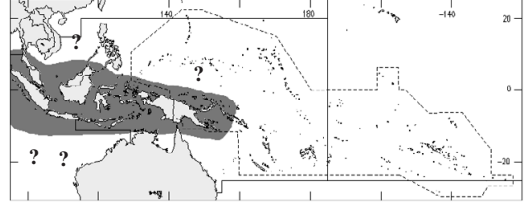
Maximum total length at least 50 cm. A poorly known deep-water bottom-dwelling shark inhabiting the insular slopes. Without interest to fisheries. The holotype and only known specimen was taken in the Mindanao Sea (Philippines).



Scyliorhinus garmani (Fowler, 1934)

En - Brownspeckled catshark; **Fr** - Roussette à taches brunes; **Sp** - Alitán manchado.

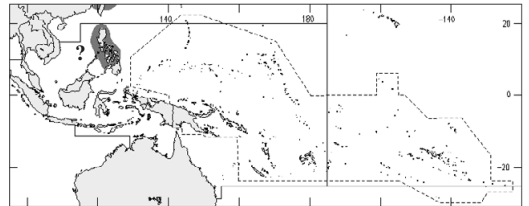
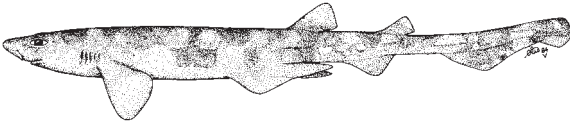
Maximum total length possibly 38 cm; adult size unknown. Without interest to fisheries. Recorded from the indefinite type locality ("East Indies" = Indonesia) and from the Philippines (Dumaguete, Negros).



Scyliorhinus torazame (Tanaka, 1908)

En - Cloudy catshark; **Fr** - Roussette nuageuse; **Sp** - Alitán nubarrado.

Maximum total length to about 48 cm. A common catshark of the western Pacific continental shelf, from close inshore down to a depth of at least 100 m. Oviparous. Interest to fisheries unknown. Western North Pacific from Japan, Korea to Taiwan Province of China and the Philippines (the Philippine record needs confirmation).

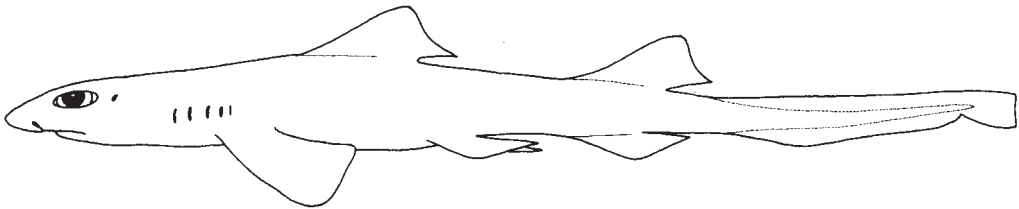


PROSCYLLIIDAE

Finback catsharks

by L.J.V. Compagno and V.H. Niem

Diagnostic characters: Small sharks. Trunk and precaudal tail cylindrical or somewhat compressed, not depressed and without lateral ridges; precaudal tail much shorter than head and trunk. Head not expanded laterally, moderately depressed; 5 small gill slits present, the last 2 or 3 over the pectoral fin bases, their upper ends not expanded onto upper surface of head; **small gill raker papillae on internal gill slits** (except in genus *Gollum*); **spiracles moderately large and behind eyes**; **nostrils without barbels, nasoral grooves, or circumnarial grooves, well separated from mouth**; eyes dorsolateral on head, with weakly differentiated nictitating lower eyelids; snout short to moderately long, depressed and parabolic or narrowly rounded, not greatly flattened and blade-like and without lateral teeth and barbels; mouth moderately large, arched and elongated, and extending behind front margins of eyes; very short labial furrows present on both jaws or absent; teeth similar in upper and lower jaws, not enlarged toward front of mouth, small, with a sharp primary cusp and 1 or more cusplets on either side of it, **posterior teeth comb-shaped**. Two dorsal fins, without spines, small, moderately high and angular or subangular, much shorter than caudal fin; first dorsal-fin base located over the interspace between pectoral- and pelvic-fin bases, but closer to pelvic fins than to pectoral fins; **second dorsal fin about as large as first dorsal fin**; anal fin moderately large, with its origin slightly in front or slightly behind second dorsal-fin origin but well in front of midpoint of second dorsal-fin base; **caudal fin asymmetrical, much less than 1/2 of total length, without a rippled dorsal margin and without ventral lobe** but with a strong subterminal notch; vertebral axis of caudal fin little raised above body axis. **Caudal peduncle cylindrical or compressed, without keels or precaudal pits**. Intestinal valve of spiral type. **Colour:** grey or brown above, white or lighter below, either plain, with dark stripes on the caudal fin, or with a spotted or blotched colour pattern.



Habitat, biology, and fisheries:

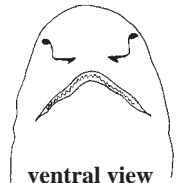
This is a small family of poorly known, deep-water sharks with a disjunct distribution in tropical to warm temperate waters of the western North Atlantic and Indo-West Pacific. Finback catsharks live on the outer continental and insular shelves and upper slopes, on or near the bottom, at depths of 50 to 713 m. Most of the species are ovoviviparous, except for the oviparous *Proscyllium habereri*. Food of these harmless sharks consists of small fishes and invertebrates. Their interest to fisheries is minimal, a few species are taken by commercial bottom trawlers and longliners, but their small size makes them unsuitable for fisheries utilization other than for fishmeal.



intestinal valve of spiral type



upper and lower tooth

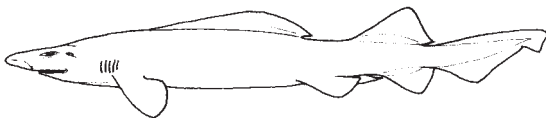


ventral view of head

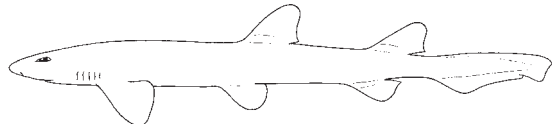
Similar families occurring in the area

Pseudotriakidae: first dorsal fin long, low, and keel-shaped, as long as caudal fin; spiracles about as large as eyes.

Scyliorhinidae: first dorsal fin over or behind pelvic-fin bases.



Pseudotriakidae



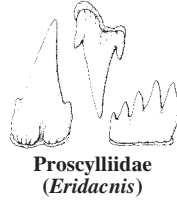
Scyliorhinidae (*Atelomycterus*)

Triakidae: no gill raker papillae on internal gill openings; nictitating lower eyelids better differentiated, with a deeper subocular pocket and a well-developed secondary lower eyelid edge; labial furrows long; teeth stouter, with heavier cusps or no cusps, posterior teeth not comb-like; first dorsal-fin base in species from the area more anterior, closer to the pectoral-fin bases than to the pelvic fins or about equidistant between the 2.

No other sharks in the area combine the following characteristics: nictitating lower eyelids, small, cuspidate teeth in both jaws, mouth located under eyes, intestinal valve of spiral type, no precaudal pits, and no rippled dorsal caudal-fin margin.

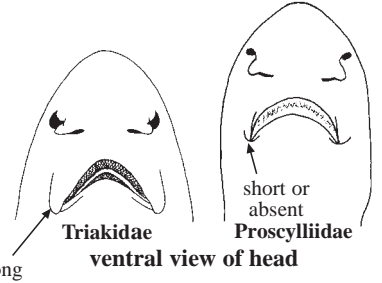


Triakidae (Mustelus)



Proscylliidae (Eridacnis)

Triakidae (*Mustelus*)



Triakidae
Proscylliidae
ventral view of head

Key to the species of Proscylliidae occurring in the area

- 1a. Head and snout bell-shaped in dorsoventral view (Fig. 1a); no oral papillae or gill rakers in mouth (Fig. 2) *Gollum attenuatus*
- 1b. Head and snout narrowly rounded in dorsoventral view (Fig. 1b, c); oral papillae and gill rakers present in mouth → 2

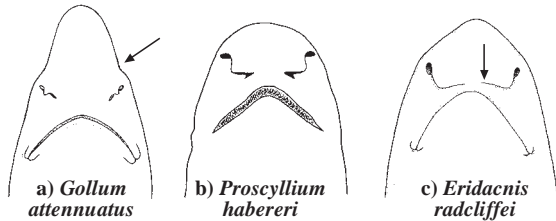


Fig. 1 ventral view of head

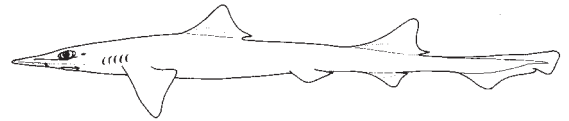


Fig. 2 *Gollum attenuatus*

- 2a. Caudal fin narrow and ribbon-like; colour dark brown with blackish markings on dorsal fins (Fig. 3) *Eridacnis radcliffei*
- 2b. Caudal fin broad and not ribbon-like; colour pattern of round dark brown spots and indistinct saddles (Fig. 4) *Proscyllium habereri*

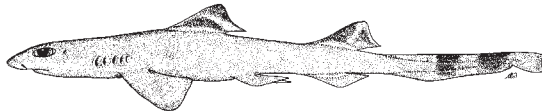


Fig. 3 *Eridacnis radcliffei*

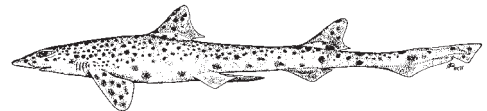


Fig. 4 *Proscyllium habereri*

List of species occurring in the area

The symbol is given when species accounts are included.

- Eridacnis radcliffei* Smith, 1913
- Gollum attenuatus* (Garrick, 1954)
- Proscyllium habereri* Hilgendorf, 1904

References

Compagno. L.J.V. 1970. Systematics of the genus *Hemistriakis* (Selachii: Carcharhinidae), and related genera. *Proc. Calif. Acad. Sci.*, (38)4:63-98.

Compagno. L.J.V. 1973. *Ctenacis* and *Hemistriakis*, two genera of sharks (Selachii: Carcharhinidae). *Proc. Calif. Acad. Sci.*, (39)4:257-272.

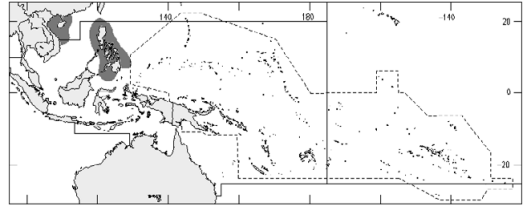
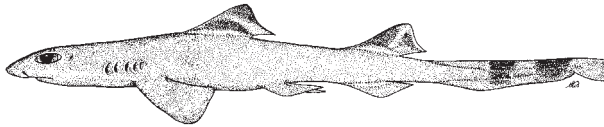
Compagno. L.J.V. 1973. *Gogolia filewoodi*, a new genus and species of shark from New Guinea (Carcharhiniformes: Triakidae), with a redefinition of the family Triakidae and a key to the genera. *Proc. Calif. Acad. Sci.*, (39)4:383-410.

Compagno. L.J.V. 1988. *Sharks of the order Carcharhiniformes*. Princeton, New Jersey, Princeton University Press, 572 p.

***Eridacnis radcliffei* Smith, 1913**

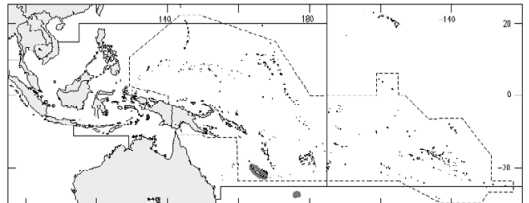
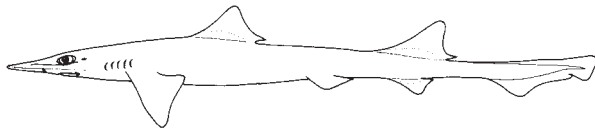
En - Pygmy ribbontail catshark; **Fr** - Requin chat pygmé; **Sp** - Tollo coludo pigmeo.

Maximum total length about 24 cm. One of the smallest living sharks. Often occurs on mud bottoms, on the upper continental and insular slopes and the outer shelves at depths from 71 to 766 m. Feeds primarily on small bony fishes and crustaceans. Taken in bottom trawls in the Philippines, but utilization not known. Wide-ranging in the Indo-West Pacific, but with only spotty records from Tanzania, the Gulf of Aden, India, the Andaman Islands, Viet Nam, and the Philippines.

***Gollum attenuatus* (Garrick, 1954)**

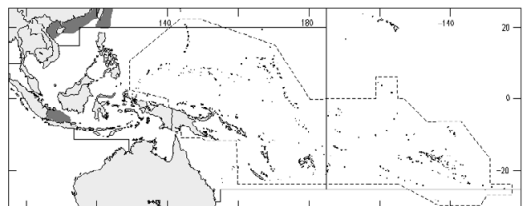
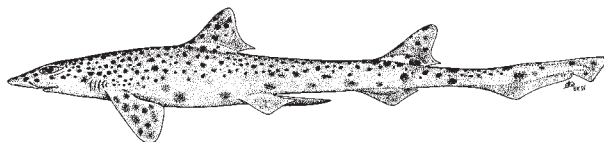
En - Slender smooth-hound; **Fr** - Requin chat golloum; **Sp** - Tollo coludo elegante.

Maximum total length about 1.1 m, maturing at about 70 cm, with females growing slightly larger than males. An uncommon to common deep-water bottom-dwelling shark of the outermost continental shelf and upper slope of New Zealand and on adjacent seamounts and submarine banks, found at depths of 220 to 660 m, but most commonly between 400 and 600 m. Probably occurs in schools. Feeds on a wide variety of mostly small pelagic and benthic bony fishes, deep-water sharks, cephalopods (including pelagic squid and octopuses), sea snails, isopods, crabs and shrimps, and brittle stars. Ovoviviparous, with usually 2 young per litter, fetuses eat unfertilized eggs (uterine cannibalism) and store consumed yolk in their yolk sacs. Without interest to fisheries at present, although taken in small numbers by bottom trawlers off New Zealand and collected in moderate numbers by experimental longliners fishing in deep water on seamounts and banks. Occurs in the western South Pacific, off New Zealand and on rises between New Zealand and the east coast of Australia, New Caledonia, and Fiji just south of the area. Placement in Proscylliidae provisional, probably will be relocated in Pseudotriakidae.

***Proscyllium habereri* Hilgendorf, 1904**

En - Graceful catshark; **Fr** - Requin chat gracile; **Sp** - Tollo coludo grácil.

Maximum total length about 65 cm. A little-known, uncommon bottom-dwelling shark of tropical and warm-temperate continental and insular waters, found on the shelves at depths from 50 to 100 m. Food habits little-known. Taken by bottom trawlers in the Taiwan Straits and elsewhere in its range, utilisation unknown. In the western Pacific from southeastern Japan southwards to Viet Nam, also known from northwestern Java.



PSEUDOTRIAKIDAE

False catsharks

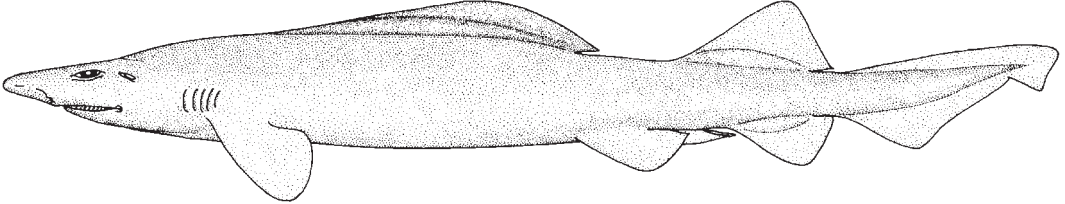
by L.J.V. Compagno

A single species in this family.

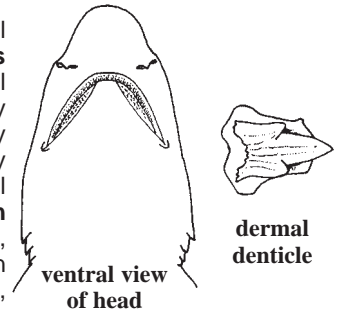
Pseudotriakis microdon Capello, 1868

Frequent synonyms / misidentifications: None / None.

FAO names: **En** - False catshark; **Fr** - Requin à longue dorsale; **Sp** - Musolón aleta larga.



Diagnostic characters: A large, soft-bodied shark. Head with 5 small gill slits, the last 2 over the pectoral-fin bases; no dermal gill rakers; **spiracles very large, about as long as eyes**; nostrils without barbels or nasoral grooves; eyes above sides of head, horizontally elongated, with weakly differentiated nictitating lower eyelids that are delimited below the eyes by shallow pouches; snout moderately long, narrowly rounded; mouth very wide and long, extending behind front of eyes, angular in shape; labial furrows present but short, not extending forward to front of mouth; **teeth extremely small and numerous**, similar in both jaws and not bladelike, with a small primary cusp and 1 or more cusplets, becoming comblike in the rear of mouth; upper anterior teeth small and grading into the laterals, not separated from these by small intermediate teeth. **Two dorsal fins, the first greatly elongated, low, keel-like, and broadly rounded above**, its base just ahead of pelvic-fin origins and **as long as caudal fin**; second dorsal fin short but higher than the first and larger than the anal fin; anal-fin base under second dorsal-fin base; caudal fin greatly asymmetrical, its lower lobe hardly developed, its upper edge not rippled and a subterminal notch present. Caudal peduncle not depressed, without lateral keels or precaudal pits. Intestinal valve of spiral type. **Colour:** dark brownish grey above and below, darker on posterior edges of pelvic, dorsal, anal and caudal fins.



Similar families occurring in the area

None. No other sharks in the area combine the presence of a low, keel-like first dorsal fin equal in length to the caudal fin, no anal-fin and no dorsal-fin spines.

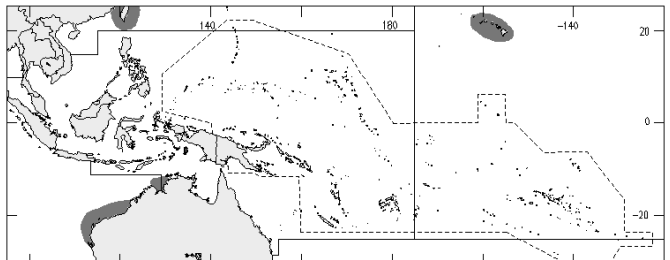
Size: Maximum total length about 2.95 m; females mature at about 2.1 m.

Habitat, biology, and fisheries: A deep-water bottom-dwelling shark, normally occurring on the upper continental and insular slopes at depths between 200 and 1500 m; occasionally wandering onto continental shelves, even in shallow water. Ovoviviparous; practices uterine cannibalism, with fetuses eating unfertilized eggs; 2 young per litter. Apparently somewhat inactive and sluggish. Feeding habits little known, once photographed in deep water eating a bony fish; probably feeds on a variety of deep-water bony fishes, elasmobranchs, and invertebrates. Taken incidentally offshore on deep-set longlines and less commonly on bottom trawls. Utilization not recorded.

Distribution: Western North Atlantic from New York and New Jersey, eastern North Atlantic from Iceland to Senegal, western Indian Ocean from the Aldabra Islands group and western Pacific from Japan, Taiwan Province of China, New Zealand, Western Australia, and Hawaii.

Reference

Compagno, L.J.V. 1988. *Sharks of the order Carcharhiniformes*. Princeton, New Jersey, Princeton University Press, 572 p.

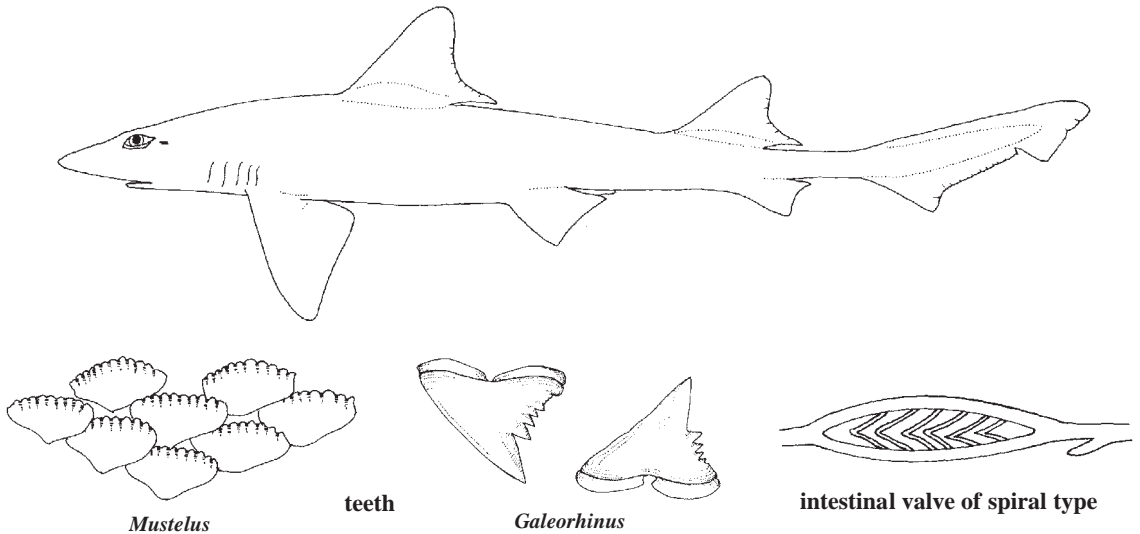


TRIAKIDAE

Houndsharks, smoothhounds, topes

by L.J.V Compagno and V.H. Niem

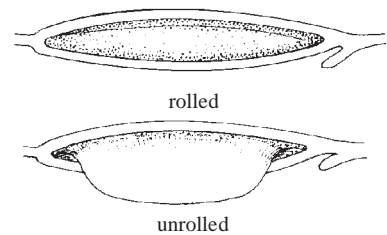
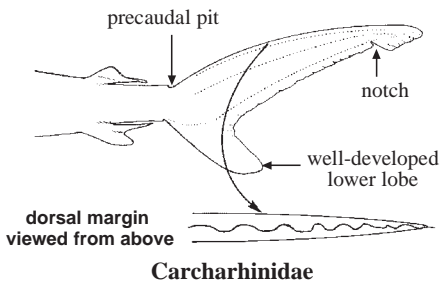
Diagnostic characters: Body elongate and slender to moderately stout. Head with 5 gill slits, **the last pair posterior to pectoral-fin origins**; small spiracles present; gill arches without rakers; eyes horizontally oval, situated on or above sides of head, with a nictitating eyelid partly or entirely within the eye opening; anterior nasal flaps of nostrils either broadly to narrowly expanded or greatly reduced, **but not in the form of slender barbels**; mouth ending below or behind eyes; labial furrows moderately long; teeth usually similar in both jaws, but differentiated in a few species; in *Mustelus*, they are numerous, small, cusplless (or weak-cuspled), and arranged in a pavement, in *Galeorhinus* they are larger, blade-like, with a strong cusp, and small cusplets but no serrations, and in *Triakis* they are of intermediate structure. Two dorsal fins, the first much shorter than caudal fin and with **its base entirely anterior to pelvic fins**; **second dorsal fin somewhat smaller than the first, originating ahead of anal fin**; **anal fin as large as or smaller than second dorsal fin**; caudal fin asymmetrical, its lower lobe varying from virtually absent to strong, **its upper edge not rippled**. Caudal peduncle not flattened dorsoventrally or expanded laterally, **without keels or precaudal pits**. Intestine with a **corkscrew or auger-like spiral valve**, with 6 to 10 turns. **Colour:** back usually greyish brown, belly white; some species are capable of undergoing slow colour changes.



Habitat, biology, and fisheries: Houndsharks are widely distributed in tropical and warm temperate to cold seas, ranging from shallow to moderately deep water (300 m or more). The species are variably ovoviviparous or viviparous, and lack or have a yolk sac placenta. They feed on bottom-dwelling invertebrates (especially crustaceans, but also molluscs and worms), and on small bony fishes and fish eggs. None of the species are particularly dangerous to people. Smoothhounds (*Mustelus*) and topes or soupfin sharks (*Galeorhinus*) are important commercial species.

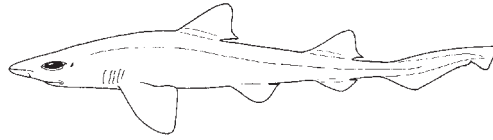
Similar families occurring in the area

Carcharhinidae and Hemigaleidae: upper edge of caudal fin with a rippled or undulating margin; precaudal pits present. Furthermore, Carcharhinidae have an intestinal valve of scroll type.



Carcharhinidae
(intestinal valve of scroll type)

Proscylliidae: gill raker papillae present on internal gill openings (lacking in *Gollum*); nictitating lower eyelids not well developed, of rudimentary type, with a weaker subocular pocket and a poorly differentiated secondary lower eyelid edge; teeth with slender cusps, comb-like at ends of dental bands.



Proscylliidae



lower teeth



comb-like rear teeth

Other families: the combination of characters such as nictitating lower eyelids, small spiracles, mouth under or behind the eyes, well-developed labial furrows, 2 spineless dorsal fins with the first over the interspace between the pectoral and pelvic fins, absence of precaudal pits, and presence of an anal fin separates this family from all other sharks occurring in the area.

Key to the species of Triakidae occurring in the area

- 1a. First dorsal-fin base about as long as caudal fin and 2.3 to 3.2 times the first dorsal height; preoral length about 1.6 to 1.7 times mouth width (Fig. 1) *Gogolia filewoodi*
- 1b. First dorsal-fin base 0.7 times or less in length of caudal fin and 2 times or less the first dorsal-fin height; preoral length 0.7 to 1.4 times mouth width → 2

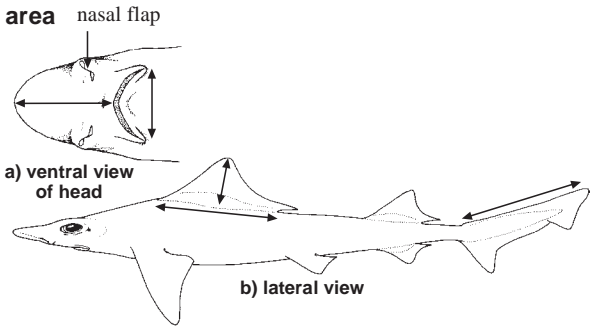


Fig. 1 *Gogolia filewoodi*

- 2a. Ventral caudal-fin lobe very long at all stages; second dorsal fin markedly smaller than first, 1/2 its area or less (Figs 2 and 3) → 3
- 2b. Ventral caudal-fin lobe absent to short in adults, weak or absent in young; second dorsal fin nearly or quite as large as first, 2/3 to about equal its area → 4

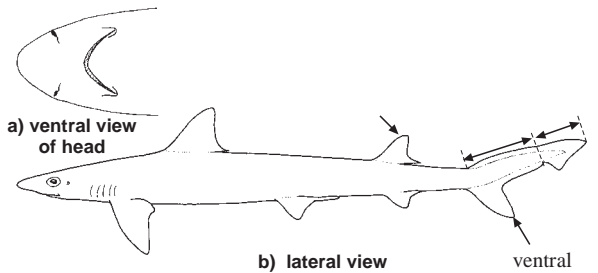


Fig. 2 *Hypogaleus hyugaensis*

- 3a. Mouth angular; second dorsal fin considerably larger than anal fin; terminal lobe of caudal fin about 1/3 of total dorsal caudal-fin margin length (Fig. 2) *Hypogaleus hyugaensis*
- 3b. Mouth arcuate; second dorsal fin about as large as anal fin; terminal lobe of caudal fin about 1/2 of total dorsal caudal-fin margin length (Fig. 3) *Galeorhinus galeus*

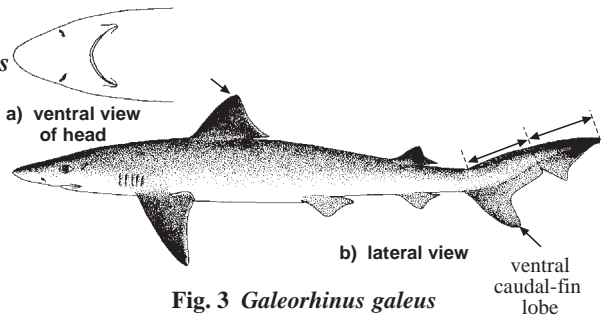


Fig. 3 *Galeorhinus galeus*

- 4a. Eyes lateral, subocular ridges obsolete (Fig. 4a); origin of first dorsal fin far anterior, over pectoral-fin bases (Fig. 5) *Iago garricki*
- 4b. Eyes dorsolateral, subocular ridges strong (Fig. 4b); origin of first dorsal fin more posterior, over or behind inner margins of pectoral fins (Figs 6 to 14) → 5

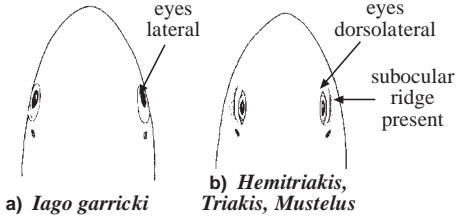


Fig. 4 dorsal view of head

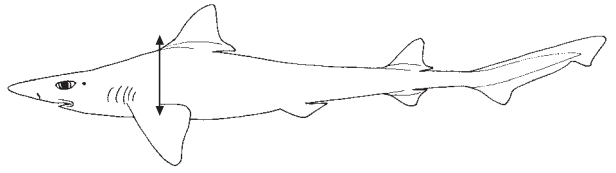


Fig. 5 *Iago garricki*

- 5a. Internarial width about 2.5 times the nostril width (Figs 6 and 7); teeth strongly compressed and blade-like, differentiated into medials at symphyses of both jaws and antero-posteriors adjacent to them (*Hemitriakis*) → 6
- 5b. Internarial width 1 to 2 times the nostril width (Figs 9,10 and 12); teeth broad and blunt to semi-blade-like, not strongly compressed, not differentiated into medials and antero-posteriors → 9

- 6a. Eyes relatively low and slit-like; first dorsal-fin origin over or behind pectoral fin free rear tips; fins not strongly falcate in adults (Fig. 6) . . . *Hemitriakis japonica*
(occurrence in the area uncertain)

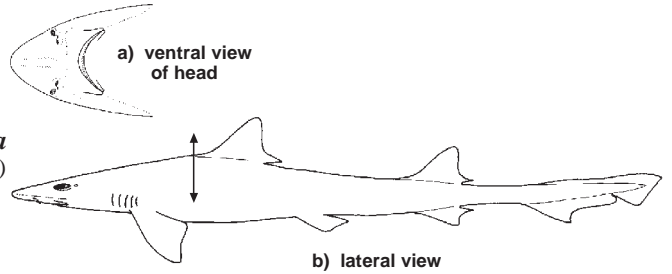


Fig. 6 *Hemitriakis japonica*

- 6b. Eyes relatively high and horizontally oval; first dorsal-fin origin anterior to pectoral fin free rear tips; fins strongly falcate in adults → 7

- 7a. Precaudal vertebral counts 94 to 96, monospondylous precaudal vertebral counts 34 to 35; no dusky bar on underside of snout; young with dark bars on caudal fin but not elsewhere (Fig. 7) *Hemitriakis leucoperiptera*
- 7b. Precaudal vertebral counts 116 to 132, monospondylous precaudal counts 44 to 57; dusky bar present on underside of snout; young with prominent dark bars and spots on fins and body → 8
- 8a. Young with light spots in centres of saddle markings, light tip on caudal fin; precaudal vertebral counts 116, monospondylous precaudal counts 44, diplospondylous precaudal counts 72 *Hemitriakis* sp.
- 8b. Young with solid saddle markings, without light central spots, dark tip on caudal fin; precaudal vertebral counts 126 to 132, monospondylous precaudal counts 48 to 57, diplospondylous precaudal counts 75 to 78 (Fig. 8) *Hemitriakis abdita*

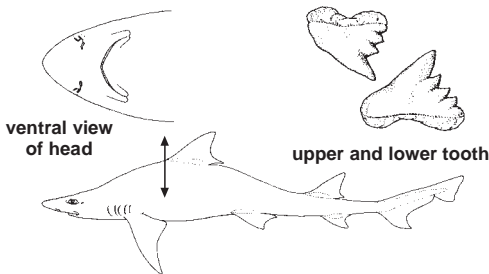


Fig. 7 *Hemitriakis leucoperiptera*

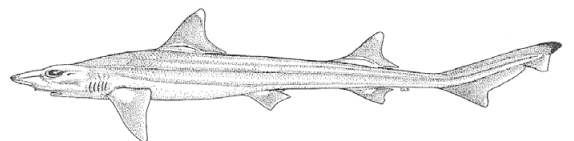
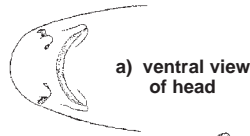


Fig. 8 *Hemitriakis abdita*

9a. Snout bluntly rounded in dorsoventral view; mouth arcuate, lower jaw with convex edges (Fig. 9) *Triakis scyllium*
(occurrence in the area uncertain)



9b. Snout parabolic to subangular in dorsoventral view; mouth angular, lower jaw with straight or nearly straight edges (Figs 10 and 12) (*Mustelus*) → 10

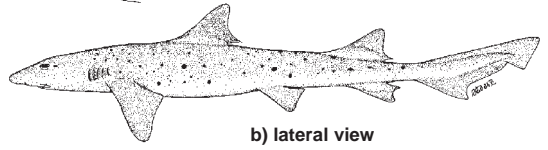


Fig. 9 *Triakis scyllium*

10a. No white spots on body; upper labial furrows longer than lower furrows (Fig. 10) → 11

10b. Numerous small white spots on dorsal surface of body; upper labial furrows subequal to or shorter than lower furrows (Fig. 12) → 12

11a. Interorbital space 3.6 to 4.5% of total length; teeth in both jaws with low cusps; precaudal centra fewer, 73 to 80 (Fig. 10) *Mustelus griseus*

11b. Interorbital space 5.6 to 6.0% of total length; teeth in both jaws with high cusps; precaudal centra more numerous, 90 to 92 (Fig. 11) *Mustelus sp. A*

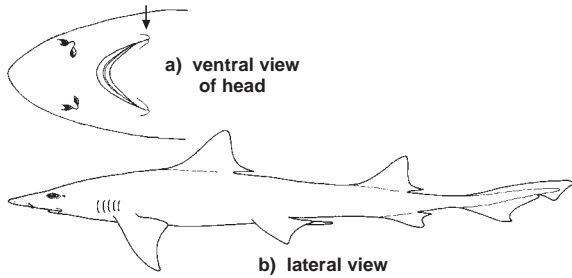


Fig. 10 *Mustelus griseus*

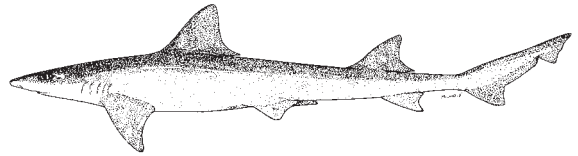


Fig. 11 *Mustelus sp. A*
(after Last and Stevens, 1994)

12a. Interorbital space relatively narrow, 3.7 to 4.5% of total length (Fig. 12) *Mustelus manazo*

12b. Interorbital space relatively broad, 6.1 to 7.1% of total length (*Mustelus antarcticus* species complex) → 13

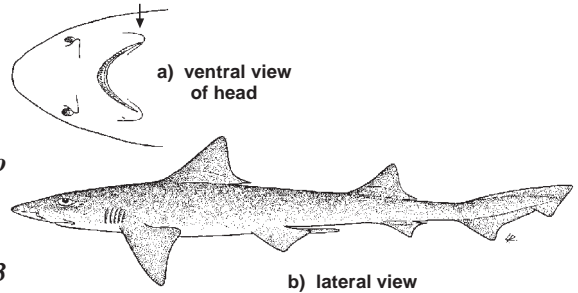


Fig. 12 *Mustelus manazo*

13a. Total vertebrae 125 to 133; monospondylous precaudal centra 34 to 37; precaudal centra 79 to 86; size at maturity over 80 to 85 cm and reaching 1.75 m total length; temperate species occurring from inshore to 350 m (Fig. 13) *Mustelus antarcticus*

13b. Total vertebrae 135 to 143; monospondylous centra 37 to 39; precaudal centra 88 to 95; size at maturity over 70 cm and reaching 1.17 m total length; tropical species in deeper water, 120 to 400 m (Fig. 14) *Mustelus sp. B* (eastern form)

13c. Total vertebrae 119 to 128, mostly less than 125; monospondylous centra 33 to 35; precaudal centra 76 to 80; size at maturity about 60 cm and reaching 1.03 m total length; tropical species in deeper water, 120 to 400 m (Fig. 14) *Mustelus sp. B* (western form)

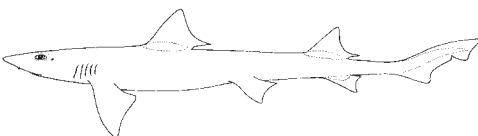


Fig. 13 *Mustelus antarcticus*

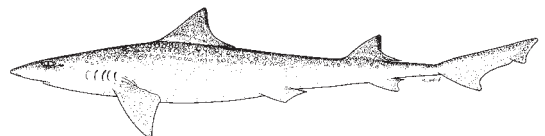










Fig. 14 *Mustelus sp. B*
(after Last and Stevens, 1994)

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Galeorhinus galeus* (Linnaeus, 1758)
-  *Gogolia filewoodi* Compagno, 1973
- Hemitriakis abdita* Compagno and Stevens, 1993^{1/}
- ? *Hemitriakis japonica* (Müller and Henle, 1839)^{2/}
-  *Hemitriakis leucoperiptera* Herre, 1923
- Hemitriakis* sp. [Compagno, 1988]^{3/}
-  *Hypogaleus hyugaensis* (Miyosi, 1939)
-  *Iago garricki* Fourmanoir, 1979^{4/}
-  *Mustelus antarcticus* Günther, 1870
-  *Mustelus griseus* Pitschmann, 1908^{5/}
-  *Mustelus manazo* Bleeker, 1854
- Mustelus* cf. *manazo* [Seret, pers. comm. 1994]
- Mustelus* sp. A. [Last and Stevens, 1994]^{6/}
- Mustelus* sp. B. [Last and Stevens, 1994]^{7/}
- ? *Triakis scyllium* Müller and Henle, 1839^{8/}

References

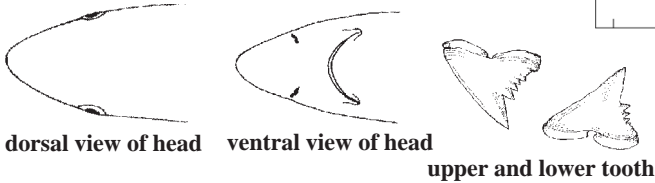
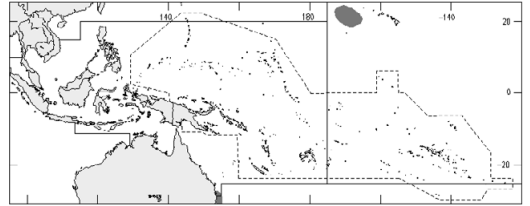
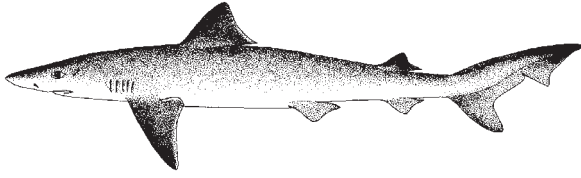
- Compagno, L.J.V. 1970. Systematics of the genus *Hemitriakis* (Selachii: Carcharhinidae), and related genera. *Proc. Calif. Acad. Sci.*, 38(4):63-98.
- Compagno, L.J.V. 1973. *Gogolia filewoodi*, a new genus and species of shark from New Guinea (Carcharhiniformes; Triakidae), with a redefinition of the family Triakidae and a key to the genera. *Proc. Calif. Acad. Sci.*, 39(4):383-410.
- Compagno, L.J.V. 1988. *Sharks of the order Carcharhiniformes*. Princeton, New Jersey, Princeton University Press, 572 p.
- Last, P.R. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.

-
- 1/ Including specimens from the Coral Sea off Queensland, Australia, and a specimen from New Caledonia that agrees with the Coral Sea material in most particulars.
 - 2/ Nominal from Amboina and New Caledonia; unconfirmed from the former locality, and based on a specimen close to if not identical to *Hemitriakis abdita* from New Caledonia.
 - 3/ Based on 4 late fetuses from the Philippines in the Stanford University collections, originally misidentified as *Triakis scyllium*. Postnatal material has not been examined.
 - 4/ A Philippines' *Iago* is similar to *I. garricki* but may be distinct.
 - 5/ A Philippines' *Mustelus* is similar to *M. griseus* and *Mustelus* sp. A, particularly the former, but needs further investigation to determine its identity.
 - 6/ An unspotted smoothhound known from isolated localities off northern Australia, but presumably more widely distributed.
 - 7/ Known from few isolated localities off northern Australia. It is not clear if the western and eastern Australian populations represent 1 or 2 species or are just variations or subspecies of *Mustelus antarcticus*.
 - 8/ Nominal records from Philippines, apparently based in part on *Hemitriakis* sp. Otherwise a temperate coastal species occurring from China to Korea and Japan.

***Galeorhinus galeus* (Linnaeus, 1758)**

En - Tope shark; **Fr** - Requin-hâ; **Sp** - Cazón.

Maximum total length about 1.95 m. An active, strong-swimming, abundant, coastal-pelagic species of temperate continental and insular waters, near or on the bottom, from inshore waters down to a depth of 300 m. Ovoviviparous, without a yolk-sac placenta. Feeds on small schooling fish, other bottom fishes, crustaceans, and echinoderms. Caught with bottom trawls, on longlines, and in pelagic trawls; utilized fresh, dried salted and processed for oil (Vitamin A) and fishmeal. In the western South Atlantic, eastern North and South Atlantic, also off southern Australia, New Zealand, the Laysan Islands, Hawaii, and the eastern North and South Pacific.



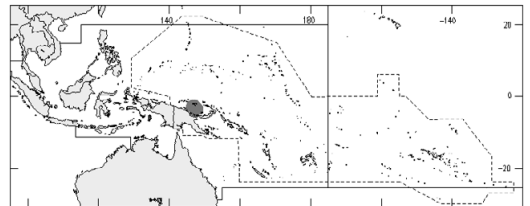
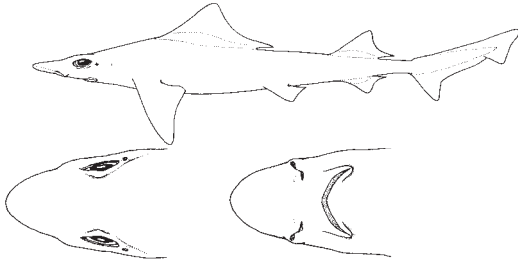
dorsal view of head ventral view of head

upper and lower tooth

***Gogolia filewoodi* Compagno, 1973**

En - Sailback houndshark; **En** - Requin-hâ voile; **Sp** - Cazón velero.

Maximum total length about 74 cm. A little-known shark of the northern New Guinea continental shelf, the only specimen of which was taken at a depth of 73 m, probably near the bottom. Ovoviviparous. Of minor interest to fisheries.

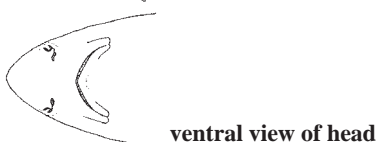
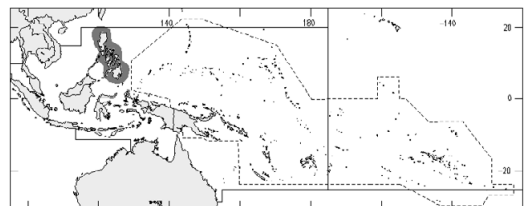
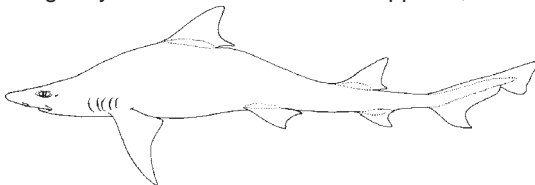


dorsal view of head ventral view of head

***Hemistriakis leucoperiptera* Herre, 1923**

En - Whitefin topeshark; **Fr** - Requin-hâ aile blanche; **Sp** - Cazón de aleta blanca.

Maximum total length about 96 cm. A little-known inshore tropical shark, in Philippine coastal waters down to a depth of 48 m. Viviparous, but it is not known if a yolk-sac placenta is formed; presumably caught by local fisheries in the Philippines, but details are unknown.

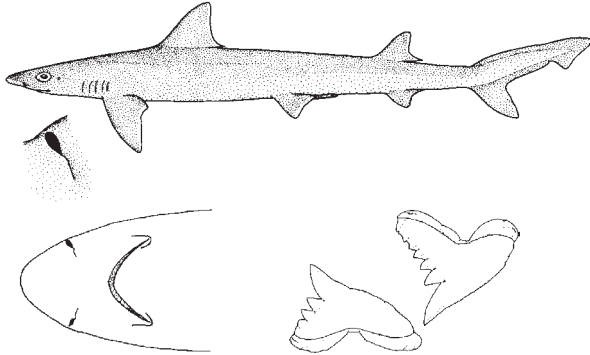


ventral view of head

***Hypogaleus hyugaensis* (Miyosi, 1939)**

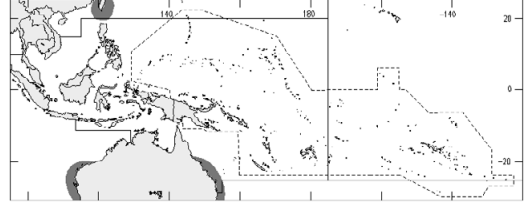
En - Blacktip tope; **Fr** - Requin-hâ elegant; **Sp** - Cazón elegant.

Maximum total length at least 1.3 m. A bottom-living shark of fairly deep continental waters, ranging in depths from 40 to 230 m. Viviparous, with a yolk-sac placenta. Feeds on bony fishes. Caught in bottom trawls and on hook-and-line; a minor fisheries catch off southern Australia and Japan, but uncommon and apparently little utilized elsewhere. Occurs off South Africa, Kenya, Zanzibar, the Persian Gulf, and in the western Pacific off southern Japan, Taiwan Province of China, and Australia.



ventral view of head

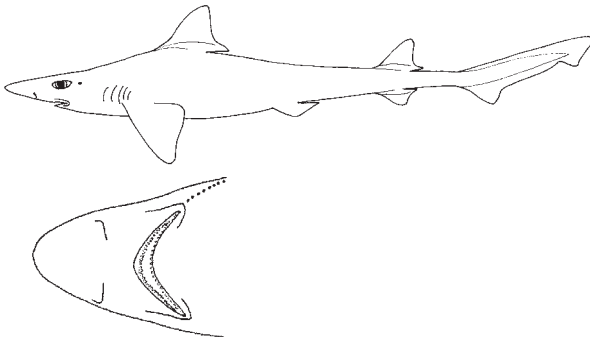
upper and lower tooth



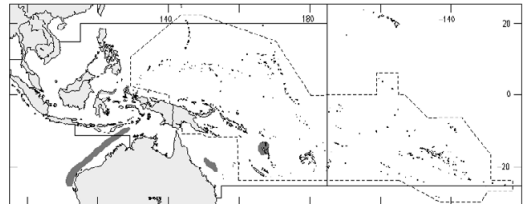
***Iago garricki* Fourmanoir and Rivaton, 1979**

En - Longnose houndshark; **Fr** - Requin-hâ long nez; **Sp** - Cazón picudo.

Maximum total length about 75 cm. A little-known, deep-water tropical shark found at depths of 250 to 475 m. Viviparous, with a yolk-sac placenta. Feeds on cephalopods. Of minor interest to fisheries at present. Known from the Vanuatu and tropical Australia; also, a shark that is somewhat similar to this species, but may be distinct, occurs in the Philippines (Batangas, Luzon) in depths of 124 to 441 m.



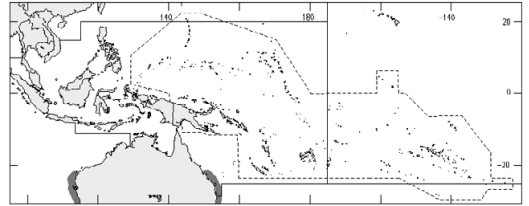
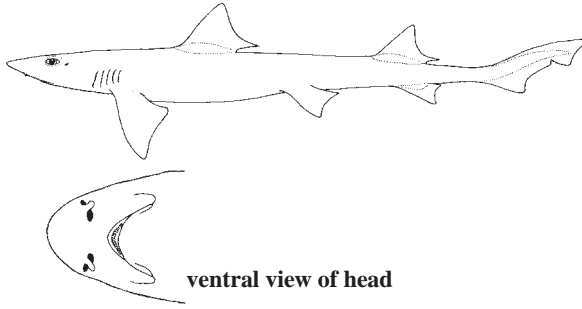
ventral view of head



***Mustelus antarcticus* Günther, 1870**

En - Gummy shark; **Fr** - Emissole gommée; **Sp** - *Musola austral*.

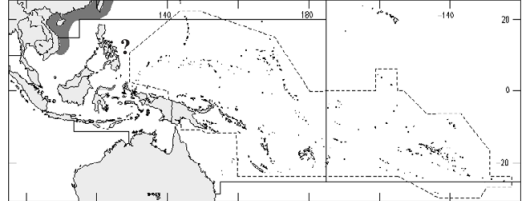
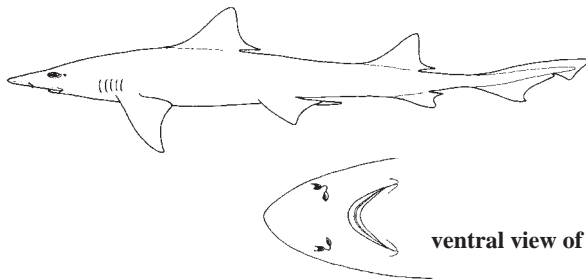
Maximum total length about 1.75 m. An abundant inshore and offshore shark of temperate waters, found on or near the bottom and from the intertidal to a depth of 183 m. Ovoviviparous, without a yolk-sac placenta. Feeds on crustaceans (including crabs), marine worms, and small fishes. This small shark is widely fished in Australia, and utilized fresh for human consumption. Western Australia to southern Queensland, also Tasmania.



***Mustelus griseus* Pietschmann, 1908**

En - Spotless smooth-hound; **Fr** - Emissole cotiere; **Sp** - *Musola gris*.

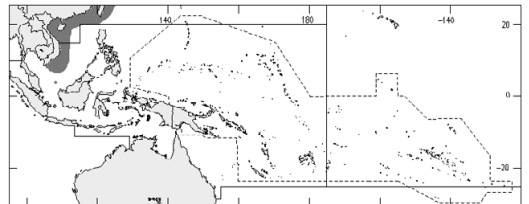
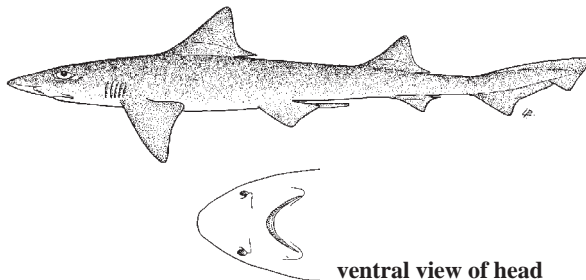
Maximum size at least 1 m. A common western Pacific temperate and tropical inshore bottom-dwelling shark, found down to a depth of at least 51 m. Viviparous, with a yolk-sac placenta. Probably feeds on bottom-dwelling invertebrates, especially crustaceans. Regularly fished off Japan, China and Taiwan Province of China, presumably also caught by local fisheries in the area, but details are unknown. In the western North Pacific off Japan, Korea, China, Taiwan Province of China, and Viet Nam, possibly also the Philippines.



***Mustelus manazo* Bleeker, 1854**

En - Starspotted smooth-hound; **Fr** - Emissole étoilée; **Sp** - *Musola celestialis*.

Maximum total length to about 1.17 m. An abundant, bottom-living shark found in continental waters, ranging from the intertidal zone to a depth of at least 360 m. Ovoviviparous, without a yolk-sac placenta. Feeds mostly on bottom invertebrates. Caught in bottom trawls and on hook-and-line (sports catches). In the western Pacific southwards to Viet Nam, also recorded from Kenya.

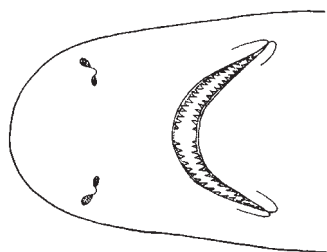
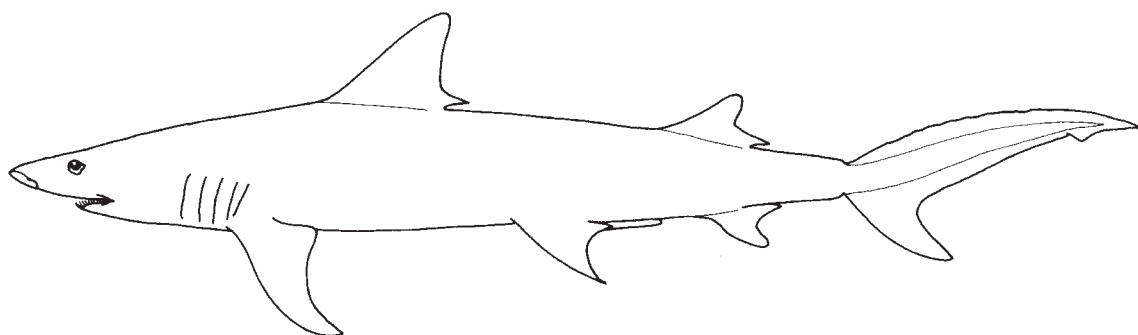


HEMIGALEIDAE

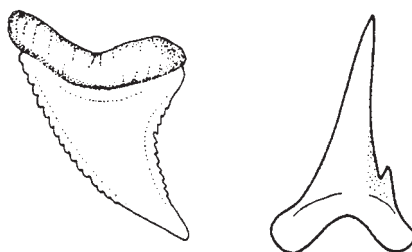
Weasel sharks

by L.J.V. Compagno

Diagnostic characters: Small to medium-sized sharks with cylindrical or slightly compressed bodies without lateral ridges; precaudal tail much shorter than trunk. Head not expanded laterally, moderately depressed; 5 small to medium-sized gill slits present, the last 2 or 3 over or behind pectoral-fin origins, their upper ends expanded partway onto upper surface of head in some species; **no gill sieves or gill rakers; spiracles minute, and behind but not below eyes;** nostrils without barbels, nasoral grooves, or circumnarial grooves, well-separated from mouth; eyes on sides of head, with a well-developed nictitating lower eyelid; snout moderately long, depressed, and parabolic to broadly rounded, not greatly flattened and blade-like and without lateral teeth and barbels; mouth moderately large, arched, and elongated, and extending well behind eyes; labial furrows present on both jaws and moderately large, reaching front of mouth or ending well behind it; **teeth small to large, blade-like**, and with a single cusp on teeth of both jaws, cusplets or strong serrations present on upper teeth, and cusplets variably present or absent on lower teeth; **anterior teeth in upper jaw smaller than lateral teeth and not separated from them by smaller intermediate teeth on each side.** Two dorsal fins without spines, the first dorsal fin moderately large, high and angular or subangular, much shorter than the caudal fin, with its base located over the interspace between, the pectoral- and pelvic-fin bases and entirely anterior to origins of pelvic fins; second dorsal fin moderately large, about 2/3 the size of first dorsal fin; anal fin moderately large, slightly smaller than second dorsal fin, with its origin slightly behind second dorsal-fin origin but in front of second dorsal-fin midbase; caudal fin strongly asymmetrical, much less than half of total length, **with a rippled or undulated dorsal margin**, a well-marked subterminal notch, and a short, but well-defined lower lobe; vertebral axis of caudal fin raised above body axis. Caudal peduncle cylindrical, **without keels but with well-developed precaudal pits. Intestinal valve of spiral type.** **Colour:** grey, grey-brown or dark grey above, white or cream below, fins sometimes with dusky tips or white posterior margins; sometimes a few white spots but no elaborate colour pattern.



ventral view of head

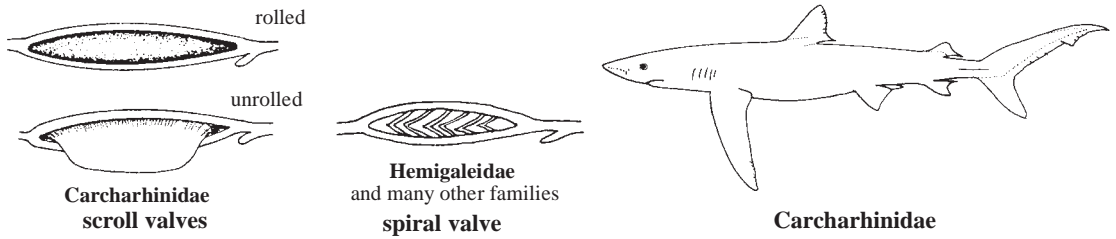


upper and lower teeth

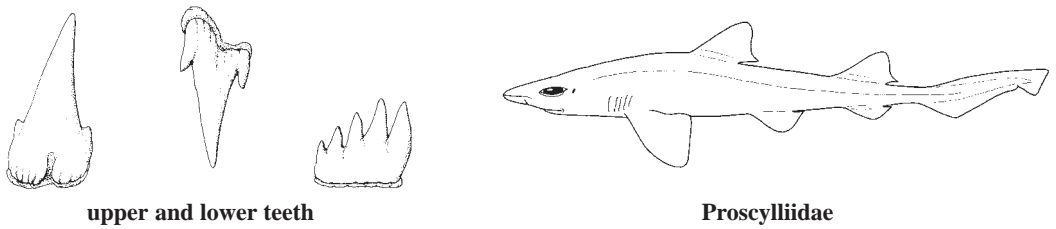
Habitat, biology, and fisheries: The Hemigaleidae is a small family of small to medium-sized, coastal sharks with a primary diversity (about 7 to 9 species) in the continental and insular tropical waters of the Indo-West Pacific (but not extending into the Central Pacific); a single additional species occurs in the Atlantic. It is closely related to the large family Carcharhinidae. These sharks feed on small fishes, octopuses, and probably other invertebrates, and are not known to have attacked people. All species in the area are fished for human consumption, but due to their modest abundance they form only a small fraction of the shark catch in the area.

Similar families occurring in the area

Carcharhinidae: intestine with a scroll valve; also, no carcharhinids in the area show the character combination of a long snout, spiracles, upper teeth with cusplets, lower teeth well differentiated from uppers, long labial furrows, and second dorsal fin about 2/3 as large as first dorsal fin and with its origin anterior to that of the slightly smaller anal fin.



Proscylliidae and Triakidae: no precaudal pits or undulated dorsal caudal-fin margin, teeth not strongly differentiated in upper and lower jaws, spiracles usually larger.



Key to the species of Hemigaleidae occurring in the area

- 1a. Lower teeth near symphysis with short, straight or weakly hooked cusps that are concealed or barely protrude when mouth is closed (Fig. 1a, b); gill slits small, less than twice the eye length → 2
- 1b. Lower teeth near symphysis with long, strongly hooked cusps that prominently protrude from mouth when it is closed (Fig. 1c, d); gill slits large, over twice the eye length → 4

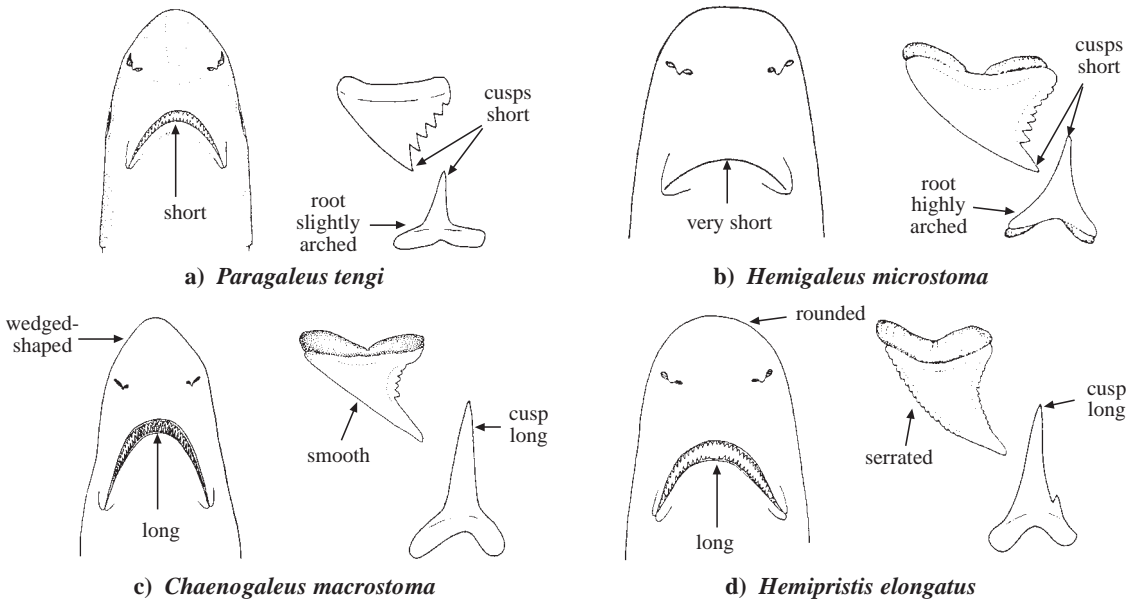


Fig. 1 teeth and ventral view of head

- 2a. Lower teeth near symphysis with mostly erect cusps and slightly arched roots, giving them an inverted T-shape; cusplets present on lower teeth; mouth longer, narrowly arched (Fig. 1a); pelvic, dorsal and caudal fins not falcate (Fig. 2) *Paragaleus tengi*
- 2b. Lower teeth near symphysis with erect cusps and highly arched roots, giving them an inverted Y-shape; no cusplets on lower teeth; mouth very short, broadly arched (Fig. 1b); pelvic fins, both dorsal fins, and ventral caudal fin lobe strongly falcate (Fig. 3) → 3

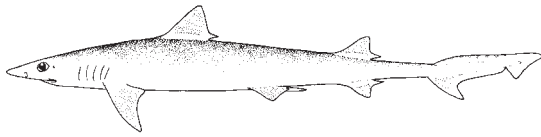


Fig. 2 *Paragaleus tengi*

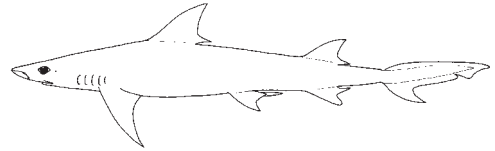


Fig. 3 *Hemigaleus microstoma*

- 3a. Fins dark-tipped; tooth counts 28-34/43-54; total vertebral counts 111 to 118 (Australia) *Hemigaleus* sp. aff. “*microstoma*”
- 3b. Fins light-tipped; tooth counts 25-32/37-43; total vertebral counts 137 to 150 (Java, Singapore, and Thailand) *Hemigaleus microstoma*
- 4a. Snout obtusely wedge-shaped in dorsoventral view; teeth present at symphysis of lower jaw; mesial edges of upper teeth smooth at all sizes (Fig. 1c); fins not falcate, posterior margins of pelvic and pectoral fins straight or slightly concave (Fig. 4) . . . *Chaenogaleus macrostoma*
- 4b. Snout bluntly rounded in dorsoventral view; teeth absent at symphysis of lower jaw, mesial edges of upper teeth serrated (but smooth in young below 60 cm) (Fig. 1d); fins strongly falcate, posterior margins of pelvic and pectoral fins deeply concave (Fig. 5) *Hemipristis elongatus*

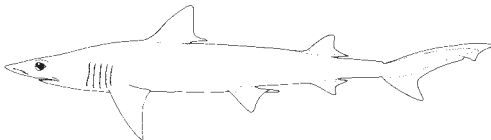


Fig. 4 *Chaenogaleus macrostoma*

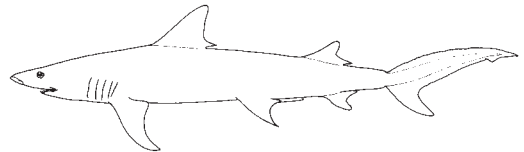


Fig. 5 *Hemipristis elongatus*

List of species occurring in the area

The symbol is given when species accounts are included.

- Chaenogaleus macrostoma* (Bleeker, 1852)
- Hemigaleus microstoma* Bleeker, 1852
- Hemigaleus* sp. aff. “*microstoma*”
- Hemipristis elongatus* (Klunzinger, 1871)
- Paragaleus tengi* (Chen, 1963)

References

Compagno, L.J.V. 1988. *Sharks of the order Carcharhiniformes*. Princeton, New Jersey, Princeton University Press, 572 p.

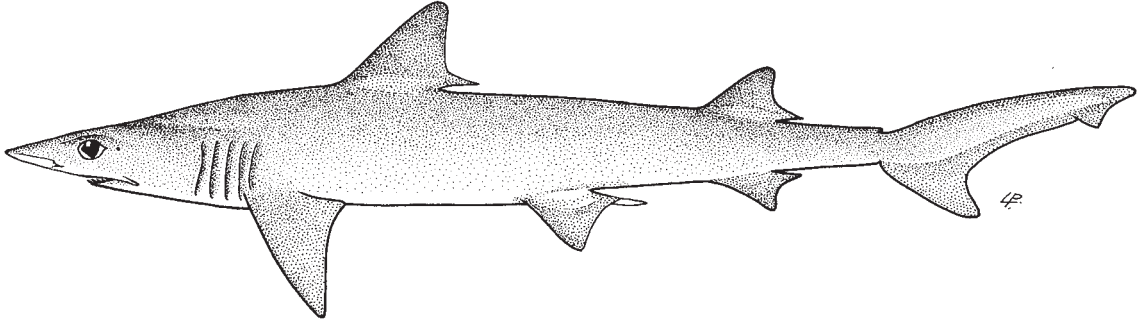
Compagno, L.J.V. and M.J. Smale. 1985. *Paragaleus leucomatus*, a new shark from South Africa, with notes on the systematics of hemigaleid sharks (Carcharhiniformes: Hemigaleidae). *Spec. Publ. J.L.B. Smith Inst. Ichthyol.*, (37):391-401.

Compagno, L.J.V., F. Krupp, and K.E. Carpenter. 1996. A new weasel shark of the genus *Paragaleus* from the northwestern Indian Ocean and the Arabian Gulf. *Fauna of Saudi Arabia*, 15:391-401.

Chaenogaleus macrostoma (Bleeker, 1852)

Frequent synonyms / misidentifications: *Hemigaleus macrostoma* Bleeker, 1852; *H. balfouri* Day, 1878 / *Hemigaleus microstoma* Bleeker, 1852; *Hemipristis elongatus* (Klunzinger, 1871).

FAO names: En - Hooktooth shark; Fr - Milandre harpon; Sp - Comadreja ganchuda.

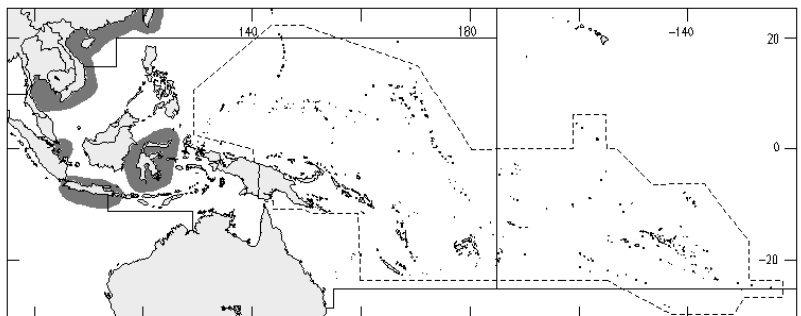


Diagnostic characters: A small shark. Body moderately slender. **Snout long**, its length slightly greater than mouth width, **obtusely wedge-shaped toward tip**; labial furrows moderately long and easily seen, the uppers ending well behind symphysis of lower jaw; anterior nasal flaps with a short, broad, triangular lobe; **mouth long and parabolic, its length over 2/3 of the width**; spiracles small; **gill slits very long, the longest over twice the eye length**; teeth in upper jaw with narrow, erect to oblique, high cusps and distal cusplets (except for those at symphysis), entirely smooth-edged; **teeth in lower jaw with arched roots and long, hooked, slender mostly erect cusps that prominently protrude when mouth is closed**, without cusplets or serrations. First dorsal fin moderately large, with a pointed or narrowly rounded apex and short inner margin, its origin slightly posterior to free rear tips of pectoral fins and the free rear tip anterior to pelvic-fin origins; **second dorsal fin high, about 2/3 of length of first**, with a short inner margin less than fin height, and its origin slightly anterior to anal-fin origin; **anal fin slightly smaller than second dorsal fin**, without long preanal ridges; upper precaudal pit transverse and crescentic, no keels on caudal peduncle; **pectoral and pelvic fins with straight or slightly concave inner margins**. Intestine with a spiral valve. **Colour:** bronzy-grey above, white below when fresh, fading to greyish or greyish brown in preservation, dorsal fins often with dusky or black tips.

Size: Maximum total length about 1 m.

Habitat, biology, and fisheries: A small, common, coastal, inshore and offshore shark of the continental and insular shelves, caught at depths down to 59 m. Viviparous, number of young 4; size at birth 20 cm. Probably feeds on small fishes and invertebrates; harmless to people. Commonly caught in inshore and offshore artisanal fisheries probably everywhere where it occurs. Caught in drifting and bottom gill nets and on longlines and other line gear. Utilized fresh for human consumption; offal processed into fishmeal.

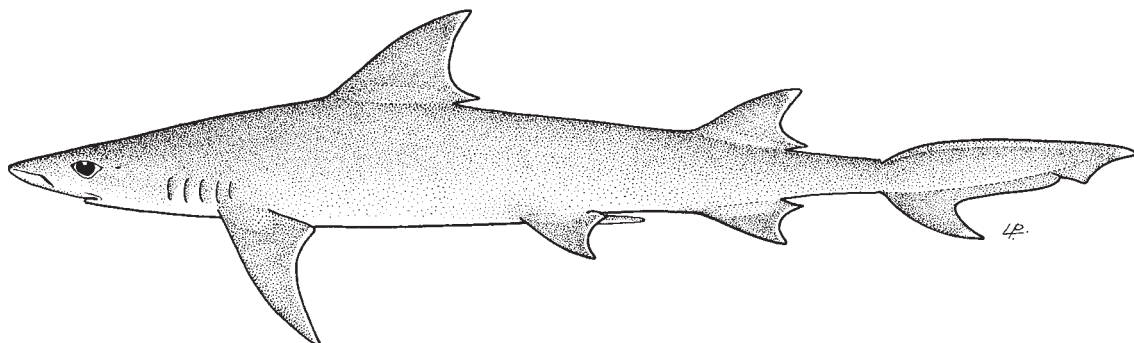
Distribution: Indo-Pacific from the Persian Gulf to India and Sri Lanka, and off Singapore, Thailand, Viet Nam, China (including Taiwan Province), Java, and Sulawesi.



Hemigaleus microstoma Bleeker, 1852

Frequent synonyms / misidentifications: *Negogaleus microstoma* (Bleeker, 1852) / *Chaenogaleus macrostoma* (Bleeker, 1852); *Hemipristis elongatus* (Klunzinger, 1871).

FAO names: **En** - Sicklefim weasel shark; **Fr** - Milandre faucille; **Sp** - Comadreja segadora.



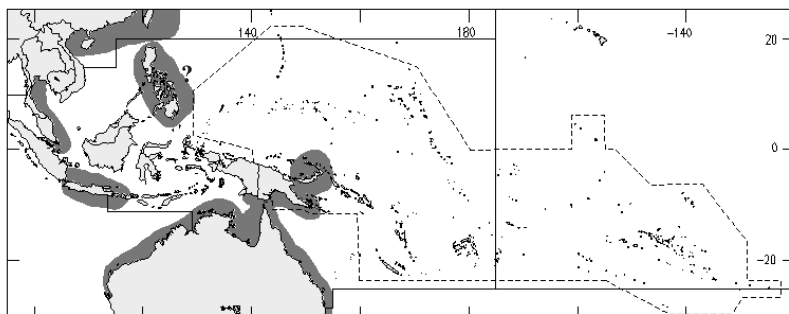
Diagnostic characters: A small shark. Body moderately slender. **Snout long**, its length somewhat greater than mouth width, **parabolic toward tip**; **labial furrows moderately long and easily seen**, the upper furrows nearly reaching symphysis of lower jaw, anterior nasal flaps with a short, broad, triangular lobe; **mouth very short and broadly arched, its length about 1/3 of the width**; spiracles small; gill openings short, the longest slightly longer than eye length in adults, slightly shorter in young; **teeth in upper jaw with very narrow, short, oblique cusps and prominent distal cusplets** (except for those at symphysis), entirely smooth-edged; **teeth in lower jaw very small, with arched roots and short, mostly erect, slender, straight cusps that do not protrude when mouth is closed**, and no cusplets or serrations. First dorsal fin moderately large, with a pointed apex and short inner margin, its origin slightly posterior to free rear tips of pectoral fins and the free rear tip anterior to pelvic-fin origins; **second dorsal fin high, about 2/3 of length of first dorsal fin**, with a short inner margin less than fin height, and its origin slightly anterior to anal-fin origin; anal fin slightly smaller than second dorsal fin, without long preanal ridges; upper precaudal pit transverse and crescentic, no keels on caudal peduncle; **pectoral and pelvic fins strongly falcate, with deeply concave posterior margins**. Intestine with a spiral valve. **Colour:** grey-brown above, lighter below, dorsal fins with white tips and posterior margins: sometimes white spots on sides of body.

Size: Maximum total length about 1.1 m.

Habitat, biology, and fisheries: A small coastal, inshore and offshore shark of continental tropical waters, at depths down to 170 m. Viviparous, 2 fetuses in a litter. Feeds mainly on cephalopods, particularly octopus. Harmless to humans. Taken regularly in inshore artisanal fisheries in the Indo-Pacific, but of no commercial importance locally. Caught with floating and bottom gill nets, longlines and hook-and-line. Utilized fresh for human consumption; offal used for fishmeal.

Distribution: Indo-West Pacific off southern India, Sri Lanka, Thailand, Singapore, Java, China, Taiwan Province of China, northern Viet Nam, the Philippines, New Guinea, and eastern, northern, and western Australia.

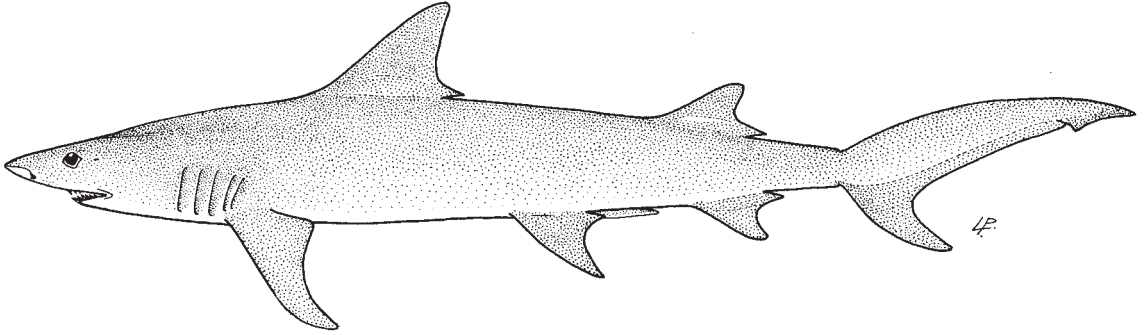
Remarks: Differences in coloration and meristics suggest that the Australian and possibly the northern Indian Ocean representatives of this species may be separated as species or subspecies, as indicated in the key.



Hemipristis elongatus (Klunzinger, 1871)

Frequent synonyms / misidentifications: *Carcharhinus ellioti* (Day, 1878) / *Chaenogaleus macrostoma* (Bleeker, 1852); *Hemigaleus microstoma* Bleeker, 1852.

FAO names: En - Snaggletooth shark; Fr - Milandre chicor; Sp - Comadreja sobrediente.

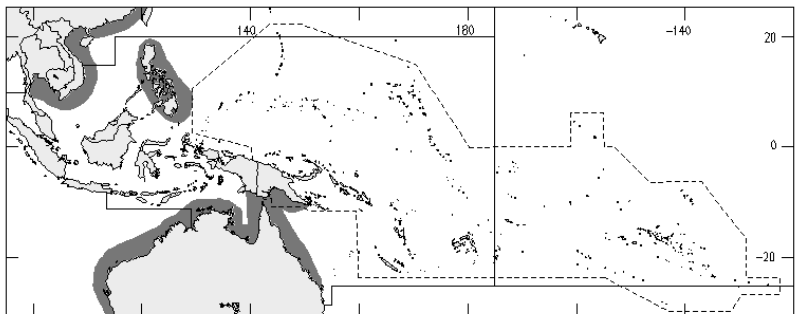


Diagnostic characters: A medium-sized shark. Body moderately slender. **Snout long**, its length slightly greater than mouth width, **bluntly rounded toward tip**; **labial furrows moderately long and easily seen**, the upper furrows falling well behind symphysis of lower jaw; anterior nasal flaps with a short triangular lobe; **mouth long and semiparabolic, with a truncated lower symphysis, its length about 2/3 of the width**; spiracles small; **gill openings long, the longest over twice the eye length**; **teeth in upper jaw with strong, distally curved, broad and oblique cusps (except for erect-cusped symphyseal teeth)**, prominent distal cusplets and mesial serrations; **teeth in lower jaw large but considerably narrower than uppers, with arched roots and long, strong, hooked, erect to oblique cusps that prominently protrude when mouth is closed**, and basal serrations or small cusplets on more distal teeth. First dorsal fin moderately large, with a pointed apex and short inner margin, its origin slightly posterior to free rear tips of pectoral fins and the free rear tip anterior to pelvic-fin origins; **second dorsal fin high, about 2/3 of length of first**, with a short inner margin less than fin height and its origin somewhat anterior to anal-fin origin; anal fin slightly smaller than second dorsal fin, without long preanal ridges; upper precaudal pit transverse and crescentic; no keels on caudal peduncle; **pectoral and pelvic fins strongly falcate, with deeply concave posterior margins**. Intestine with a spiral valve. **Colour:** grey or grey-brown above, lighter below, no prominent markings.

Size: Maximum total length about 2.4 m; commonly to 2 m.

Habitat, biology, and fisheries: A rare to common tropical coastal shark, inshore and offshore at depths down to 130 m. Viviparous, number of young 6 to a per litter; size at birth about 45 cm. Feeds on a variety of fish species, also on cephalopods. Potentially dangerous because of its size and large teeth, but never recorded as attacking people. Regularly taken in artisanal fisheries, in the area especially off Thailand. Caught with bottom gill nets, floating longlines and probably on hook-and-line. Utilized fresh for human consumption; liver processed for vitamins; fins used in the oriental sharkfin trade, and offal for fishmeal.

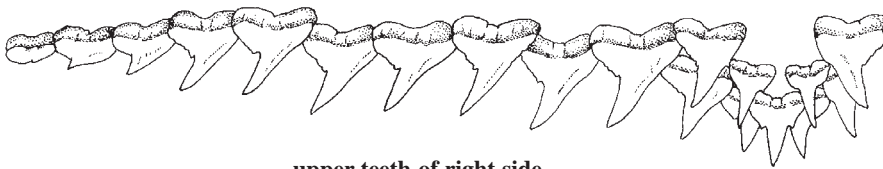
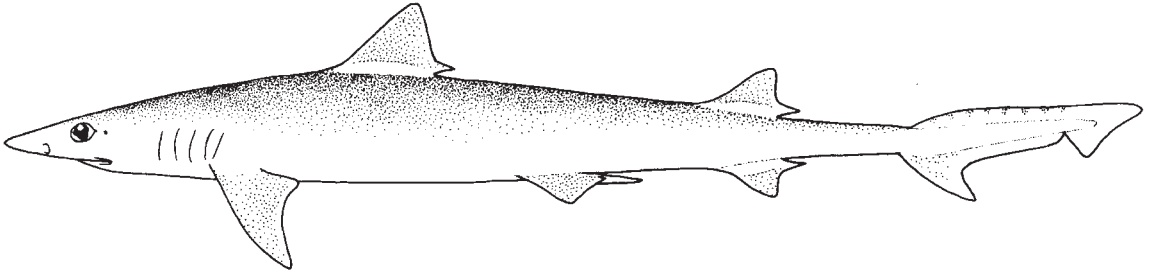
Distribution: Indo-West Pacific off South Africa, Madagascar, Mozambique, Tanzania, Aden, Red Sea, the Persian Gulf, Pakistan, India, Thailand, Viet Nam, China, the Philippines, and Australia (Queensland, and western Australia).



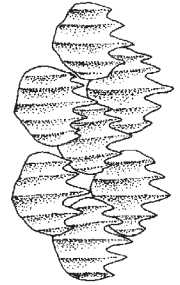
Paragaleus tengi (Chen, 1963)

Frequent synonyms / misidentifications: *Negogaleus tengi* Chen, 1963; *N. longicaudatus* Bessednov, 1964 / None.

FAO names: **En** - Straight-tooth weasel shark; **Fr** - Milandre belette; **Sp** - Comadreja coluda.



upper teeth of right side



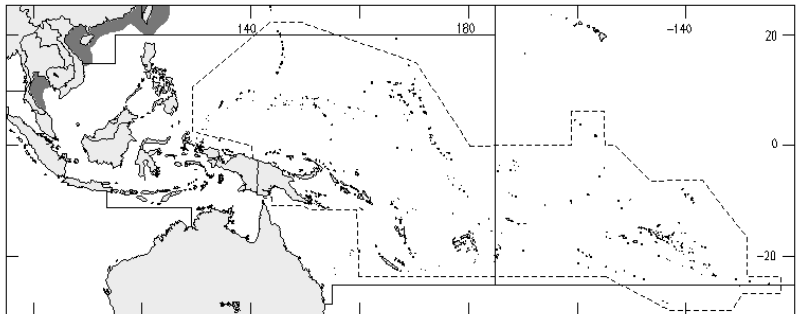
dermal denticles

Diagnostic characters: A small shark. Body slender. **Snout long**, its length slightly greater than mouth width, **rounded toward tip**; **labial furrows moderately long and easily seen**, the upper furrows falling well behind symphysis of lower jaw; anterior nasal flaps with a short triangular lobe; **mouth rather short and arched, its length about 2/3 of the width**; spiracles small; **gill openings moderate sized, the longest slightly longer than eye length in adults**, slightly shorter in young; **teeth in upper jaw with narrow, moderately long, semierect to oblique cusps and distal cusplets** (except for erect-cusped symphyseal teeth), entirely smooth-edged; **teeth in lower jaw with slightly arched roots and moderately long, mostly erect cusps that do not protrude when mouth is closed**, and with low cusplets but no serrations. First dorsal fin moderately large, with a narrowly rounded apex and short inner margin, its origin slightly posterior to free rear tips of pectoral fins and the free rear tip anterior to pelvic-fin origins, **second dorsal fin high, about 2/3 of length of first dorsal fin**, with a short inner margin less than fin height, and its origin slightly anterior to anal-fin origin; anal fin slightly smaller than second dorsal fin, without preanal ridges; upper precaudal pit transverse and crescentic, no keels on caudal peduncle; **pectoral fins weakly falcate and pelvic fins not falcate**. Intestine with a spiral valve. **Colour:** body grey or grey-brown above, light below, no prominent markings on body and fins.

Size: Maximum total length about 88 cm.

Habitat, biology, and fisheries: A little-known inshore shark, depth range not reported. Taken in fisheries in Thailand, and elsewhere where it occurs.

Distribution: Western Pacific from Japan, Taiwan Province of China, Viet Nam, southern China, and Thailand.



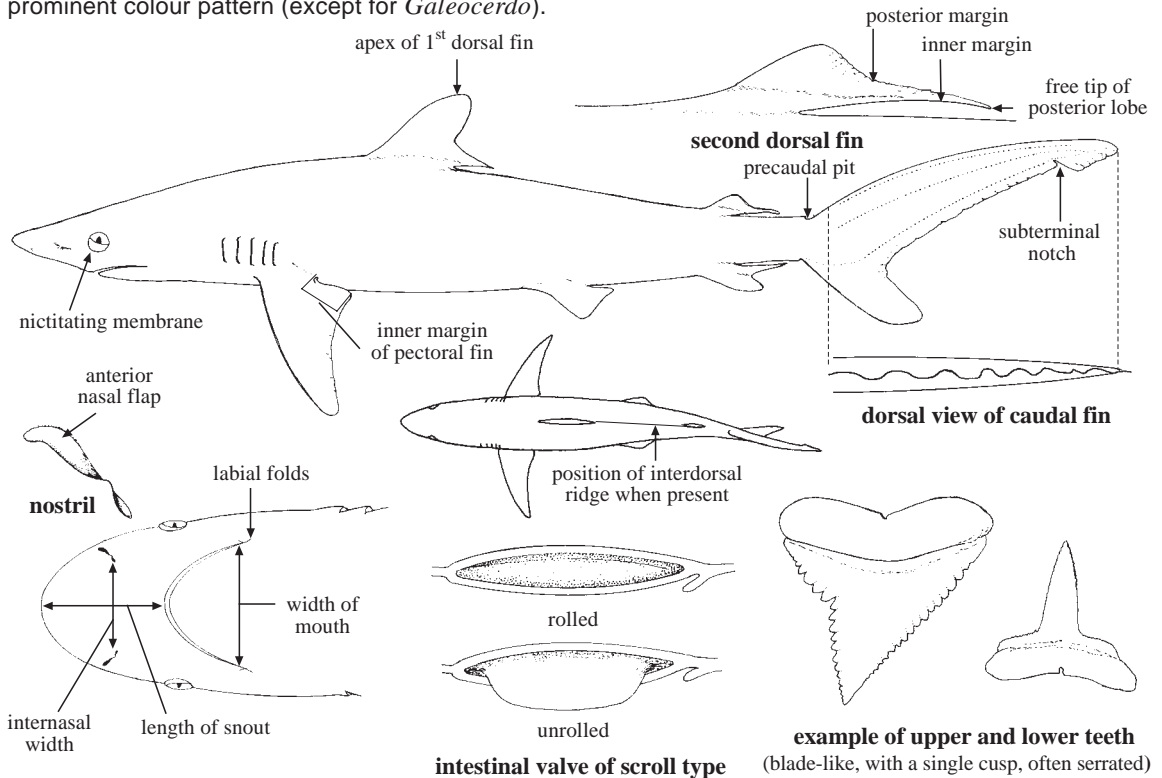
CARCHARHINIDAE

Requiem sharks

(also, ground sharks, blue sharks, sharpnose sharks)

by L.J.V. Compagno and V.H. Niem

Diagnostic characters: Small to large sharks. Trunk and precaudal tail cylindrical, not depressed and without lateral ridges; precaudal tail much shorter than trunk. Head not expanded laterally, conical to moderately depressed; 5 small- to medium-sized gill slits present, the last 1 to 3 over or behind pectoral-fin origins, their upper ends not expanded onto dorsal surface of head; no gill sieves and usually no gill rakers on internal gill slits (short dermal gill rakers present in *Prionace*); spiracles usually absent (but always present in *Galeocerdo*); nostrils well separated from mouth, without barbels, nasal grooves, or circumnarial grooves; **eyes on sides of head, with a well-developed nictitating lower eyelid**; snout short to moderately long, conical and slightly pointed to depressed and broadly rounded, never greatly flattened and blade-like and without lateral teeth and barbels; mouth usually large, arched and elongated, and extending well behind eyes; labial furrows usually present on both jaws but generally greatly reduced, confined to mouth corners, and barely visible when mouth is closed (but *Galeocerdo* and *Rhizoprionodon* species have well-developed labial furrows); upper labial furrows usually not reaching front of mouth (except in *Galeocerdo*); **teeth small to large, blade-like, with a single cusp and cusplets variably developed; anterior teeth in upper jaw smaller than lateral teeth and not separated from them by smaller intermediate teeth on each side.** Two dorsal fins, without spines, the first dorsal fin moderately large, high and angular or subangular, much shorter than the caudal fin, its base located over the interspace between pectoral and pelvic-fin bases and entirely anterior to origins of pelvic fins (free rear tip of dorsal fin may reach or extend posterior to pelvic-fin origins in *Scoliodon*, *Negaprion*, *Rhizoprionodon*, and *Triaenodon*); second dorsal fin varying from less than 1/5 the height of the first dorsal fin to about as high as the first (*Lamiopsis* and *Negaprion*); anal fin present, moderately large, with its origin varying from somewhat anterior to the second dorsal-fin origin to under the first half of second dorsal-fin base; **caudal fin strongly asymmetrical, much less than 1/2 of total length, with a rippled or undulated dorsal margin, a well-marked subterminal notch, and a short but well-defined lower lobe**; vertebral axis of caudal fin raised above body axis. Caudal peduncle not strongly depressed dorsoventrally or widely expanded laterally with weak **longitudinal keels** (*Prionace*, *Galeocerdo*) or none; **precaudal pits present and well developed. Intestinal valve of scroll type.** **Colour:** brown, grey, yellowish or bluish above, white to cream or yellowish below, some species with prominent dark or light markings on fins; body usually without a prominent colour pattern (except for *Galeocerdo*).

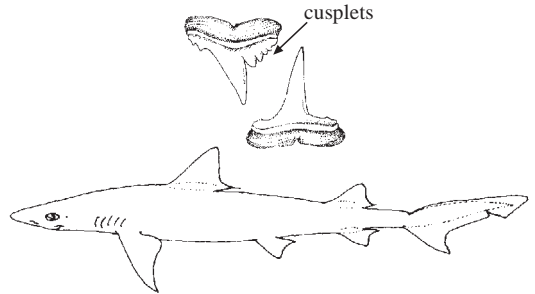


Habitat, biology, and fisheries: The Carcharhinidae are one of the largest families of sharks and are the dominant sharks in tropical waters, often both in variety and in abundance and biomass. Small to very large species often occur close inshore, but most large ones are more abundant well offshore, but still near or over the continental or insular shelves. A few species, including the blue, silky, and oceanic whitetip sharks, are truly oceanic. Requiem sharks are active, strong swimmers, occurring singly or in small to large schools. Some species are continually active, while others are capable of resting motionless for extended periods on the bottom. Many are more active at night or dawn and dusk than the daytime. Except for the ovoviviparous tiger shark (*Galeocerdo cuvier*), all species are viviparous, with a yolk sac placenta, and have litters of young from 1 or 2 to 135. All are voracious predators, feeding heavily on bony fishes, other sharks, rays, squid, octopuses, cuttlefishes, crabs, lobsters, and shrimp, but also sea birds, turtles, sea snakes, marine mammals, gastropods, bivalves, and carrion. The larger carcharhinids are dangerous to people, and they make up an important fraction of the shark species known to have attacked people. This is by far the most important shark family for fisheries in the tropics, and various species figure prominently in catches within the area. Most are utilized for human food, but also for the preparation of various subproducts, including oil and Vitamin A from the liver, fishmeal, and fins for the oriental soupfin markets.

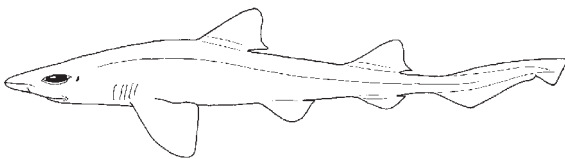
Similar families occurring in the area

Hemigaleidae: intestinal valve of spiral type; also, no carcharhinids in the area combine the characters of long snout, spiracles, upper teeth with strong distal cusplets, long labial furrows, and second dorsal fin large, about 2/3 as large as first dorsal fin, with a very short inner margin, and with its origin anterior to that of the slightly smaller anal fin.

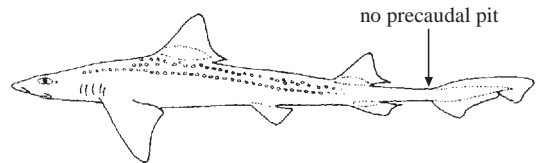
Proscylliidae and Triakidae: no precaudal pits, dorsal margin not undulated, intestinal valve of spiral type, eyes usually dorsolateral on head (except for *Hypogaleus* and *Galeorhinus*).



Hemigaleidae



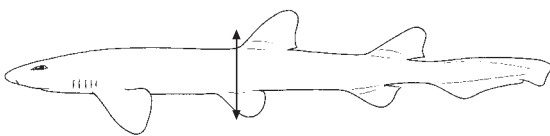
Proscylliidae



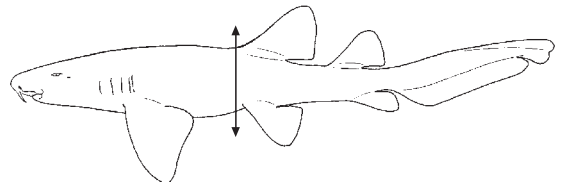
Triakidae

Scyliorhinidae: first dorsal-fin base over or posterior to pelvic-fin bases (anterior to pelvic-fin bases in Carcharhinidae).

Ginglymostomatidae: origin of first dorsal fin over, or only slightly anterior to pelvic-fin bases; nostrils connected with mouth by deep nasoral grooves, their anterior margins with a long, cylindrical barbel; eyes well behind mouth (over mouth in Carcharhinidae).



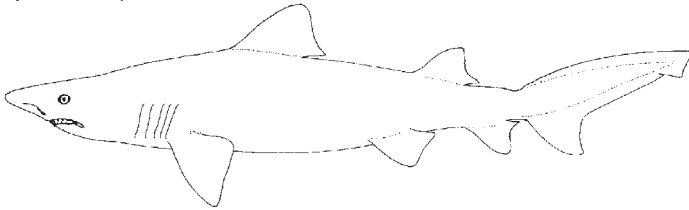
Scyliorhinidae



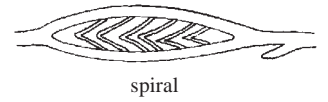
Ginglymostomatidae

Odontaspidae: fifth gill opening in front of pectoral-fin origin; eyes without nictitating folds; largest teeth in front part of jaws (on either side of symphysis), in upper jaw separated from large teeth at sides by a gap, usually with 1 or 2 rows of intermediate teeth (largest teeth as sides of jaws and no gap in teeth row of upper jaw in Carcharhinidae).

Other shark families: either caudal fin very long (Alopiidae), or head with "hammer-like" lateral projections (Sphyrnidae), or caudal fin lunate (Lamnidae), or size of adults much larger (Rhincodontidae), or a single dorsal fin and 6 or 7 gill slits (Hexanchidae), or anal fin absent (Squalidae and Squatinidae).



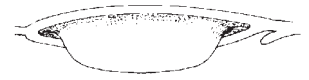
Odontaspidae



spiral



ring



scroll

(only Carcharhinidae and Sphyrnidae)
types of intestinal valves

Key to the species of Carcharhinidae occurring in the area

- 1a. Upper labial furrows very long, extending to front of eyes; spiracles present and relatively large; prominent lateral keels on caudal peduncle (Fig. 1); vertical black or dusky bars on back, obscure or absent on adults *Galeocerdo cuvier*
- 1b. Upper labial furrows long to very short, not extending in front of eyes; spiracles usually absent; lateral keels usually absent (except for weak ones in *Prionace glauca*) (Fig. 2) → 2

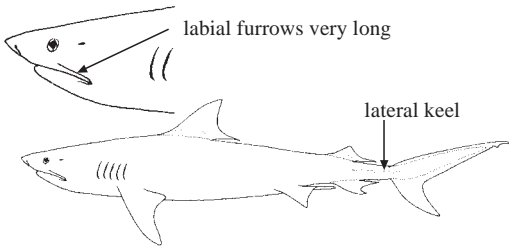


Fig. 1 *Galeocerdo cuvier*

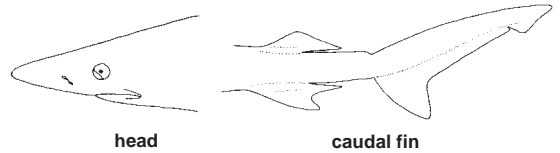


Fig. 2 other species

- 2a. High proximal and distal cusplets present on most teeth in both jaws; expanded anterior nasal and mesonarial flaps forming a tube for the excurrent aperture (Fig. 3) . . . *Triaenodon obesus*
- 2b. Cusplets usually absent on lower teeth, low or absent on uppers (Fig. 4); nasal flaps not forming a tube → 3

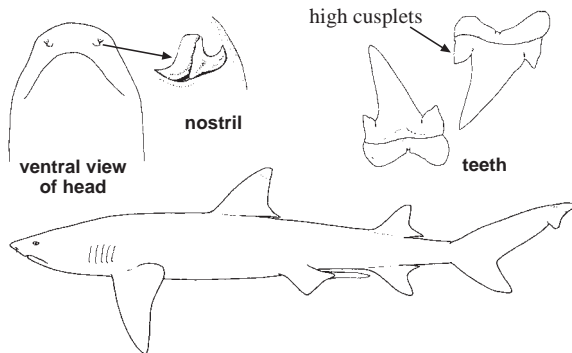


Fig. 3 *Triaenodon obesus*

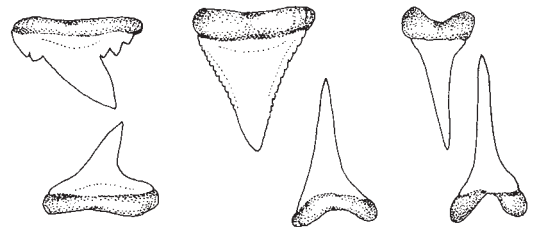


Fig. 4 teeth

- 3a. Second dorsal fin nearly or quite as large as first (Fig. 5). → 4
- 3b. Second dorsal fin considerably smaller than first (Fig. 6). → 5

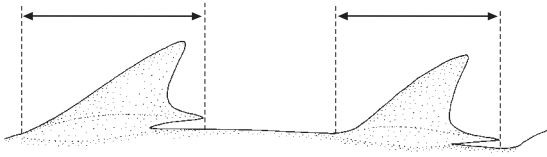


Fig. 5 dorsal fins



Fig. 6 dorsal fins

- 4a. Snout short, preoral length much less than mouth width; upper and lower teeth with narrow, unserrated cusps (Fig. 7) *Negaprion acutidens*
- 4b. Snout longer, preoral length about equal to mouth width; upper teeth with broad, triangular, serrated cusps, lowers with narrow, smooth cusps (Fig. 8) *Lamiopsis temmincki*

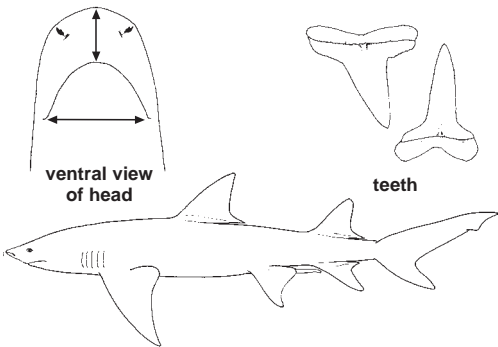


Fig. 7 *Negaprion acutidens*

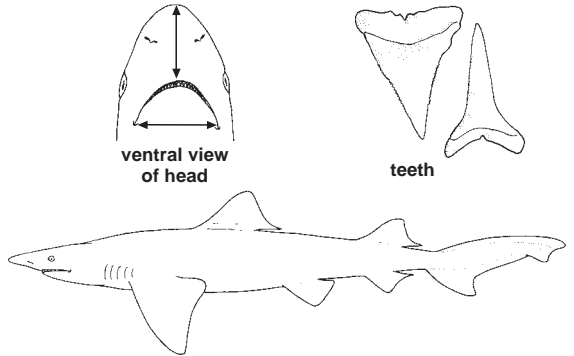


Fig. 8 *Lamiopsis temmincki*

- 5a. Head greatly depressed and trowel-shaped; pectoral fins broadly triangular, their length from origins to free rear tips about equal to their anterior margins; free rear tip of first dorsal fin about over midbases of pelvic fins; postventral margin of caudal fin usually only shallowly concave (Fig. 9) *Scoliodon laticaudus*
- 5b. Head varying from conical to slightly depressed; pectoral fins narrower, length 4/5 or less of anterior margin (usually less); free rear tip of first dorsal fin over or (usually) anterior to pelvic-fin origins; postventral margin of caudal fin deeply incised (Fig. 10). → 6

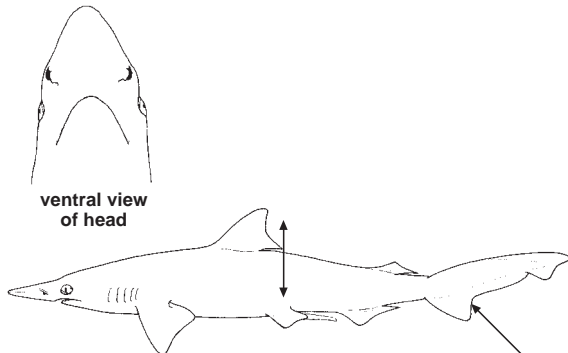


Fig. 9 *Scoliodon laticaudus*

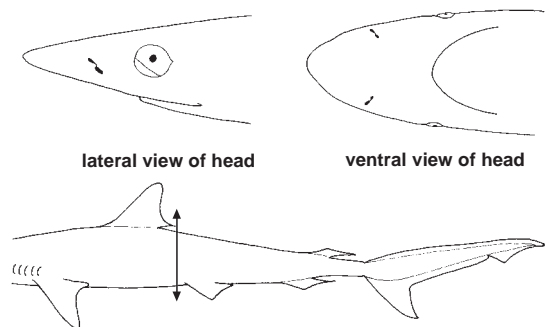


Fig. 10

- 6a. Second dorsal-fin origin well behind anal-fin origin, usually over or slightly anterior to anal-fin insertion (Fig. 11a); preanal ridges very long and prominent, subequal to or greater in length than anal-fin base (Fig. 11b); posterior margin of anal fin straight or shallowly concave (Fig. 11b) → 7
- 6b. Second dorsal-fin origin usually near anal-fin origin, in some species posterior to it (Fig. 12a); but usually well anterior to anal-fin insertion (Fig. 12b) and midbase of anal fin; preanal ridges variably developed, short, up to 1/2 the anal-fin base length or less (Fig. 12c); posterior margin of anal fin deeply concave or deeply notched (Fig. 12c) → 10

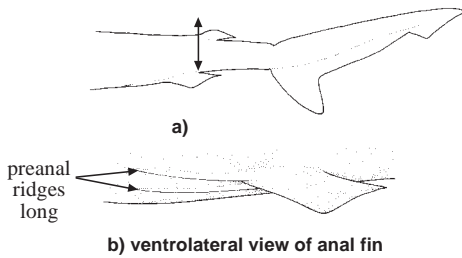


Fig. 11

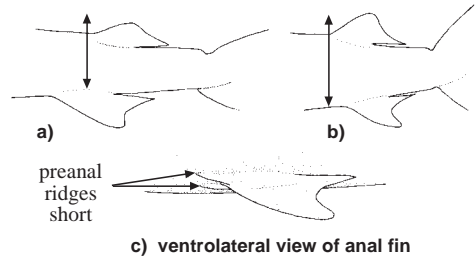


Fig. 12

- 7a. Posterior notches present on eyes; first dorsal-fin base 2 to 3 times in distance between pectoral and pelvic-fin bases (Fig. 13) *Loxodon macrorhinus*
- 7b. No eye notches; first dorsal-fin base usually less than 2 times in distance between pectoral to pelvic-fin bases (up to 2 times in adult *R. acutus*) (Fig. 14) (*Rhizoprionodon*) → 8

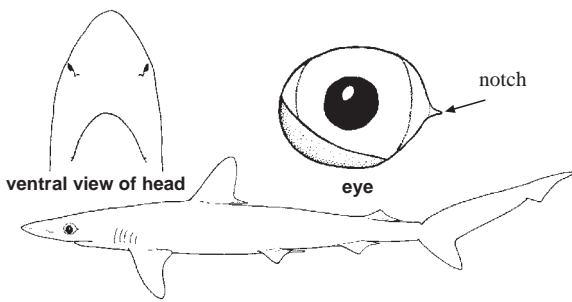


Fig. 13 *Loxodon macrorhinus*

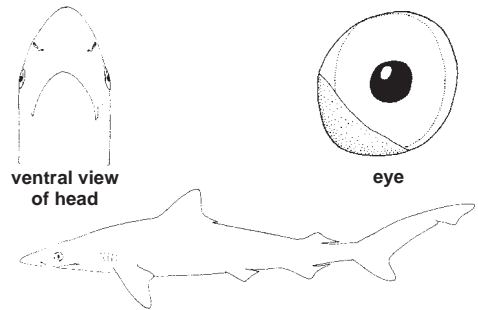


Fig. 14 *Rhizoprionodon*

- 8a. Upper labial furrows long and rather prominent, 1.4 to 2% of total length; uppers usually longer than lower furrows (Fig. 15a); tooth rows more numerous in average, counts usually 25/24 (Fig. 15b) *Rhizoprionodon acutus*
- 8b. Upper labial furrows reduced and often inconspicuous, generally less than 1% of total length and rarely up to 1.3%; uppers usually shorter than lower furrows (Fig. 16); tooth rows averaging fewer, counts 23-25/21-24 but mostly below 25/24. → 9

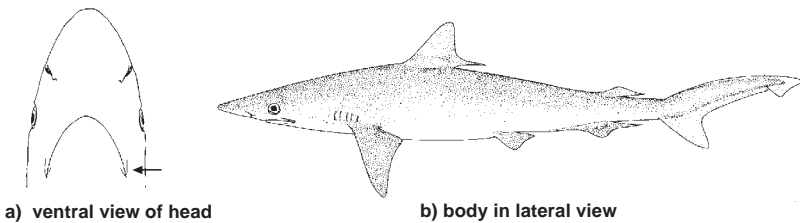


Fig. 15 *Rhizoprionodon acutus*

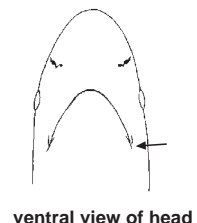


Fig. 16

- 9a. Total number of enlarged hyomandibular lateral-line pores just behind mouth corners on both sides of head fewer, 7 to 16 and rarely above 14; precaudal vertebral centra 84 to 91 (Fig. 17). *Rhizoprionodon oligolinx*
- 9b. Total number of enlarged hyomandibular pores greater, 15 to 22; precaudal vertebral centra 73 to 80 (Fig. 18). *Rhizoprionodon taylori*

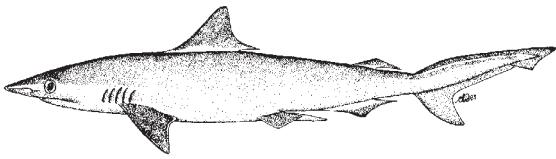


Fig. 17 *Rhizoprionodon oligolinx*

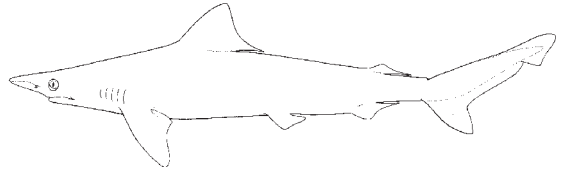


Fig. 18 *Rhizoprionodon taylori*

- 10a. Papillose gill rakers present on gill arches (Fig. 19a); weak lateral keels present on caudal peduncle; first dorsal-fin base much closer to pelvic- than to pectoral-fin bases (Fig. 20); colour brilliant dark blue above in life. *Prionace glauca*
- 10b. No papillose gill rakers on gill arches (Fig. 19b); no lateral keels on caudal peduncle; first dorsal-fin base equidistant between pectoral- and pelvic-fin bases or (usually) closer to pectoral fins (Figs 21 and 22); colour light to dark grey, grey-brown, brown, or grey-black above → 11

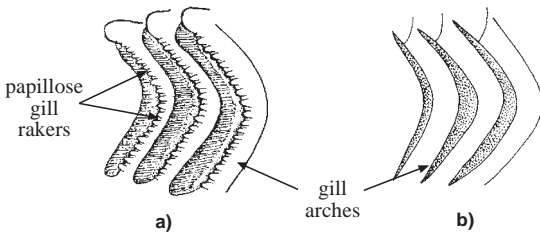


Fig. 19

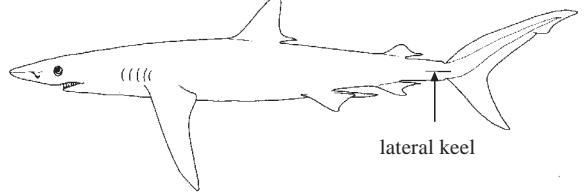


Fig. 20 *Prionace glauca*

- 11a. Second dorsal fin 1/2/ to 3/5 height of first dorsal fin; precaudal pits longitudinal and not crescentic (Fig. 21). (*Glyphis*) → 12
- 11b. Second dorsal fin 2/5 height of first dorsal fin or less; precaudal pits transverse and crescentic (Fig. 22). (*Carcharhinus*) → 14

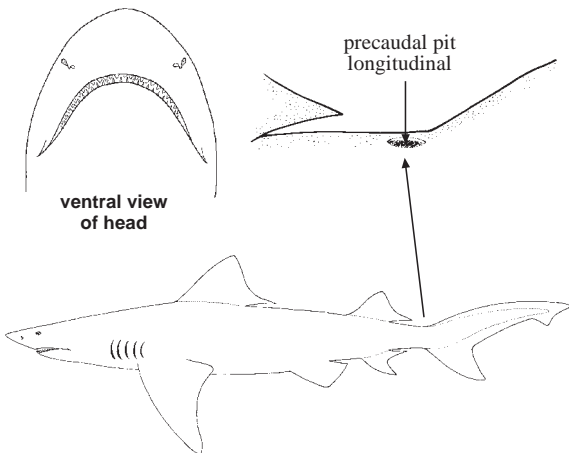


Fig. 21 *Glyphis*

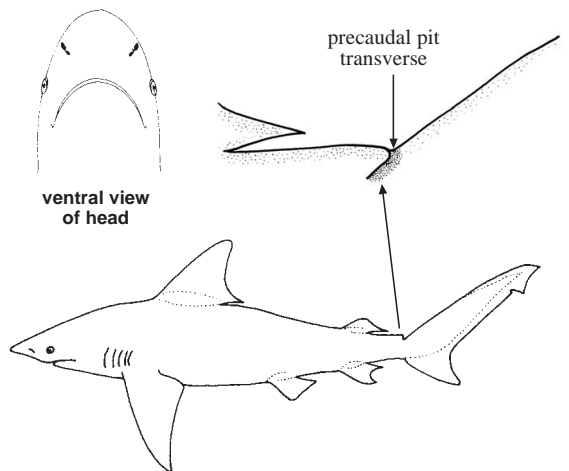


Fig. 22 *Carcharhinus*

- 12a. Head very flat and narrowly wedge-shaped in lateral view; total vertebral counts 147 to 148, diplospondylous caudal centra 65 to 68 (New Guinea and northern Australia) (Fig. 23) . . . *Glyphis* sp. C
- 12b. Head higher and broader in lateral view; total vertebral counts 196 to 217, diplospondylous caudal centra 85 to 93 → 13

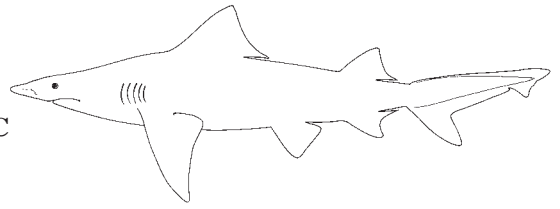


Fig. 23 *Glyphis* sp. C

- 13a. Lower anterior teeth enlarged, with cusps smooth basally but with a serrated, spear-like (hastate) expanded tip; total tooth row counts 55; free rear tip of first dorsal fin about opposite pelvic-fin origins; total vertebral counts 217, monospondylous precaudal count 70, diplospondylous precaudal count 54; all fins with black or dusky edges and dusky webs in young (Queensland, Australia) (Fig. 24) *Glyphis* sp. A
- 13b. Lower anterior teeth with cusps entirely serrate and without a spear-like expanded tip; total tooth row counts 60 to 63; free rear tip of first dorsal fin somewhat anterior to pelvic-fin origins; total vertebral counts 196 to 205, monospondylous precaudal count 63 to 67, diplospondylous precaudal count 43 to 51; fins plain and light, except for dark patch on pectoral-fin bases and dusky tip on ventral caudal-fin lobe (Borneo) (Fig. 25) *Glyphis* sp. B

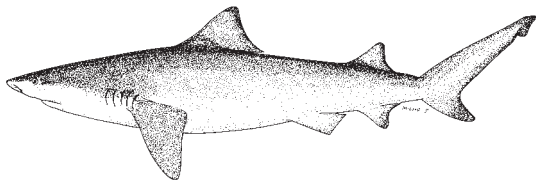


Fig. 24 *Glyphis* sp. A

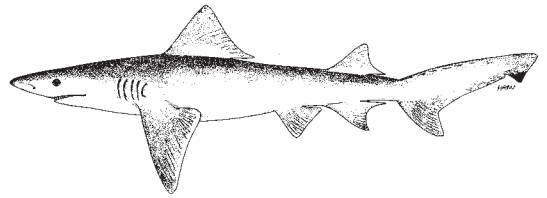


Fig. 25 *Glyphis* sp. B

- 14a. Pectoral and first dorsal fins very broad distally and broadly rounded apically, only slightly tapering toward their apices; most fin tips mottled white in adults, also black-tipped and with black dorsal saddle-marks on the caudal peduncle in juveniles (Fig. 26) *Carcharhinus longimanus*
- 14b. Pectoral and first dorsal fins tapering distally and usually pointed or narrowly rounded; fins not mottled white, often black tipped but without black saddles on the caudal peduncle → 15
- 15a. First dorsal, pectoral, pelvic, and caudal fins with extremely conspicuous white tips and posterior edges (Fig. 27) *Carcharhinus albimarginatus*
- 15b. Fins not conspicuously tipped and edged with white → 16

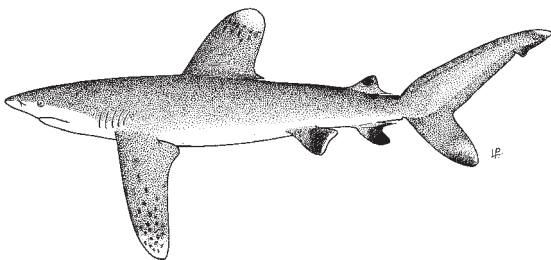


Fig. 26 *Carcharhinus longimanus*

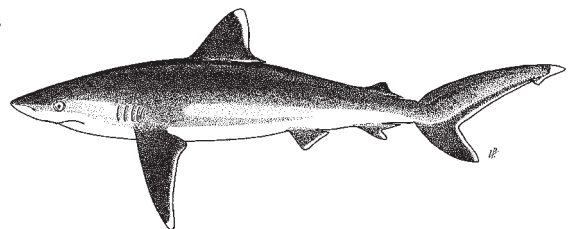


Fig. 27 *Carcharhinus albimarginatus*

- 16a. Second dorsal fin with a conspicuous black tip but other fins plain (Figs 28 and 29) → 17
- 16b. Second dorsal fin plain, white or black-tipped but never the only fin with markings → 18

- 17a. First dorsal fin triangular, erect, and with a posteroventrally sloping posterior margin; usually 13/13-14 rows of anteroposterior teeth, and 28/27 to 29 total rows of teeth; distal cusplets serrated on upper anterolateral teeth; pectoral-fin length 1.4 to 1.8 in anterior margin length; mouth width 6.4 to 8.3% of total length; precaudal centra 54 to 74 (Fig. 28). *Carcharhinus dussumieri*
- 17b. First dorsal fin falcate, with almost vertical posterior margin (apart from free rear tip); usually 12/12 rows of anteroposterior teeth, and 26/25 total rows of teeth; distal cusplets smooth on upper anterolateral teeth; pectoral length 1.7 to 2 in anterior margin length; mouth width 4.2 to 6.6% of total length; precaudal centra 74 to 85 (Fig. 29) . . . *Carcharhinus sealei*

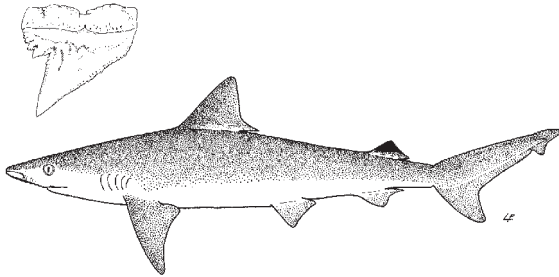


Fig. 28 *Carcharhinus dussumieri*

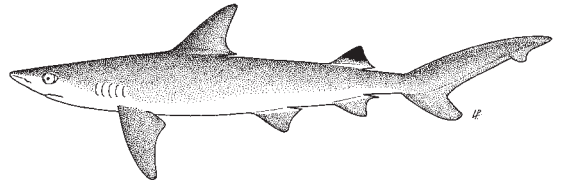


Fig. 29 *Carcharhinus sealei*

- 18a. Caudal fin prominently edged with black along entire posterior edge; first dorsal fin plain or white-tipped, never black-tipped (Fig. 30) *Carcharhinus amblyrhynchos*
- 18b. Caudal fin either plain or prominently edged with black, but if black, first dorsal fin also prominently black-tipped → 19
- 19a. Upper anterolateral teeth with bent, hooked, narrow cusps (Fig. 31). *Carcharhinus brachyurus*
- 19b. Upper anterolateral teeth variably shaped, and broad or narrow, but with cusps nearly straight → 20

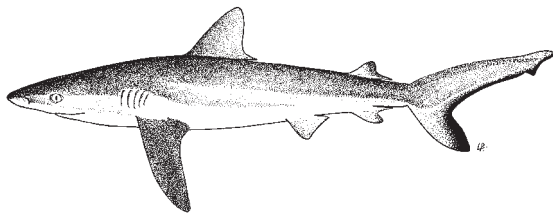


Fig. 30 *Carcharhinus amblyrhynchos*

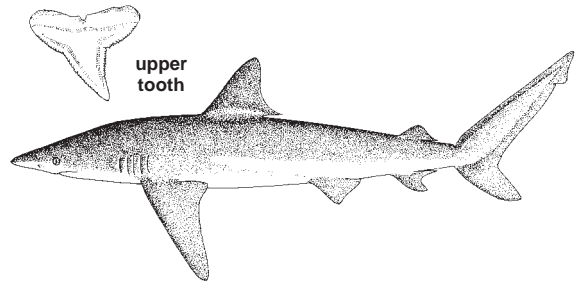


Fig. 31 *Carcharhinus brachyurus*

- 20a. Dermal interdorsal ridge present (Fig. 32). → 21
- 20b. Dermal interdorsal ridge absent. → 27
- 21a. Second dorsal fin, pectoral fin, and ventral caudal-fin lobe strikingly black-tipped → 22
- 21b. Fins plain or dusky-tipped but not strongly black-tipped → 23

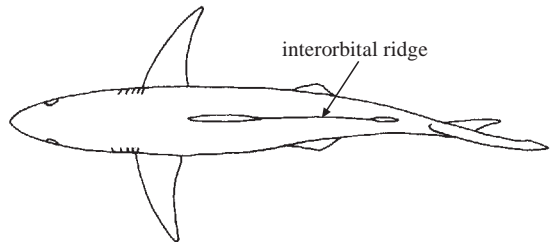


Fig. 32

- 22a. Second dorsal fin low, with very elongated inner margin over twice fin height; upper anterolateral teeth with strongly serrated cusps; usually only 12 rows of upper antero-posterior teeth (Fig. 33) *Carcharhinus sorrah*
- 22b. Second dorsal fin higher, with shorter inner margin 1.4 to 1.6 times fin height; upper anterolateral teeth with smooth or weakly serrated cusps; 14 or 15 rows of upper anteroposterior teeth (Fig. 34) *Carcharhinus hemiodon*

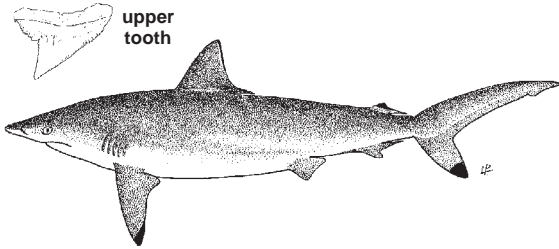


Fig. 33 *Carcharhinus sorrah*

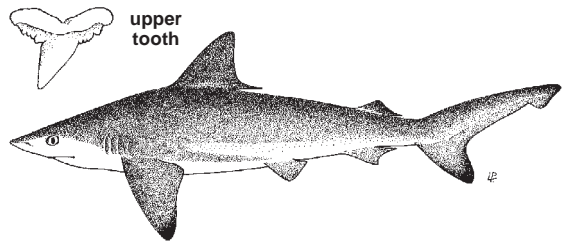


Fig. 34 *Carcharhinus hemiodon*

- 23a. First dorsal-fin origin well behind free rear tips of pectoral fins; very coarse serrations or small cusplets on feet of upper anterolateral teeth; inner margin of second dorsal fin very long, usually over twice (but exceptionally down to 1.6) times the fin height (Fig. 35) . . . *Carcharhinus falciformis*

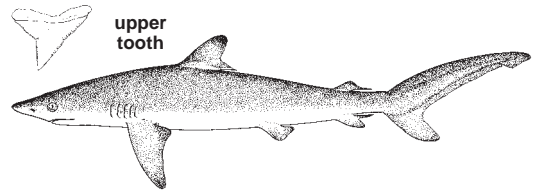


Fig. 35 *Carcharhinus falciformis*

- 23b. First dorsal-fin origin over or anterior to free rear tips of pectoral fins; serrations on feet of upper anterolateral teeth small and not very coarse; inner margin of second dorsal fin shorter and generally less than twice the fin height (but up to 2.1 times the fin height in *Carcharhinus obscurus*). → 24

- 24a. First dorsal-fin origin in front or over pectoral-fin insertions or at least nearer to them than to free rear tips of pectoral fins (Figs 36 and 37) → 25

- 24b. First dorsal-fin origin opposite or somewhat in front of free rear tips of pectoral fin but closer to them than pectoral-fin insertions (Figs 38 and 39) → 26

- 25a. Anterior nasal flaps usually low and inconspicuous; distance from nostrils to mouth more than 2.4 times in mouth width; upper anterolateral teeth moderately high, usually in 14 rows; first dorsal fin very high, its height about 1/2 of predorsal length (Fig. 36); interdorsal ridge low *Carcharhinus plumbeus*

- 25b. Anterior nasal flaps usually high and triangular; distance from nostrils to mouth less than 2.4 times in mouth width; upper anterolateral teeth very high, usually in 15 rows; first dorsal fin lower, its height much less than 1/2 of predorsal length (Fig. 37); interdorsal ridge high *Carcharhinus altimus*

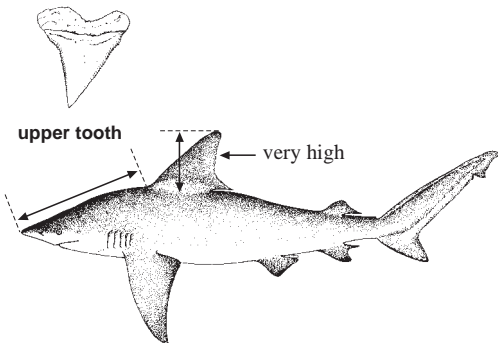


Fig. 36 *Carcharhinus plumbeus*

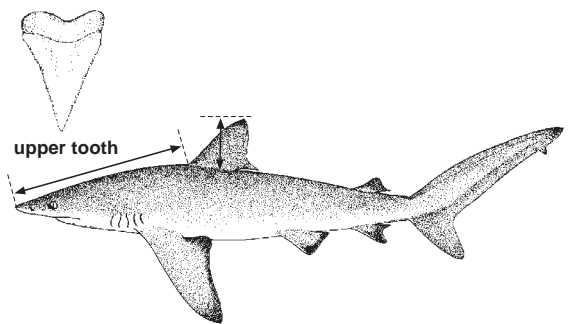


Fig. 37 *Carcharhinus altimus*

26a. Upper anterolateral teeth relatively high and narrow; pectoral fins nearly straight; first dorsal fin higher and with a nearly straight anterior margin; height of second dorsal fin 2.1 to 3.3% of total length and 1.3 to 1.7 times in inner margin length; precaudal centra 103 to 109 (Fig. 38) *Carcharhinus galapagensis*

26b. Upper anterolateral teeth relatively low and broad; pectoral fins more falcate; first dorsal fin lower and with a rounded anterior margin; height of second dorsal fin 1.5 to 2.3% of total length and 1.6 to 2.1 times in inner margin length; precaudal centra 89 to 95 (Fig. 39). *Carcharhinus obscurus*

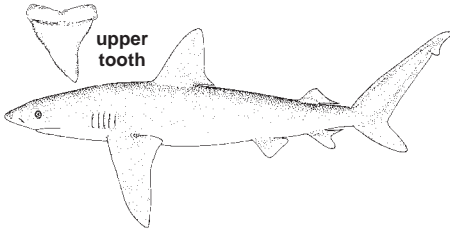


Fig. 38 *Carcharhinus galapagensis*

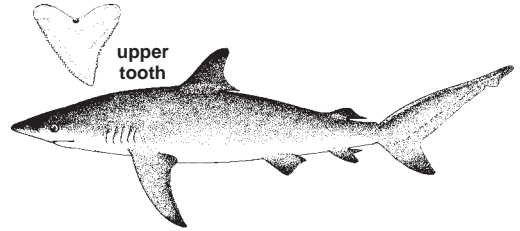


Fig. 39 *Carcharhinus obscurus*

27a. Entire posterior margin of caudal fin with a narrow but obvious black edge; pectoral, second dorsal, and caudal fins with obvious black tips → 28

27b. Posterior margin of caudal not black or only partly dusky or black; fins black-tipped or not → 29

28a. First dorsal fin with a broad black blotch at its apex, highlighted below with white (Fig. 40) *Carcharhinus melanopterus*

28b. First dorsal fin with a narrow black edge on its anterior margin but without a black blotch at its apex (Fig. 41) *Carcharhinus cautus*

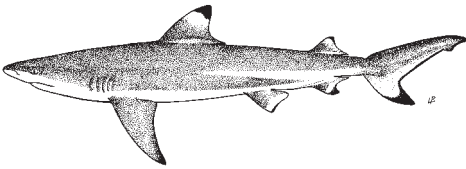


Fig. 40 *Carcharhinus melanopterus*

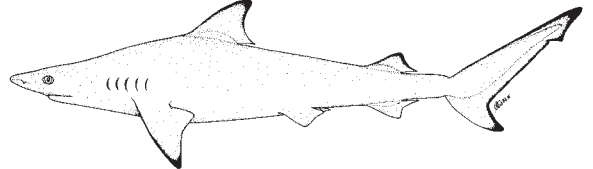


Fig. 41 *Carcharhinus cautus*

29a. Snout very short and broadly rounded, internarial space usually less than preoral length; upper anterolateral teeth with very broad, triangular cusps and straight to concave distal margins; lower anterolaterals with strongly arched roots (Fig. 42) → 30

29b. Snout longer and parabolic or wedge-shaped to pointed, internarial space equal to, or greater than preoral length; upper anterolateral teeth with narrow cusps and strongly notched distal margins; lower anterolaterals with nearly transverse roots (Fig. 43) → 31

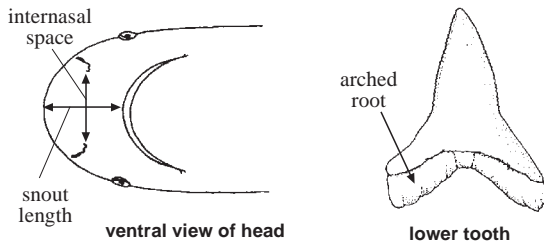


Fig. 42

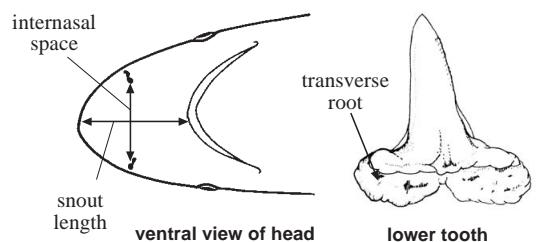
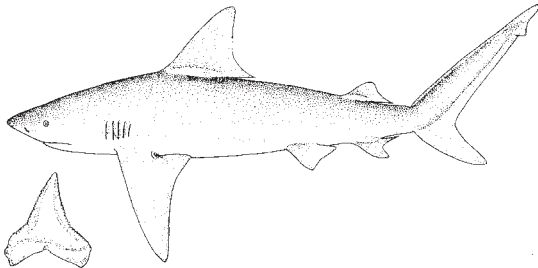
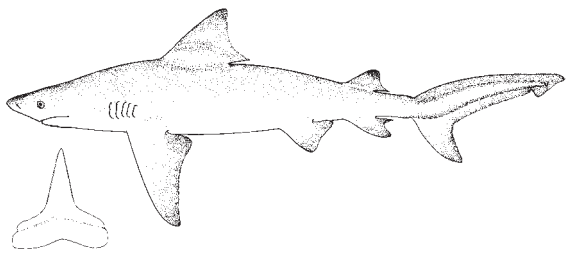


Fig. 43

- 30a. Usually 11 lower anteroposterior teeth, with extremely broad cusps; first dorsal-fin height more than 3.1 times the second dorsal-fin height; second dorsal-fin margin usually nearly straight; angle of notch in anal fin posterior margin more acute, usually less than a right angle; precaudal centra 89 to 95 (Fig. 44) *Carcharhinus amboinensis*
- 30b. Usually 12 lower anteroposterior teeth, with moderately broad cusps; first dorsal-fin height more than 3.1 times the second dorsal-fin height or less; second dorsal-fin margin usually concave; angle of notch in anal fin posterior margin more obtuse, usually a right angle or more; precaudal centra 101 to 123 (Fig. 45) *Carcharhinus leucas*



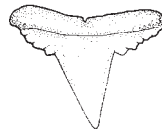
lower tooth Fig. 44 *Carcharhinus amboinensis*



lower tooth Fig. 45 *Carcharhinus leucas*

- 31a. Origin of second dorsal fin well behind anal-fin origin, about opposite its midbase → 32
- 31b. Origin of second dorsal fin about over anal-fin origin → 34

- 32a. Upper anterolateral teeth with large mesial and distal cusplets and no serrations; inner margin of first dorsal fin extremely long, about 2/3 of fin base; rostrum expanded as a hypercalcified, hardened mass, easily detected by pinching or cutting into the snout (Fig. 46) *Carcharhinus macloti*



upper tooth

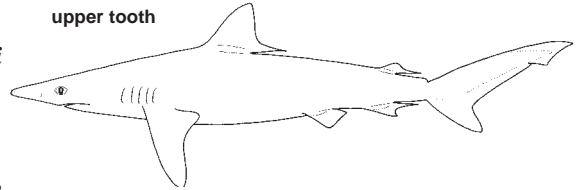
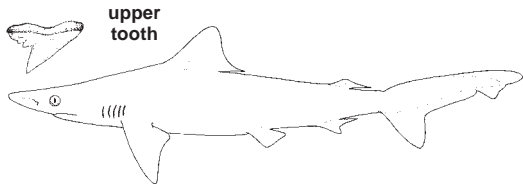


Fig. 46 *Carcharhinus macloti*

- 32b. Upper anterolateral teeth with distal cusplets and serrations; inner margin of first dorsal fin shorter, 1/2 fin base or less; rostrum not hypercalcified → 33

- 33a. Hyomandibular pores conspicuously enlarged alongside mouth corners; anteroposterior teeth 11-12/11-12; second dorsal fin lower, height 2.2 to 2.5 times in inner margin (Fig. 47) *Carcharhinus borneensis*

- 33b. Hyomandibular pores not enlarged alongside mouth corners; anteroposterior teeth 13-15/13-14; second dorsal fin higher, height 1.5 to 1.9 times in inner margin (Fig. 48) *Carcharhinus* sp. (= "*Carcharhinus porosus*")



upper tooth Fig. 47 *Carcharhinus borneensis*

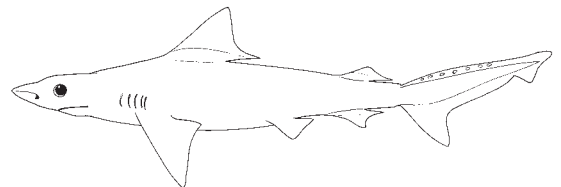


Fig. 48 *Carcharhinus* sp.

34a. Upper anterolateral teeth with semioblique cusps and strong cusplets; gill slits shorter, longest 3% of total length; pectoral fins rather broad and triangular, their lengths 1.5 in anterior margin length; fins not black-tipped (Fig. 49). *Carcharhinus fitzroyensis*

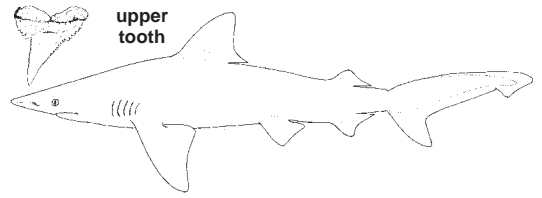


Fig. 49 *Carcharhinus fitzroyensis*

34b. Upper anterolateral teeth with erect or nearly erect cusps and no cusplets (Fig. 50); gill slits longer, longest usually at least 4% of total length; pectoral fins narrower and falcate, their lengths 1.8 or more in anterior margin length; fins often black-tipped → 35

35a. Upper labial furrows noticeably elongated and prominent; usually at least 16 rows of upper anteroposterior teeth; first dorsal fin lower, its height over 2.2 times in the interdorsal space; first dorsal-fin origin over or just behind rear tips of pectoral fins (Fig. 51). *Carcharhinus brevipinna*

35b. Upper labial furrows shorter and less noticeable; usually 15 or fewer rows of upper anteroposterior teeth; first dorsal fin higher, its height 2.2 times or less in interdorsal space; first dorsal-fin origin over or just behind insertions of pectoral fins → 36

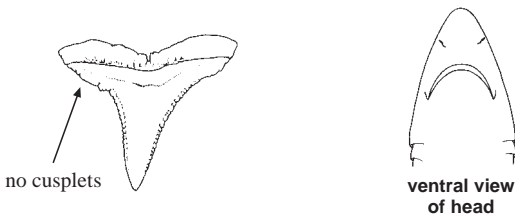


Fig. 50 upper tooth

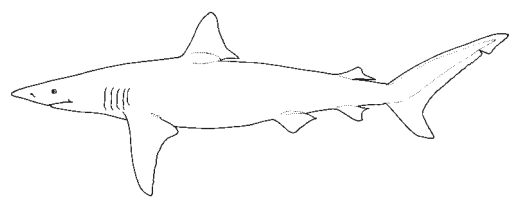


Fig. 51 *Carcharhinus brevipinna*

36a. Snout rather short and wedge-shaped, internarial space 1 to 1.2 times in preoral snout; second dorsal height 1 to 1.2 times in inner margin length; precaudal centra usually less than 82 (Fig. 52) *Carcharhinus amblyrhynchoides*

36b. Snout longer and pointed, internarial space 1.3 to 1.7 times in preoral snout (Fig. 53); second dorsal height 1.1 to 1.6 times in inner margin length; precaudal centra usually more than 83 → 37

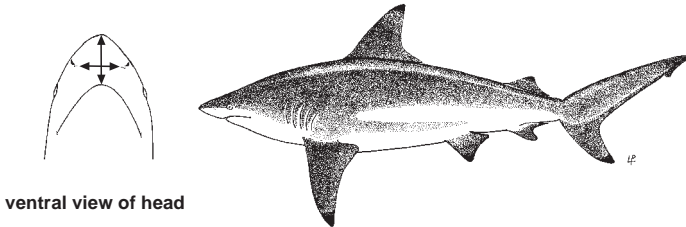


Fig. 52 *Carcharhinus amblyrhynchoides*

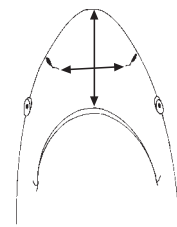


Fig. 53 ventral view of head

37a. Precaudal centra 94 to 102 (Fig. 54) *Carcharhinus limbatus*

37b. Precaudal centra 84 to 91 (Fig. 55). *Carcharhinus tilstoni*

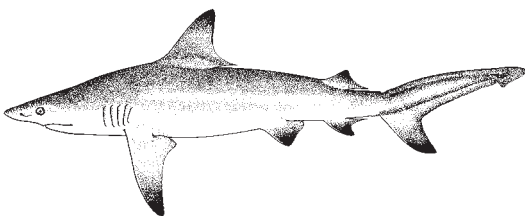


Fig. 54 *Carcharhinus limbatus*

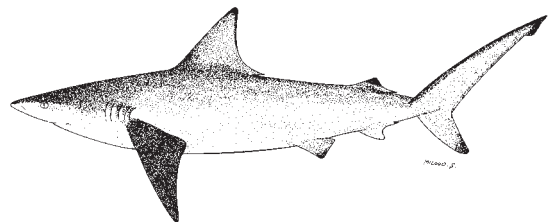



Fig. 55 *Carcharhinus tilstoni*

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Carcharhinus albimarginatus* (Rüppell, 1837)
-  *Carcharhinus altimus* (Springer, 1950)
-  *Carcharhinus amblyrhynchoides* (Whitley, 1934)
-  *Carcharhinus amblyrhynchos* (Bleeker, 1856)
-  *Carcharhinus amboinensis* (Müller and Henle, 1839)
-  *Carcharhinus borneensis* (Bleeker, 1859)
-  *Carcharhinus brachyurus* (Günther, 1870)
-  *Carcharhinus brevipinna* (Müller and Henle, 1839)
-  *Carcharhinus cautus* (Whitley, 1945)
-  *Carcharhinus dussumieri* (Valenciennes in Müller and Henle, 1839)
-  *Carcharhinus falciformis* (Bibron in Müller and Henle, 1839).
-  *Carcharhinus fitzroyensis* (Whitley, 1943)
-  *Carcharhinus galapagensis* (Snodgrass and Heller, 1905)
-  *Carcharhinus hemiodon* (Valenciennes in Müller and Henle, 1839)
-  *Carcharhinus leucas* (Valenciennes in Müller and Henle, 1839)
-  *Carcharhinus limbatus* (Valenciennes in Müller and Henle, 1839)
-  *Carcharhinus longimanus* (Poey, 1861)
-  *Carcharhinus macroti* (Müller and Henle, 1839)
-  *Carcharhinus melanopterus* (Quoy and Gaimard, 1824)
-  *Carcharhinus obscurus* (LeSueur, 1818)
-  *Carcharhinus plumbeus* (Nardo, 1827)
-  *Carcharhinus sealei* (Pietschmann, 1916)
-  *Carcharhinus sorrah* (Valenciennes in Müller and Henle, 1839)
-  *Carcharhinus tilstoni* (Whitley, 1950)
-  *Carcharhinus* sp. [Compagno, 1988] (= "*Carcharhinus porosus*" of Garrick, 1982 for western Pacific specimens)
-  *Galeocerdo cuvier* (Peron and LeSueur in LeSueur, 1822)
-  *Glyphis* sp. A [Last and Stevens, 1994] (Queensland)
-  *Glyphis* sp. B [Compagno] (Borneo)
-  *Glyphis* sp. C [Compagno] (New Guinea, Australia)
-  *Lamiopsis temmincki* (Müller and Henle, 1839)
-  *Loxodon macrorhinus* Müller and Henle, 1839
-  *Negaprion acutidens* (Rüppell, 1837)
-  *Prionace glauca* (Linnaeus, 1758)
-  *Rhizoprionodon acutus* (Rüppell, 1837)
-  *Rhizoprionodon oligolinx* Springer, 1964
-  *Rhizoprionodon taylori* (Ogilby, 1915)
-  *Scoliodon laticaudus* Müller and Henle, 1838
-  *Triaenodon obesus* (Rüppell, 1837)

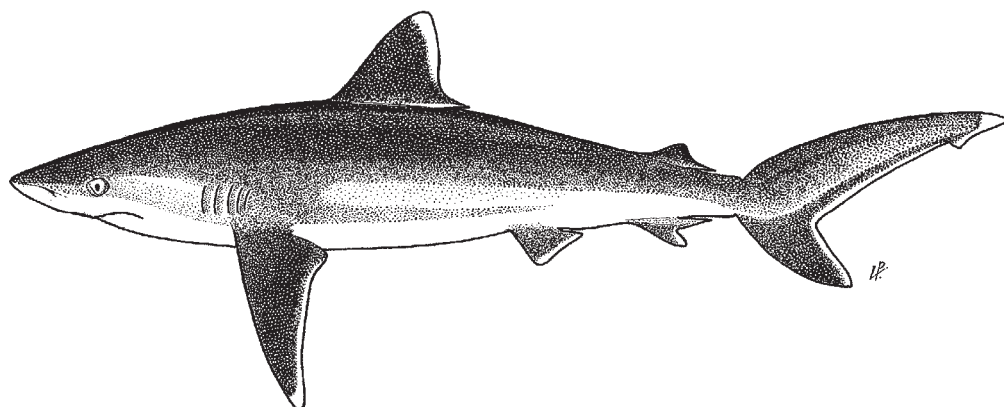
References

- Compagno, L.J.V. 1988. *Sharks of the order Carcharhiniformes*. Princeton, New Jersey, Princeton University Press, 572 p.
- Garrick, J.A.F. 1982. Sharks of the genus *Carcharhinus*. *NOAA Tech. Rep. NMFS Circ.*, (445)8:194 p.
- Garrick, J.A.F. 1985. Additions to a revision of the shark genus *Carcharhinus*: synonymy of *Aprionodon* and *Hypoprion*, and description of a new species of *Carcharhinus*. *NOAA Tech. Rep., NMFS Circ.*, (34):26 p.
- Last, P.R. and J.D. Stevens. 1993. *Sharks and rays of Australia*. Australia, CSIRO, 513 p.
- Springer, V.G. 1964. A revision of the carcharhinid shark genera *Scoliodon*, *Loxodon*, and *Rhizoprionodon*. *Proc. U.S. Natl. Mus.*, 115:559-632.

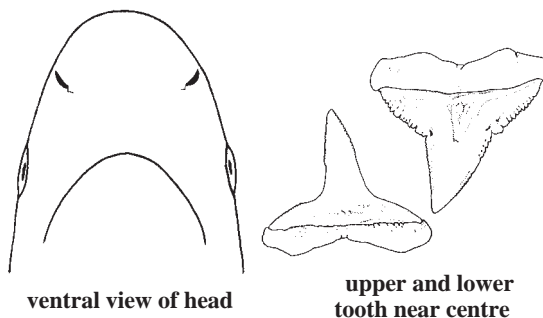
Carcharhinus albimarginatus (Rüppell, 1837)

Frequent synonyms / misidentifications: None / *Carcharhinus longimanus* (Poey, 1861); *Triaenodon obesus* (Rüppell, 1837).

FAO names: **En** - Silvertip shark; **Fr** - Requin pointe blanche; **Sp** - Tiburón de puntas blancas.



Diagnostic characters: A large, slender to moderately stout shark. **Snout moderately long and broadly parabolic**, its length subequal to or slightly shorter than mouth width and equal to or greater than internasal space; labial furrows very short; anterior nasal flaps very low; spiracles absent; teeth with serrated edges, **upper teeth broadly triangular and erect at front of mouth**, progressively oblique posteriorly, without conspicuous cusplets; teeth in lower jaw erect and stout-cusped, serrated. First dorsal fin moderately high, with a narrowly rounded apex, its origin over inner margins of pectoral fins; **second dorsal fin moderately high**, its origin about opposite that of anal fin, its inner margin less than twice its height, and its posterior margin nearly straight; pectoral fins long and slightly falcate, with narrow, pointed tips. **Interdorsal ridge present.** **Colour:** dorsal surface dark grey or grey-brown, ventral surface white; **all fins have conspicuous white tips and posterior margins.**



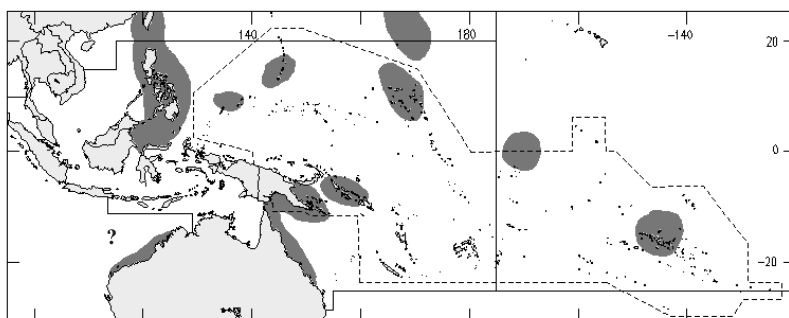
ventral view of head

upper and lower tooth near centre

Size: Maximum total length about 3 m; adults mature at 1.6 to 1.99 m; size at birth about 63 to 68 cm.

Habitat, biology, and fisheries: A continental and insular species occurring from the surface to a depth of 800 m, close inshore in lagoons and near island dropoffs or well offshore, but not oceanic. Viviparous, number of embryos 1 to 11. Feeds on both bottom and pelagic fish, including rays and octopi. Can be aggressive to divers and is potentially dangerous. Specific information on fisheries for this species is lacking, but it is presumably taken in areas where it occurs. Probably used fresh and dried-salted for human consumption.

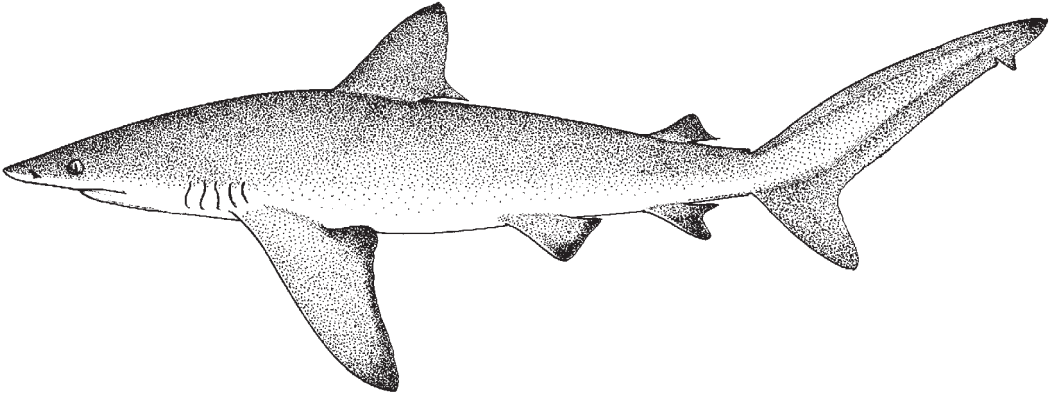
Distribution: In the western Indian Ocean recorded from East Africa, Madagascar and the Red Sea; in the western Pacific off southern Japan, from Taiwan Province of China southwards to Indonesia, and off northern Australia, eastern New Guinea and the Solomon Islands; also known from the eastern Central Pacific.



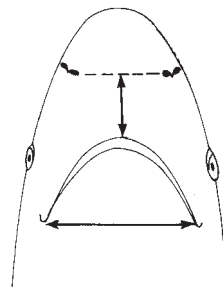
Carcharhinus altimus (Springer, 1950)

Frequent synonyms / misidentifications: *Carcharhinus radamae* Fourmanoir, 1961 / *Carcharhinus albimarginatus* (Rüppell, 1837); *C. galapagensis* (Snodgrass and Heller, 1905); *C. obscurus* (Lesueur, 1818).

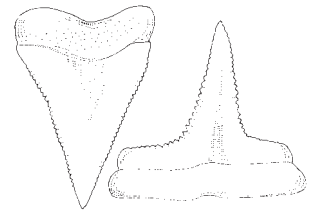
FAO names: En - Bignose shark; Fr - Requin babosse (= Réquiem babosse, Area 31); Sp - Tiburón baboso.



Diagnostic characters: Body slender. **Snout rounded and moderately long**, its length about equal to, or greater than, mouth width, and greater than internasal space; labial furrows very short; **anterior nasal flaps expanded as low, broadly triangular lobes**; spiracles absent; teeth with serrated edges, **upper teeth broadly triangular and erect in front of mouth**, with very high cusps, progressively oblique posteriorly; teeth in lower jaw erect and narrow-cusped. **First dorsal fin moderately high with a narrowly rounded apex, its origin over inner margins of pectoral fins**; second dorsal fin high, its origin about opposite that of anal fin, its inner margin less than 1.5 times the fin-height; **pectoral fins long and not strongly falcate**, broad-tipped but with angular apices. **A high interdorsal ridge present.** **Colour:** back greyish; belly whitish; inner corners of pectoral fins blackish.



ventral view of head

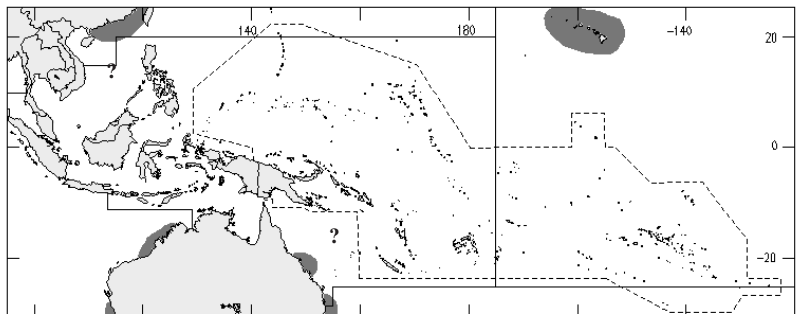


upper and lower tooth near centre

Size: Maximum total length to about 3 m; commonly to 2.4 m; size at birth probably 70 to 90 cm.

Habitat, biology, and fisheries: Usually found in the edges of the continental shelves and uppermost slopes near the bottom, ranging from a depth of 30 to 430 m, but commonly between 80 and 220 m; rare in shallow waters. Viviparous. Bottom-dwelling; feeds chiefly on fishes and cephalopods. Apparently taken on deep-set longlines, also in bottom trawls and probably on hook-and-line and with gill nets. Utilized for fishmeal, liver oil, and shagreen.

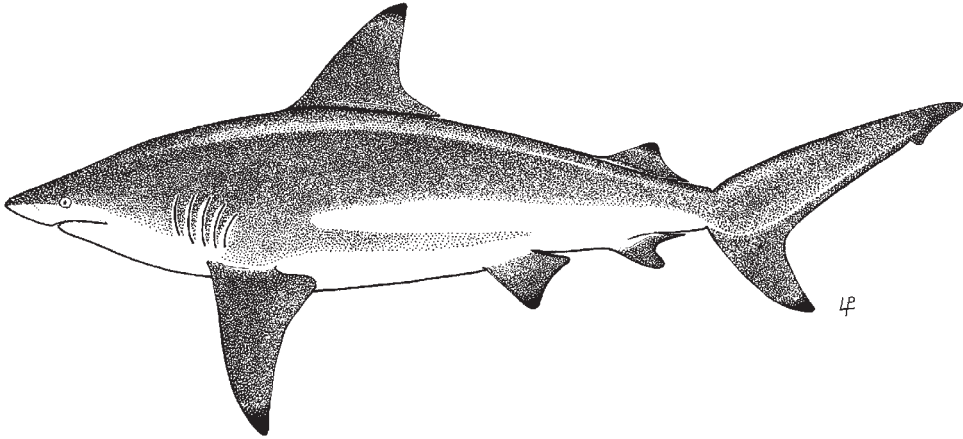
Distribution: Circumglobal, with patchy records in tropical and warm seas.



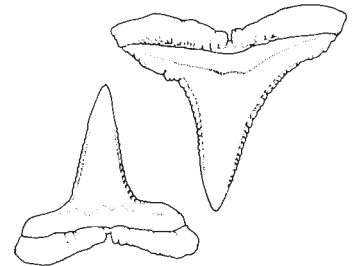
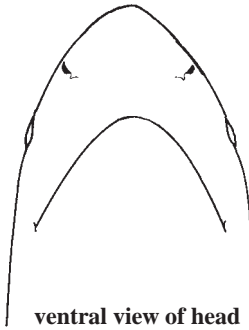
Carcharhinus amblyrhynchoides (Whitley, 1934)

Frequent synonyms / misidentifications: *Carcharhinus pleurotaenia* (Bleeker, 1852) / *Carcharhinus limbatus* (Valenciennes in Müller and Henle, 1839), *C. brevipinna* (Müller and Henle, 1839).

FAO names: En - Graceful shark; Fr - Requin gracile; Sp - Tiburón grácil.



Diagnostic characters: A medium-sized stout shark. **Snout pointed but short, its length less than mouth width, 1.0 to 1.2 times internasal space;** labial furrows very short; anterior nasal flaps very low; no spiracles; upper and lower teeth with serrated edges, including cusps, **upper teeth with narrow cusps,** and no prominent cusplets, not broadly triangular, **cusps of upper anterior teeth erect,** laterals erect to oblique; lower teeth erect and narrow-cusped. **First dorsal fin moderately high,** with an angular or narrowly rounded apex and short inner margin, its origin over inner margins of pectoral fins; origin of second dorsal fin about opposite anal-fin origin; **second dorsal fin moderately high,** its inner margin less than twice its height, its posterior margin concave; pectoral fins moderately long and falcate, with narrow, pointed tips. **No dermal ridge** between dorsal fins. **Colour:** grey or grey-brown on dorsal surface, white or cream below, with a conspicuous band of white on sides from pelvic fins to first dorsal fin; **pectoral, dorsal, and pelvic fins, and ventral lobe of caudal fin black or dusky-tipped,** sometimes inconspicuously so.



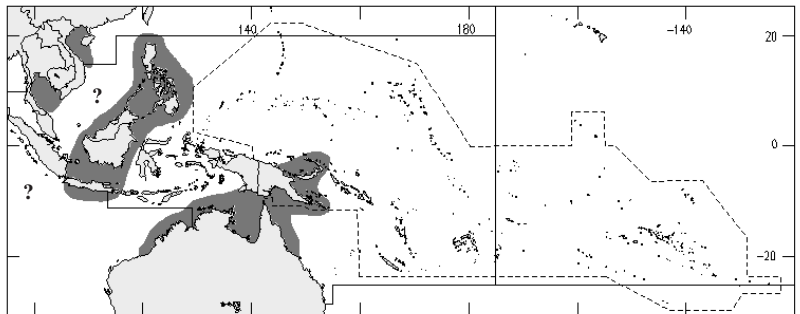
ventral view of head

upper and lower tooth near centre

Size: Maximum total length about 1.8 m; size at birth about 52 to 55 cm.

Habitat, biology, and fisheries: A poorly known, inshore, coastal pelagic species. Viviparous. Feeds mainly on fish, also crustaceans and cephalopods. Taken on longlines and drifting gill nets; in the area it is caught in the Gulf of Thailand, northern Australia and probably elsewhere where it occurs. Utilized fresh and dried salted for human consumption; fins used in the oriental sharkfin trade; liver oil is processed for vitamins.

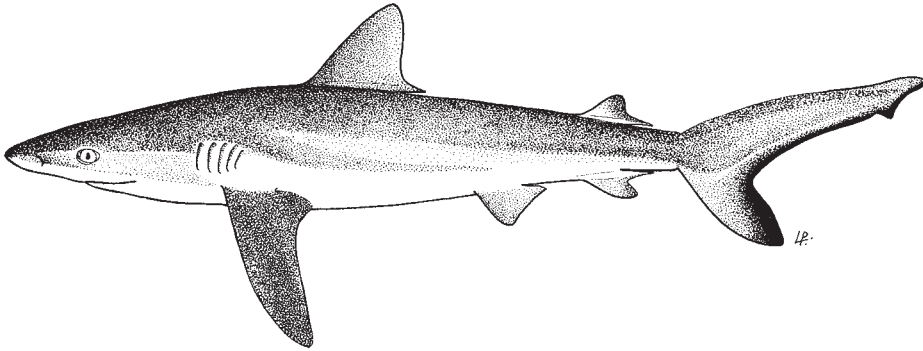
Distribution: In the western Indian Ocean from the Gulf of Aden, southern India and Sri Lanka, in the western Pacific from Viet Nam, Thailand, the Philippines, Java, Borneo, Australia, and New Guinea.



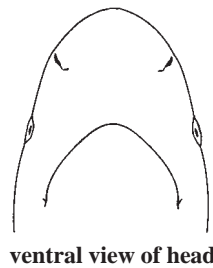
Carcharhinus amblyrhynchos (Bleeker, 1856)

Frequent synonyms / misidentifications: *Carcharhinus menisorrhah* (Valenciennes in Müller and Henle, 1839); ? *Carcharhinus wheeleri* Garrick, 1982 / None.

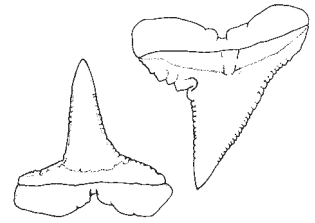
FAO names: **En** - Grey reef shark; **Fr** - Requin dagsit; **Sp** - Tiburón de arrecifes.



Diagnostic characters: A medium-sized shark. Body rather stout. **Snout broadly rounded**, its length less than mouth width, equal to or somewhat greater than internasal space; labial furrows very short; **anterior nasal flaps very low**, no spiracles; teeth with serrated edges but with cusplets low or absent on upper teeth, always absent on lowers; **upper teeth narrowly triangular, high, moderately narrow and erect-cusped in front of mouth, progressively oblique posteriorly**; teeth in lower jaw mostly erect and narrow-cusped. First dorsal fin moderately high and with narrowly rounded apex, its origin over inner margins of pectoral fins; origin of second dorsal fin about opposite anal-fin origin; second dorsal fin moderately high, its inner margin less than 1.5 times the fin height and its posterior margin deeply notched; pectoral fins long and not strongly falcate, with narrow, angular apices. **A weak interdorsal ridge present between dorsal fins, or no ridge.** **Colour:** dark grey or bronze-grey above, white below; **caudal fin with a conspicuous wide black posterior margin**; undersides of pectoral and pelvic fins with black tips and posterior margins, but fins otherwise not conspicuously black, or white-tipped except for white-tipped first dorsal fin in some individuals.



ventral view of head

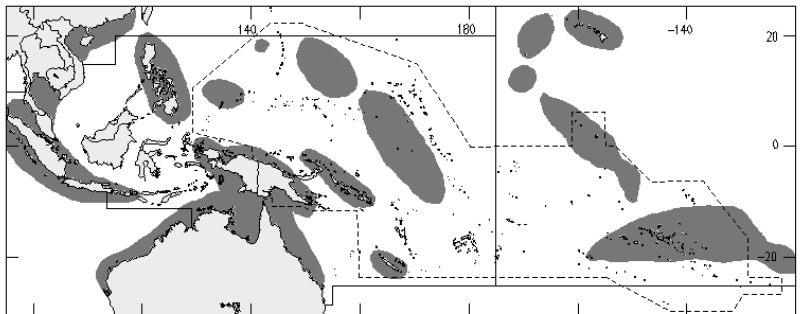


upper and lower tooth near centre

Size: Maximum total length about 2.55 m; commonly to 1.8 m; size at birth about 50 to 60 cm

Habitat, biology, and fisheries: An inshore shark, most common over coral reefs, often near the bottom. Viviparous, number of young per litter 1 to 6. A bottom-feeding shark, eating small reef fishes and octopuses. Aggressive, particularly when attracted by spearfishing or when cornered by divers: when provoked, gives an exaggerated swimming display, with back arched and pectoral fins thrust downward, followed by a swift attack and bite if the provocation continues. Several divers have been bitten by this shark in the western Pacific, none fatally, and even small diver-operated submarines have been attacked. Fished in Thailand and elsewhere mainly for the flesh and fins.

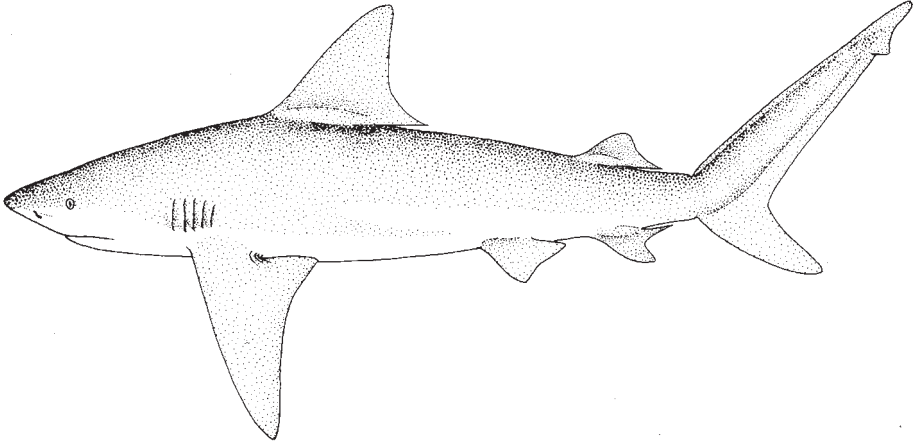
Distribution: Known from Madagascar and the Mauritius-Seychelles area, possibly also from India; also Red Sea to South Africa if *Carcharhinus wheeleri* is synonymized with this species; in the western Central Pacific from Sumatra eastward to the Philippines, Australia, New Guinea, Hawaii, and the Tuamotu Archipelago.



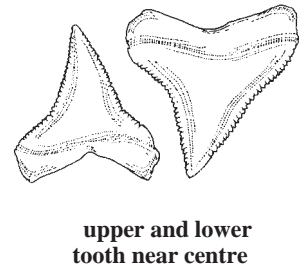
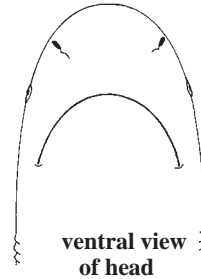
Carcharhinus amboinensis (Müller and Henle, 1839)

Frequent synonyms / misidentifications: *Triaenodon obtusus* Day, 1878 / *Carcharhinus leucas* (Valenciennes in Müller and Henle, 1839); *Glyphis gangeticus* (Müller and Henle, 1839).

FAO names: **En** - Pigeye shark; **Fr** - Requin balestrine; **Sp** - Tiburón baleta.



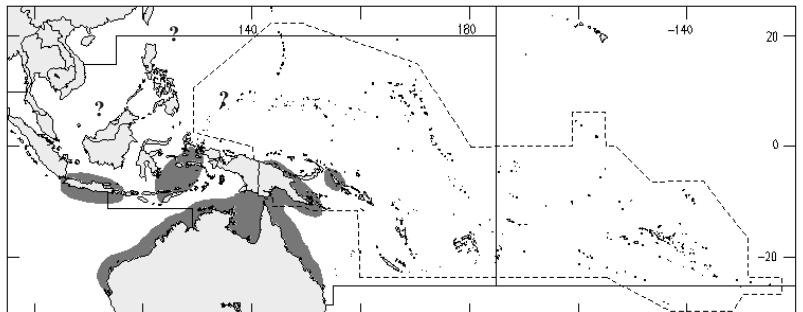
Diagnostic characters: A medium to large, stout-bodied shark. Snout extremely short (usually shorter than distance between nostrils, and much shorter than mouth width), very broadly rounded; labial furrows very short; spiracles absent; nostrils with a low, broadly triangular anterior nasal flap; **teeth in upper jaw triangular, with broad, heavy, serrated cusps**, their outer edges nearly straight in anterior teeth but becoming increasingly concave in lateral teeth; cusps of lower teeth heavy, erect to slightly oblique with serrated edges, their bases strongly arched. **First dorsal fin very high** (its height 3.2 or more times that of second dorsal fin) with a pointed or slightly rounded apex, its origin a little in advance of insertions of pectoral fins; **second dorsal fin low**, with its inner margin about equal to fin height, its posterior margin nearly straight, and its origin slightly in front of anal fin; pectoral fins large, broad, with narrow, pointed tips. **No dermal ridge between dorsal fins.** **Colour:** grey above, light below, tips of fins darker in young, fading in adults.



Size: Maximum total length about 2.8 m, maturing at about 2.1 to 2.2 m; size at birth between about 43 to 53 cm length.

Habitat, biology, and fisheries: An inshore as well as offshore continental species occurring from the surfline to a depth of 150 m. Found in shallow bays and estuaries as well as off open coast but apparently not ascending rivers like *Carcharhinus leucas* or *Glyphis* spp. Viviparous, number of young 3 to 13 per litter. Feeds on a wide variety of demersal and pelagic bony fishes (which are its most important prey), sharks and rays, squid, cuttlefish and octopuses, and lobsters and shrimp. Uncommonly scavenges prey and rarely feeds on marine mammals. Potentially dangerous to people, but not recorded in shark attacks to date and perhaps less inclined to attack people than *C. leucas* because of its narrower prey spectrum. Caught on longlines and in gill nets and utilized fresh and dried-salted.

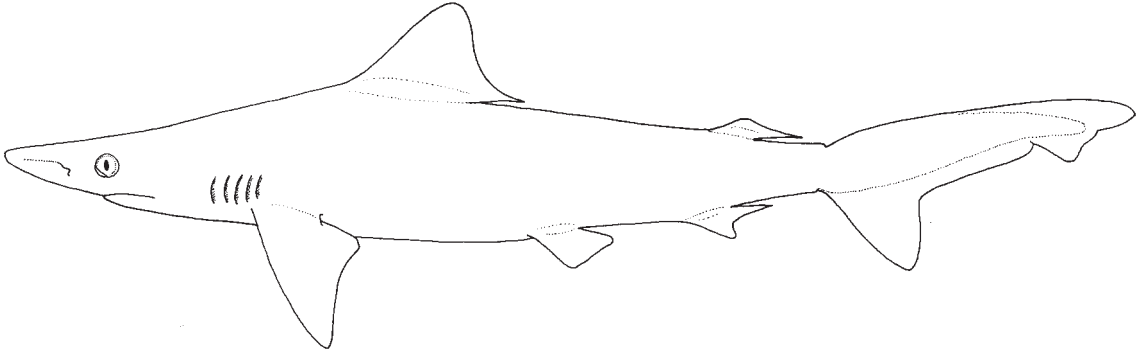
Distribution: Known from off South Africa, Madagascar, the Gulf of Aden, Pakistan, and Sri Lanka; elsewhere from the eastern Atlantic (Nigeria) and western South Pacific.



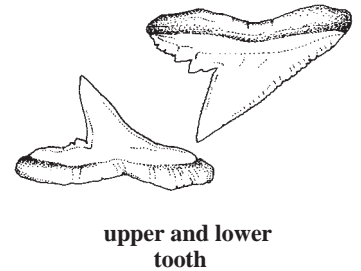
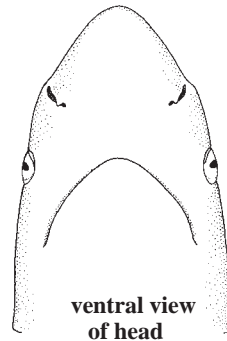
Carcharhinus borneensis (Bleeker, 1859)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Borneo shark; Fr - Requin-tigre houareau; Sp - Tiburón de Borneo.



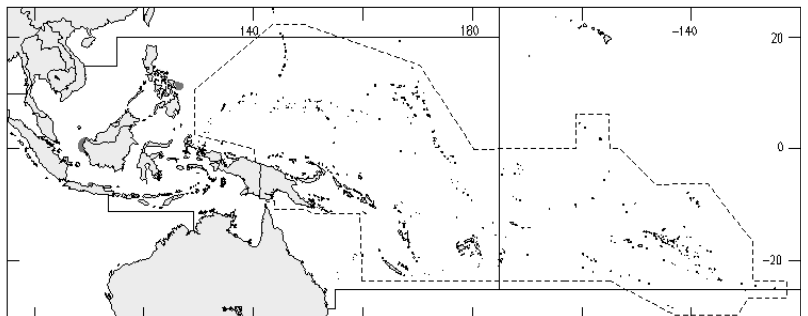
Diagnostic characters: A small shark. Body relatively slender. **Snout very long and pointed**, its length greater than mouth width and distance between nostrils; labial furrows very short; anterior nasal flaps high and narrow, nipple-shaped; spiracles absent; **teeth with serrated edges, those in upper jaw with narrow, oblique cusps and large cusplets on each side of cusp**; teeth in lower jaw with erect to oblique, narrow serrated cusps, weak cusplets or large serrations and transverse roots. First dorsal fin moderately large, with a bluntly pointed apex, its **inner margin moderately long, the free rear tip attenuated**, and its origin slightly anterior inner margins of pectoral fins; **second dorsal fin very low, the inner margin over twice the fin height**, fin origin over or slightly behind midbase of anal fin, pectoral fins relatively short, with narrowly rounded or angular tips. **No dermal ridge between dorsal fins.** **Colour:** brown above, white below, tip of first dorsal fin and dorsal caudal-fin margin dusky, paired fins and anal fin with light edges, but markings not conspicuous.



Size: Maximum total length about 70 cm.

Habitat, biology, and fisheries: A rare coastal, inshore, tropical shark, with biology virtually unknown. Apparently rare, but undoubtedly taken in local fisheries.

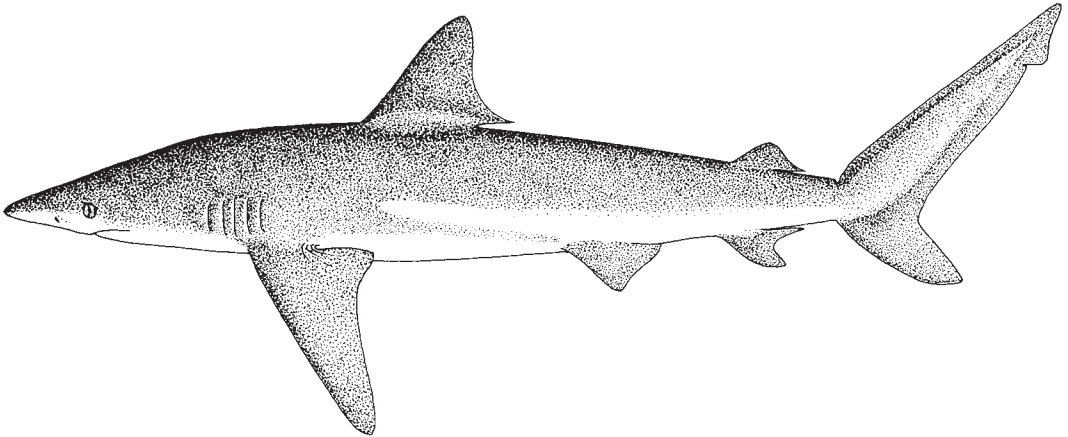
Distribution: Recorded in the Indo-West Pacific from China, Borneo, and possibly from Java and the Philippines.



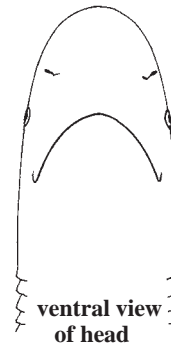
Carcharhinus brachyurus (Günther, 1870)

Frequent synonyms / misidentifications: *Carcharhinus remotus* (Dumeril, 1865) / None.

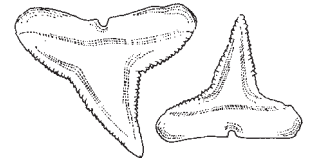
FAO names: En - Copper shark; Fr - Requin cuivre; Sp - Tiburón cobrizo.



Diagnostic characters: A large shark. Body slender to moderately stout. Snout rounded or broadly angular, its length about equal to, or somewhat smaller than width of mouth, **but greater than internasal space**; labial furrows short; anterior nasal flaps very short to rudimentary; **upper teeth with narrow, mostly oblique, somewhat flexed cusps, well delimited from the tooth bases** and finely serrated; lower teeth with moderately high, narrow, erect to semioblique, weakly serrated, cusps; **gill slits relatively short**. First dorsal fin moderately high, with a nearly straight anterior margin and a narrowly rounded or pointed apex, its origin over inner margins of pectoral fins; second dorsal fin moderately high, with a slightly concave posterior margin and an inner margin much shorter than half the height of fin; its origin over that of anal fin; pectoral fins not strongly falcate, apically pointed. Usually no interdorsal ridge (occasionally a weak ridge present). **Colour:** dark brownish grey above, white below; fins mostly plain, except for dusky tips on pelvic fins, as well as dusky to black tips and rear edges on pectoral fins.



ventral view
of head

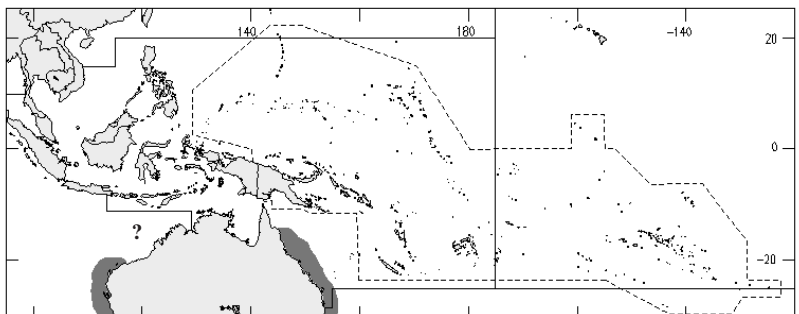


upper and lower
lateral teeth

Size: Maximum total length about 2.9 m; matures at between 2 to 2.5 m, with females somewhat larger than males; size at birth about 60 to 70 cm.

Habitat, biology, and fisheries: A coastal and offshore shark, preferring temperate to tropical waters. Viviparous, number of fetuses 13 to 20. Feeds on bottom-dwelling bony fishes, including gurnards, flatfishes, hakes, puffers, sea catfishes, jacks, and mullets; also on rays, small sharks, squids, and cuttlefishes. Dangerous or potentially dangerous to man, known to have been implicated in shark attacks on people in other areas. Little is recorded on the use of this species, but it is undoubtedly caught and used for human consumption. It is taken in bottom trawls, by line gear, and by sports anglers.

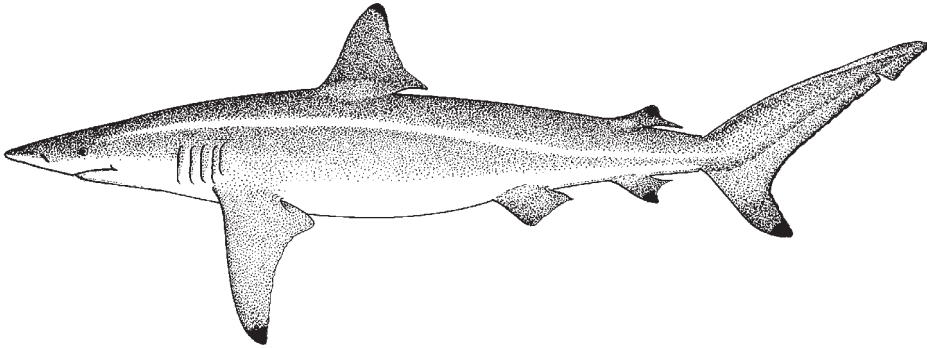
Distribution: Nearly circum-global in temperate, subtropical and some tropical seas (California, South America, West and South Africa, the Mediterranean, Japan, China, New Zealand, Australia).



Carcharhinus brevipinna (Müller and Henle, 1839)

Frequent synonyms / misidentifications: *Aprionodon brevipinna* (Müller and Henle, 1839); *Carcharhinus johnsoni* Smith, 1951 / *Carcharhinus limbatus* (Valenciennes *in* Müller and Henle, 1839); *C. amblyrhynchoides* (Whitley, 1934).

FAO names: **En** - Spinner shark; **Fr** - Requin tisserand (= Requiem tisserand, Area 31); **Sp** - Tiburón aleta negra.

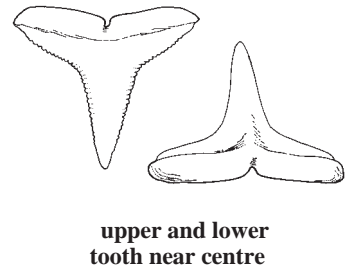
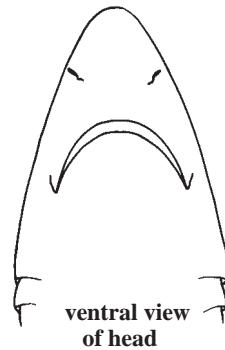
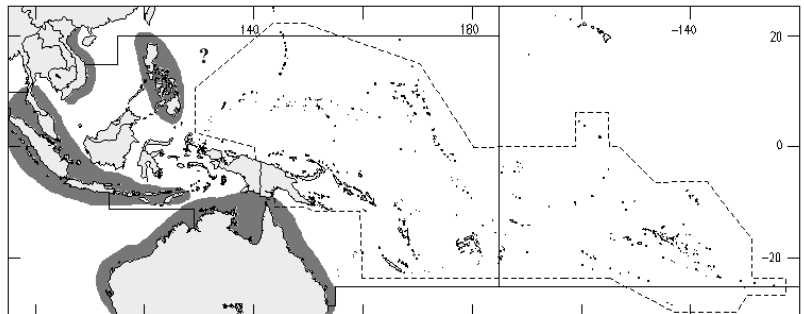


Diagnostic characters: A slender-bodied medium to large-sized shark. **Snout pointed and long**, its length equal to or greater than mouth width and greater than internasal space; **labial folds short, but usually the upper pair longer and more prominent** than in other *Carcharhinus* species from the area; anterior nasal flaps rudimentary, very low; **upper and lower teeth nearly symmetrical and very similar**, with mostly erect, very narrow cusps; uppers with entirely or partly serrated edges, **lowers smooth**; **gill slits relatively long**. First dorsal fin with a narrowly rounded apex, **its origin above or slightly behind free rear tips of pectoral fins**; second dorsal fin high, its inner margin less than twice the height of fin, its origin about over that of anal fin; pectoral fins falcate and with pointed tips. **No dermal ridge between dorsal fins.** **Colour:** grey on back, white below, **with a conspicuous white band on sides**; second dorsal, anal, undersides of **pectorals and lower caudal-fin lobe black or dark grey-tipped in subadults and adults**, but unmarked or nearly so in small individuals (below 1 m).

Size: Maximum total length about 2.8 m (mature adults); commonly to 2.5 m; size at birth about 60 to 80 cm.

Habitat, biology, and fisheries: An active, fast-swimming shark, often making vertical spinning leaps out of the water, as a feeding technique in which the shark spins through a school of small fish with open mouth and then breaks the surface. Viviparous, number of embryos about 6 to 15. Feeds mostly on small schooling fishes, also squid, small sharks, and rays. Caught with drifting gill nets and longlines. Utilized fresh and dried salted for human consumption, fins probably used in the oriental sharkfin trade, and livers for vitamin oil production.

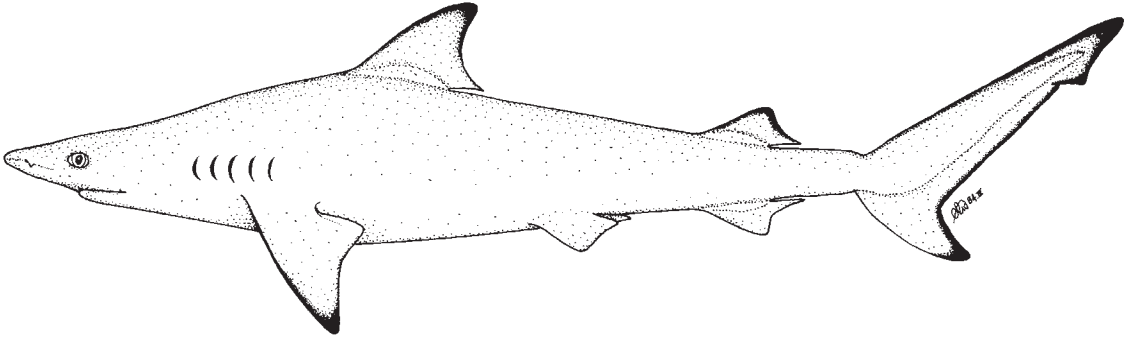
Distribution: Known in the western Indian Ocean from South Africa to Madagascar and the Mauritius-Seychelles area, the Red Sea, Gulf of Oman, and southern India; in the western Pacific from southern Japan, Viet Nam, Indonesia, Australia, and possibly the Philippines; also found in the eastern Atlantic and the Mediterranean, but apparently absent from the eastern Pacific.



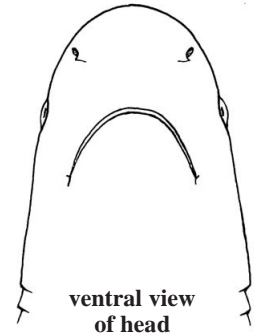
Carcharhinus cautus (Whitley, 1945)

Frequent synonyms / misidentifications: None / *Carcharhinus melanopterus* (Quoy and Gaimard, 1824).

FAO Names: En - Nervous shark; Fr - Requin nerveux; Sp - Tiburón nervioso.



Diagnostic characters: A small to medium-sized shark. Body moderately stout. Snout very short and broadly rounded, its length less than mouth width and about equal to distance between nostrils; labial furrows very short; anterior nasal flaps with a stout, broad lobe; spiracles absent; teeth with serrated edges, those in upper jaw with narrow semioblique to oblique cusps and low basal cusplets; teeth in lower jaw with erect or semierect narrow cusps and serrated edges. First dorsal fin moderately large, with a narrowly rounded or pointed apex, its origin over inner margins of pectoral fins, its free rear tip short; **second dorsal fin high**, its inner margin much less than twice the fin height, its origin over or slightly anterior to anal-fin origin; pectoral fins moderately long, with narrowly rounded or pointed tips; rear tip of anal fin ending well in front of lower caudal-fin origin. **No dermal ridge between dorsal fins.** **Colour:** grey or light brown above, white below; dorsal, caudal and pectoral fins with black margins, expanded apically to black tips on caudal-fin lobes and pectoral fins; probably a conspicuous white band on flank.

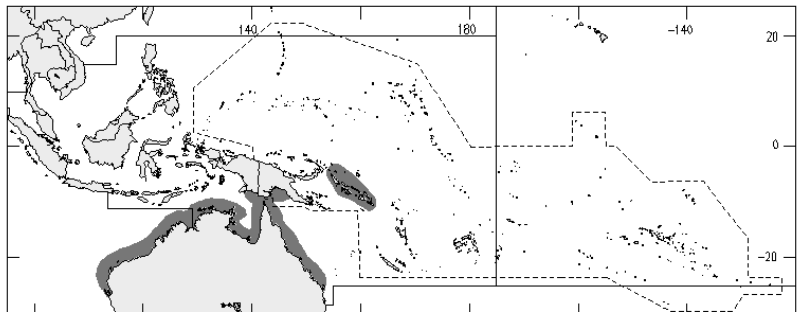


Size: Maximum total length about 1.5 m, adult females 1.2 to 1.5 m; size at birth between 35 and 39 cm.

Habitat, biology, and fisheries: The nervous shark is a little-known South Pacific reef shark that may have a wider distribution. It apparently lives in shallow water on the continental and insular shelves, but may range in deeper water. Skittish and timid when approached by people, hence the vernacular name "nervous shark". Presumably viviparous. Feeds on small fishes, including lizardfish and smelt-whiting (*Sillago*), and crabs. Probably harmless or minimally hazardous to people. Taken in small numbers in northern Australia for its meat.

Distribution: In the eastern Indian Ocean and western South Pacific off Australia (Queensland, western and northern Australia), Ugi and the Solomon Islands.

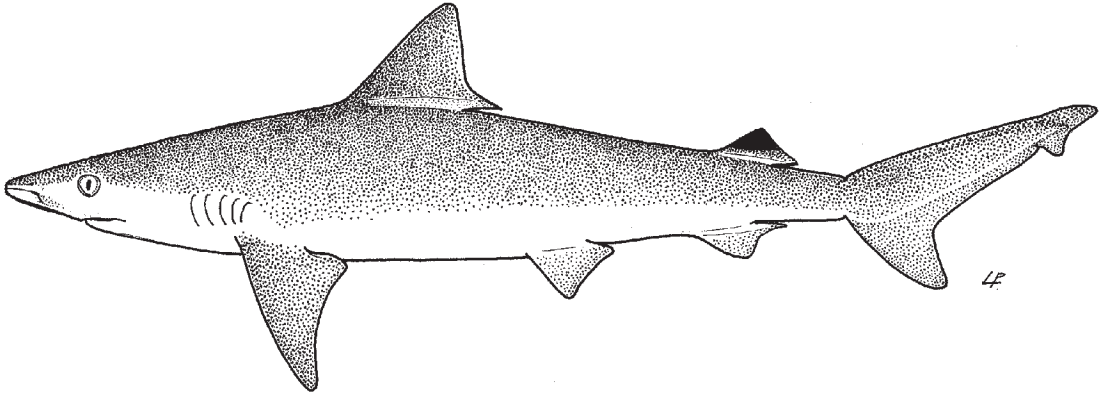
Remarks: This species is similar to the blacktip reef shark, *Carcharhinus melanopterus*, but lacks the conspicuous highlighted black blotch on its first dorsal fin, and has lower vertebral counts.



Carcharhinus dussumieri (Valenciennes *in* Müller and Henle, 1839)

Frequent synonyms / misidentifications: *Carcharhinus menisorrhah* (Valenciennes *in* Müller and Henle, 1839); *C. tjutjot* (Bleeker, 1852) / *Carcharhinus sealei* (Pietschmann, 1916).

FAO names: **En** - Whitecheek shark; **Fr** - Requin à joues blanches; **Sp** - Tiburón cariblanco.



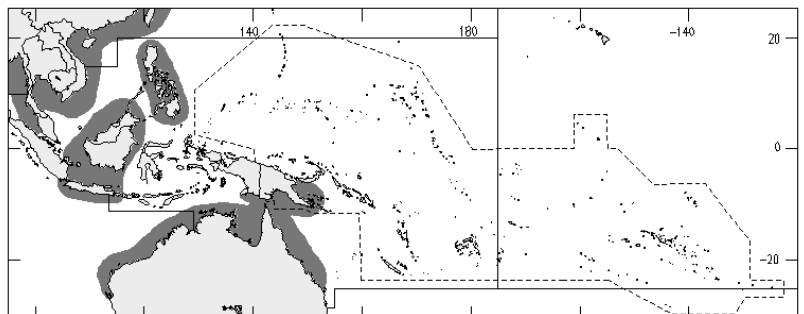
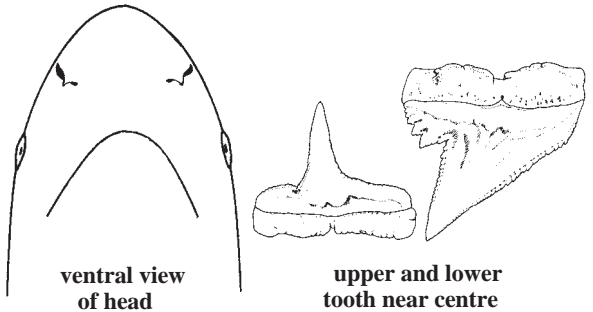
Diagnostic characters: A small shark. Body moderately stout. **Snout moderately long and broadly parabolic or wedge-shaped**, its length usually shorter than mouth width but subequal to the internasal space; labial furrows very short; anterior nasal flaps expanded; spiracles absent; gill slits short; teeth with serrated edges, **upper teeth with narrow-based, strongly oblique cusps and strong, serrated cusplets**; teeth in lower jaw erect to oblique, without cusplets, serrated and narrow-cusped; **first dorsal fin moderately high**, with an angular apex, posteroventrally sloping, straight posterior margin, and short inner margin, **not falcate**; origin of first dorsal fin over pectoral fin inner margins; origin of second dorsal fin about opposite that of anal fin; second dorsal fin high, its inner margin less than 1.5 times the fin height and its posterior margin concave; pectoral fins short and not strongly falcate, with narrow, angular apices. An interdorsal ridge present or occasionally absent on back. **Colour:** back greyish or grey-brown, belly whitish; **a black spot on the second dorsal fin is the only conspicuous marking.**

Size: Maximum total length about 90 cm; size at birth about 35 to 40 cm.

Habitat, biology, and fisheries: A common, but little-known shark of the continental and insular inshore waters. Viviparous, number of young 1 to 4, usually 2. Feeds primarily on fish, also crustaceans and cephalopods; harmless to people. Caught with drifting gill nets and longlines in artisanal and smallscale industrial fisheries and is commonly marketed for its meat for human consumption.

Distribution: Occurs from the Persian Gulf eastward to Thailand, China, southern Japan, Java, Borneo, and probably New Guinea and northern Australia.

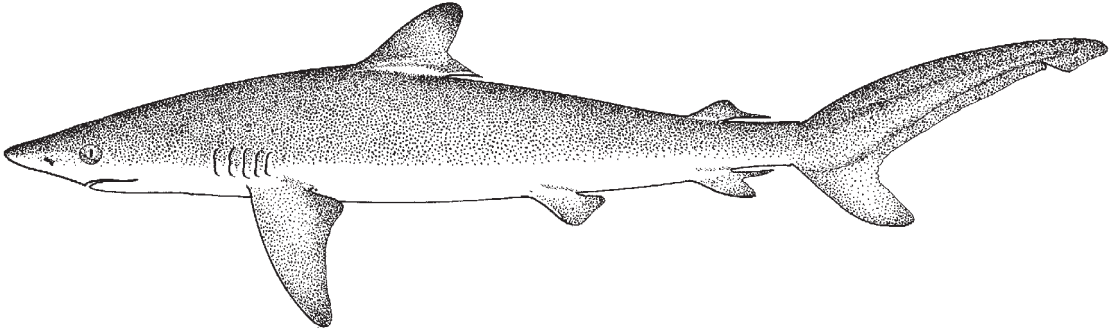
Remarks: This species is very similar to the blackspot shark, *Carcharhinus sealei* but has a triangular rather than falcate first dorsal fin, more numerous upper teeth, a broader mouth, broader pectoral fins, and less numerous vertebrae.



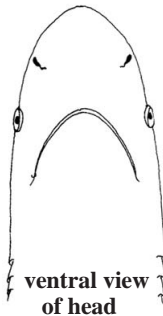
Carcharhinus falciformis (Bibron in Müller and Henle, 1839)

Frequent synonyms / misidentifications: None / None.

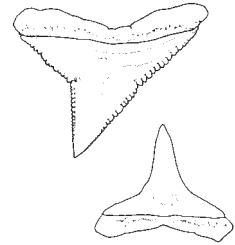
FAO names: **En** - Silky shark; **Fr** - Requin soyeux (= Réquiem soie, Area 31); **Sp** - Tiburón jaquetón.



Diagnostic characters: A large shark, with an elongate and slender body. Snout narrowly rounded, moderately long, equal to or slightly shorter than mouth width, but longer than internasal space; labial furrows very short; anterior nasal flaps low, rudimentary; spiracles absent; **upper teeth with relatively narrow cusps well delimited from the heavy, serrated bases, their outer edges notched**; teeth in lower jaw erect, their edges only slightly serrated. First dorsal fin moderately high, its apex rounded, **its origin behind the free rear tips of pectoral fins**; second dorsal fin very low, its posterior lobe noticeably long and slender, **its inner margin twice the height of fin**, its origin about over that of anal fin; **pectoral fins long and falcate**, more so in adults than in young; **interdorsal ridge present**. **Colour:** back dark grey, greyish brown or bluish black (in life); belly greyish or white.



ventral view
of head

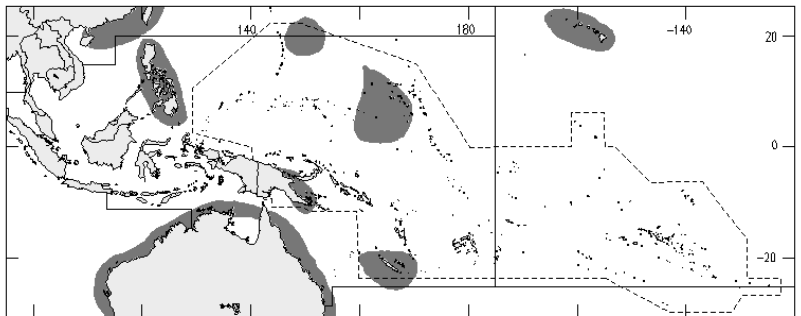


upper and lower
tooth near centre

Size: Maximum total length 3.5 m; commonly to 2.5 m; size at birth 57 to 87 cm.

Habitat, biology, and fisheries: Inhabits oceanic waters near and beyond the continental slopes, but also found in coastal waters. Lives usually near the surface, but occurs sometimes at considerable depths (to 500 m). Viviparous, number of young 2 to 14 per litter. Feeds chiefly on fishes, including tunas, squids, and pelagic octopuses. Very quick in its movements, it often causes damage to the catch and gear in tuna fisheries. Reported to be dangerous to humans. This species is very commonly taken by pelagic longline fisheries, but is also taken in fixed bottom nets and probably also drifting gill nets. Its meat is used fresh or dried-salted for human consumption, its hide for leather, its fins for shark-fin soup, and its liver is extracted for oil, which has a high Vitamin A content.

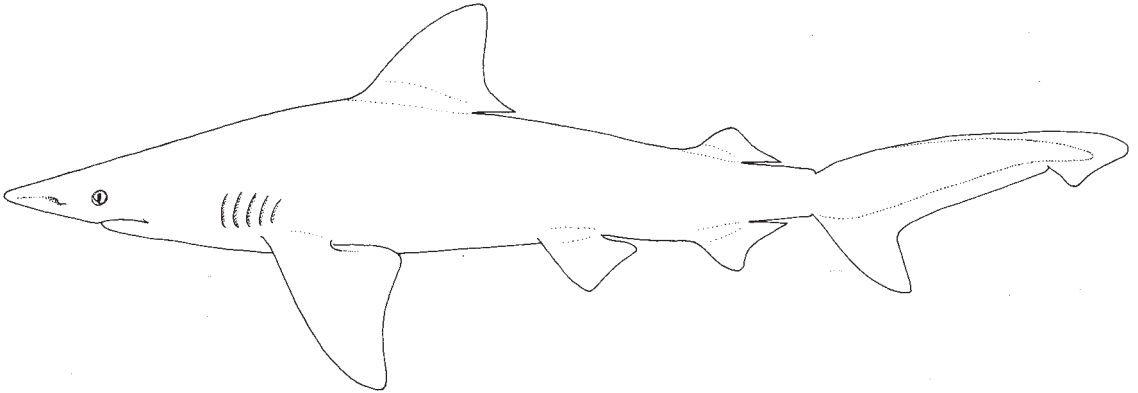
Distribution: Circumglobal in tropical and subtropical seas; in the western Atlantic from Massachusetts to southern Brazil, in the eastern Atlantic from Madeira to northern Angola, in the Indian Ocean off East Africa, Red Sea, Gulf of Oman and South India, widespread in the western Pacific (including Japan and New Zealand), and in the eastern Central Pacific from southern Baja California to Peru.



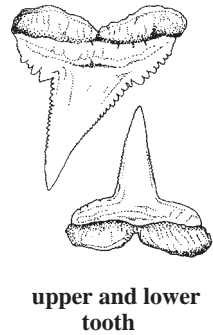
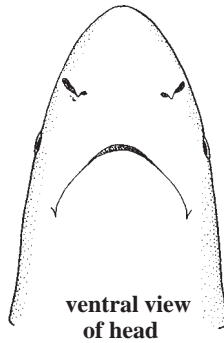
Carcharhinus fitzroyensis (Whitley, 1943)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Creek whaler; Fr - Requin baleinier; Sp - Tiburón ballenero.



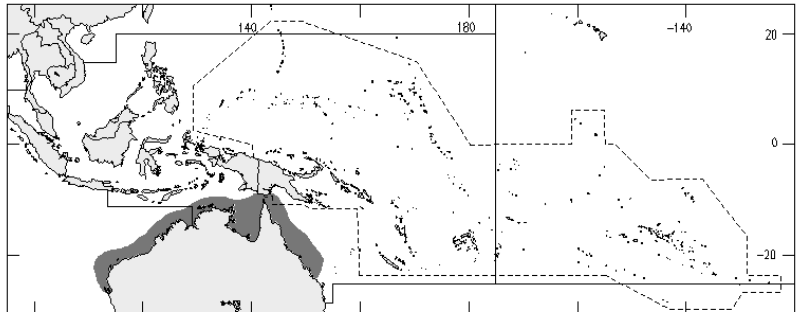
Diagnostic characters: A small to medium-sized shark. Body moderately stout. **Snout long and parabolic**, its length greater than mouth width and distance between nostrils; labial furrows very short; anterior nasal flaps moderately low, nipple-shaped; spiracles absent; **teeth with serrated edges**, those in upper jaw with narrow, semierect and oblique high cusps, and crown feet with coarse serrations and small cusplets; teeth in lower jaw with erect, narrow, partly serrated cusps, and transverse roots. **First dorsal fin moderately large, with a pointed or narrowly rounded apex**, its inner margin short, and **its origin over or usually slightly anterior to inner margins of pectoral fins**; second dorsal fin large and high, the inner margin 1.5 times the fin height, fin origin about over anal-fin origin, **pectoral fins moderately large, broad and triangular**, with narrowly rounded apices. **No dermal ridge between dorsal fins**. **Colour:** bronze above, fading to greyish brown after death and in preserved specimens; light below, without conspicuous markings on fins; no conspicuous white band on flanks.



Size: Maximum total length about 1.35 m; matures at 80 to 90 cm; size at birth about 50 cm.

Habitat, biology, and fisheries: A little-known tropical shark of the Australian littoral, found inshore and offshore on the continental shelves from the intertidal to a depth of at least 40 m. Feeds primarily on teleost fishes, also on crustaceans. Taken in small numbers off northern Australia, and is used for human consumption.

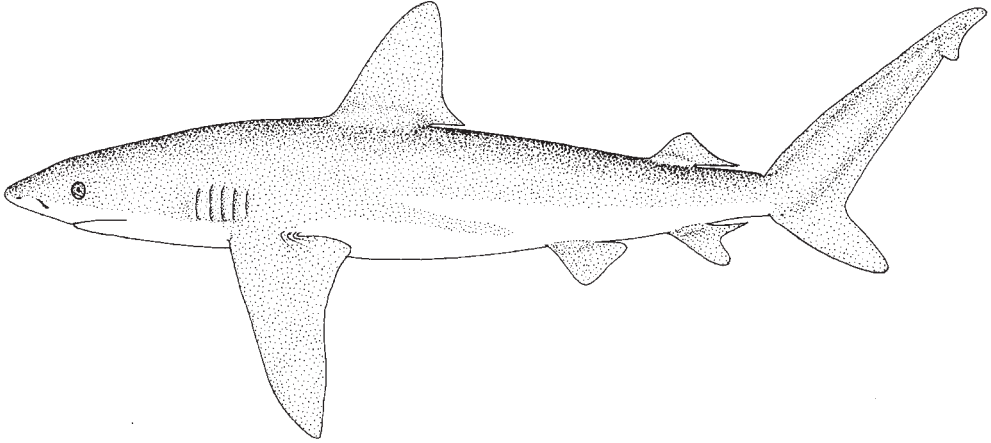
Distribution: Western Pacific off Australia (Queensland, northern and northwestern Australia).



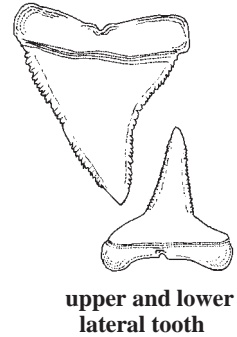
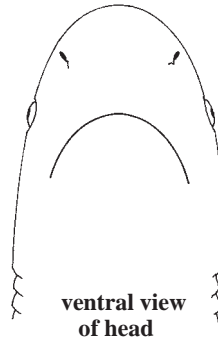
Carcharhinus galapagensis (Snodgrass and Heller, 1905)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Galapagos shark; Fr - Requin de Galapagos; Sp - Tiburón de Galápagos.



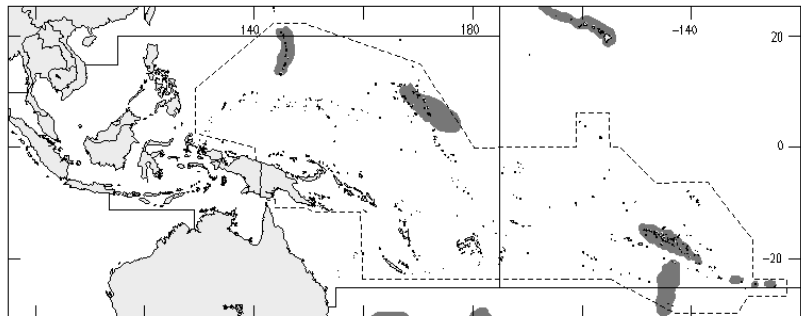
Diagnostic characters: A large shark. Body slender to moderately stout. Snout rounded and short, its length equal to or less than mouth width and about equal to or greater than internarial space; labial furrows short; **anterior nasal flaps rudimentary**; **upper teeth broadly triangular**, erect to moderately oblique, **the anterior ones strongly serrated and with higher, broad cusps not delimited from the bases**; lower teeth with high, narrow cusps and serrations; gill slits relatively short. First dorsal fin rather high, **nearly straight anteriorly**, with a narrowly rounded or pointed apex, **its origin over inner margins of pectoral fins**; second dorsal fin **moderately high, with a concave posterior margin**, its inner margin less than twice the fin height and its origin over or slightly anterior to that of anal fin; **pectoral fins nearly straight** and apically pointed. **A low interdorsal ridge present.** **Colour:** dark grey above, light below, fins plain except for slightly dusky tips in some individuals.



Size: Maximum total length about 3.7 m; commonly to 3 m; size at birth about 57 to 78 cm.

Habitat, biology, and fisheries: A wide-ranging, inshore and offshore shark often preferring the waters around islands to those of the continental shelf. Viviparous, number of fetuses 6 to 16. Feeds on bottom fishes, including basses, flatheads, eels, and flatfishes; also on cephalopods and bivalves. An aggressive species, dangerous to people. No information on utilization or fishing methods are available, but likely to figure in shark fisheries because of its abundance in habitats it prefers.

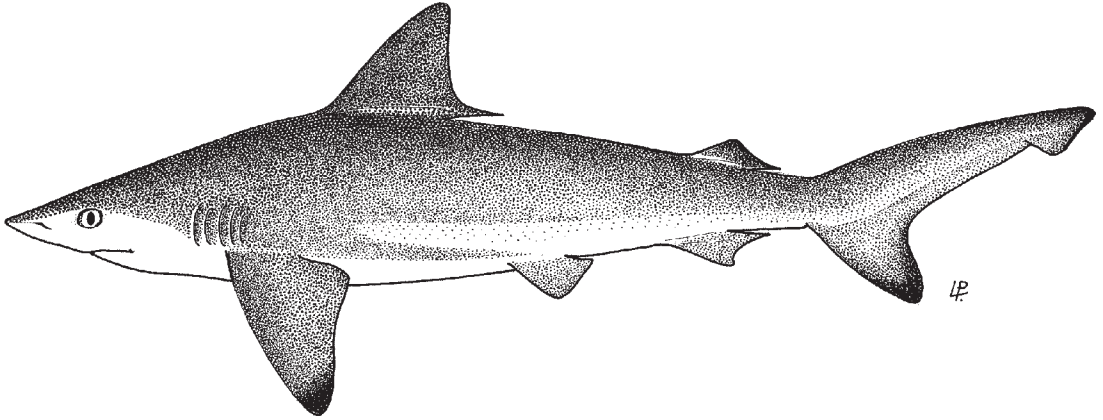
Distribution: Widely distributed in tropical and subtropical seas, but of spotty occurrence in the Pacific and Atlantic, primarily off island groups but offshore in continental waters in the eastern Pacific.



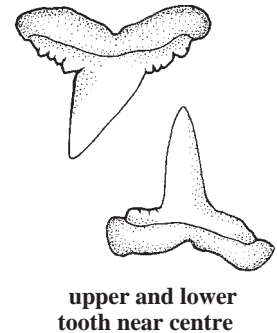
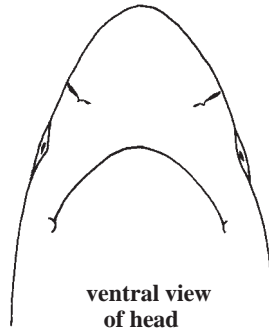
Carcharhinus hemiodon (Valenciennes *in* Müller and Henle, 1839)

Frequent synonyms / misidentifications: *Hypoprion hemiodon* (Valenciennes *in* Müller and Henle, 1839) / None.

FAO names: **En** - Pondicherry shark; **Fr** - Requin baliai; **Sp** - Tiburón de Pondicherry.



Diagnostic characters: A small shark (maximum size unknown). Body rather stout. **Snout moderately pointed and parabolic**, its length equal to or slightly less than mouth width and greater than internasal space; labial furrows short; **anterior nasal flaps with a short, slender, narrow lobe**; upper teeth with oblique or semioblique, narrow, **unserrated or weakly serrated cusps and strong distal cusplets**, lowers with erect cusps, no cusplets and smooth edges; gill slits relatively short. First dorsal fin with a narrowly rounded apex, its origin just posterior

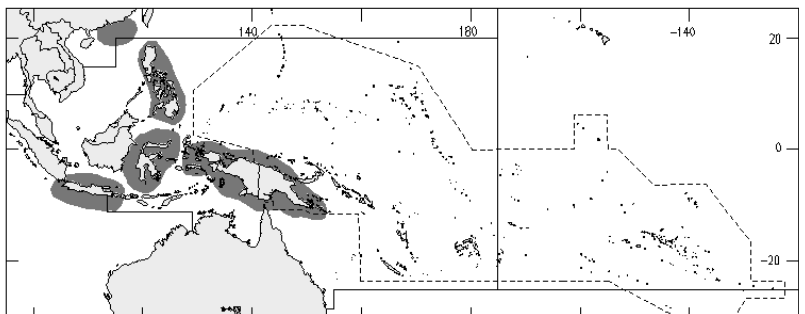


to pectoral-fin base insertions and over inner margins of pectoral fins, its inner margin and free rear tip moderately long; **second dorsal fin moderately high, its inner margin attenuated and elongated but less than twice the height of the fin**, its origin slightly behind that of anal fin; pectoral fins weakly falcate and with narrowly rounded tips. **A dermal ridge present between dorsal fins. Colour:** grey above, white below, **with the tips of the pectorals, and upper and lower caudal-fin lobes black**; other fins dusky.

Size: Maximum total length uncertain, probably not over 1.5 to 2 m; immature specimens up to 60 cm long, size at maturity unknown.

Habitat, biology, and fisheries: A little-known, wide-ranging, possibly common grey shark of the continental shelves. Has been reported from both river mouths and rivers, including the Saigon River in Viet Nam, but these old records require confirmation. Presumably viviparous. Diet unknown, presumably small fishes, cephalopods, and crustaceans. Not known to be dangerous to humans. Caught in bottom-set gill nets and presumably on long gear. Utilized fresh for human consumption.

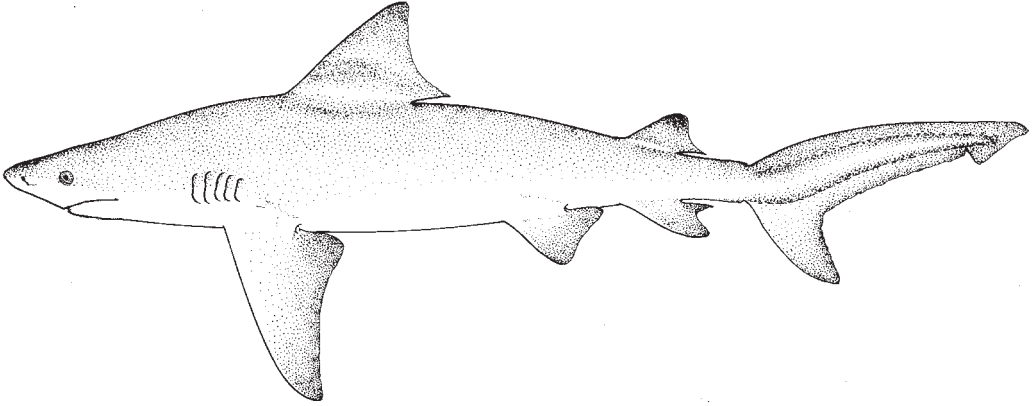
Distribution: Occurs from the Gulf of Oman to Pakistan, India and possibly Sri Lanka; also known in the eastern Indian Ocean and western Pacific from scattered localities from India eastward to Viet Nam, the Philippines, China, and Indonesia.



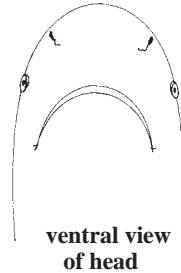
Carcharhinus leucas (Valenciennes *in* Müller and Henle, 1839)

Frequent synonyms / misidentifications: *Carcharhinus zambezensis* (Peters, 1852); *C. vanrooyeni* Smith, 1958 / *Carcharhinus amboinensis* (Müller and Henle, 1839).

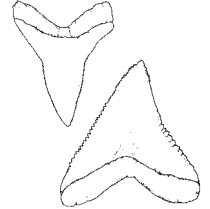
FAO names: **En** - Bull shark; **Fr** - Requin bouledogue (= Réquiem taureau, Area 31); **Sp** - Tiburón sarda.



Diagnostic characters: A large, stout shark. **Snout very broadly rounded and extremely short**, its length less than distance between nostrils, and much less than mouth width; labial furrows very short; spiracles absent; nostrils with a low, broadly triangular anterior nasal flap; **teeth in upper jaw triangular, with broad, heavy, serrated cusps**, their outer edges nearly straight in anterior teeth, but becoming increasingly concave to the sides; lower teeth with erect to slightly oblique, heavy cusps with serrated edges and strongly arched bases. **First dorsal fin high and broad with a pointed or slightly rounded apex**, its origin a little in advance of insertion of pectoral fins; **second dorsal fin high with a short posterior lobe**, its inner margin less than the fin height, and its origin slightly in front of that of anal fin; **pectoral fins broad, with narrow pointed tips**. **No interdorsal ridge.** **Colour:** back greyish, belly white; tips of fins dark, especially in young individuals.



ventral view
of head

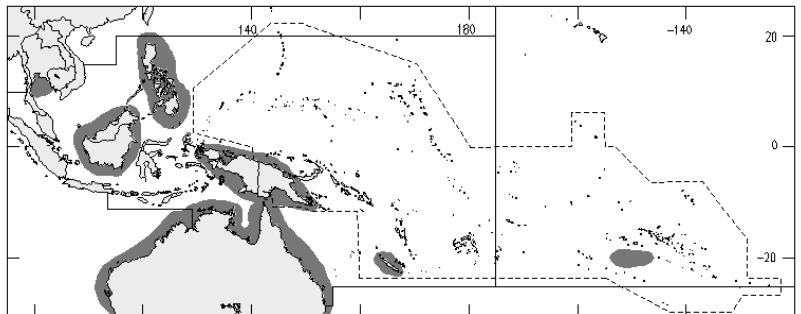


upper and lower
tooth near centre

Size: Maximum total length about 3.4 m; commonly to 2.6 m; size at birth about 60 cm.

Habitat, biology, and fisheries: Predominantly a coastal and fresh-water species inhabiting shallow waters, especially in bays, river estuaries, rivers, and lakes. It tolerates a wide range of salinities, readily penetrates far up rivers and also into hypersaline bays. Usually slow-swimming if active while cruising, this bottom-living shark may develop great speed when chasing its prey. Viviparous, number of embryos up to 12. The young readily tolerate low salinities, and some are born in fresh water. An opportunistic predator with a very wide food spectrum that includes bony fishes, sharks, rays, invertebrates (crabs, shrimps, sea urchins, etc.), marine and freshwater turtles, birds, marine and terrestrial mammals, and carrion. It has large strong jaws and large stout teeth for its size, which enable it to dismember and feed on relatively large prey. Known to be dangerous to people, and possibly one of the most dangerous sharks because of its inshore and fresh-water habitat, large size, powerful feeding structures, and omnivorous habits. Caught mainly with longlines and gill nets and used for its meat, hide, fins, liver oil, and as fishmeal.

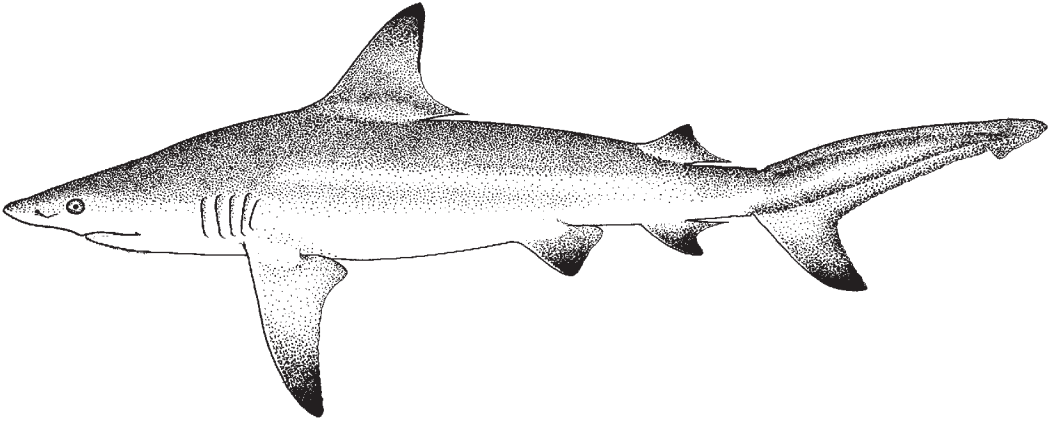
Distribution: Widespread along the continental coasts of all tropical and subtropical seas; also, the most wide-ranging cartilaginous fish in fresh water.



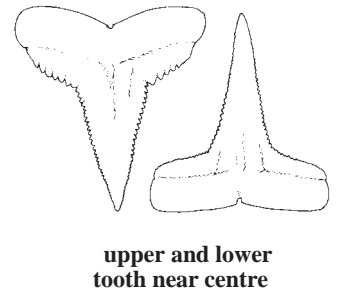
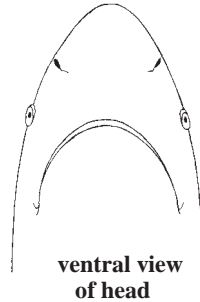
Carcharhinus limbatus (Valenciennes *in* Müller and Henle, 1839)

Frequent synonyms / misidentifications: None / *Carcharhinus tilstoni* (Whitley, 1950); *C. brevipinna* (Müller and Henle, 1839); *C. amblyrhynchoides* (Whitley, 1934).

FAO names: En - Blacktip shark; Fr - Requin bordé (= Réquiem macuire, Area 31); Sp - Tiburón macuira.



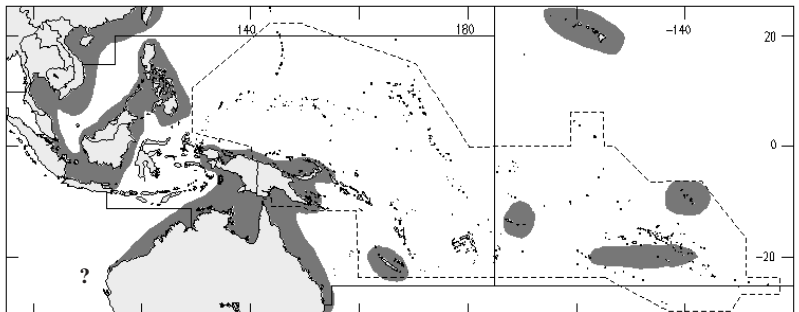
Diagnostic characters: Body fusiform, moderately slender. **Snout long**, about equal to, or slightly less than mouth width, greater than distance between nostrils, its tip narrowly rounded to pointed; labial furrows short; spiracles absent; **upper and lower teeth nearly symmetrical and similar, with erect, narrow cusps and serrated edges**; gill slits moderately long. **First dorsal fin with a pointed or very narrowly rounded apex, its origin above, or slightly posterior to insertion of pectoral fins; second dorsal fin high**, its inner margin less than twice the height of fin, and its origin over or slightly in front of that of anal fin; pectoral fins falcate. **No interdorsal ridge.** **Colour:** back dark grey, ashy blue or dusky bronze; belly white or yellowish white; **a dark band extending rearward along each side to about over origin of pelvic fin; tips of pelvic fins with a persistent black spot**; tips of dorsals, anal, pectorals and the lower lobe of caudal fin usually black or dusky in young individuals, but these markings fade with growth.



Size: Maximum total length about 2.5 m; commonly to 1.5 m; size at birth about 60 cm.

Habitat, biology, and fisheries: Inhabits coastal as well as offshore surface waters. A fast-moving shark that sometimes leaps out of the water. Occasionally enters brackish waters, but without a tolerance for fresh water. Viviparous, number of embryos ranging from 1 to 10. Feeds mainly on small schooling fishes; also on rays and squids. Apparently minimally dangerous to people, but can be aggressive when divers are spearing fish. Caught with floating longlines, floating gill nets, and probably other gear. Marketed fresh for human consumption, oil valuable for Vitamin A.

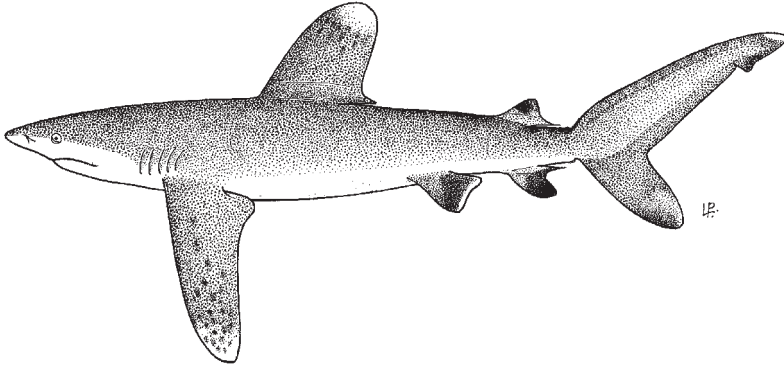
Distribution: Widespread in all tropical and subtropical continental waters.



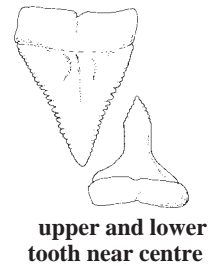
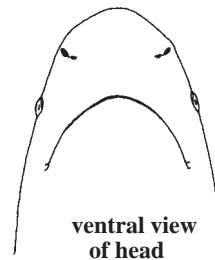
Carcharhinus longimanus (Poey, 1861)

Frequent synonyms / misidentifications: *Carcharhinus maou* (Lesson, 1830) / None.

FAO names: En - Oceanic whitetip shark; Fr - Requin océanique (= Réquiem océanique, Area 31); Sp - Tiburón oceánico.



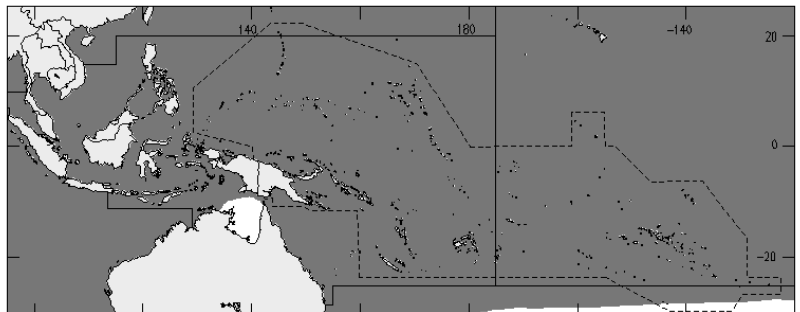
Diagnostic characters: A large, moderately stout shark. **Snout short and broadly rounded**, its length equal to, or somewhat less than, mouth width, and greater than distance between nostrils; labial furrows very short; anterior nasal flaps very low, rudimentary; spiracles absent; teeth with serrated edges, those in upper jaw **triangular with broad, heavy, mostly erect, cusps** nearly symmetrical anteriorly, but becoming increasingly oblique at sides; teeth in lower jaw with erect, heavy cusps and serrated edges. **First dorsal fin noticeably large, with a very broadly rounded apex**, its origin slightly behind insertion of pectoral fins; second dorsal fin high, its inner margin less than twice the fin height, its origin over, or slightly in front of that of anal fin; **pectoral fins very long** (as long as, or even longer than, head) **with broadly rounded, wide tips**; rear tip of anal fin extending nearly to origin of caudal fin. **An interdorsal ridge present.** **Colour:** back usually dark grey with a bronze tinge, but sometimes brown or bluish; belly whitish, sometimes with a yellow tinge; **tips of first dorsal fin, pectoral fins and lower lobe of caudal fin often white or with white spots** (sometimes absent); ventral surface of pelvic fins, apices of anal and second dorsal fins, and ventral lobe of caudal fin often with black spots; also black or dusky saddle-marks in front of second dorsal fin, upper margin of caudal fin and between dorsal fins (especially in young).



Size: Maximum total length about 3.5 m; commonly to 2.7 m or less; size at birth 60 to 65 cm.

Habitat, biology, and fisheries: Along with the silky shark (*Carcharhinus falciformis*), this is one of the most abundant sharks in warm oceanic waters. It occasionally enters coastal waters, but is more typically found from the edges of continental or insular shelves to far beyond land. This is a slow-swimming species while cruising, but it can be fast in pursuit of prey. Viviparous, number of embryos ranging from 6 to 9. Feeds mainly on fishes (especially scombrids and carangids) and squids; also crustaceans (especially portunid crabs), turtles, and carrion. This species causes much damage to the catch in tuna fisheries, and formerly also to dead whales that were inflated and buoyed after harpooning by the whaling ships. Reported to be dangerous to humans, and prone to investigate divers and swimmers that venture into its offshore habitat. Caught with floating longlines, also drifting gillnets and handlines. Utilized fresh for human consumption, also processed for liver oil; fins probably used for the oriental sharkfin trade.

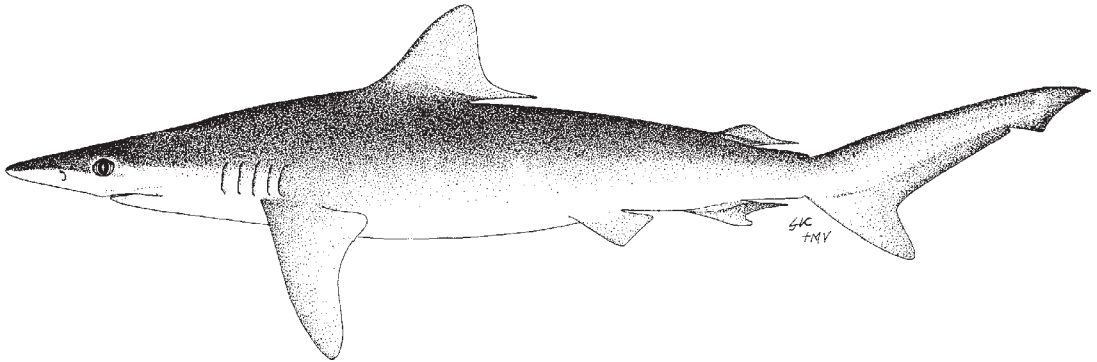
Distribution: Widespread in all tropical and subtropical waters.



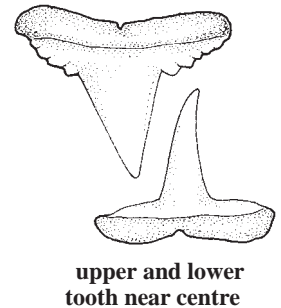
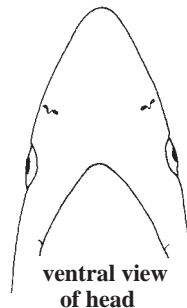
Carcharhinus macloiti (Müller and Henle, 1839)

Frequent synonyms / misidentifications: *Hypoprion macloiti* (Müller and Henle, 1839) / None.

FAO names: En - Hardnose shark; Fr - Requin à nez rude; Sp - Tiburón trompudo.



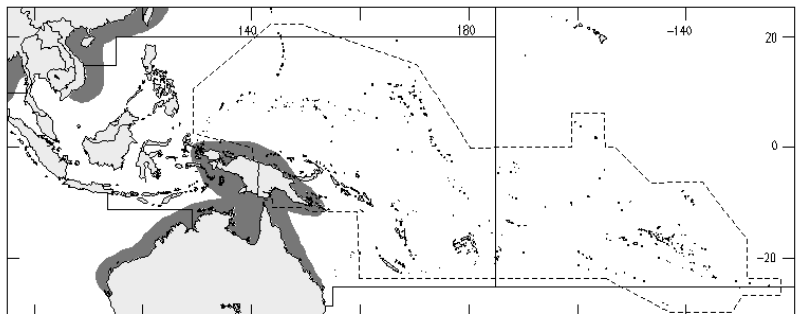
Diagnostic characters: A small shark. Body relatively slender. **Snout very long and narrowly rounded or pointed**, its length greater than mouth width and distance between nostrils; labial furrows very short; anterior nasal flaps with a slender elongate lobe; spiracles absent; **teeth with smooth edges, those in upper jaw with narrow, oblique or nearly erect cusps and strong cusplets on each side of cusp**; teeth in lower jaw with erect to oblique, smooth cusps and no cusplets. First dorsal fin moderately large, with a narrowly rounded or pointed apex, its **inner margin greatly elongated, the free rear tip attenuated**, and its origin over inner margins of pectoral fins; **second dorsal fin very low, the inner margin over twice the fin height**, fin origin slightly behind that of anal fin, pectoral fins relatively short, with narrowly rounded or angular tips; elongated rear tip of anal fin extending nearly to lower precaudal pit. **No dermal ridge between dorsal fins.** **Colour:** back greyish or grey-brown, belly white; posterior margin of pectoral fins and ventral caudal-fin lobe with an inconspicuous white edge; posteroventral and dorsal margins of caudal fin with a narrow black edge.



Size: Maximum total length below 1 m; size at birth 45 to 50 cm.

Habitat, biology, and fisheries: A common shark of continental waters inshore and offshore down to a depth of 170 m. Viviparous, number of embryos usually 2 (one per uterus). Feeds mainly on fishes, also on cephalopods and crustaceans. Not known to be dangerous to humans. Caught with floating gill nets, also bottom gill nets and longlines. One of the most abundant sharks taken in gill nets (also caught by line gear), but of limited interest to fisheries because of its small size. Utilized fresh and probably dried salted for human consumption.

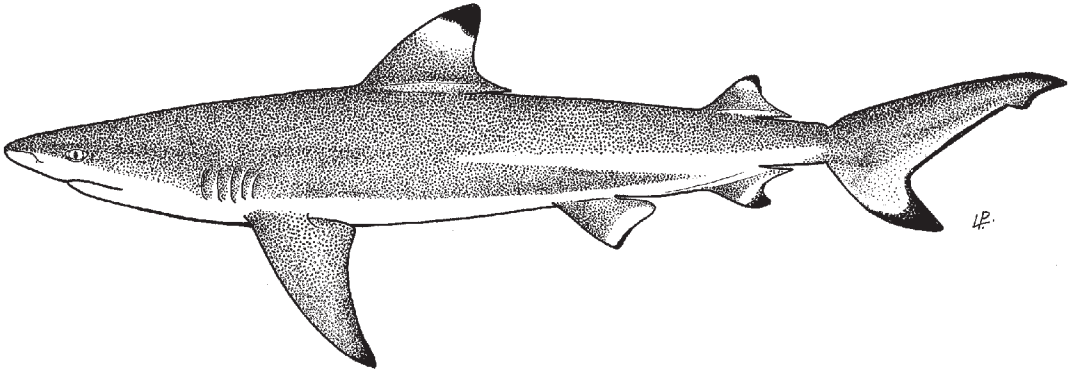
Distribution: Occurs off Kenya and Tanzania, possibly the Gulf of Aden, and from Pakistan eastward to New Guinea, northern Australia, China, Taiwan Province of China and southern Korea and Japan.



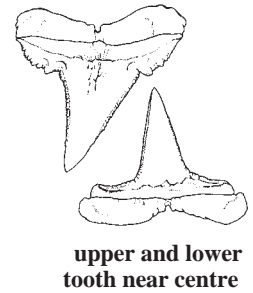
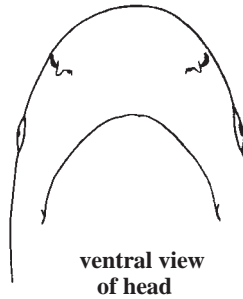
Carcharhinus melanopterus (Quoy and Gaimard, 1824)

Frequent synonyms / misidentifications: *Hypoprion playfairi* (Günther, 1870) / None.

FAO names: **En** - Blacktip reef shark; **Fr** - Requin pointes noires; **Sp** - Tiburón de puntas negras.



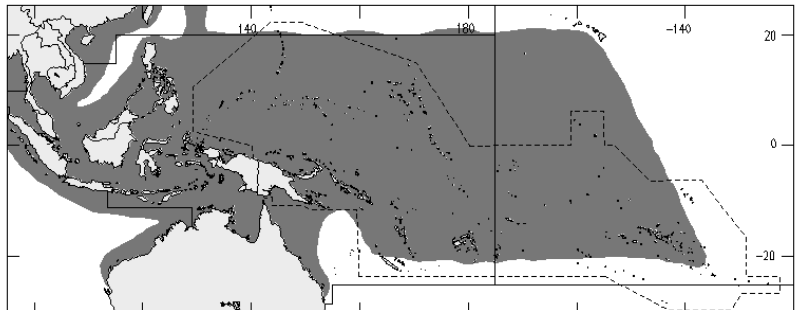
Diagnostic characters: A small to medium-sized shark. Body moderately stout. **Snout very short and broadly rounded, its length less than mouth width and about equal to distance between nostrils;** labial furrows very short; anterior nasal flaps with a stout, broad lobe; spiracles absent; teeth with serrated edges, **those in upper jaw with narrow semioblique to oblique cusps and low basal cusplets;** teeth in lower jaw with erect or semierect narrow cusps and serrated edges. First dorsal fin moderately large, with a narrowly rounded or pointed apex, its origin over inner margins of pectoral fins, its free rear tip short; **second dorsal fin high,** its inner margin much less than twice the fin height, its origin over or slightly anterior to anal-fin origin; pectoral fins moderately long, with narrowly rounded or pointed tips; rear tip of anal fin ending well in front of lower caudal-fin origin. **No dermal ridge between dorsal fins.** **Colour:** yellow-brown on dorsal surface, underside white; **all fins conspicuous with black or dark brown tips** also anterior and posterior dark edging on pectoral fins and upper lobe of caudal fin; **a prominent black tip of first dorsal fin set off abruptly by a light band below it;** a conspicuous dark band on flanks, extending rearward to pelvic fins.



Size: Maximum total length about 2 m; commonly to 1.6 m; size at birth between 33 to 50 cm.

Habitat, biology, and fisheries: A common inshore and sometimes offshore shark, on continental and insular shelves; prefers shallow water on and around coral reefs. May occur in brackish and even fresh water, but does not occur in tropical lakes and rivers far from the sea. Viviparous, number of young 2 to 4 (commonly 4). A bottom and midwater feeding shark that feeds on small bony fishes (including mullets), octopuses and small sharks. It has been definitely recorded as having attacked humans without provocation, but it should not be regarded as particularly dangerous because of its small size. May be aggressive when divers are spearfishing. Apparently regularly caught in fisheries where it occurs, including off of Thailand. The meat is used fresh and dried salted for human consumption, and for its liver oil.

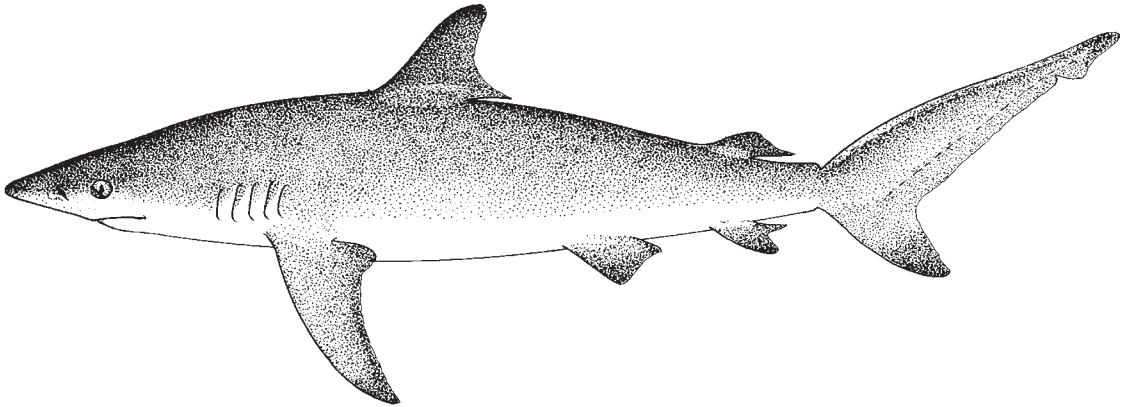
Distribution: Wide-ranging from South Africa, the Red Sea, Pakistan, India eastward to the western Central Pacific; also in the eastern Mediterranean Sea as an invader from the Red Sea through the Suez Canal.



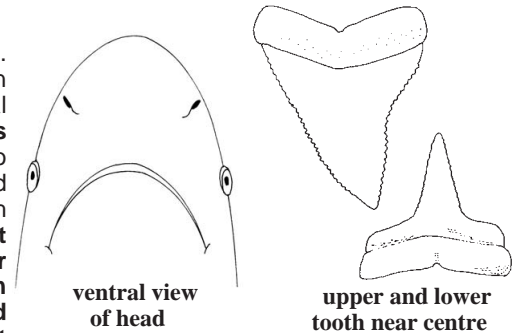
Carcharhinus obscurus (LeSueur, 1818)

Frequent synonyms / misidentifications: *Carcharhinus iranzae* Fourmanoir, 1961 / None.

FAO names: **En** - Dusky shark; **Fr** - Requin sombre (= Réquiem de sable, Area 31); **Sp** - Tiburón arenero.



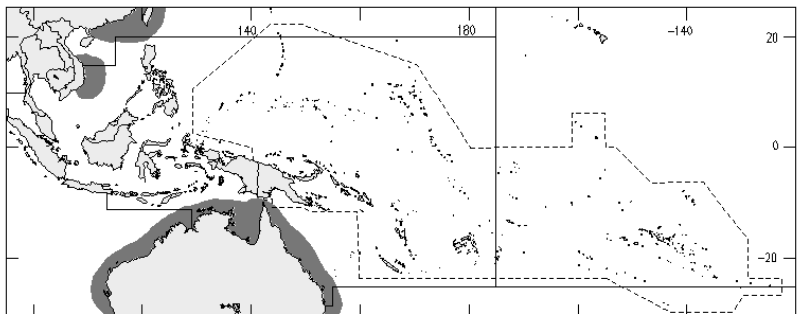
Diagnostic characters: Body slender to moderately stout. Snout rounded and short, its length equal to or less than mouth width and greater than or about equal to internasal space; labial furrows short; **anterior nasal flaps rudimentary**; **upper teeth broadly triangular**, erect to moderately oblique, anterior teeth with strongly serrated broad cusps not delimited from the bases; lower teeth with low, narrow, serrated cusps; gill slits relatively short. **First dorsal fin relatively low, with a broadly arched anterior margin** and a narrowly rounded or pointed apex, **its origin about over free rear tips of pectoral fins**; **second dorsal fin also moderately low, with a nearly straight posterior margin, an inner margin nearly or quite twice the fin height**, and its origin about over that of anal fin; pectoral fins falcate and apically pointed. **A low interdorsal ridge present.** **Colour:** blue-grey, lead-grey above, white below; tips of pectoral and pelvic fins, as well as lower lobe of caudal fin and dorsal fins often dusky in young, plain in adults.



Size: Maximum total length about 3.64 m; matures at about 2.8 m; size at birth about 70 cm to 1 m.

Habitat, biology, and fisheries: A semi-pelagic shark occurring from inshore waters to the outer continental shelf. Viviparous, number of embryos 6 to 14. Feeds chiefly on fishes, including scombrids, clupeids, serranids, trichiurids, bluefish, wrasses, anchovies, grunts, barracudas, sharks and rays, also squids, octopi, gastropods, shrimps, crabs, and carrion. Reported to be dangerous to humans, but attacks in the area are unverified. Regularly caught with longlines and probably gill nets, also hook-and-line and set bottom nets; utilized fresh, dried-salted, frozen and smoked for human consumption; hides used for leather; fins for shark-fin soup; liver oil extracted for vitamins.

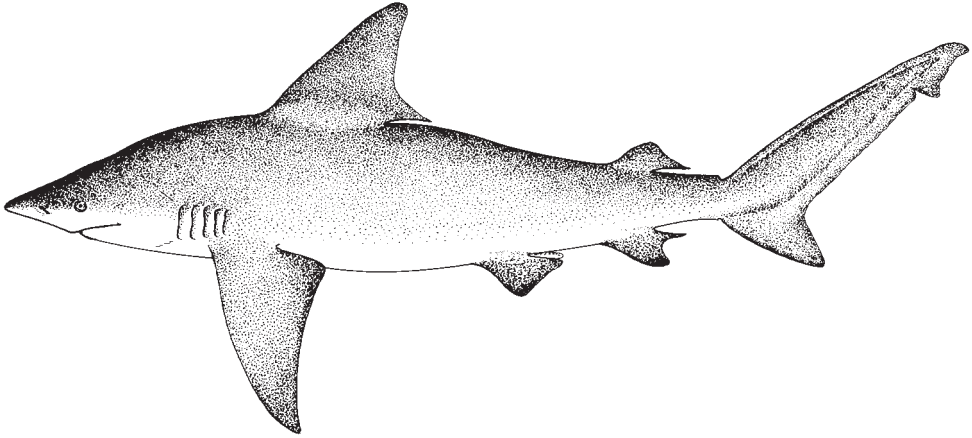
Distribution: Wide-ranging, but with a patchy distribution in tropical and subtropical seas; in the western Central Pacific more confined to the marginal parts of the area (Japan, China, Viet Nam, Australia).



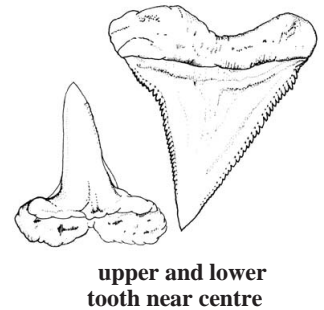
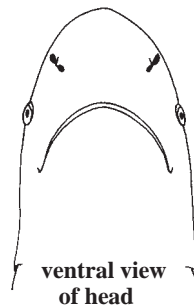
Carcharhinus plumbeus (Nardo, 1827)

Frequent synonyms / misidentifications: *Carcharhinus milberti* (Valenciennes in Müller and Henle, 1841) / None.

FAO names: **En** - Sandbar shark; **Fr** - Requin gris (= Réquiem plombe, Area 31); **Sp** - Tiburón trozo (= Tiburón de Milberto).



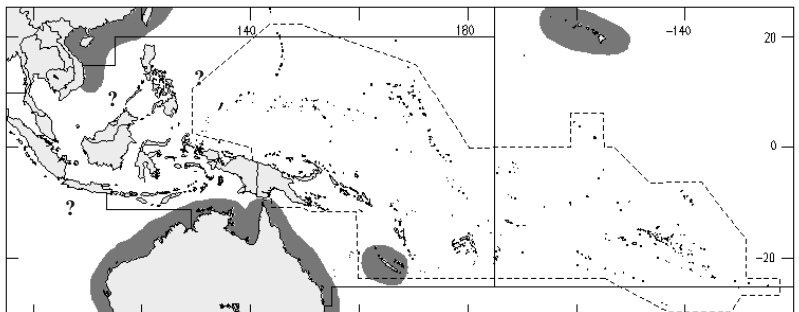
Diagnostic characters: A medium-sized, comparatively stout shark. **Snout broadly rounded and short**, its length less than width of mouth but greater than distance between nostrils; spiracles absent; **teeth finely serrate, those in upper jaw broadly triangular** and erect to slightly oblique, with broad, heavy cusps; lower teeth with narrow, erect cusps. **First dorsal fin triangular, very high** (height of fin twice the length of snout in adults), **with a pointed or narrowly rounded apex, its origin over insertions of pectoral fins**; origin of second dorsal fin about opposite that of anal fin, its inner margin less than twice the fin height; pectoral fins long and broad, their corners narrowly rounded or pointed. **Interdorsal ridge present. Dermal denticles widely spaced, their free edges without definite teeth.** **Colour:** back grey, or rarely brown; belly whitish.



Size: Maximum total length about 2.4 m, records to 3 m uncertain; size at birth 60 to 75 cm.

Habitat, biology, and fisheries: A coastal species usually found over sandy or muddy bottoms; often coming near estuaries but sometimes occurring in oceanic waters to depths of 280 m. Viviparous, number of young 1 to 14. Feeds mainly on bottom-dwelling animals, including flatfishes, rays, crabs, and snails; also on schooling fishes and squids. Not known to be dangerous to humans. Caught with longlines, hook-and-line, and set-bottom nets and is also fished with rod and reel by sports anglers as a game fish. It is utilized fresh, fresh-frozen, smoked, and dried-salted for human consumption; the hides are prized for leather and other products; the fins are prepared as the base for shark-fin soup; the liver is extracted for oil (rich in vitamins).

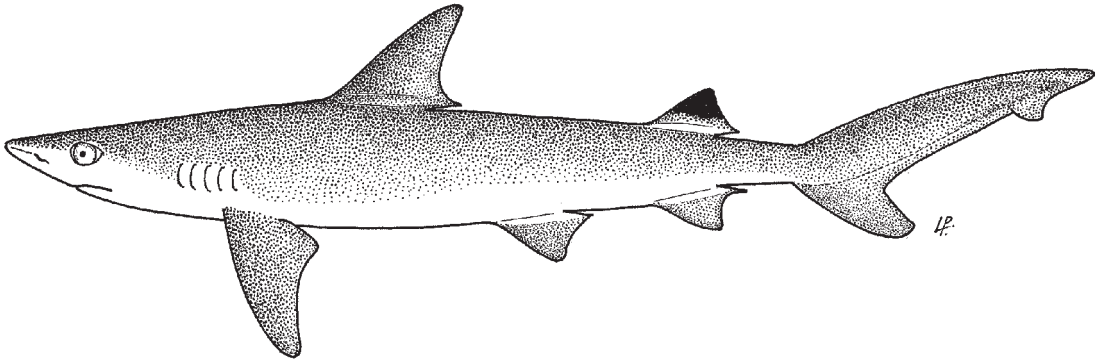
Distribution: Wide-ranging in tropical and subtropical areas of the eastern and western Atlantic, from the Mediterranean Sea, Indian Ocean and western Central Pacific to Hawaii; records from the eastern Central Pacific are uncertain.



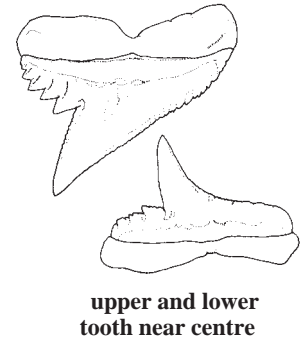
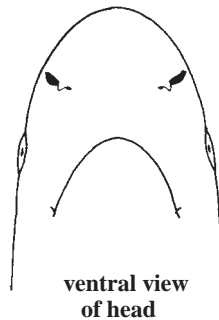
Carcharhinus sealei (Pietschmann, 1916)

Frequent synonyms / misidentifications: *Carcharhinus menisorrhah* (Valenciennes in Müller and Henle, 1839) / *Carcharhinus dussumieri*.

FAO names: En - Blackspot shark; Fr - Requin à tache noire; Sp - Tiburón alinegro.



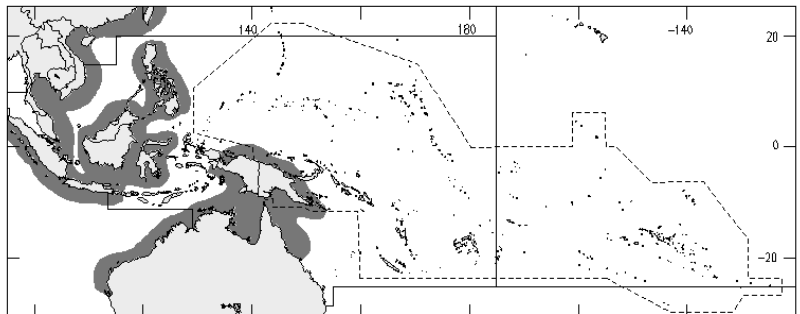
Diagnostic characters: A small, stout to slender-bodied shark. **Snout moderately long and narrowly parabolic or wedge-shaped**, its length usually shorter than mouth width but subequal to the internarial space; labial furrows very short; **anterior nasal flaps expanded**; spiracles absent; gill slits short; **teeth with serrated edges, upper teeth with narrow-based, strongly oblique serrated cusps and strong, smooth-edged cusplets**; teeth in lower jaw erect to oblique, without cusplets, serrated and narrow-cusped; **first dorsal fin moderately high, with an angular apex, notched posterior margin, and short inner margin, strongly falcate**; origin of first dorsal fin over pectoral inner margins; origin of second dorsal fin about opposite or slightly behind that of anal fin; **second dorsal fin high**, its inner margin less than 1.5 times the fin height and its posterior margin concave; pectoral fins short and strongly falcate, with narrow, angular apices. **An interdorsal ridge present or occasionally absent on back.** **Colour:** back greyish or grey-brown, belly whitish; **a black spot on the second dorsal fin is the only conspicuous marking.**



Size: Maximum total length about 95 cm; maturing at 70 to 80 cm; size at birth 33 to 45 cm.

Habitat, biology, and fisheries: A common coastal shark on the continental and insular shelves, from the surf line and intertidal to a depth of 40 m, usually in shallow water. Viviparous, number of young 1 or 2. Feeds on small fish (including sea horses), prawns, and squid. Not known to be dangerous to people. Commonly caught by artisanal and smallscale commercial fisheries as well as sport anglers fishing from the shore. Commonly fished with line gear and gill nets and utilized for human consumption.

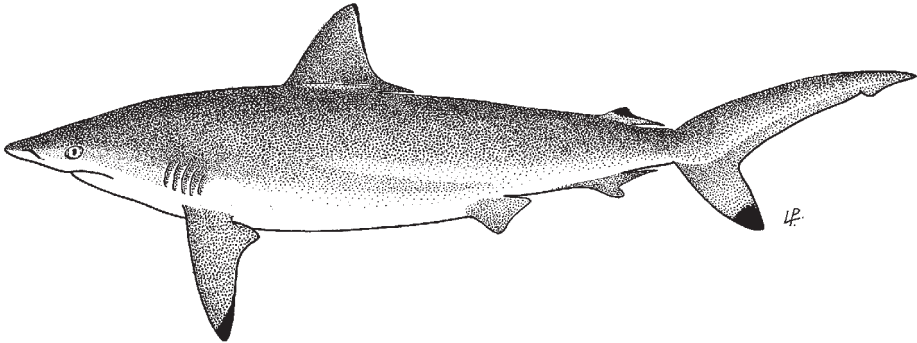
Distribution: Known from South Africa northward to Kenya, Madagascar, the Seychelles, Mauritius, and the southwest coast of India; in the eastern Indian Ocean and western Pacific eastward to China, the Philippines, and New Guinea.



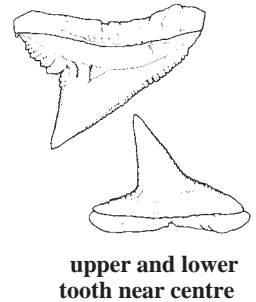
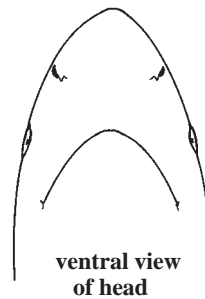
Carcharhinus sorrah (Valenciennes in Müller and Henle, 1839)

Frequent synonyms / misidentifications: *Carcharhinus bleekeri* (Dumeril, 1865) / None.

FAO names: **En** - Spottail shark; **Fr** - Requin tachete; **Sp** - Tiburón rabo manchado.



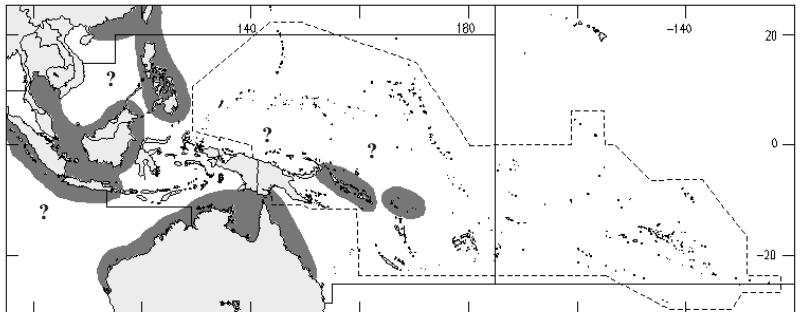
Diagnostic characters: A small to medium-sized shark. Body slender to moderately stout. **Snout moderately pointed, parabolic, and long**, its length equal to or slightly less than mouth width and greater than internasal space; labial furrows short; **anterior nasal flaps with a short, slender, narrow lobe; upper teeth with oblique or semioblique, narrow, serrated cusps and strong distal cusplets**; lowers with semierect or oblique serrated cusps and no cusplets; gill slits relatively short. First dorsal fin with a narrowly rounded apex, its origin usually over the pectoral inner margins, its inner margin and free rear tip moderately long; **second dorsal fin low, with a long, attenuated free rear tip and inner margin over twice fin height**; origin of second dorsal fin over or slightly behind origin of anal fin; pectoral fins weakly falcate and with narrowly rounded tips; **a dermal ridge present between dorsal-fin bases**. **Colour:** grey or grey-brown above, white on belly, with a golden-brown sheen on the area between eyes and gill slits in fresh specimens; **pectoral fins, second dorsal fin, and lower caudal-fin lobe with conspicuous black tips**, first dorsal and upper caudal-fin lobe with black edging. A dark band on flank extending rearwards to pelvic fins.



Sie: Maximum total length to about 1.5 to 1.6 m, possibly to 2.3 m but this is dubious; adults commonly 1.06 to 1.5 m; size at birth about 50 to 60 cm.

Habitat, biology, and fisheries: A common inshore and sometimes offshore shark, on continental and insular shelves from close inshore and the surface down to a depth of at least 140 m. Often on and around coral reefs, but apparently occurring on other bottom habitats. Viviparous, number of young 2 to 6. Feeds on small bony fishes (including serranids and scombrids) and octopuses. Not known to have attacked people, and probably not particularly dangerous because of its small size. Caught in floating gill nets and on longlines. Utilized fresh for human consumption; fins of large individuals may be used in the oriental sharkfin trade, livers for vitamin oil, and offal for fishmeal.

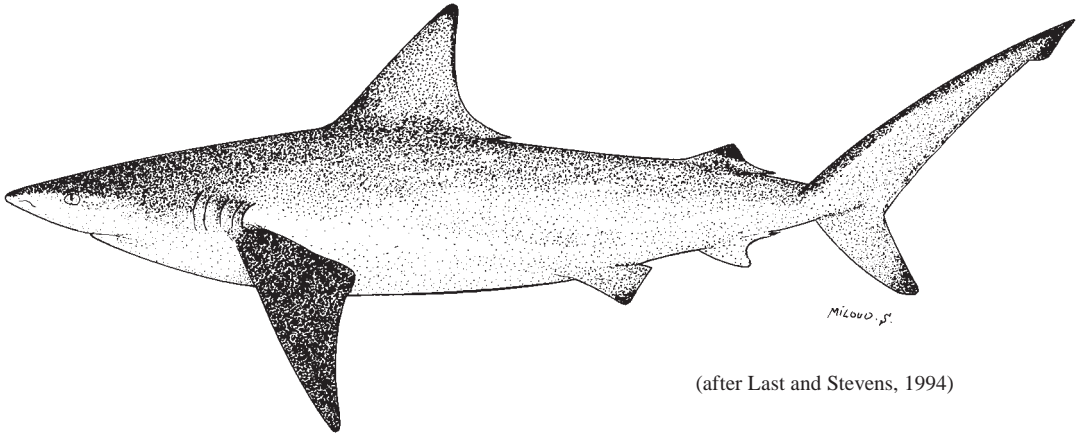
Distribution: Known from Madagascar, possibly South Africa, the Mauritius-Seychelles area, possibly the Gulf of Aden and Oman, western India, and probably Sri Lanka; occurs in the western Central Pacific from China southward to Indonesia and Australia, but without a wide distribution in Oceania.



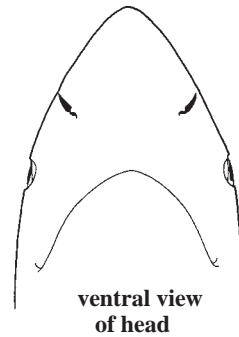
Carcharhinus tilstoni (Whitley, 1950)

Frequent synonyms / misidentifications: None / *Carcharhinus limbatus* (Valenciennes in Müller and Henle, 1839); *C. brevipinna* (Müller and Henel, 1839); *C. amblyrhynchoides* (Whitley, 1934).

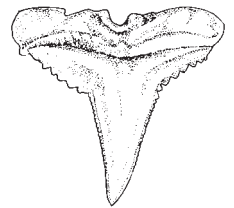
FAO names: En - Australian blacktip shark.



Diagnostic characters: Body fusiform, moderately slender. **Snout long**, about equal to, or slightly less than mouth width, greater than distance between nostrils, its tip narrowly rounded to pointed; labial furrows short; spiracles absent; **upper and lower teeth nearly symmetrical and similar, with erect, narrow cusps and serrated edges**; gill slits moderately long. **First dorsal fin with a pointed or very narrowly rounded apex, its origin above, or slightly posterior to insertion of pectoral fins; second dorsal fin high**, its inner margin less than twice the height of fin, and its origin over or slightly in front of that of anal fin; pectoral fins falcate. **No interdorsal ridge.** **Colour:** back dark grey, ashy blue or dusky bronze; belly white or yellowish white; **a dark band extending rearward along each side to about over origin of pelvic fin; tips of pelvic fins with a persistent black spot.**



ventral view
of head



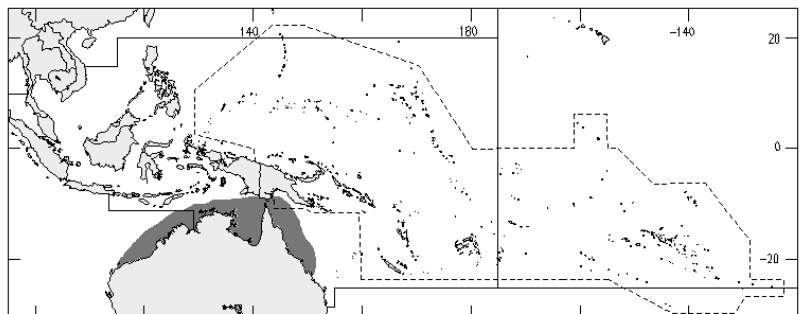
5th tooth from symphysis
(upper jaw)

Size: Maximum total length about 2 m; size at birth about 60 cm.

Habitat, biology, and fisheries: On the continental shelf from close inshore to depths of about 150 m, mainly in midwater or near the surface. Feeds on teleost fishes, also on cephalopods. Until recently, the species was caught with gill nets and longlines for its meat by Taiwanese fisheries in northern Australia. It currently forms the basis of a small Australian gill net fishery (up to 500 t annually).

Distribution: So far only known from northern Australia.

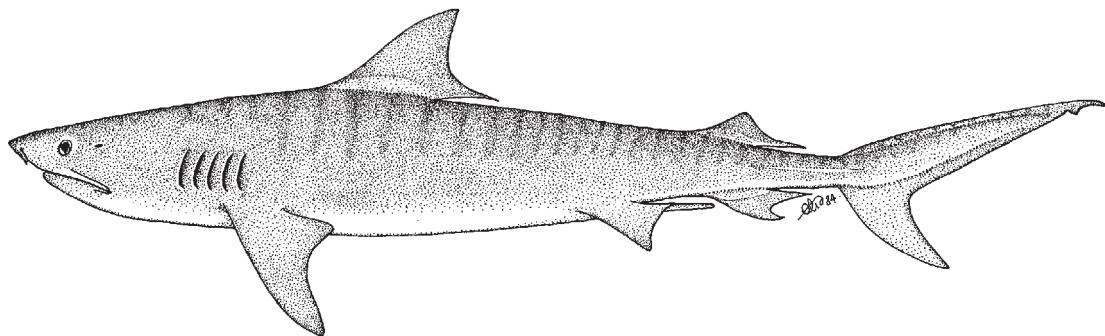
Remarks: This species has only recently been separated from *Carcharhinus limbatus*. At present, these 2 species can be reliably distinguished only on vertebral counts and enzyme systems.



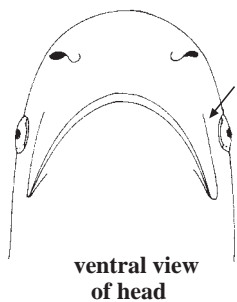
Galeocerdo cuvier (Peron and LeSueur in LeSueur, 1822)

Frequent synonyms / misidentifications: *Galeocerdo arcticus* (Faber, 1829); *G. rayneri* McDonald and Barron, 1868 / None.

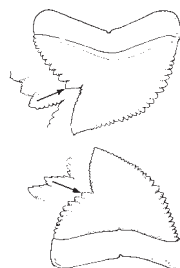
FAO names: **En** - Tiger shark; **Fr** - Requin tigre commun (= Requin tigre, Area 31); **Sp** - Tintorera.



Diagnostic characters: A large, fusiform shark. Snout very short and bluntly rounded, its length much less than width of mouth; spiracles small, slit-like, but easily visible; upper labial furrows about as long as snout, reaching to front of eyes; teeth coarsely serrated, their outer edges deeply notched and the tips directed obliquely outward, their inner edges broadly convex. Second dorsal fin much smaller than first. A low rounded keel on each side of caudal peduncle. **Colour:** back dark grey or greyish brown with dark brown or black rectangular spots often forming bars on sides and fins, but fading with growth.



upper labial furrow

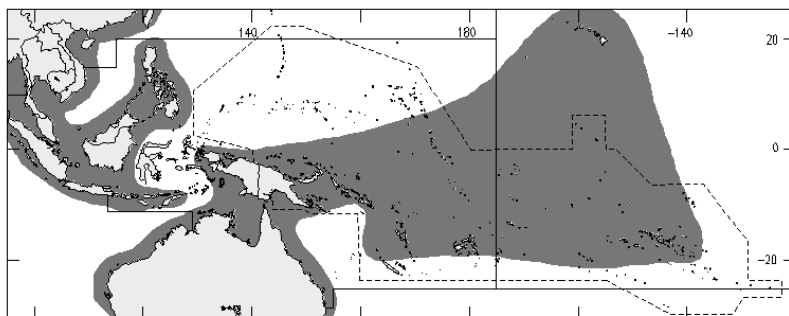


upper and lower tooth near centre

Size: Maximum total length at least 6.5 m; commonly to 4 m; size at birth between 60 cm and 1.04 m.

Habitat, biology, and fisheries: Inhabits coastal, and offshore waters, near the surface and bottom; often found in shallow waters close inshore, including river estuaries. Ovoviviparous and very prolific with 10 to 82 young in a litter. A voracious, indiscriminate predator feeding on all kinds of fish (including other sharks and rays), marine mammals, turtles, seabirds, sea snakes, squids, conchs, and crabs. Often swallows a variety of undigestible and non-nutritive items, and readily feeds on carrion. Considered among the most dangerous of sharks because of its shallow-water habitat, large jaws and teeth, indiscriminate appetite, and large size; several attacks on people have been recorded for this species. Caught in floating and bottom gill nets and with line gear (including pelagic longlines). Utilized for its high-quality hide, for its fins, liver oil and flesh, and offal for fishmeal.

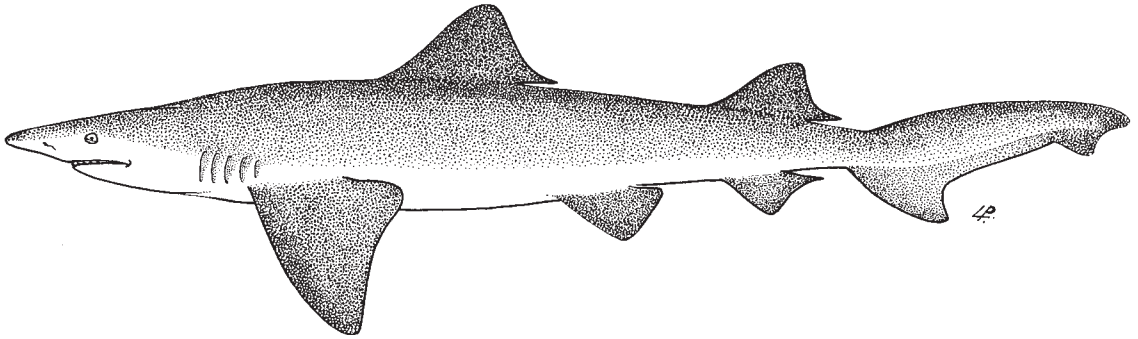
Distribution: Circumglobal in most tropical seas, with seasonal migrations into warm-temperate to temperate seas.



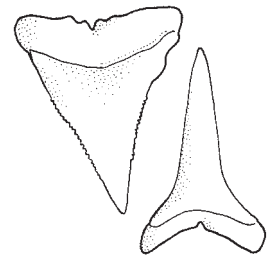
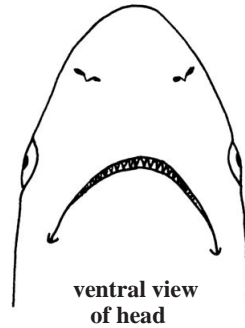
Lamiopsis temmincki (Müller and Henle, 1839)

Frequent synonyms / misidentifications: *Carcharhinus temmincki* (Müller and Henle, 1839); *Eulamia temmincki* (Müller and Henle, 1839) / *Negaprion acutidens* (Rüppell, 1837).

FAO names: En - Broadfin shark; Fr - Requin grandes ailes; Sp - Tiburón aleton.



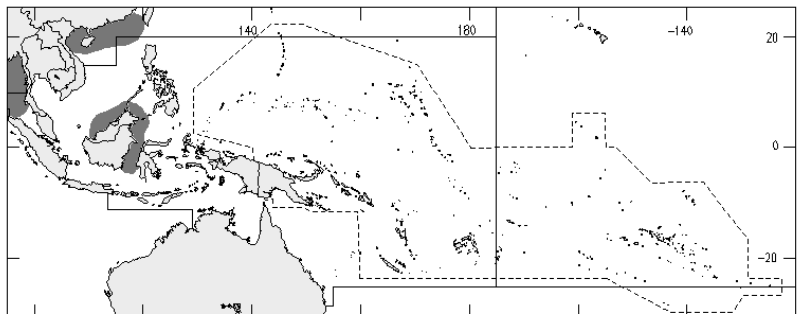
Diagnostic characters: A small to medium-sized shark. Body moderately stout. **Snout moderately long, parabolic in shape**, its length about equal to mouth width and greater than distance between nostrils; labial furrows short; **anterior nasal flaps with a short, broad lobe**; spiracles absent; **teeth in upper jaw with high, broadly triangular, erect to semioblique, serrated cusps**, and no cusplets; **teeth in lower jaw with erect, high, hooked, smooth-edged narrow cusps**, and no cusplets. First dorsal fin moderately large, with a narrowly rounded apex, its origin over inner margins of pectoral fins, its free rear tip moderately long; **second dorsal fin very large, nearly or quite as large as first dorsal**, its inner margin shorter than fin height, its origin anterior to anal-fin origin; **pectoral fins moderately long, basally very broad** and not falcate with narrowly rounded tips; **anal fin with posterior margin slightly concave**; **upper precaudal pit a shallow longitudinal depression, not transverse and crescentic**. **No dermal ridge between dorsal fins**, and no keels on caudal peduncle. **Colour:** grey or yellow-grey above, lighter below; no conspicuous markings.



Size: Maximum total length about 1.7 m; size at birth between 40 and 60 cm.

Habitat, biology, and fisheries: A little-known coastal, inshore, tropical shark. Viviparous, number of young 4 to 8 per litter. Probably feeds on small fishes and invertebrates. Not known to be dangerous to people. Caught in bottom and floating gill nets and with line gear. Meat utilized fresh for human consumption; livers used for vitamin oil.

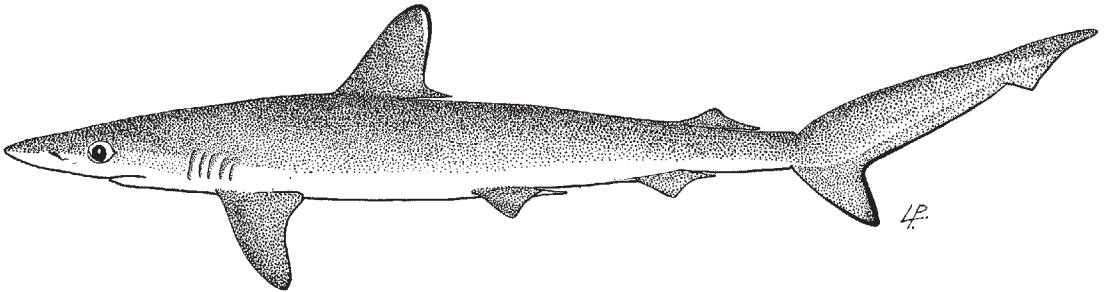
Distribution: Known from scattered localities in the Indian Ocean and western Pacific off Pakistan, India, Burma, Indonesia (Makassar Straits), Sarawak, and China.



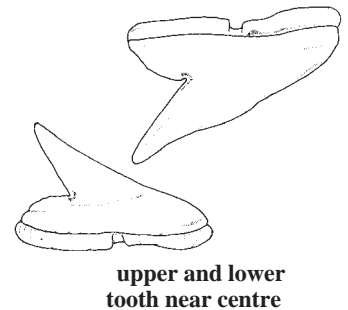
***Loxodon macrorhinus* Müller and Henle, 1839**

Frequent synonyms / misidentifications: *Scoliodon acutus* (Rüppell, 1837); *S. ceylonensis* Setna and Sarangdhar, 1946 / *Scoliodon laticaudus* Müller and Henle, 1838; *Carcharhinus macloti* (Müller and Henle, 1838).

FAO names: En - Sliteye shark; Fr - Requin sagrin; Sp - Tiburón ojuelo.



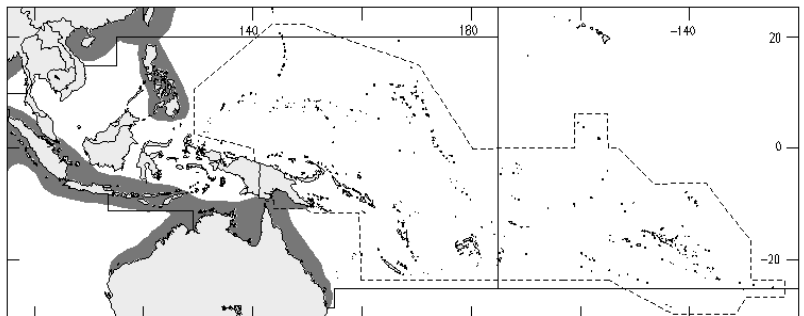
Diagnostic characters: A small, very slender shark. Snout very long, parabolic in shape, its length greater than mouth width and distance between nostrils; labial furrows very short; anterior nasal flaps with a short, broadly triangular lobe; eyes large, with a posterior notch; spiracles absent; teeth in both jaws with low, narrow, oblique, smooth-edged cusps, and no cusplets. First dorsal fin small, its origin behind free rear tips of pectoral fins by a distance greater than length of fourth gill opening, its base 2 or 3 times in distance between pectoral and pelvic-fin bases, its free rear tip moderately long and not reaching backward to pelvic-fin origins; second dorsal fin very small, its height less than 1/3 of that of first dorsal fin, the inner margin elongated and over twice the fin height and the fin origin usually just behind anal-fin insertion (occasionally over or slightly in front of it, but far behind anal midbase); pectoral fins small, narrow and slightly falcate; anal fin with a slightly concave posterior margin and long preanal ridges. Upper precaudal pit transverse and crescentic; no keels on caudal peduncle; interdorsal ridge usually absent. **Colour:** grey above, pale below, fins with pale edges (transparent in life), caudal and first dorsal fins with narrow dark margin, first dorsal fin also with a dusky tip.



Size: Maximum total length about 91 cm; maturing at 73 to 85 cm; size at birth about 40 to 43 cm.

Habitat, biology, and fisheries: Occurs in tropical, coastal, clear waters, near the surface and bottom, inshore and offshore at depths from 7 to 80 m. Viviparous number of young usually 2 in a litter. Feeds on small bony fishes, including anchovies and croakers, and shrimp and cuttlefish. Harmless to people. Caught in artisanal and small scale commercial fisheries with floating and bottom gill nets and with line gear (including pelagic longlines). Utilized fresh for human consumption.

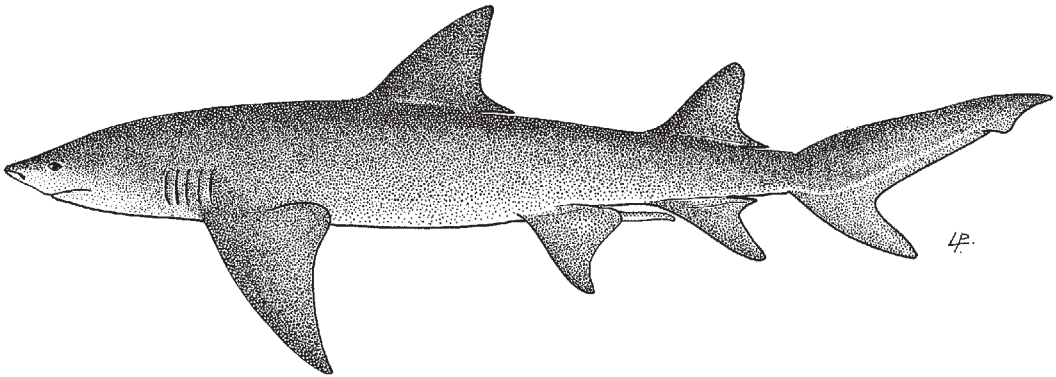
Distribution: In the Indo-West Pacific from South Africa, southern Mozambique, Madagascar, Seychelles and the Red Sea eastward to India, Sri Lanka, Indonesia, China, Taiwan Province of China, the Philippines, and Australia.



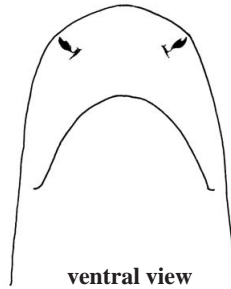
Negaprion acutidens (Rüppell, 1837)

Frequent synonyms / misidentifications: None / *Lamiopsis temmincki* (Müller and Henle, 1839).

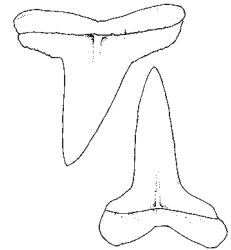
FAO names: En - Sicklefin lemon shark; Fr - Requin citron faucille; Sp - Tiburón segador.



Diagnostic characters: A large, stout shark. **Snout short (shorter than width of mouth) and broad, rounded or obtusely wedge-shaped;** labial folds short; spiracles usually absent; **teeth narrow, their cusps smooth-edged,** erect in anterior part of jaws, but becoming progressively oblique toward the sides; bases of upper teeth smooth or weakly serrated. Origin of first dorsal fin over or behind free rear tips of pectoral fins, closer to these fins than to the pelvic fins; **second dorsal fin nearly as large as the first** (its base more than 3/4 of first dorsal-fin base); pectoral fins broad and strongly falcate, pelvic fins falcate. No dermal ridge between dorsal fins. **Colour:** yellowish brown above, paler below.



ventral view
of head

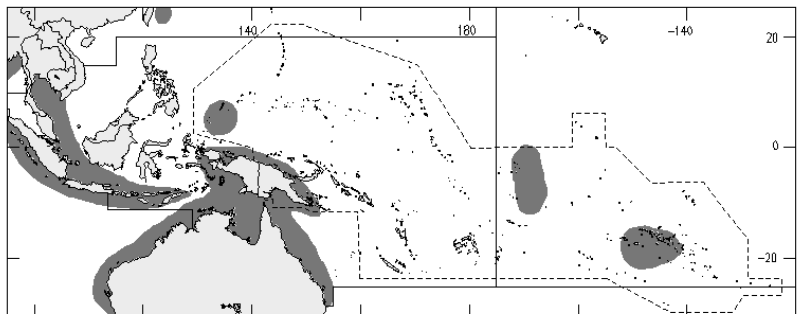


upper and lower
tooth near centre

Size: Maximum total length about 3 m; maturing at about 2.2 m; size at birth about 50 to 70 cm.

Habitat, biology, and fisheries: Occurs in tropical, shallow inshore and offshore waters near the bottom; often found on and around coral reefs and on sandy plateaus near coral, at depths down to at least 30 m. Viviparous, 12 or 13 young in a litter. A fish-eating shark, but few details of its diet are available from the area. Potentially dangerous because of its large size, powerful jaws and dagger-like teeth; normally inoffensive and sluggish but very aggressive when provoked. Caught in floating and bottom gill nets and on line gear (including floating longlines). Used fresh and dried-salted for human consumption; livers processed for vitamin oil; offal processed for fishmeal; and fins are processed for shark-fin soup base.

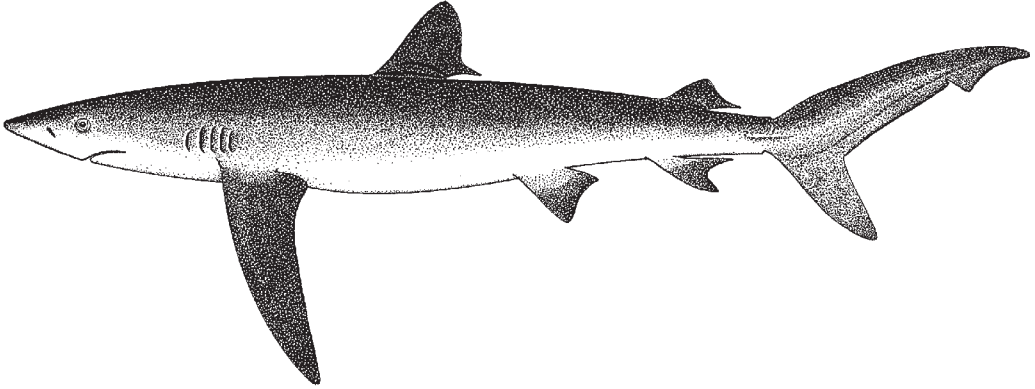
Distribution: Wide-ranging in the Indian Ocean and western Central Pacific, extending from South Africa to the Australian region and Oceania.



Prionace glauca (Linnaeus, 1758)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Blue shark; Fr - Peau bleue; Sp - Tiburón azul.



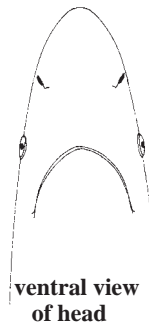
Diagnostic characters: very slender, fusiform shark. Snout long, (its length greater than mouth width) and narrowly rounded; upper labial furrows very short; spiracles absent; nictitating eyelids present; teeth serrated, broadly triangular and curved in upper jaw, narrower in lower jaw; upper medial tooth very large, nearly the size of teeth on either side of it (but sometimes absent); inner gill arches with gill-raker papillae (visible through open mouth). First dorsal-fin origin well posterior to free rear tips of pectoral fins, the midpoint of its base closer to pelvic fin than to pectoral fin origins; second dorsal fin much smaller than first; pectoral fins very long, narrow and somewhat falcate. A weak keel present of sides of caudal peduncle. No interdorsal ridge.

Colour: in life, dark blue above, bright blue on sides, white below, fading to purple blackish after death; tips of pectoral fins and anal fin dusky.

Size: Maximum total length about 3.8 m, though larger specimens (up to 4.8 to 6.5 m) are mentioned on poor evidence in the literature; most specimens below 3.35 m.

Habitat, biology, and fisheries: A slow-cruising, very common oceanic species capable of bursts of speed when excited. Usually well offshore and in the open sea near the surface, but sometimes penetrating coastal waters. Viviparous, litters usually large, ranging from 4 to 63 young. Feeds on a wide variety of bony fishes, small sharks, squids, pelagic crustaceans, and occasionally sea birds and carrion. Sometimes aggressive to people in the water, and considered a dangerous species although attacks on people are relatively uncommon. Usually caught with pelagic longlines and gill nets but also hook-and-lines, pelagic trawls, and even bottom trawls near coasts. It is utilized fresh, smoked, and dried-salted for human consumption; its hides are used for leather; fins for shark-fin soup base; and also for fishmeal and liver oil. This shark is also considered a game fish and taken by sports anglers with rod and reel.

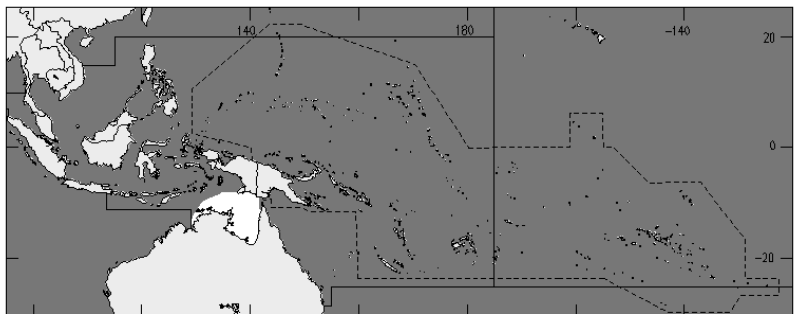
Distribution: Circumglobal in all tropical and temperate seas.



ventral view
of head



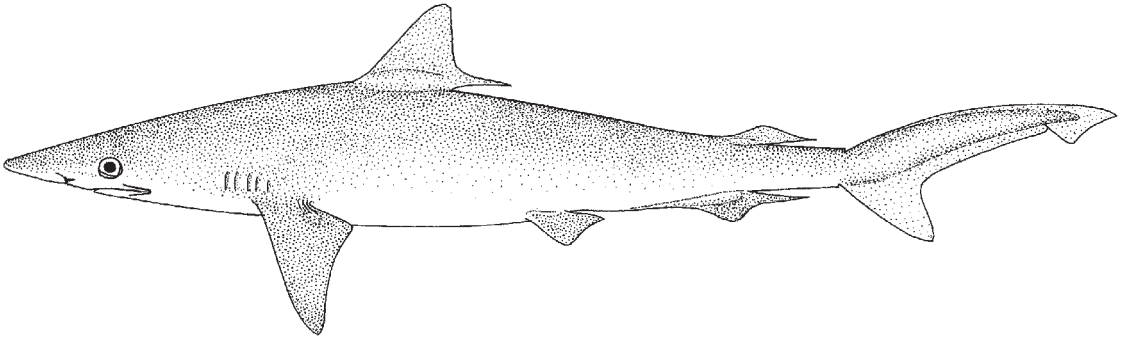
upper and lower
tooth near centre



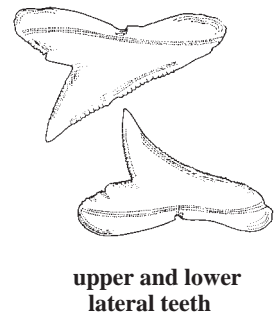
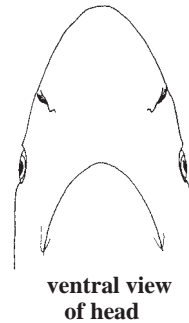
***Rhizoprionodon acutus* (Rüppell, 1837)**

Frequent synonyms / misidentifications: *Scoliodon acutus* (Rüppell, 1837); *S. palasorra* (Bleeker, 1853); *S. walbeehmi* (Bleeker, 1856) / *Rhizoprionodon oligolinx* Springer, 1964; *R. taylori* (Ogilby, 1915); *Loxodon macrorhinus* Müller and Henle, 1839; *Scoliodon laticaudus* Müller and Henle, 1838; *Carcharhinus macloiti* Müller and Henle, 1839.

FAO names: En - Milk shark; Fr - Requin à museau pointu; Sp - Cazón picudo.



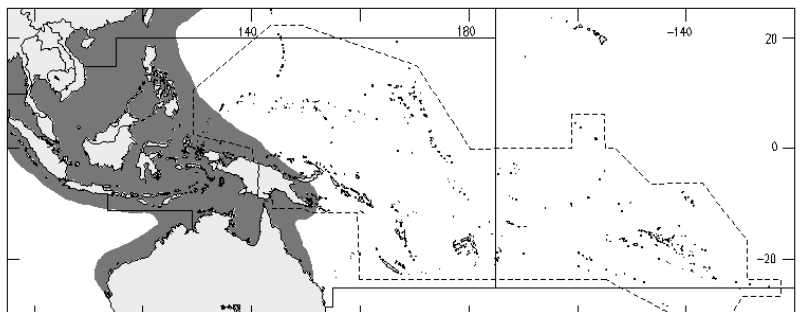
Diagnostic characters: A small, slender shark. Snout long and depressed its length usually greater than width of mouth, its tip narrowly rounded; eyes without a posterior notch; no spiracles; **labial furrows well developed and moderately long, the upper ones about equal in length to eye diameter and ending well behind eyes**; teeth similar in both jaws, low-crowned, **oblique and narrow-cusped**, with the outer edges deeply notched and without cusplets, smooth-edged in young but often finely serrated in adults. Origin of first dorsal fin over or posterior to inner corners of pectoral fins, base length of first dorsal fin twice or less in distance between pectoral and pelvic-fin bases, free rear tip usually anterior to pelvic-fin origins; **second dorsal fin smaller than anal fin, its origin far posterior to midlength of anal-fin base; anal fin with slightly concave posterior margin and a pair of long preanal ridges**. **Colour:** grey or grey-brown above, white below, dorsal and anal fins with dusky or blackish edges, fins slightly darker than back.



Size: Maximum total length about 1 m; a single record of a 1.78 m specimen off Africa (possibly based on some other species); adults maturing at about 75 cm; size at birth about 35 cm.

Habitat, biology, and fisheries: An extremely abundant, small, inshore and offshore shark of the tropics, ranging from the surfline down to a depth of 200 m, and occurring near the surface, as well as near the bottom. Viviparous, with 2 to 8 fetuses in a litter, gestation period about one year. Feeds on small bony fishes and small crustaceans; harmless to people. Very commonly caught inshore in artisanal and smallscale fisheries as well as offshore in fishing fleets. Caught on line gear (including floating longlines set near the coasts), and especially floating and bottom gill nets. Utilized fresh and possibly dried salted for food and for fishmeal.

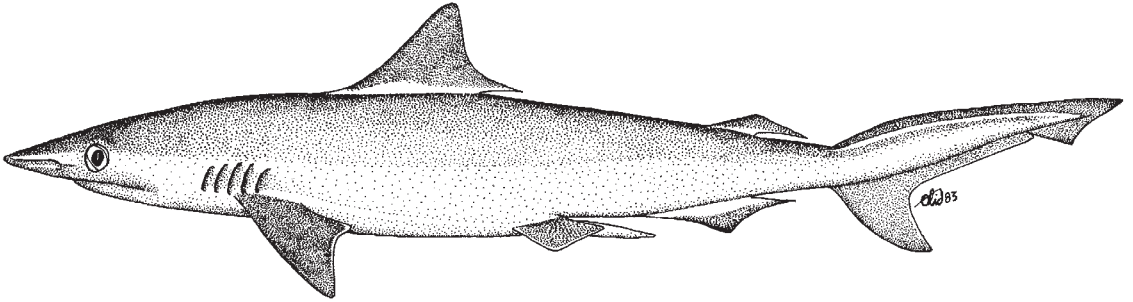
Distribution: In all tropical and subtropical areas of the Indian Ocean and the western Central Pacific (but absent in Oceania); also in the eastern Atlantic off Madeira and from Mauretania to Angola.



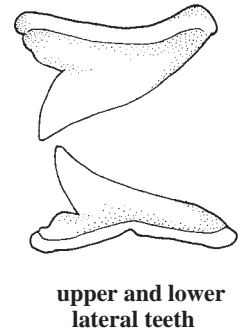
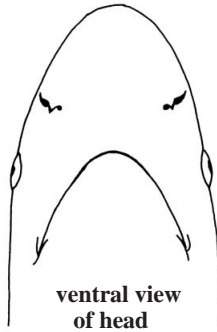
Rhizoprionodon oligolinx Springer, 1964

Frequent synonyms / misidentifications: *Scoliodon palasorra* (Bleeker, 1853) / *Rhizoprionodon acutus* (Rüppell, 1837); *R. taylori* (Ogilby, 1915); *Loxodon macrorhinus* Müller and Henle, 1839; *Scoliodon laticaudus* Müller and Henle, 1839; *Carcharhinus macloiti* (Müller and Henle, 1839).

FAO names: En - Grey sharpnose shark; Fr - Requin aiguille gris; Sp - Cazón picudo gris.



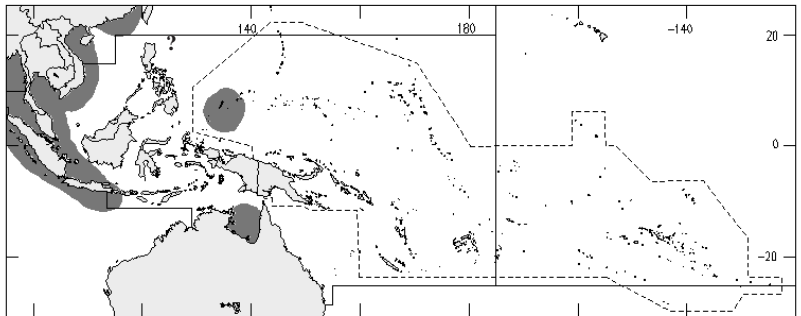
Diagnostic characters: A small, slender shark. Snout long and depressed, its length usually greater than width of mouth, its tip narrowly rounded; eyes without a posterior notch; no spiracles; **labial furrows very short, much less than eye length, ending well behind eyes; teeth** similar in both jaws, low-crowned, **oblique and narrow-cusped**, with the outer edges deeply notched and without cusplets, smooth edged in young but often finely serrated in adults. Origin of first dorsal fin over or posterior to inner corners of pectoral fins, its base length less than 2 times in distance between pectoral and pelvic-fin bases, its free rear tip usually anterior to pelvic-fin origins but occasionally over them; **second dorsal fin smaller than anal fin, its origin far posterior to midlength of anal-fin base; anal fin with slightly concave posterior margin and a pair of long preanal ridges.** **Colour:** grey dorsal and anal fins with dusky slightly darker than back.



Size: Maximum total length about 70 cm; males may mature at 35 cm; size at birth about 20 to 30 cm.

Habitat, biology, and fisheries: A common but little-known littoral, inshore and offshore tropical shark of coastal waters, ranging down to at least depths of 36 m from close inshore. Viviparous, with a yolk-sac placenta; number of young 3 to 5 per litter. Probably feeds on small fishes and invertebrates; harmless to people. Caught with floating and bottom gill nets, and line gear. Utilized fresh and probably dried salted for human consumption, also for fishmeal.

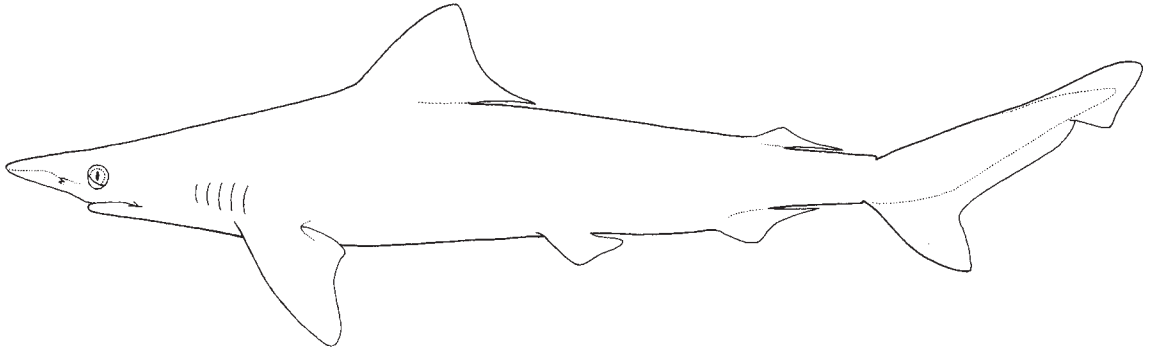
Distribution: In the tropical Indo-West Pacific from the Persian Gulf eastward to Thailand, Indonesia, China, and Japan; also recorded from Australia (Gulf of Carpentaria).



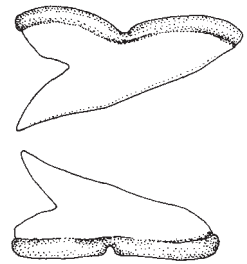
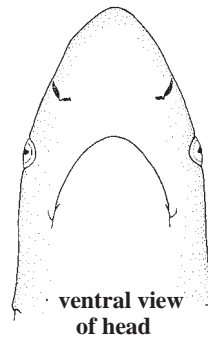
Rhizoprionodon taylori (Ogilby, 1915)

Frequent synonyms / misidentifications: *Protozygaena taylori* (Ogilby, 1915) / *Rhizoprionodon acutus* (Rüppell, 1837); *R. oligolinx* Springer, 1964; *Loxodon macrorhinus* Müller and Henle, 1839; *Scoliodon laticaudus* Müller and Henle, 1838; *Carcharhinus macloiti* (Müller and Henle, 1839).

FAO Names: **En** - Australian sharpnose shark; **Fr** - Requin aiguille réchine; **Sp** - Cazón picudo australiano.



Diagnostic characters: A small, slender shark. Snout long and depressed, its length usually greater than width of mouth, its tip narrowly rounded; eyes without a posterior notch; no spiracles; **labial furrows very short, much less than eye length, ending well behind eyes; teeth** similar in both jaws, low-crowned, **oblique and narrow-cusped**, with the outer edges deeply notched and without cusplets, smooth-edged in young but often finely serrated in adults. Origin of first dorsal fin just anterior or posterior to inner corners of pectoral fins, base length of first dorsal fin twice or less in distance between pectoral and pelvic-fin bases, free rear tip usually anterior to pelvic-fin origins; **second dorsal fin smaller than anal fin, its origin over past 1/3 of anal-fin base; anal fin with slightly concave posterior margin and a pair of long preanal ridges.** **Colour:** brownish grey above, white below, fins light-edged but not conspicuously marked.

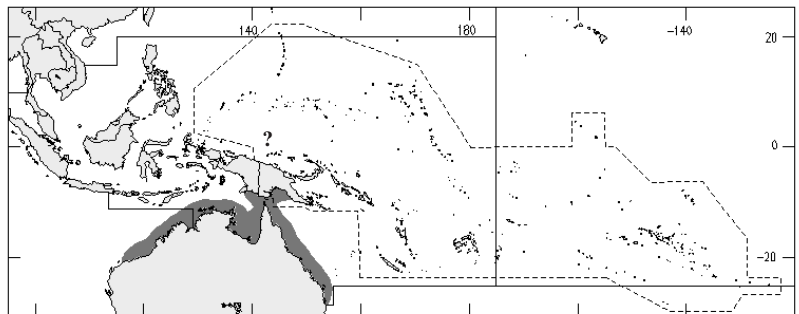


upper and lower tooth

Size: Maximum total length about 67 cm, males adolescent at about 41 cm; size at birth about 45 cm.

Habitat, biology, and fisheries: A little-known tropical inshore shark of the Australian continental shelf. Viviparous, with a yolk-sac placenta; number of young 2 per litter. Feeds mainly on fish but also on cephalopods and crustaceans. Locally very common and taken incidentally in mackerel nets, but not used commercially because of its small size.

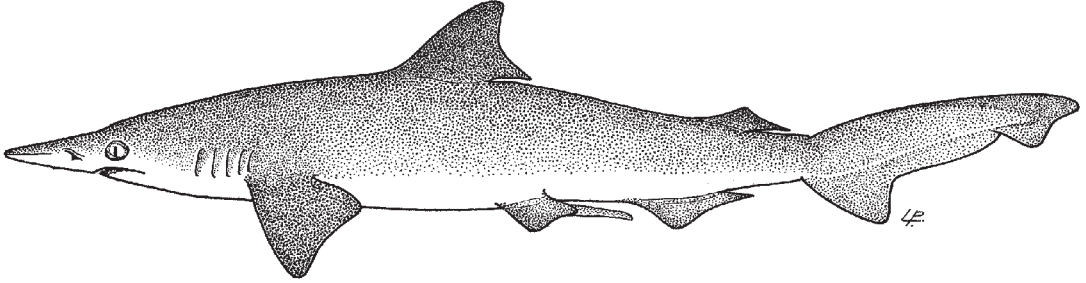
Distribution: Western South Pacific off Papua New Guinea and from northwestern Australia to southern Queensland.



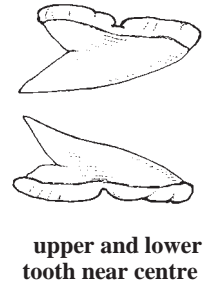
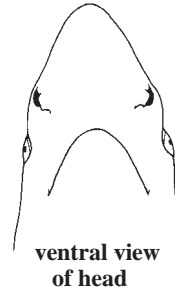
Scoliodon laticaudus Müller and Henle, 1838

Frequent synonyms / misidentifications: *Physodon mülleri* (Valenciennes *in* Müller and Henle, 1839); *Scoliodon palasorra* (Bleeker, 1853); *S. sorrakowa* (Bleeker, 1853) / None.

FAO names: **En** - Spadenose shark; **Fr** - Requin épée; **Sp** - Cazón espadachin.



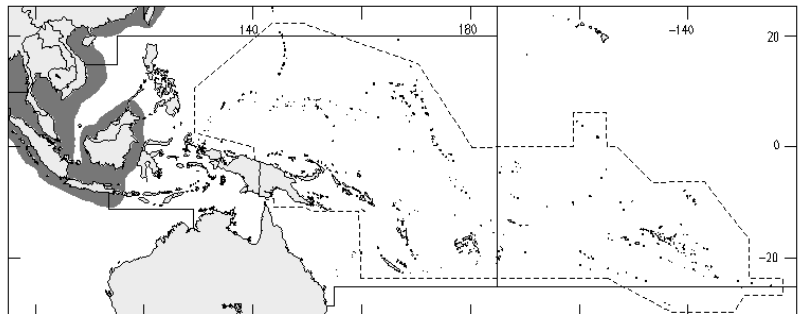
Diagnostic characters: A small shark. Body moderately stout and markedly compressed. **Head and snout strongly depressed; snout long, narrowly rounded, its length greater than mouth width; labial furrows very short; anterior nasal flaps with a short, narrowly triangular lobe; eyes moderately large, without a posterior notch; spiracles absent; teeth similar in both jaws, oblique and narrow-cusped, with the distal edges deeply notched and without cusplets or serrations. First dorsal fin moderately large, its origin well behind pectoral free rear tips, its base closer to pelvic than to pectoral-fin bases, and its free rear tip over or behind middle of pelvic-fin bases; second dorsal fin very small, its height less than 1/3 of that of first dorsal, its inner margin elongated and over twice the fin height, fin origin over or slightly anterior to anal-fin insertion; pectoral fins small broad, triangular, and not falcate, originating under or slightly anterior to fifth gill openings, anal fin with a slightly concave posterior margin and relatively short preanal ridges. Upper precaudal pit transverse and crescentic; no keels on caudal peduncle; no interdorsal ridge. **Colour:** bronzy grey above, white below, fins sometimes darker than body; no conspicuous markings.**



Size: Maximum total length about 74 cm, but most individuals smaller; size at birth about 13 to 15 cm.

Habitat, biology, and fisheries: A common tropical shark in coastal waters, often near the bottom in rocky areas. Viviparous, number of young 5 to 14. A small harmless shark, very abundant where it occurs in the area, and forming large schools. Feeds on shrimps, cuttlefishes, and small schooling fishes including anchovies, bregmacerotids, tripauchenids, and Bombay ducks (*Harpodon nehereus*). Caught with hook-and-line, longlines, floating and bottom gill nets, set bottom sets, and traps. Utilized for human consumption, processed into fishmeal, and used for bait for other sharks and bony fishes.

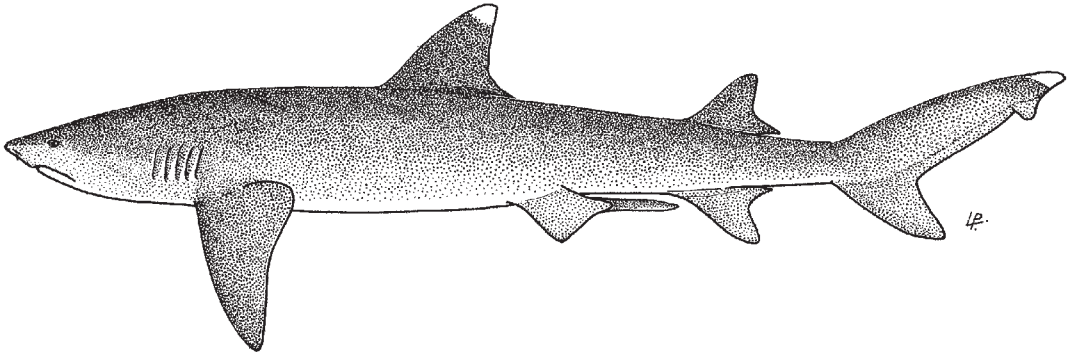
Distribution: In the tropical Indo-West Pacific from the Persian Gulf eastward to Thailand, Indonesia, China, and Japan; also recorded from Tanzania, but absent from Oceania and the Australasian region.



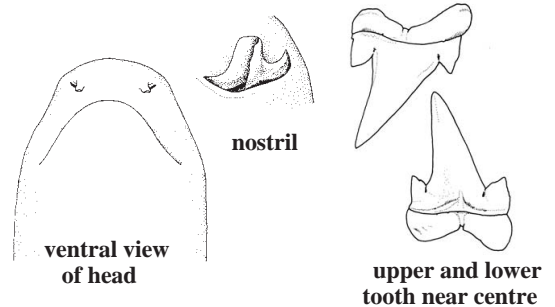
Triagenodon obesus (Rüppell, 1837)

Frequent synonyms / misidentifications: None / None.

FAO names: En - Whitetip reef shark; Fr - Requin corail; Sp - Cazón coralero trompacorta.



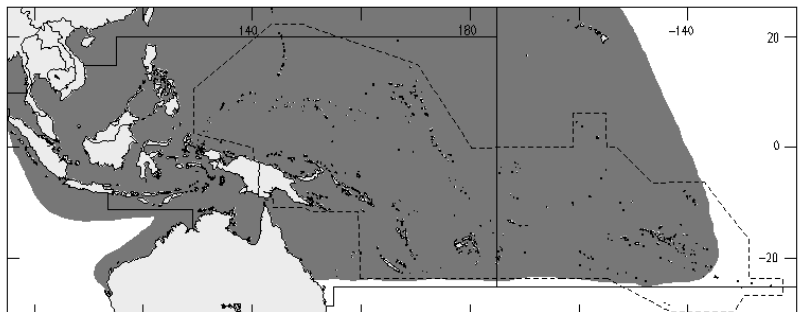
Diagnostic characters: A small to medium-sized shark. Body moderately stout. **Snout very short, broadly rounded, its length much less than mouth width** and equal to or less than distance between nostrils; labial furrows very short; **anterior nasal flaps with a short, truncate, prominent lobe, formed into a partial tube**; spiracles usually absent (small ones present in a few specimens); **teeth in upper and lower jaws with high, narrow, smooth-edged cusps with strong cusplets on each side, no serrations**. First dorsal fin moderately large, with a narrowly rounded apex, its origin well posterior to free rear tips of pectoral fins, **the midpoint of its base closer to pelvic fins than pectoral fins**, and its free rear tip about over pelvic-fin origins; **second dorsal fin very large, about 1/2 the surface of first dorsal fin and over half its height**, its inner margin shorter than fin height, its origin over or slightly anterior to anal-fin origin; pectoral fins moderately long, moderately narrow, slightly falcate, and with narrow tips; anal fin with posterior margin deeply notched; upper precaudal pit transverse and crescentic. No interdorsal ridge, and no keels on caudal peduncle. **Colour:** grey-brown above, sometimes with a few or several dark spots on sides, **first dorsal-fin lobe and dorsal caudal-fin lobe with conspicuous white tips**, second dorsal-fin lobe and ventral caudal-fin lobe often white-tipped; ventral surface cream-white.



Size: Maximum total length 1.7 m; size at birth about 52 to 60 cm.

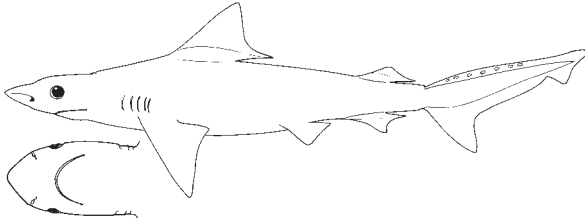
Habitat, biology, and fisheries: A common shark in tropical, coastal clear waters, usually on or around coral reefs; commonly in holes and crevices, often in shallow water near the bottom, but exceptionally at considerable depths down to 330 m. Viviparous, number of young 1 to 5 in a litter. A common reef shark, feeding on a wide variety of reef fishes including moray eels, squirrelfishes, snappers, damselfishes, parrotfishes, surgeonfish, triggerfishes, goatfishes; also octopuses, lobsters, and crabs. A relatively non-aggressive shark to people in the water, and generally considered as not particularly dangerous. In response to exciting stimuli, especially speared fish, this shark has been known to attack divers, but never with serious results. Caught in floating and bottom gill nets and with line gear, including floating longlines. Utilized fresh for human consumption.

Distribution: Wide-ranging in the Indo-Pacific with an extensive distribution among islands of the tropical Pacific.

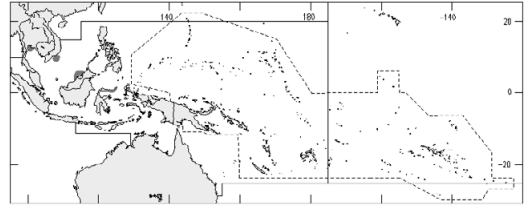


Carcharhinus* sp.*En** - False smalltail shark.

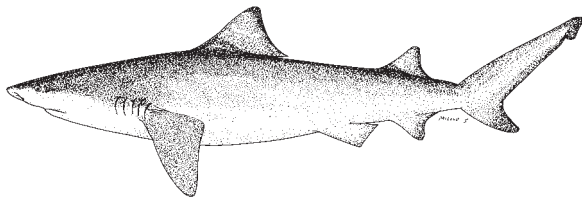
Maximum total length at least 43 cm, probably attains a maximum length of about 1 m as a term fetus is 34 cm total length and a freelifving individual with an umbilical scar is 37 cm total length. A rare, little-known inshore tropical shark endemic to the area, previously confused with the American smalltail shark, *Carcharhinus porosus* (Ranzani, 1839) but closer to (but distinct from) *C. borneensis*. Presumably viviparous. Probably occurs in local fisheries, but of minor interest. Known only from 3 specimens from Viet Nam (Ho Chi Minh City), Borneo (Baram, Sarawak), and Thailand (Bangkok). Conservation status needs investigation.



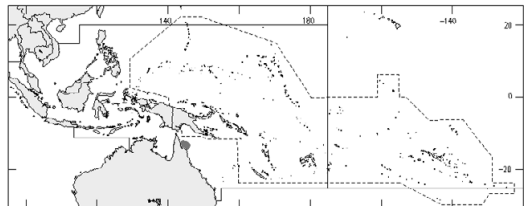
ventral view
of head

***Glyphis* sp. A** [Last and Stevens, 1994]**En** - Queensland river shark.

Maximum total length at least 75 cm (newborn specimen with umbilical scar), probably attains a much larger size. A rare, little-known tropical riverine shark. Probably occurs in local fisheries, but of minor interest. Known from 2 specimens from the lower reaches of the Bizant River in Queensland, Australia, probably in brackish rather than fresh water. Possibly identical with the spartooth shark, *Glyphis glyphis* (Müller and Henle, 1839) which was described from a single stuffed specimen without locality. Conservation status needs investigation.



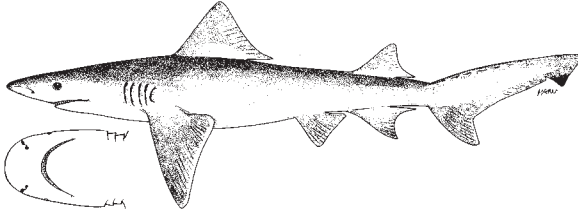
(after Last and Stevens, 1994)



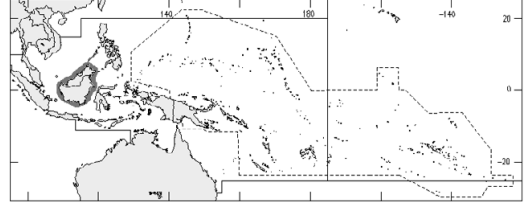
***Glyphis* sp. B**

En - Borneo river shark.

Maximum total length about 81 cm, probably attains a much larger size. A rare, little-known tropical shark. Occurs in local fisheries, but of little interest. Known from Borneo. Conservation status needs investigation.

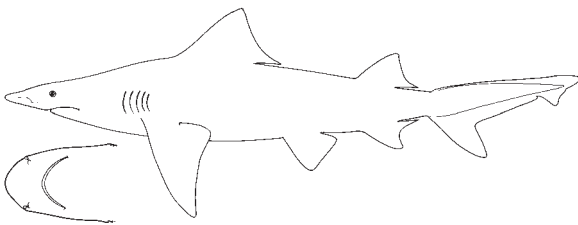


ventral view
of head

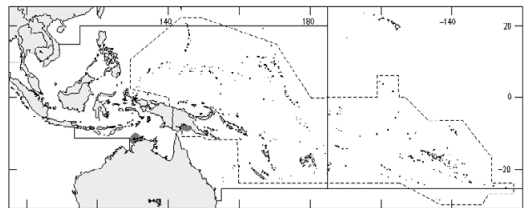
***Glyphis* sp. C**

En - New Guinea river shark.

Maximum total length at least 1.31 m probably larger. A rare, little-known riverine tropical shark. Probably occurs in local fisheries, but of minor interest. A species including 3 specimens from Papua New Guinea and from fresh water in the Adelaide River, Northern Territory, Australia. Jaws of *Glyphis* from Papua New Guinea in estuaries or fresh water near Port Romilly and Bainuru and from fresh water at Alligator Island in the Fly River may be this species or *Glyphis* sp. A. Conservation status needs investigation.



ventral view
of head

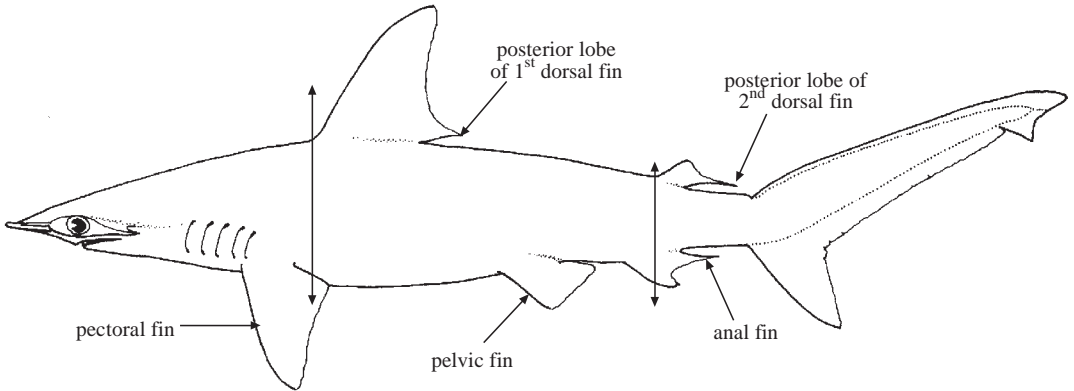


SPHYRNIDAE

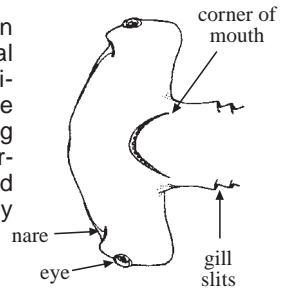
Hammerhead and bonnethead sharks

by L.J.V. Compagno

Diagnostic characters: Medium- to large-sized sharks. Body elongate and moderately slender. **Anterior portion of head much flattened dorsoventrally and widely expanded laterally in “hammer” form, with the eyes at its outer edges;** well-developed nictitating lower eyelids; teeth blade-like, with a single cusp. Two dorsal fins, the first high and pointed, its base much shorter than caudal fin and wholly anterior to pelvic-fin origin; caudal fin strongly asymmetrical, with a well-marked subterminal notch and a small, but well-defined lower lobe. Caudal peduncle not strongly flattened dorsoventrally or widely expanded laterally, without longitudinal ridges but with precaudal pits. **Colour:** back predominantly grey or brassy; belly white.



Habitat, biology, and fisheries: Hammerhead sharks inhabit surface waters in tropical and warm-temperate areas. Small species are confined to coastal waters; juveniles of large species are coastal, while adults are primarily semi-oceanic, although they often approach the coast in search of food. They are voracious predators, feeding mainly on fishes, sharks, rays, and bottom-dwelling animals (some crustaceans and molluscs). A few species are reported dangerous to bathers. Hammerhead sharks are important for fisheries in the area and are used as food and also for the preparation of various subproducts, especially Vitamin A from the liver and soup base from the fins.



ventral view of head

Similar families occurring in the area

None. No other shark family has the characteristic hammer-shaped head of the Sphyrnidae.

Key to the species of Sphyrnidae occurring in the area

- 1a. Expanded lateral blades of head very narrow and wing-like, with a series of small bumps along edges in front of nostrils; width across head 40 or 50% of total length; nostrils enormously expanded, each nearly 2 times the mouth width (Fig.1) *Eusphyrna blochii*
- 1b. Expanded lateral blades of head relatively broad, not wing-like, and without small bumps along edges in front of nostrils; width across head less than 31% of total length; nostrils narrow, less than 1/2 the mouth width (Figs 2 to 4) . . . (*Sphyrna*) → 2

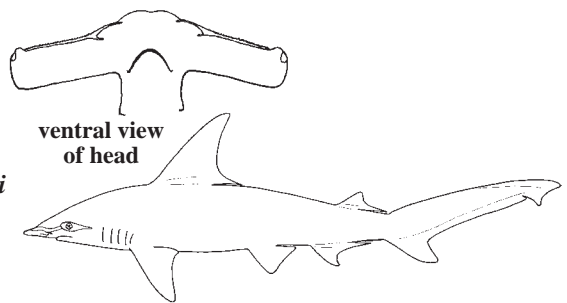


Fig. 1 *Eusphyrna blochii*

2a. Anterior margin of head nearly straight in adults, moderately convex in young; prenarial grooves hardly developed; teeth strongly serrated at all sizes; first dorsal fin markedly falcate; second dorsal fin about 1/3 as high as first, with a short inner margin; posterior margins of second dorsal and pelvic fins deeply concave (Fig. 2) *Sphyrna mokarran*

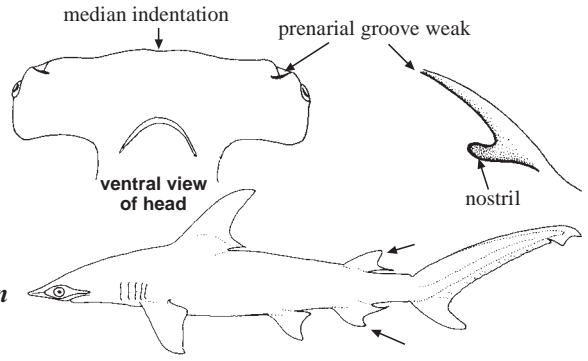


Fig. 2 *Sphyrna mokarran*

2b. Anterior margin of head moderately convex in adults, strongly so in young; prenarial grooves well developed; teeth generally smooth, but may be finely serrated in adults; first dorsal fin erect or slightly falcate; second dorsal fin less than 1/3 the height of first, with a long inner margin; posterior margins of second dorsal and pelvic fins slightly concave to nearly straight (Figs 3 and 4) → 3

3a. Median indentation present on anterior margin of head; free rear tip of second dorsal fin nearly reaching upper caudal-fin origin; anal-fin base noticeably larger than that of second dorsal fin (Fig. 3) *Sphyrna lewini*

3b. Median indentation absent from anterior margin of head; free rear tip of second dorsal fin well ahead of upper caudal-fin origin; anal-fin base about as large as that of second dorsal fin (Fig. 4) *Sphyrna zygaena*

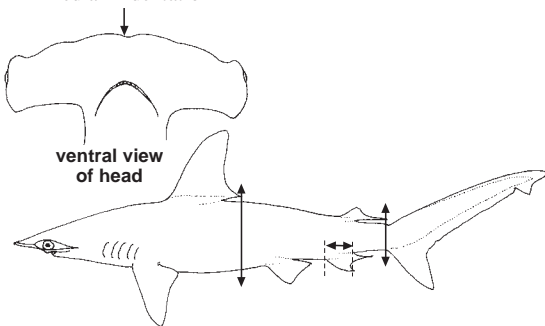


Fig. 3 *Sphyrna lewini*

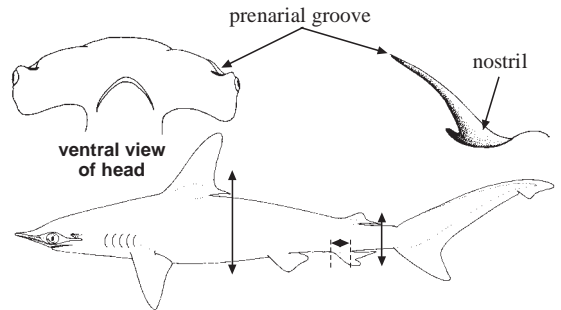






Fig. 4 *Sphyrna zygaena*

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Eusphyrna blochii* (Cuvier, 1817)
-  *Sphyrna lewini* (Griffith and Smith, 1834)
-  *Sphyrna mokarran* (Rüppell, 1837)
-  *Sphyrna zygaena* (Linnaeus, 1758)

References

Compagno, L.J.V. 1988. *Sharks of the order Carcharhiniformes*. Princeton, New Jersey, Princeton University Press, 572 p.

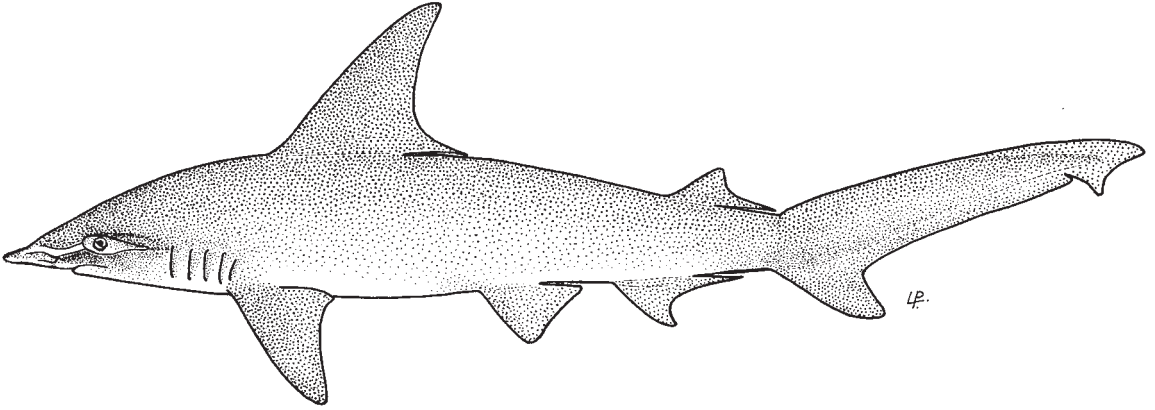
Gilbert, C.R. 1967. A revision of the hammerhead sharks (family Sphyrnidae). *Proc. U.S. Natl. Mus.*, 119:88 p.

Gilbert, C.R. 1967. A taxonomic synopsis of the hammerhead sharks (family Sphyrnidae). In *Sharks, skates and rays*, edited by P.W. Gilbert, R.F. Mathewson, and D.P. Rall. Baltimore, Johns Hopkins Press, pp. 69-76.

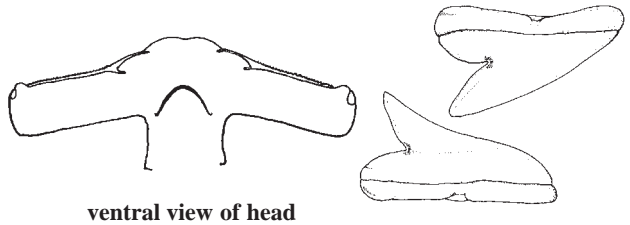
Eusphyra blochii (Cuvier, 1817)

Frequent synonyms / misidentifications: *Sphyrna blochii* (Cuvier, 1817) / None.

FAO names: En - Winghead shark; Fr - Requin-marteau planeur; Sp - Cornuda planeadora.



Diagnostic characters: Body elongate and compressed. **Head shaped like a broad arrowhead or a pair of aircraft wings in dorsal or ventral view**, tremendously expanded laterally and relatively narrow from front to back, with width across head 2/5 to 1/2 of total length; anterior contour of head almost V-shaped in young but with lateral wings of head becoming transverse in adults; **a shallow, but distinct indentation, at the midline of head and a very broad, shallow indentation opposite each nostril, the edge of which has a row of low bumps; nostrils greatly elongated, wider than mouth**, with strong prenarial grooves anteromedial to their incumbent apertures; posterior margins of eyes opposite or behind front of mouth; teeth triangular, deeply notched distally, with relatively narrow oblique cusps and unserrated edges. **First dorsal fin very high, strongly falcate**; second dorsal fin small and low, less than 1/3 of height of first, with a greatly elongated inner margin nearly or quite twice the fin height, a free rear tip that nearly or quite reaches upper caudal-fin origin, and a shallowly concave posterior margin; pelvic fins with posterior margin nearly straight; anal-fin base about 1/3 longer than second dorsal fin. **Colour:** grey or grey-brown above, paler below.



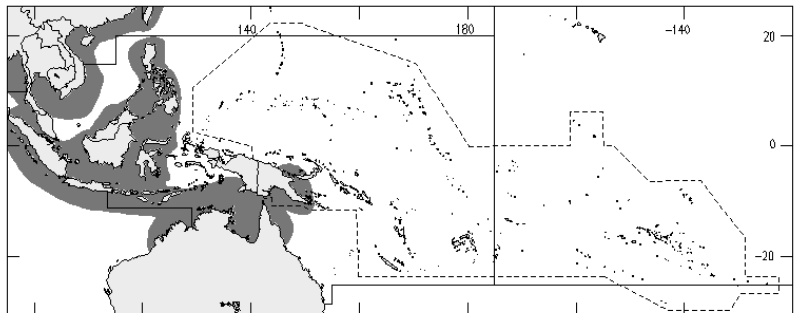
ventral view of head

upper and lower tooth

Size: Maximum total length about 18.6 m; size at birth between 32 and 45 cm.

Habitat, biology, and fisheries: Found in shallow water on the continental and insular shelves. Viviparous, litters from 6 to 25 young. Feeds mainly on small bony fishes, but also on cephalopods and crustaceans. A small species, probably harmless to people. A common fisheries species in India, Pakistan, Malaysia, and Thailand, and probably elsewhere in its range. Caught with floating gill nets, probably fixed bottom gill nets, with floating longlines, and probably on hook-and-line. Utilized fresh for human consumption; livers yield a high-potency vitamin oil; and offal is probably used for fishmeal.

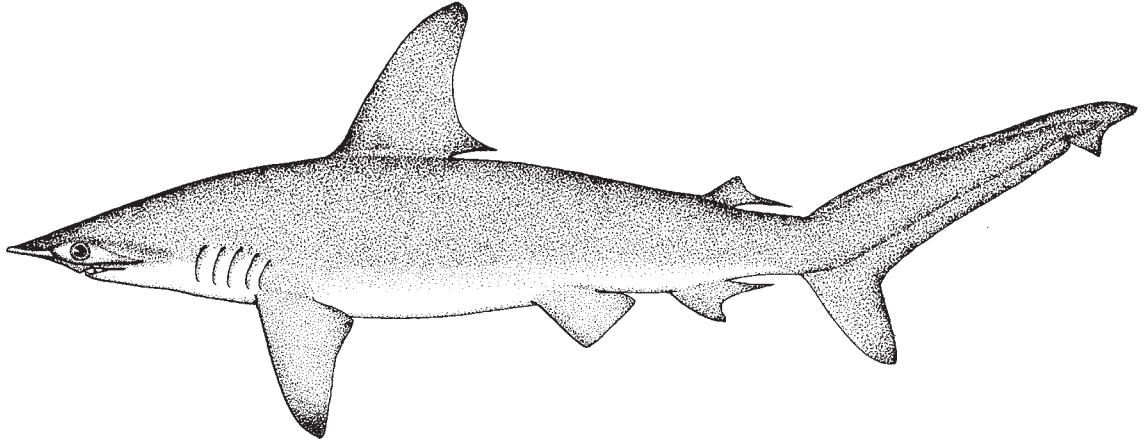
Distribution: An Indo-West Pacific coastal species distributed from the Persian Gulf eastward to Pakistan, India, Sri Lanka, Thailand, Borneo, China, the Philippines, and northern Australia.



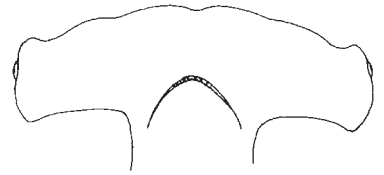
Sphyrna lewini (Griffith and Smith, 1834)

Frequent synonyms / misidentifications: *Sphyrna diplana* Springer, 1941 / *Sphyrna mokarran* (Rüppell, 1837); *S. zygaena* (Linnaeus, 1758).

FAO names: En - Scalloped hammerhead; Fr - Requin-marteau halicorne; Sp - Cornuda común.



Diagnostic characters: Body elongate and laterally compressed. Head “hammer”-shaped, **its anterior contour broadly arched in young, but moderately so in adults, with a shallow but distinct indentation at the midline** and a deep rounded depression opposite each nostril; lateral expansions of head very prominent, broad transversely and narrow from front to back; **nostrils with strong prenarial grooves; hind margins of eyes slightly posterior to or nearly opposite front of mouth; mouth broadly arched; teeth triangular, deeply notched posteriorly, with smooth or finely serrated edges.** First dorsal fin high, moderately falcate; **second dorsal fin small, less than 1/4 of height of first, with a greatly elongated free rear tip extending backward nearly to upper caudal-fin origin, an inner margin about twice as long as the anterior fin margin** and a shallowly concave posterior margin; pectoral fins short and broad; **pelvic fins with a nearly straight posterior margin; second dorsal-fin base about 3/5 to 4/5 the length of anal-fin base.** **Colour:** uniform grey, greyish brown, or olivaceous above, shading to white below; pectoral fins tipped grey or black ventrally.

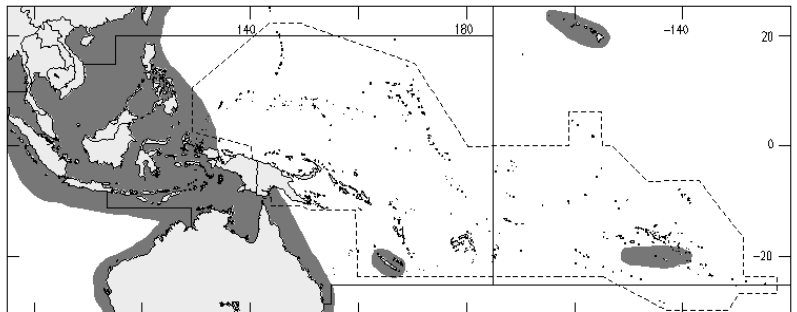


ventral view of head

Size: Maximum total length about 4.2 m; commonly to 3.6 m; size at birth between 45 and 50 cm.

Habitat, biology, and fisheries: Estuarine and inshore to well offshore and semi-oceanic, with young mostly in coastal waters. Adults solitary, in pairs, or in schools while the young form huge schools. Viviparous, number of young up to 30. Feeds on pelagic fishes, other sharks and rays, squids, lobsters, shrimps, and crabs. Adults considered potentially dangerous but often unaggressive when approached by divers. Probably the most abundant tropical hammerhead, readily available to inshore artisanal and small commercial fisheries as well as to offshore operations. Caught with pelagic longlines, fixed bottom longlines, fixed bottom nets, and even bottom and pelagic trawls; the young are easily caught on light longline gear. The meat is utilized fresh, fresh-frozen, dried-salted, and smoked for human consumption; the fins are used to prepare shark-fin soup base; the hides for leather, the oil for vitamins, and carcasses for fishmeal.

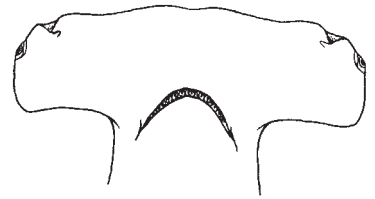
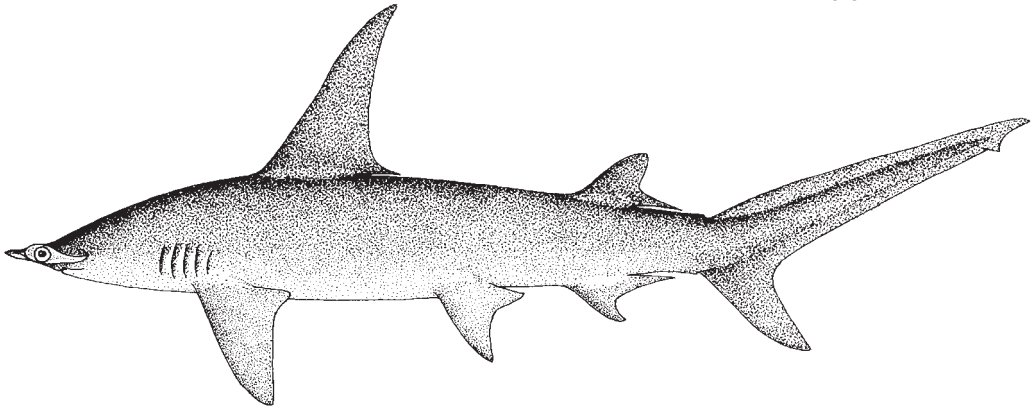
Distribution: Essentially circumglobal in coastal warm temperate and tropical seas.



Sphyrna mokarran (Rüppell, 1837)

Frequent synonyms / misidentifications: *Sphyrna tudes* (Valenciennes, 1822) / *Sphyrna lewini* (Griffith and Smith, 1834); *S. zygaena* (Linnaeus, 1758).

FAO names: En - Great hammerhead; Fr - Grand requin-marteau; Sp - Cornuda gigante.



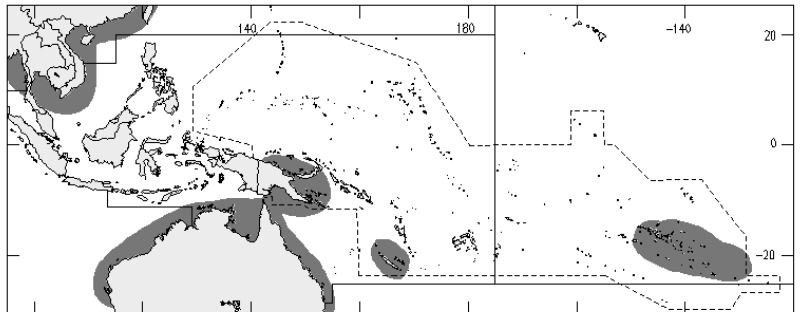
ventral view of head

Diagnostic characters: Body elongate and laterally compressed. Head “hammer”-shaped, **its anterior contour moderately arched in young but nearly straight in adults, with a shallow but distinct indentation at the midline** and a shallow rounded depression opposite each nostril; lateral expansions of head very prominent, broad transversely and narrow from front to back; **nostrils with weak prenarial grooves; posterior margins of eyes well anterior to mouth; mouth broadly arched; teeth triangular, deeply notched posteriorly, with strongly serrated edges. First dorsal fin very high, strongly falcate; second dorsal fin very large, with a moderately short inner margin (about equal to anterior fin margin), a free rear tip ending well anterior to upper caudal-fin origin, and a deeply concave posterior margin; anal-fin base about as long as second dorsal-fin base; pectoral fins short and broad; pelvic fins with a deeply concave posterior margin; Colour:** grey or grey-brown above, paler below; fins with dusky tips in young.

Size: Maximum total length between 5.5 and 6 m, and possibly more; commonly between 2.4 and 3.7 m; size at birth between 60 and 70 cm.

Habitat, biology, and fisheries: A powerful coastal and semi-oceanic species coming close inshore, often around and on coral reefs; also occurring near the surface over deep water not far from land. Viviparous, litters from 18 to 38 fetuses. Feeds on bony fishes (including sparids), other sharks, rays, squids, and lobsters. Potentially dangerous to people in the water. Although less abundant than *Sphyrna lewini*, this species is regularly caught in the tropics, with longlines, fixed bottom nets, hook-and-line, and possibly with pelagic and bottom trawls. Utilized for its meat, fresh, fresh-frozen, dried-salted, and smoked for human consumption; for hides, processed into leather; for fins used for shark-fin soup base; for liver oil, processed for vitamins; and carcasses for fishmeal.

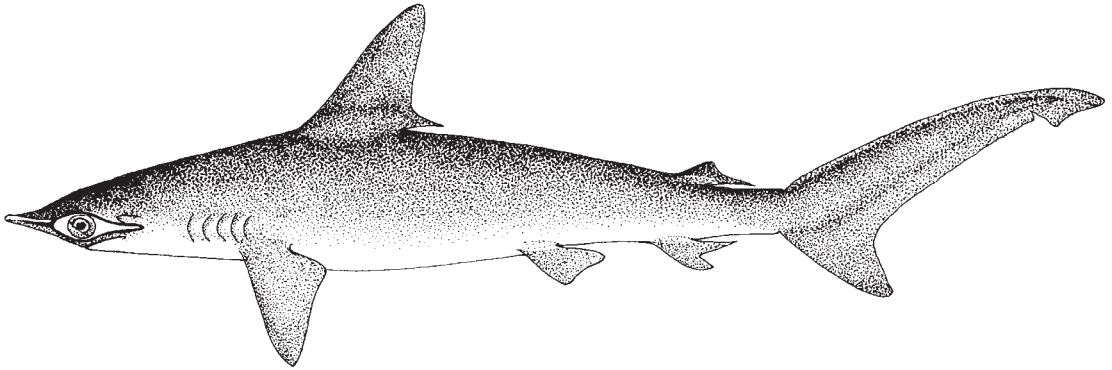
Distribution: Essentially circumglobal in coastal warm temperate and tropical seas.



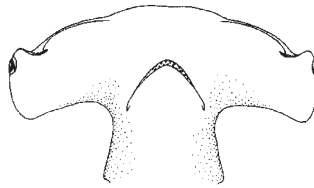
Sphyrna zygaena (Linnaeus, 1758)

Frequent synonyms / misidentifications: None / *Sphyrna lewini* (Griffith and Smith, 1834); *S. mokarran* (Rüppell, 1837).

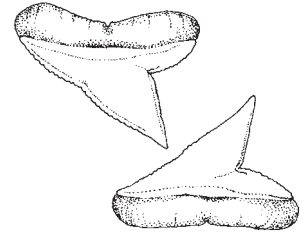
FAO names: En - Smooth hammerhead; Fr - Requin-marteau commun; Sp - Cornuda cruz.



Diagnostic characters: Body elongated and laterally compressed. Head “hammer”-shaped, **its anterior contour strongly arched in young but moderately rounded in adults, without a median indentation** but with a deep rounded depression opposite each nostril; lateral expansions of head very prominent, broad transversely and narrow from front to back; **nostrils with strong prenarial grooves**; eyes large, their horizontal diameter greater than length of shortest (fifth) gill slit, **their posterior margins about opposite mouth or just anterior to it**; mouth broadly arched; teeth triangular, deeply notched posteriorly, **with smooth or finely serrated edges**. **First dorsal fin high, moderately falcate; second dorsal fin small, with a very long inner margin** (almost twice the anterior fin margin), **a free rear tip ending well anterior to upper caudal-fin origin, and a nearly straight to shallowly concave posterior margin**; anal-fin base slightly longer than second dorsal-fin base; pectoral fins short and broad; pelvic fins with posterior margins straight to shallowly concave. **Colour:** brownish olive, or plain grey above, white or grey-white below; fins nearly plain, dusky or blackish tipped.



ventral view of head

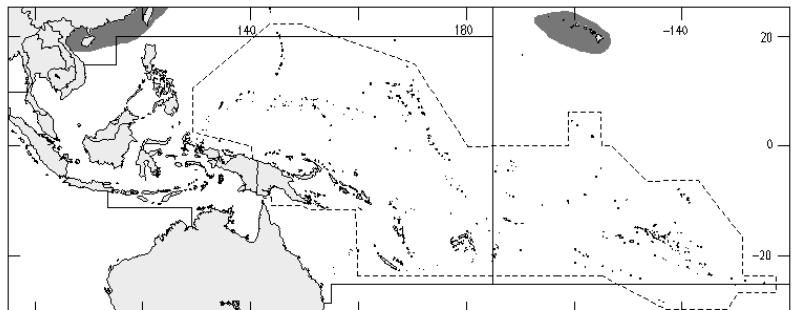


upper and lower tooth

Size: Maximum total length probably between 3.7 and 4 m, commonly between 2.75 and 3.35 m; size at birth between 50 and 60 cm.

Habitat, biology, and fisheries: A common to abundant coastal and semi-oceanic species, living close inshore (especially the young) and near the surface in deep water not far offshore. A strong-swimming shark, migrating northward in summer; young often found in large aggregations of hundreds of individuals. Viviparous, litters from 29 to 37 fetuses. Feeds on bony fishes, other sharks, rays, crustaceans, and squids. Potentially dangerous to people. Caught with pelagic longlines, handlines, and even pelagic and bottom trawls. Utilized fresh, dried-salted, and possibly smoked for human consumption; hides are processed for leather; liver oil is extracted for vitamins; fins are processed into shark-fin soup base; and carcasses utilized for fishmeal.

Distribution: Widespread in temperate and tropical seas (western and eastern Atlantic, Mediterranean, western and eastern Pacific); occurs in the western Pacific from southern Siberia to Viet Nam, also southern Australia and New Zealand.



INDEX OF SCIENTIFIC AND VERNACULAR NAMES

Explanation of the System

Italics : Valid scientific names (genera and species).

Italics : Synonyms (genera and species), misidentifications.

ROMAN : Family names.

ROMAN : Names of divisions, classes, subclasses, orders, suborders, and subfamilies.

Roman : FAO and local names.

A	
<i>abaculus</i> , <i>Octopus</i>	800, 822
<i>Abralia</i>	781
<i>Abraliopsis</i>	781
<i>Acanthacaris</i>	977
<i>Acanthacaris opipara</i>	988
<i>Acanthacaris tenuimana</i>	988
<i>Acanthodes armatus</i>	1106
<i>Acanthosepion pageorum</i>	753
<i>Acanthosepion whitleyanum</i>	755
<i>acculeata</i> , <i>Holothuria</i>	1180
<i>Acetes</i>	855, 858
<i>Acetes erythraeus</i>	862
<i>Acetes indicus</i>	862
<i>Acetes intermedius</i>	863
<i>Acetes japonicus</i>	863
<i>Acetes serrulatus</i>	864
<i>Acetes sibogae</i>	864
<i>Acetes</i> spp.	966
<i>Acetes vulgaris</i>	865
<i>Acheolus crassimanus</i>	1126
<i>Actinopyga echinites</i>	1167-1168
<i>Actinopyga mauritiana</i>	1167-1168
<i>Actinopyga miliaris</i>	1169-1171
<i>Actinopyga palauensis</i>	1169- 1170-1171
<i>Actinopyga</i> sp.	1167-1171
<i>Actinopyga spinea</i>	1169-1171
<i>aculeata</i> , <i>Sepia</i>	736
<i>aculeatus</i> , <i>Octopus</i>	800, 822
<i>acuminata</i> , <i>Sepia</i>	759
<i>acuta</i> , <i>Charybdis</i>	1120
<i>acutidens</i> , <i>Negaprion</i>	1350, 1352
<i>acutus</i> , <i>Rhizoprionodon</i>	1354-1356
<i>acutus</i> , <i>Scoliodon</i>	1351, 1354
<i>adhaesa</i> , <i>Solitosepia plangon</i>	749
Adonis shrimp	946
<i>aegina</i> , <i>Octopus</i>	811 , 815, 819
<i>aeneus</i> , <i>Zosimus</i>	1049, 1098
Aesop slipper lobster	1038
<i>affinis</i> , <i>Chaceon</i>	1134
<i>affinis</i> , <i>Charybdis</i>	1120, 1130
<i>affinis</i> , <i>Loliolus</i>	780
<i>affinis</i> , <i>Metapenaeus</i>	933
<i>affinis</i> , <i>Sepia</i>	756
Aiguillat à queue noire	1230
Aiguillat cyrano	1231
Aiguillat epinette	1230
Aiguillat togari	1229
Aiguillat nez court	1230
Akiami paste shrimp	863
Alamang shrimp	864
Alaskan king crab	1048, 1055
<i>alatus</i> , <i>Isurus</i>	1278
<i>albatrossi</i> , <i>Sepia kobeiensis</i> var.	743
<i>albiflagellum</i> , <i>Panulirus</i>	1015 , 1017
<i>albimarginatus</i> , <i>Carcharhinus</i>	1325-1326
<i>alviventer</i> , <i>Holothuria</i>	1180
<i>alboineatus</i> , <i>Grapsus</i>	1142
<i>Alepisaurus ferox</i>	799
Alfombrera barbuda	1242
Alfombrera collareja	1242
<i>alfonso</i> , <i>Solenocera</i>	884- 885
<i>aliae</i> , <i>Squaliolus</i>	1229
Alitán manchado	1292
Alitán nubarrado	1292
ALLOPOSIDAE	802
<i>Alloposus pacificus</i>	802
Aloha prawn	920
<i>Alopias</i>	1271
<i>Alopias pelagicus</i>	1271-1273
<i>Alopias profundus</i>	1272
<i>Alopias superciliosus</i>	1271- 1272-1273
<i>Alopias vulpinus</i>	1271- 1273
ALPOIIDAE	1196-1197, 1269 , 1314
ALPHEIDAE	958
<i>alpheus</i> , <i>Octopus</i>	801, 823
<i>alticarinata</i> , <i>Solenocera</i>	882, 885 , 887
<i>altimus</i> , <i>Carcharhinus</i>	1326
Amber fish	1190
<i>amblyrhynchoides</i> , <i>Carcharhinus</i>	1348
<i>amblyrhynchoides</i> , <i>Carcharhinus</i>	1327 , 1332, 1340
<i>amblyrhynchus</i> , <i>Carcharhinus</i>	1328
<i>amboinensis</i> , <i>Carcharhinus</i>	1329 , 1339
<i>amboinensis</i> , <i>Lysmata</i>	961
<i>Ameloctopus litoralis</i>	820
AMPHIONIDACEA	955
AMPHITRETIDAE	802
<i>Amplisepia parysatis</i>	738
<i>Amplisepia verreaux</i>	738
<i>ananas</i> , <i>Thelenota</i>	1189
<i>anax</i> , <i>Thelenota</i>	1190
<i>Anchisquilla fasciata</i>	842
<i>anchistus</i> , <i>Metapenaeus</i>	909 , 938
<i>anchoralis</i> , <i>Trachypenaeus</i>	948
<i>Ancistoteuthis</i>	784
<i>Ancistrocheirus</i>	781-782
<i>Ancistrocheirus lesueurii</i>	797
Andaman lobster	992
<i>andamanicus</i> , <i>Metanephrops</i>	992
Andrea cuttlefish	737
<i>andreana</i> , <i>Sepia</i>	737 , 743
<i>andreanoides</i> , <i>Sepia</i>	743
<i>andreanoides</i> , <i>Sepia kobeiensis</i> var.	743
Ange de mer australien	1237
Ange de mer Kasuzame	1237
Angelote australiano	1237
Angelote japones	1237
Angelsharks	1196, 1235
<i>angulatus</i> , <i>Puerulus</i>	1027
<i>anisodon</i> , <i>Charybdis</i>	1120, 1130-1131
<i>annulata</i> , <i>Charybdis</i>	1120, 1131
<i>anomala</i> , <i>Thalassina</i>	1048
ANOMURA	1048, 1077, 1154
Anomuran crabs	1048
Anomurans	1048
<i>antarcticus</i> , <i>Mustelus</i>	1304
<i>antarcticus</i> , <i>Parribacus</i>	1037

- apama, Sepia* **738**
 APODA 1159-1161
 APODIDA 1160
Aprionodon brevipinna 1332
Apristurus 1280
Apristurus herklotsi **1286**
Apristurus longicephalus **1286**
Apristurus sibogae **1286**
Apristurus spongiceps **1287**
Apristurus verweyi **1287**
 Arafura shrimp 941
arafurica, Parapenaeopsis **941**
arakawai, Callistoctopus 817
arakawai, Octopus 817
arcticus, Galeocerdo 1349
Arctides 1028
Arctides regalis **1041**
arctipinnis, Sepioteuthis 778
Arctosepia braggi xera 739
Arctosepia limata 739
Arctosepia rhoda 739
Arctosepia treba 739
Arctosepia versuta 739
Argonauta 801
ARGONAUTIDAE 709, 801
 Argonauts 689, 801
argus, Bohadschia **1172**
Aristaeomorpha 868
Aristaeomorpha foliacea **872**
Aristaeomorpha rostridentata 872
Aristaeopsis edwardsiana 874
 Aristeid shrimps 868
ARISTEIDAE 855, **868**, 876, 890, 952
 ARISTEINAE 868
Aristeus virilis **873**
 Arm-band ocellate octopus 826
armata, Hypothalassia 1103, **1106**
armatus, Acanthodes 1106
 Arrow squids 788
 Arrowhead dogfish 1225
ashiaka, Penaeus 925
Ashoret lunaris 1091, 1095-1096
asper, Trachypenaeus 927, 950
aspera, Schizophris **1137**
 ASPIDOCHIOTA 1160-1163
 ASPIDOCHIROTIDA 1159, **1164**
aspilosomatis, Octopus 801, **823**
 ASTEROIDEA 1085
 Asteroids 1158-1159
ATELECYLIDAE 1050
Atelomycterus fasciatus **1287**
Atelomycterus macleayi **1288**
Atelomycterus marmoratus **1288**
Atergatis floridus 1049, 1098
Atergatis integerrimus 1049
Atergatis spp. 1049
Atergatopsis 1098
Atergatopsis signatus **1102**
atlanticus, Haliphron 802
atra, Holothuria 1177-1178
atra, Holothuria (Halodeima) **1176**
atromarginatus, Centrophorus **1223**
attenuatus, Gollum 1295
 Atyid shrimps 960
ATYIDAE **960**
Atyopsis moluccensis **960**
Atyopsis spinipes **960**
Atypopenaeus 890
Atypopenaeus formosus **929**
Atypopenaeus stenodactylus **929**
Aulohalaelurus kanakorum **1288**
 Austral golden crab 1135
 Australia mud shrimp 886
 Australian angelshark 1237
 Australian blacktip shark 1348
 Australian marbled catshark 1288
 Australian sawtail catshark 1289
 Australian sharpnose shark 1356
australiana, Solenocera 884, **886**
australiensis, Haliporoides sibogae 881
australiensis, Metanephrops **992**
australiensis, Ovalipes 1122
australis, Chaceon 1132, **1135**
australis, Loligo 774
australis, Octopus **824**
australis, Rossia **715**
australis, Squatina **1237**
axiologa, Holothuria 1182
B
 Baby octopus 811, 819
balfouri, Hemigaleus **1308**
 Bamboa capuchona 1259
 Bamboa elegante 1255
 Bamboa estriada 1257
 Bamboa gris 1253
 Bamboa hombrera 1258
 Bamboa jaspeada 1258
 Bamboa moteada 1259
 Bamboa ocelada 1258
 Bamboa punteada 1256
 Banana prawn 921
 Banded long-arm octopus 820
 Banded mantis shrimps 829, 835
 Banded sand catshark 1287
 Banded whip lobster 1027
 Banded-legged swimming crab 1131
bandensis, Sepia **757**
banksii, Matuta 1095
baramensis, Metapenaeus ensis 910
barbata, Metapenaeopsis **907**
barbeensis, Metapenaeopsis 908
 Barbelthroat carpetshark 1242
barbifer, Cirrhigaleus **1224**
 Bartail spurdog 1231
 Bartlett's cuttlefish 758
bartletti, Sepia **758**
bartramii, Ommastrephes **793**

Bartsch's squid	779	Blunt slipper lobster	1039
<i>bartschi</i> , <i>Uroteuthis</i>	779	Blunt-toothed crab	1131
Basking shark	1274	Bluntnose sixgill shark	1210
Batoid sawfishes	1233	<i>boardmani</i> , <i>Galeus</i>	1289
BATOIDEA	1236	Bobtail squids	688-689, 694, 712, 719
Beaded rock crab	1109	<i>bocki</i> , <i>Octopus</i>	801
Bêche-de-mer	1163-1164, 1179, 1184	<i>boesemani</i> , <i>Halaelurus</i>	1291
Beka squid	772	<i>Bohadschia</i>	1161
<i>beka</i> , <i>Nipponololigo</i>	772	<i>Bohadschia argus</i>	1172
<i>belauensis</i> , <i>Nautilus</i>	711	<i>Bohadschia bivittata</i>	1174
Bellybutton nautilus	711	<i>Bohadschia graeffei</i>	1184
<i>benettae</i> , <i>Metapenaeus</i>	934	<i>Bohadschia marmorata</i>	1174
BENTHESICYMINAE	868	<i>Bohadschia similis</i>	1173-1174
Benthic crabs	1085	<i>Bohadschia</i> sp.	1161, 1172-1174
Benthic octopuses	800	<i>Bohadschia vitiensis</i>	1174
<i>Benthoctopus</i>	801	BOLITAENIDAE	802
<i>beppauna</i> , <i>Sepia kobeensis</i> var.	743	Bombay duck sharks	1357
<i>Berrya</i>	801	Bombay prawn	966
<i>bertholdii</i> , <i>Scyllarus</i>	1043	Bonnethead sharks	1361
<i>bicolor</i> , <i>Chaceon</i>	1132, 1134	<i>borneensis</i> , <i>Carcharhinus</i>	1330 , 1359
Big blue octopus	812	Borneo catshark	1287
Big bottom bobtail squid	715	Borneo river shark	1360
Big-eyed bobtail	716	Borneo shark	1330
Bigeye sixgill shark	1210	Bottle squids	688, 712, 719
Bigeye thresher	1272	Bottletail squids	719
Bigfin reef squid	778	Boucot chevalier	954
Bignose shark	1326	Bouquet araignée	968
<i>bimaculatus</i> , <i>Octopus</i>	812	Bouquet bombay	966
<i>bipapillata</i> , <i>Rossia</i>	716	Bouquet chagrin	967
Bird shrimp	939	Bouquet géant	964
<i>Birgus latro</i>	1048, 1061, 1154- 1155	Bouquet mangrove	969
<i>birostrata</i> , <i>Sepiola</i>	716-717	Bouquet rosna	965
<i>bispinatus</i> , <i>Euprotomicrus</i>	1228	Bouquet singe	967
<i>bispinosa</i> , <i>Galene</i>	1112- 1113	Bouquet tipattes	968
<i>bivittata</i> , <i>Bohadschia</i>	1174	Box crabs	1057, 1091
Black teatfish	1183	BRACHAELURIDAE	1243 , 1249, 1261
Blackbelly lanternshark	1226	<i>Brachaelurus</i>	1243
Blackfin gulper shark	1223	<i>Brachaelurus waddi</i>	1244
Blackfish	1170-1171	BRACHYURA	1048, 1050, 1083
Blackgill catshark	1291	Brachyuran crabs	1048, 1061
Blackspot shark	1334, 1346	Brachyurans	1048, 1050
Blackspotted sea cucumber	1184	<i>brachyurus</i> , <i>Carcharhinus</i>	1331
Blacktailed spurdog	1230	<i>brachyurus</i> , <i>Etmopterus</i>	1226
Blacktip reef shark	1333, 1343	<i>braggi xera</i> , <i>Arctosepia</i>	739
Blacktip sawtail catshark	1290	<i>braggi</i> , <i>Sepia</i>	739
Blacktip shark	1340	Bramble shark	1212
Blacktip tope	1303	Bramble sharks	1211
Blacktipped reef shark	1333	<i>brasiliensis</i> , <i>Isistius</i>	1213, 1228
Blanket octopuses	802	<i>brevicornis</i> , <i>Metapenaeus</i>	934
<i>bleekeri</i> , <i>Carcharhinus</i>	1347	<i>brevimana</i> , <i>Sepia</i>	740 , 754, 761
Blind lobsters	978	<i>brevipinna</i> , <i>Aprionodon</i>	1332
Blind shark	1244	<i>brevipinna</i> , <i>Carcharhinus</i>	1327, 1332 , 1340, 1348
Blind sharks	1243	<i>brevirostris</i> , <i>Phoberus</i>	988
<i>blochii</i> , <i>Eusphyra</i>	1363	<i>brevirostris</i> , <i>Squalus</i>	1230
<i>blochii</i> , <i>Sphyrna</i>	1363	Brittle stars	1158
Blue land crab	1151	Broadclub cuttlefish	744
Blue shark	1353	Broadfin shark	1350
Blue sharks	1312	Brown land crab	1149
Blue-lined octopus	820	Brown sandfish	1174
Bluegray carpetshark	1244	Brown tiger prawn	915

Brownbanded bambooshark	1257
Brownspeckled catshark	1292
Brownspeckled sandfish	1173
brucus, Echinorhinus	1212
Bruja terciopelo	1228
<i>bubulus, Penaeus</i>	922
<i>budo, Loligo</i>	776
Bull shark	1196-1197, 1339
Bullhead sharks	1238
Bullseye reef lobster	1000
<i>burgeri, Panulirus</i>	1016
<i>burkenroadi, Metapenaeus</i>	912
Butterfly bobtail	716

C

Cacahouète indopacifique	1004
<i>caecus sublevis, Phoberus</i>	988
<i>caesius, Penaeus</i>	919
<i>cailloti, Pelocarcinus</i>	1150
Calamar beka	772
Calamar buril	777
Calamar espada	776
Calamar índico	775
Calamar kobí	773
Calamar manopla	778
Calamar mitrado	774
Calamarete	779
<i>Calappa</i>	1094
<i>Calappa calappa</i>	1094, 1096
<i>Calappa guerini</i>	1094
<i>Calappa hepatica</i>	1094, 1097
<i>Calappa lophos</i>	1091, 1094
<i>Calappa philargius</i>	1091, 1094, 1097
<i>calappa, Calappa</i>	1094, 1096
CALAPPIDAE	1050, 1057, 1091, 1115
CALAPPINAE	1091
Caledonian mitten lobster	1041
<i>caledonicus, Parribacus</i>	1041
CALLIANASSIDAE	976
<i>Callistoctopus arakawai</i>	817
Calmar baril	777
Calmar cracheur	772
Calmar épée	776
Calmar indien	775
Calmar kobí	773
Calmar mitre	774
Calmar tépo	779
Calmar tonnelet	778
Camarón adonis	946
Camarón aguija	948
Camarón aloha	920
Camarón amarillo	934
Camarón arafura	941
Camarón araña	968
Camarón arco iris	944
Camarón banana	921
Camarón blanco de la India	916
Camarón brujo	914
Camarón cigüeña	941
Camarón cintura	911
Camarón colorado	923
Camarón coral	942
Camarón coromandel	942
Camarón cortapluma	881
Camarón costurón	882
Camarón dalí	935
Camarón de Bombay	966
Camarón de manglar	969
Camarón de piedra lanzón	954
Camarón devo	938
Camarón diablo	936
Camarón esmeralda	938
Camarón fanguero chino	887
Camarón fanguero de orilla	883
Camarón fijador arquero	927
Camarón fijador de granos	949
Camarón fijador malayo	928
Camarón fijador norteño	949
Camarón fino	937
Camarón flamenco	947
Camarón gamuza barbudo	907
Camarón gamuza mogi	930
Camarón gamuza norteño	931
Camarón gamuza rosado	931
Camarón gamuza sureño	908
Camarón gamuza tolo	932
Camarón gigante	964
Camarón huesudo	948
Camarón jinga	933
Camarón jorobado	930
Camarón kadal	936
Camarón kuruma	917
Camarón lanzón	913
Camarón leña	935
Camarón lija	967
Camarón liso	945
Camarón maclayo	939
Camarón mono	967
Camarón moyebi	912
Camarón nailón mino	970
Camarón naranji	929
Camarón ñata	961
Camarón papuense	940
Camarón parancero	939
Camarón patojo	968
Camarón peine	887
Camarón periscopio	929
Camarón perro	943
Camarón rabo verde	934
Camarón real	918
Camarón real manchado	919
Camarón real oriental	924
Camarón resbaloso	910
Camarón rosna	965
Camarón soldado	960
Camarón tigre gigante	922
Camarón tigre marrón	915
Camarón tigre verde	925
Camarón torpedo	944
Camarón uncta	945

Camarón violinista	932
Camarón york	937
Camaroncillo akiami	863
Camaroncillo alamang	864
Camaroncillo javlá	862
Camaroncillo jembre	865
Camaroncillo mauxia de Formosa	863
Camaroncillo mauxia sureño	864
Camaroncillo tsivakihini	862
CAMPTANDRIIDAE	1050
<i>camtschaticus</i> , <i>Paralithodes</i>	1048, 1055
Cañabota	1210
Cañabota bocadulce	1210
Cañabota gris	1210
<i>canaliculatus</i> , <i>Penaeus</i>	914
<i>Cancer dormitator</i>	1087
<i>Cancer lunaris</i>	1095
Cannonball sponge crab	1088
Capricorn night octopus	823
CARAPIDAE	1189
Carcharhinid sharks	1197
CARCHARHINIDAE	1196-1197, 1264, 1297, 1305-1306, 1312
Carcharhinoid sharks	1196
<i>Carcharhinus</i>	1196
<i>Carcharhinus albimarginatus</i>	1325-1326
<i>Carcharhinus altimus</i>	1326
<i>Carcharhinus amblyrhinchoides</i>	1348
<i>Carcharhinus amblyrhynchoides</i>	1327, 1332, 1340
<i>Carcharhinus amblyrhynchus</i>	1328
<i>Carcharhinus amboinensis</i>	1329, 1339
<i>Carcharhinus bleekeri</i>	1347
<i>Carcharhinus borneensis</i>	1330, 1359
<i>Carcharhinus brachyurus</i>	1331
<i>Carcharhinus brevipinna</i>	1327, 1332, 1340, 1348
<i>Carcharhinus cautus</i>	1333
<i>Carcharhinus dussumieri</i>	1334, 1346
<i>Carcharhinus elliot</i>	1310
<i>Carcharhinus falciformis</i>	1335, 1341
<i>Carcharhinus fitzroyensis</i>	1336
<i>Carcharhinus galapagensis</i>	1326, 1337
<i>Carcharhinus hemiodon</i>	1338
<i>Carcharhinus iranxae</i>	1344
<i>Carcharhinus johnsoni</i>	1332
<i>Carcharhinus leucas</i>	1196, 1329, 1339
<i>Carcharhinus limbatus</i>	1327, 1332, 1340, 1348
<i>Carcharhinus longimanus</i>	1325, 1341
<i>Carcharhinus macloti</i>	1342, 1351, 1354-1356
<i>Carcharhinus maou</i>	1341
<i>Carcharhinus melanopterus</i>	1333, 1343
<i>Carcharhinus menisorrh</i>	1328, 1334, 1346
<i>Carcharhinus milberti</i>	1345
<i>Carcharhinus obscurus</i>	1326, 1344
<i>Carcharhinus pleurotaenia</i>	1327
<i>Carcharhinus plumbeus</i>	1345
<i>Carcharhinus porosus</i>	1359
<i>Carcharhinus radamae</i>	1326
<i>Carcharhinus remotus</i>	1331
<i>Carcharhinus sealei</i>	1334, 1346
<i>Carcharhinus sorrah</i>	1347

<i>Carcharhinus</i> sp.	1359
<i>Carcharhinus</i> spp.	1332
<i>Carcharhinus temmincki</i>	1350
<i>Carcharhinus tilstoni</i>	1340, 1348
<i>Carcharhinus tjujot</i>	1334
<i>Carcharhinus vanrooyeni</i>	1339
<i>Carcharhinus wheeleri</i>	1328
<i>Carcharhinus zambezensis</i>	1339
<i>Carcharias taurus</i>	1196, 1266-1267
<i>Carcharias tricuspidatus</i>	1266
<i>carcharias</i> , <i>Carcharodon</i>	1276
<i>Carcharodon carcharias</i>	1276
<i>Carcinoplax</i>	1114
<i>Carcinoplax longimana</i>	1114, 1132
<i>Carcinoplax longimanus japonicus</i>	1114
<i>Carcinoplax longimanus typicus</i>	1114
<i>carcinus</i> , <i>Macrobrachium</i>	964
Cardinal shrimp	962
<i>Cardisoma</i>	1049
<i>Cardisoma carnifex</i>	1147, 1149-1150
<i>Cardisoma hirtipes</i>	1149, 1151
<i>Cardisoma longipes</i>	1149, 1151
<i>Cardisoma obesum</i>	1149
<i>Cardisoma rotundum</i>	1149, 1151
<i>Cardisoma</i> spp.	1049
<i>Cardisoma urvillei</i>	1149
CARIDEA	855-856, 859, 867, 870, 877, 891, 953, 956-957
Caridean shrimps	855-856, 957-958
Carideans	855
<i>Caridina weberi</i>	961
<i>carinatus</i> , <i>Penaeus</i>	922
<i>carnifex</i> , <i>Cardisoma</i>	1147, 1149-1150
Carocho	1225
<i>caroli stenodactyla</i> , <i>Ommastrephes</i>	793
CARPILIIDAE	1049, 1058, 1098, 1103, 1110, 1114
<i>Carpilius</i>	1110
<i>Carpilius convexus</i>	1110-1111
<i>Carpilius maculatus</i>	1110-1111
<i>Carpilius</i> spp.	1049
Catsharks	1279
<i>cautus</i> , <i>Carcharhinus</i>	1333
Cazón	1302
Cazón coralero trompacorta	1358
Cazón de aleta blanca	1302
Cazón elegant	1303
Cazón espadachin	1357
Cazón picudo	1303, 1354
Cazón picudo australiano	1356
Cazón picudo gris	1355
Cazón velero	1302
<i>celetaria pacifica</i> , <i>Histioteuthis</i>	787
<i>Centrophorus atromarginatus</i>	1223
<i>Centrophorus granulosus</i>	1223-1224
<i>Centrophorus lusitanicus</i>	1224
<i>Centrophorus moluccensis</i>	1223
<i>Centrophorus niaukang</i>	1224
<i>Centrophorus squamosus</i>	1224
<i>Centroseymnus</i>	1213

- Cephaloscyllium fasciatum* 1289
ceratophthalma, Ocyopode 1152-1153
CETORHINIDAE 1274
Cetorhinus maximus 1274
ceylonensis, Scoliodon 1351
Chaceon 1132, 1134
Chaceon affinis 1134
Chaceon australis 1132, 1135
Chaceon bicolor 1132, 1134
Chaceon granulatus 1132, 1134
Chaceon karubar 1132, 1134-1135
Chaceon manningi 1134
Chaceon maritae 1132
Chaceon poupini 1132, 1135
Chaenogaleus macrostoma 1308-1310
Chambered nautilus 709
Champagne crab 1106
chani, Justitia 1022
Charybdis 1120-1121
Charybdis acuta 1120
Charybdis affinis 1120, 1130
Charybdis anisodon 1120, 1130
Charybdis annulata 1120, 1131
Charybdis cruciata 1120
Charybdis crucifer 1120
Charybdis feriatius 1115, 1120-1121
Charybdis japonica 1121
Charybdis natator 1120-1121
Charybdis truncata 1120, 1131
CHEIRAGONIDAE 1050
chengtongense, Episesarma 1143, 1145
Chevrette akiami 863
Chevrette alamang 864
Chevrette jawla 862
Chevrette jembre 865
Chevrette mauxia de Formose 863
Chevrette mauxia méridionale 864
Chevrette tsivakihini 862
Chien corail 1288
Chien égoïne 1289
Chien gecko 1289
Chien lime 1290
Chien marbré 1288
Chien nain 1290
Chiloscyllium colax 1255
Chiloscyllium griseum 1253-1254, 1256-1257
Chiloscyllium hasselti 1253-1254, 1256-1257
Chiloscyllium indicum 1255-1256
Chiloscyllium margaritiferum 1257
Chiloscyllium plagiosum 1253-1254, 1256-1257
Chiloscyllium punctatum 1253-1254, 1256-1257
Chiloscyllium sp. 1249, 1254
China lobster 993
chinensis, Loligo 774
chinensis, Photoligo 765-766, 774-775, 777
Chinese mitten crabs 1055
Chinese mud shrimp 887
Chinese spiny lobster 1026
Chionoecetes japonicus 1055
Chionoecetes opilio 1055
Chipirón volantín 797
Chipililoua commun 797
CHIRODOTIDAE 1160
Chirostylids 1048
Chiroteuthid squids 798
CHIROTEUTHIDAE 798-799
Chiroteuthis 798
Chiroteuthis imperator 798
chloronotus, Stichopus 1186
choprai, Solenocera 882, 885, 887
Cigala de Andamán 992
Cigala del Oceano Indico 991
Cigala raspa 988
Cigale glabre 1035
Cigale grenue 1039
Cigale raquette 1040
Cigale savate 1037
Cigarra chata 1040
Cigarra china 1037
Cigarra liso 1035
Cigarra ñato 1039
ciliatus pubescens, Ibacus 1036
ciliatus, Ibacus 1034-1036
CIRRATA 689, 801
Cirrate octopods 694
Cirrate octopuses 689, 801
cirratus, Pristiophorus 1234
cirratus, Eptatretus 1192
Cirrhigaleus barbifer 1224
Cirrhoscyllium exolitum 1242
CIRROTEUTHIDAE 801
Cistopus indicus 810
Cleaner shrimps 955
Cloridopsis 842, 846
Cloridopsis scorpio 842, 846
Cloudy catshark 1292
Coarse shrimp 949
Coastal mud shrimp 883
Coconut crab 1048, 1155
Coconut crabs 1061, 1154
Coenobita 1048, 1154
COENOBITIDAE 1061, 1154
Coenobitids 1154
colax, Chiloscyllium 1255
colcloughi, Heteroscyllium 1244
collare, Parascyllum 1242
Collared carpetshark 1242
Collared carpetsharks 1241
coluber, Holothuria 1178
coluber, Holothuria (Acanthotrapeza) 1175
Comadreja coluda 1311
Comadreja ganchuda 1308
Comadreja segadora 1309
Comadreja sobrediente 1310
Comb shrimp 887
Common banded mantis shrimp 837
Common box crab 1094
Common cleaner shrimp 961
Common decorator crab 1137

Common ghost crab	1153	Crevette coromandel	942
Common moon crab	1095	Crevette dali	935
Common sponge crab	1087	Crevette de maclay	939
Common squillid mantis shrimp	848	Crevette devo	938
Common Sydney octopus	818	Crevette diable	936
concinus, Palaemon	969	Crevette élégante	937
<i>concolor, Nebrius</i>	1260	Crevette émeraude	938
conjunctus, Metapenaeus	935	Crevette flamand	947
convexus, Carpilius	1110-1111	Crevette gambri archée	927
<i>convexus, Etisus</i>	1100	Crevette gambri grenue	949
cookei, Echinorhinus	1212	Crevette gambri malaise	928
Cookiecutter shark	1213, 1228	Crevette gambri nordique	949
Copper shark	1331	Crevette géante tigrée	922
Coral catshark	1288	Crevette glabre	945
Coral reef crabs	1049	Crevette glissante	910
Coral shrimp	942	Crevette jaune	934
<i>cordiformis, Mastigoteuthis</i>	799	Crevette javelot	913
cordimanus, Ocypode	1153	Crevette jinga	933
Cornuda común	1364	Crevette kadal	936
Cornuda cruz	1366	Crevette kuruma	917
Cornuda gigante	1365	Crevette moyebi	912
Cornuda planeadora	1363	Crevette nylon mino	970
cornuta, Parapenaeopsis	942, 944	Crevette oiseau	939
Coromandel shrimp	942	Crevette orange	929
corandelica, Parapenaeopsis	942	Crevette os	948
CORYSTIDAE	1089	Crevette papou	940
<i>cottlesloensis, Decorisepia</i>	751	Crevette périscope	929
Cotton's cuttlefish	758	Crevette queue rouge	923
cottoni, Sepia	758	Crevette queue verte	934
Cowsharks	1208	Crevette royale à taches rouges	919
Crabs	1333	Crevette royale blanche (des Indes)	916
Cranchiid squids	694	Crevette royale occidentale	918
<i>cranioides, Dromidiopsis</i>	1088	Crevette royale orientale	924
<i>crassa, Sepia kobiensis</i> var.	743	Crevette soricère	914
crassicornis, Solenocera	883	Crevette tigrée brune	915
<i>crassimanus, Acheolus</i>	1126	Crevette tigrée verte	925
<i>crebripunctata, Matuta</i>	1095	Crevette torpille	944
Creek whaler	1336	Crevette uncta	945
crenata, Thalamita	1129	Crevette violoneux	932
Crenate swimming crab	1129	Crevette york	937
Crested bullhead shark	1240	Crinoids	1158-1159
Crested reef crab	1049	<i>cristata, Sicyonia</i>	954
Crevette adonis	946	Crocodile shark	1268
Crevette aiguille	948	Crocodile sharks	1268
Crevette aloha	920	Crown crabs	1136
Crevette arafura	941	<i>cruciata, Charybdis</i>	1120
Crevette arc-en-ciel	944	<i>crucifer, Charybdis</i>	1120
Crevette banane	921	Crucifix crab	1120
Crevette bois	935	<i>Crumenasepia hulliana</i>	748
Crevette bossue	930	<i>Crumenasepia ursulae</i>	748
Crevette ceinture	911	CRUSTACEA	958
Crevette chamois barbulée	907	cultrata, Sepia	759
Crevette chamois méridionale	908	cultrifer, Raoulius	834
Crevette chamois mogi	930	<i>cultrifer, Scyllarus</i>	1028
Crevette chamois nordique	931	<i>cultrirostris, Parapenaeopsis</i>	913
Crevette chamois rosée	931	Curryfish	1188
Crevette chamois tolo	932	Curvespine cuttlefish	750
Crevette chien	943	curvirostris, Trachypenaeus	927-928, 950
Crevette cigogne	941	Cuttlefish	692, 694, 696
Crevette corail	942	Cuttlefishes	688-689, 696, 698, 723, 765

- cuvier*, *Galeocerdo* 1313, **1349**
cyanea, *Octopus* 696, **812**, 817-818
cyaneus, *Octopus* 818
CYCLODORIPPIDAE 1083, 1085
CYMONOMIDAE 1083, 1085
 Cyrano spurdog 1231
D
dacqueti, *Macrobrachium rosenbergii* 964
Dalatias 1213
Dalatias licha **1225**
dalli, *Metapenaeus* 912, **935**
dama, *Schizophris* **1137**
DASYATIDAE 1196
dasyogon, *Eucrossorhinus* **1247**
dasyopus, *Panulirus* 1016
daumi, *Enoplometopus* **999**
 Day octopus 812
Deania profundorum **1225**
Deania quadrispinosa **1225**
debelius, *Enoplometopus* 995, **999**
debelius, *Lysmata* **962**
 DECAPODA 958, 1048
Decorisepia cottlesloensis 751
Decorisepia jaenschii 751
Decorisepia rex 751
 Deep-water carrier crabs 1056, 1083
 Deep-water hedgehog crabs 1083
 Deep-water mud shrimp 885
 Deep-water porter crabs 1050, 1083
 Deep-water redfish 1167
 Deep-water sponge crabs 1083
 Deep-water squat lobsters 1048
defillipi, *Octopus* 801
dehaani, *Lauridromia* **1088**
demani, *Metapenaeus* **936**
Demania 1049
 Demon crabs 1049
 Demon shrimp 936
 DENDROCHIROTA 1162
 DENDROCHIROTIDA 1159, 1163
dentata, *Ranina* 1090
dentatus, *Epixanthus* **1108**
dentatus, *Etisus* 1101-**1102**
 Diamondback squid 797
 Diamondback squids 797
dierythraeus, *Octopus* 801, **824**
DIAGENIDAE 1048, 1154
diplana, *Sphyrna* 1364
dobsoni, *Metapenaeus* **936**
 Dog shrimp 943
 Dogfish sharks 1197, 1213
doldi, *Neabrius* 1260
dolfeini, *Histioteuthis* 787
dollfusi, *Octopus* 811
DORIPPIDAE 1083, 1085, 1091
dormia, *Dromia* **1087**
 Dormilón acebrado 1240
 Dormilón carenado 1240
 Dormilón toro 1240
dormitator, *Cancer* 1087
Doryteuthis kensak 776
Doryteuthis sibogae 776-777
Doryteuthis singhalensis 774
Dosidicus gigas 793
Dotilla spp. 1048
 Double-ear bobtail squid 714
Dromia 1085, 1087
Dromia dormia **1087**
Dromia hirsutissima 1087
Dromia orientalis 1088
Dromia rumphii 1087
Dromidiopsis craniooides 1088
DROMIIDAE 1056, 1083, **1085**
 Dromiids 1085
 Drop-arm octopuses 800
durbanensis, *Rhynchocinetes* **971**
 Dusky shark 1344
dussumieri, *Carcharhinus* **1334**, 1346
duvauceli, *Loligo* 775
duvaucelii, *Photololigo* 774-**775**
 Dwarf sawtail catshark 1290
 Dwarf sharks 1196
DYNOMENIDAE 1048
E
 Easter Island spiny lobster 1026
 Eastern angelshark 1237
 Eastern highfin spurdog 1231
 Eastern king prawn 924
 Eastern longnose spurdog 1232
 Eastern school shrimp 939
eastmani, *Galeus* **1289**
ebanae, *Todaropsis* **796**
eboracensis, *Metapenaeus* **937**
echinites, *Actinopyga* **1167**-1168
 ECHINODERMATA 1158
 Echinoderms 1050, 1158-1159
 Echinoids 1158-1159
ECHINORHINIDAE **1211**, 1213
Echinorhinus 1211
Echinorhinus brucus **1212**
Echinorhinus cookei **1212**
eclogaria, *Ponderisepia* 744
eduardoi, *Penaeopsis* **947**-948
edulis, *Holothuria (Halodeima)* **1177**
edulis, *Loligo* 765
edulis, *Photololigo* 765-766, 774, **776**
edwardsiana, *Aristaeopsis* 874
edwardsianus, *Plesiopenaeus* **874**
 Egg crabs 1098
 ELASIPODA 1159-1160
Eledone palari 801
elegans, *Metapenaeus* **937**, 940
 Elephant trunkfish 1182
elliott, *Carcharhinus* 1310
elliptica, *Sepia* **741**-742
elongatus, *Hemipristis* 1308-**1310**
 Emerald shrimp 938

Emissole cotiere	1304
Emissole étoilée	1304
Emissole gommée	1304
Emperor nautilus	711
Encornet bande violette	794
Encornet bouquet	792
Encornet volant	793
Endeavour shrimp	938
<i>endeavouri</i> , <i>Metapenaeus</i>	909-910, 938
Enope squids	781
ENOPLOMETOPIDAE	977-978, 983, 995 , 1002, 1007
<i>Enoplometopus</i>	975
<i>Enoplometopus daumi</i>	999
<i>Enoplometopus debelius</i>	995, 999
<i>Enoplometopus holthuisi</i>	1000
<i>Enoplometopus occidentalis</i>	1000
ENOPLOTEUTHIDAE	781 , 797
ENOPLOTEUTHINAE	696
<i>ensifer</i> , <i>Heterocarpus</i>	969-970
<i>ensis baramensis</i> , <i>Metapenaeus</i>	910
<i>ensis</i> , <i>Metapenaeus</i>	910 , 912, 933, 935, 937-938, 940
Epaulette shark	1258
<i>Episesarma</i>	1138, 1143-1144
<i>Episesarma chengtongense</i>	1143, 1145
<i>Episesarma mederi</i>	1143, 1145
<i>Episesarma palawanense</i>	1143, 1145
<i>Episesarma singaporense</i>	1143, 1146
<i>Episesarma</i> spp.	1143
<i>Episesarma versicolor</i>	1143
<i>Epixanthus dentatus</i>	1108
<i>Eptatretus cirrhatus</i>	1192
<i>equidens</i> , <i>Macrobrachium</i>	967
<i>Eridacnis radcliffei</i>	1295
<i>Erimacrus isenbeckii</i>	1055
<i>Eriocheir hepuensis</i>	1055
<i>Eriocheir japonicus</i>	1055
<i>Eriocheir sinensis</i>	1055
<i>Eriphia sebana</i>	1106, 1108
<i>Eriphia smithii</i>	1106 , 1108
<i>Eriphia</i> spp.	1049, 1106
Eriphiid stone	1103
ERIPHIIDAE	1048-1050, 1057, 1098, 1103 , 1110, 1112, 1114
Eriphiids	1112, 1114
<i>Erugosquilla</i>	842
<i>Erugosquilla woodmasoni</i>	842, 846
<i>erythraeus</i> , <i>Acetes</i>	862
<i>esculenta</i> , <i>Sepia</i>	740- 742 , 748
<i>esculentus</i> , <i>Penaeus</i>	915 , 925
<i>etheridgei</i> , <i>Loligo</i>	765, 774
<i>Etisus</i>	1098
<i>Etisus convexus</i>	1100
<i>Etisus dentatus</i>	1101- 1102
<i>Etisus laevimanus</i>	1100
<i>Etisus macrodactylus</i>	1100
<i>Etisus maculatus</i>	1100
<i>Etisus splendidus</i>	1101
<i>Etisus</i> spp.	1049
<i>Etisus utilis</i>	1101
<i>Etmopterus</i>	1213

<i>Etmopterus brachyurus</i>	1226
<i>Etmopterus lucifer</i>	1226
<i>Etmopterus molleri</i>	1226
<i>Etmopterus</i> sp. C	1227
<i>Etmopterus</i> sp. D	1227
<i>Etmopterus</i> sp. F	1227
<i>Etmopterus splendidus</i>	1227
<i>Eucrossorhinus dasyopogon</i>	1247
<i>Eugomphodus taurus</i>	1266
<i>Eulamia temmincki</i>	1350
EUMEDONIDAE	1050
<i>Euprotomicrus</i>	1213
<i>Euprotomicrus bispinatus</i>	1228
<i>Eupryma morsei</i>	714
<i>Eupryma tasmanica</i>	714
<i>Eusphyra blochii</i>	1363
<i>exannulatus</i> , <i>Octopus</i>	825
<i>Exopalaemon styliferus</i>	965
<i>Exopalaemon vietnamicus</i>	965
<i>expolitus</i> , <i>Cirrhoscyllium</i>	1242
<i>exulcatus</i> , <i>Penaeus semisulcatus</i>	922
Eye-bar ocellate octopus	819

F

<i>falciformis</i> , <i>Carcharhinus</i>	1335 , 1341
False catshark	1296
False catsharks	1296
False comb shrimp	888
False crabs	1048
False rose shrimp	946
False smalltail shark	1359
False white prawn	926
<i>fasciata</i> , <i>Anchisquilla</i>	842
<i>fasciata</i> , <i>Haplochlaena</i>	820
<i>fasciatum</i> , <i>Cephaloscyllium</i>	1289
<i>fasciatum</i> , <i>Stegostoma</i>	1262
<i>fasciatus</i> , <i>Atelomycterus</i>	1287
<i>fasciatus</i> , <i>Panulirus</i>	1020-1021
Fe'e motot	825
Feather stars	1158
<i>femoristriga</i> , <i>Panulirus longipes</i>	1015, 1017
Penix lobsters	978
<i>feriatus</i> , <i>Charybdis</i>	1115, 1120 -1121
<i>ferox</i> , <i>Alepisaurus</i>	799
<i>ferox</i> , <i>Odontaspis</i>	1267
<i>ferox</i> , <i>Odontaspix</i>	1266
<i>ferrugineum</i> , <i>Ginglymostoma</i>	1260
<i>ferrugineus</i> , <i>Nebrius</i>	1260
Fiddler crabs	1048
Fiddler shrimp	932
filewoodi , <i>Gogolia</i>	1302
Finback catsharks	1293
Fine shrimp	937
Finned cirrate octopuses	801
Firefly squids	781
<i>fissuroides</i> , <i>Parapenaeus</i>	946
<i>fissurus</i> , <i>Parapenaeus</i>	946
<i>fittoni</i> , <i>Podopilumnus</i>	1113
<i>fitzroyensis</i> , <i>Carcharhinus</i>	1336

- Fivespined squillid mantis shrimp 849
 Flamingo shrimp 947
 Flathead lobster 1040
floridus, Atergatis 1049, 1098
 Flower crab 1124
 Flower moon crab 1094
 Flying squids 788
foliaceae, Aristaeomorpha **872**
formosana, Loligo 774
formosana, Sepia 748
formosus, Atyopenaeus **929**
fornasinii, Myomenippe **1107, 1109**
 Four-spined needle shrimp 947
freycineti, Hemiscyllium **1258**
fulvus, Trachypenaeus 928
Funchalia 889-890
 Furry lobsters 979, 1001
fuscogilva, Holothuria 1183
fuscogilva, Holothuria (Microthele) **1181**
fuscopunctata, Holothuria (Microthele) **1182**
- G**
- galapagensis, Carcharhinus*** **1326, 1337**
 Galapagos shark 1337
GALATHEIDAE 1048
 Galatheids 1048
 GALATHEOIDEA 976
galeatus, Heterodontus **1240**
galei, Sepia 747
Galene bispinosa **1112-1113**
Galene granulosa 1113
Galeocерdo 1312
Galeocерdo arcticus 1349
Galeocерdo cuvier **1313, 1349**
Galeocерdo rayneri 1349
Galeorhinus 1297, 1313
Galeorhinus galeus **1302**
Galeus boardmani **1289**
Galeus eastmani **1289**
Galeus gracilis **1290**
Galeus sauteri **1290**
Galeus schultzi **1290**
galeus, Galeorhinus **1302**
 Galludo cirann 1231
 Galludo cola negra 1230
 Galludo espinilla 1230
 Galludo japones 1229
 Galludo ñato 1230
 Gamba carabinero 874
 Gamba española 872
 Gambón colorado 973
 Gambon écarlat 874
 Gambon gaillard 873
 Gambon rouge 872
gangeticus, Glyphis 1329
garmani, Scyliorhinus **1292**
garricki, Iago **1303**
 Gata nodriza atezada 1260
GECARCINIDAE 1049, 1060, 1147, 1152
- Gecarcinids 1147
GECARCINUCIDAE **1050, 1147**
Gecarcinus trispinosus 1113
Gecarcoidea lalandii **1150**
Gecarcoidea natalis 1150
 Gecko catshark 1289
genista, Solitosepia 747
GERYONIDAE **1059, 1132**
 Geryons 1132
 Ghost crabs 1060, 1152
 Ghost shrimps 976
 Giant Australian cuttlefish 738
 Giant box crab 1096
 Giant egg crab 1102
 Giant harpiosquillid mantis shrimp 841
 Giant mud crab 1126
 Giant red shrimp 872
 Giant river prawn 964
 Giant Tasmanian crab 1055
 Giant tiger prawn 922
gigas, Dosidicus 793
gigas, Pseudocarcinus 1055
Ginglymostoma ferrugineum 1260
GINGLYMOSTOMATIDAE 1197, 1243, 1250, **1260**, 1313
glauca, Prionace **1353**
glaucus, Isurus 1277
Globigerina 992
GLYPHEIDAE 977-978, 983, 996, 1002, 1007
Glyphis 1196
Glyphis gangeticus 1329
Glyphis glyphis 1359
Glyphis sp. A **1359-1360**
Glyphis sp. B **1360**
Glyphis sp. C **1360**
Glyphis spp. 1329
glyphis, Glyphis 1359
Glyptosepia opipara 746
Gnathia 1257
GNATHOPHYLLIDAE 958
 Go home prawn 929
godeffroyi, Stichopus 1187
Gogolia filewoodi **1302**
 Golden crabs 1059
 Golden cuttlefish 742
 Golden sandfish 1180
Gollum 1293
Gollum attenuatus **1295**
GONEPLACIDAE 1058, 1061, 1112, **1114**
 Goneplacids 1112
GNODACTYLIDAE 832
gonospinifer, Trachypenaeus **949**
gouldi, Nototodarus 792
 Graceful catshark 1295
 Graceful shark 1327
gracilis, Galeus **1290**
gracillima, Parapenaeopsis **943**
graeffe, Bohadschia 1184
graeffe, Pearsonothuria **1184**
 Grand requin blanc 1276
 Grand requin-marteau 1365

<i>granulatus, Chaceon</i>	1132, 1134	Hardback shrimp	948
<i>granulosa, Galene</i>	1113	Hardnose shark	1342
<i>granulosa, Menippe</i>	1107	<i>hardwickei, Octopus</i>	811
<i>granulosa, Myomenippe</i>	1107	hardwickii, Myomenippe	1103, 1107
<i>granulosa, Platypodia</i>	1049	hardwickii, Parapenaeopsis	913
<i>granulosus, Trachrophorus</i>	1223-1224	harpax, Harpiosquilla	841
<i>granulosus, Trachypenaeus</i>	949	<i>Harpiosquilla</i>	830
GRAPSIDAE	1048, 1060, 1138 , 1147, 1152	Harpiosquilla harpax	841
Grapsids	1138	Harpiosquilla raphidea	841
<i>Grapsus albolineatus</i>	1142	Harpiosquillid mantis shrimps	830, 834, 838
<i>Grapsus strigosus</i>	1142	HARPIOSQUILLIDAE	830, 838 , 842
<i>Grapsus tenuicrustatus</i>	1142	<i>Harpodon nehereus</i>	1357
<i>graptus, Octopus</i>	801, 813	Hasselt's bambooshark	1254
<i>gravieri, Oratosquilla</i>	843, 848	hasselti, Chiloscyllium	1253- 1254 , 1256-1257
Gray nurse shark	1266	<i>hathor, Penaeus latisulcatus</i>	918
Greasyback shrimp	910	Hawaiian flying squid	792
Great hammerhead	1365	<i>hawaiiensis, Latreillopsis</i>	1084
Great white shark	1276	hawaiiensis, Nototodarus	788, 792 , 795-796
Greater blue-ringed octopus	821	hayashii, Heterocarpus	969-970
Greater drop-arm octopus	822	<i>hedleyi, Sepia</i>	751
Green egg crab	1049	HEMIGALEIDAE	1196-1197, 1264, 1297, 1305 , 1313
Green mud crab	1128	<i>Hemigaleus balfouri</i>	1308
Green tiger prawn	925	<i>Hemigaleus macrostoma</i>	1308
Greenfish	1186	Hemigaleus microstoma	1308- 1309 -1310
Greentail shrimp	934	hemiodon, Carcharhinus	1338
Grey bambooshark	1253	<i>hemiodon, Hypoprion</i>	1338
Grey reef shark	1328	Hemipristis elongatus	1308- 1310
Grey sharpnose shark	1355	HEMISCYLLIIDAE	1197, 1243, 1249 -1250, 1261
<i>griseum, Chiloscyclium</i>	1253-1254 , 1256-1257	<i>Hemiscyllium freycineti</i>	1258
<i>griseus, Hexanchus</i>	1210	<i>Hemiscyllium hallstromi</i>	1258
<i>griseus, Mustelus</i>	1304	<i>Hemiscyllium ocellatum</i>	1258
Grooved cuttlefish	761	<i>Hemiscyllium</i> sp.	1249
Ground sharks	1312	Hemiscyllium strahani	1259
<i>guamensis, Holothuria</i>	1183	Hemiscyllium trispeculare	1259
<i>guerini, Calappa</i>	1094	Hemistriakis leucoperiptera	1302
Gulper shark	1223	hepatica, Calappa	1094, 1097
Gummy shark	1304	Heptanchias perlo	1210
<i>guttatus, Ozius</i>	1109	<i>hepuensis, Eriocheir</i>	1055
H		<i>herbsti, Odontaspis</i>	1267
<i>haanii, Scyllarides</i>	1038	<i>hercules, Sepia</i>	744
<i>habereri, Proscyllium</i>	1293, 1295	herklotsi, Apristurus	1286
Hagfishes	1192	Hermit crabs	1048, 1154-1155
Hai-sum	1163	<i>Heterocarpus</i>	958
Hairy blackfish	1169	<i>Heterocarpus ensifer</i>	969-970
Hairy crabs	1055, 1058, 1112	Heterocarpus hayashii	969-970
Hairy fan lobster	1036	Heterocarpus parvispina	969-970
Halaelurus boesemani	1291	Heterocarpus sibogae	969-970
<i>Haliphron atlanticus</i>	802	HETERODONTIDAE	1238
Haliporoides sibogae	881	<i>Heterodontus galeatus</i>	1240
<i>Haliporoides sibogae australiensis</i>	881	Heterodontus portusjacksoni	1240
<i>Haliporoides sibogae madagascariensis</i>	881	Heterodontus zebra	1240
halli, Solenocera	884, 886	<i>Heteropenaeus</i>	889-890
hallstromi, Hemiscyllium	1258	Heteroscyllium colcloughi	1244
Hammer octopus	824	Heteroteuthis weberi	715
Hammerhead sharks	1196-1197, 1361	HEXANCHIDAE	1208 , 1314
Hapalochlaena cf. maculosa	821	<i>Hexanchus griseus</i>	1210
Hapalochlaena fasciata	820	Hexanchus nakamurai	1210
Hapalochlaena lunulata	821	HEXAPODIDAE	1048
		High ridge mud shrimp	885

- HIPPOLYTIDAE** 958, 961
hirsutissima, *Dromia* 1087
hirtipes, *Cardisoma* 1149, **1151**
hispidus, *Stenopus* 955
HISTIOTEUTHIDAE **787**
Histioteuthids 787
Histioteuthis 787
Histioteuthis celetaria pacifica 787
Histioteuthis dofleini 787
Histioteuthis miranda 787
Holbiche à grande tête 1286
Holbiche à joues noires 1291
Holbiche à longues nageoires 1286
Holbiche bouffie 1289
Holbiche malaise 1287
Holbiche mouchetée 1291
Holbiche pâle 1286
Holbiche tête molle 1287
Holbiche voile 1291
Holothuria 1161, 1178
Holothuria (Acanthotrapeza) coluber **1175**
Holothuria (Halodeima) atra **1176**
Holothuria (Halodeima) edulis **1177**
Holothuria (Mertensiothuria) leucospilota **1178**
Holothuria (Metriatyla) scabra **1179-1180**
Holothuria (Metriatyla) scabra var. versicolor **1179-1180**
Holothuria (Microthele) fuscogilva **1181**
Holothuria (Microthele) fuscopunctata **1182**
Holothuria (Microthele) nobilis **1183**
Holothuria acculeata 1180
Holothuria albiventer 1180
Holothuria atra 1177-1178
Holothuria axiologa 1182
Holothuria coluber 1178
Holothuria fuscogilva 1183
Holothuria guamensis 1183
Holothuria leucospilota 1176
Holothuria maculata 1181
Holothuria nobilis 1181
Holothuria scabra 1173-1174, 1180
Holothuria versicolor 1180
Holothurian 1159
Holothurians 1158-1159, 1162-1163
Holothurie ananas 1189
Holothurie blanche à mamelles 1181
Holothurie brune 1174
Holothurie brune des brisants 1168
Holothurie léopard 1172
Holothurie noire à mamelles 1183
Holothurie serpent 1175
Holothurie trompe d'éléphant 1182
HOLOTHURIIDAE **1162, 1165**
Holothuroids 1158-1159
holthuisi, *Enoplometopus* **1000**
holthuisi, *Parribacus* **1042**
homarus, *Panulirus* **1016**
HOMOLIDAE 1056, **1083**, 1089
Homolids 1050
HOMOLODROMIIDAE 1083, 1085
Homolodromiids 1085
Hooded carpetshark 1259
Hooked squids 784
Hooktooth shark 1308
Horn sharks 1238
Horned ghost crab 1153
horrens, *Stichopus* **1187**
horridus, *Octopus* 800-801
Horse crab 1125
Houndsharks 1196, 1297
hulliana, *Crumenasepia* 748
humei, *Hylaecarcinus* 1150
Humpback shrimp 930
Hunchback locust lobster 1043
hungerfordi, *Parapenaeopsis* **943**
Hylaecarcinus humei 1150
Hymenocera picta **963**
HYMENOCERIDAE 958, **963**
Hymenopenaeus sibogae 881
HYMENOSOMATIDAE 1136
Hypogaleus 1313
Hypogaleus hyugaensis **1303**
Hypoprion hemiodon 1338
Hypoprion macloti 1342
Hypoprion playfairi 1343
Hypothalassia armata 1103, **1106**
hyugaensis, *Hypogaleus* **1303**
- I**
- Iago garricki* **1303**
Ibacus 977, 1028, 1040
Ibacus ciliatus **1034-1036**
Ibacus ciliatus pubescens 1036
Ibacus novemdentatus **1035**
Ibacus peronii 1035
Ibacus pubescens 1035-**1036**
IDIOSEPIIDAE **721**
Idiosepius 721
Idiosepius pygmaeus 721
imperator, *Chiroteuthis* 798
INCIRRATA 689, 801-802
Incirrate octopuses 689, 801
incisipes, *Metapenaeus* 910
Indian Ocean lobsterette 991
Indian small prawn 966
Indian squid 775
Indian white prawn 916
indica, *Lauridromia* **1088**
indica, *Loligo* 774-775
indica, *Sepia* 736
indicum, *Chiloscyllium* **1255-1256**
indicus, *Cistopus* **810**
indicus, *Leandrites* **966**
indicus, *Penaeus* **916**, 921, 923, 926
indicus, *Solenocera* 883
Indo-Pacific furry lobster 1004
Indonesian golden crab 1135
Indonesian speckled carpetshark 1258
inermis, *Sepiella* **756**
Inshore squids 764
insolitus, *Metapenaeus* **938**

<i>integerrimus, Atergatis</i>	1049
<i>intermedius, Acetes</i>	863
<i>intermedius, Limnocarcinus</i>	1150
<i>intermedius, Metapenaeus</i>	909, 911
<i>interrupta, Oratosquilla</i>	843
<i>iranzae, Carcharhinus</i>	1344
<i>isenbeckii, Erimacrus</i>	1055
<i>Isistius</i>	1213
<i>Isistius brasiliensis</i>	1213, 1228
ISOLAPOTAMIDAE	1050
<i>Isurus</i>	1197
<i>Isurus alatus</i>	1278
<i>Isurus glaucus</i>	1277
<i>Isurus oxyrinchus</i>	1277-1278
<i>Isurus paucus</i>	1277-1278

J

Jack-knife shrimp	881
<i>jaenschi, Decorisepia</i>	751
Japanese angelshark	1237
Japanese blunthorn lobster	1025
Japanese bobtail	718
Japanese deepwater carrier crab	1084
Japanese fan lobster	1034
Japanese flying squid	795
Japanese furrow lobster	1022
Japanese golden crab	1134
Japanese mitten crab	1055
Japanese nylon shrimp	969
Japanese spear lobster	1024
Japanese sponge crab	1088
Japanese spurdog	1229
Japanese squillid mantis shrimp	847
Japanese swimming crab	1121
Japanese wobbegong	1247
<i>japonica, Charybdis</i>	1121
<i>japonica, Justitia</i>	1022
<i>japonica, Paramola</i>	1083- 1084
<i>japonica, Squatina</i>	1237
<i>japonicus, Penaeus</i>	914, 917
<i>japonicus, Acetes</i>	863
<i>japonicus, Carcinoplax longimanus</i>	1114
<i>japonicus, Chionoecetes</i>	1055
<i>japonicus, Eriocheir</i>	1055
<i>japonicus, Orectolobus</i>	1247
<i>japonicus, Panulirus</i>	1017
<i>japonicus, Penaeus</i>	914, 917
<i>japonicus, Pristiophorus</i>	1234
<i>japonicus, Squalus</i>	1229
Jaquentón blanco	1276
Jaquetón	1276
Jawla paste shrimp	862
<i>jejunus, Penaeus</i>	919
Jembret shrimp	865
Jewel crab	1049
Jewel squids	787
Jinga shrimp	933
<i>johnsoni, Carcharhinus</i>	1332
<i>Justitia</i>	975, 979, 984, 997, 1002, 1005-1006, 1010
<i>Justitia chani</i>	1022

<i>Justitia japonica</i>	1022
<i>Justitia longimanus</i>	1005, 1023
<i>Justitia mauritiana</i>	1023
<i>Justitia vericeli</i>	1023

K

Kadal shrimp	936
<i>kagoshimensis, Octopus</i>	815
<i>kamoharai, Odontaspis</i>	1268
<i>kamoharai, Pseudocarcharias</i>	1268
<i>kanakorom, Aulohalaelurus</i>	1288
<i>karubar, Chaceon</i>	1132, 1134- 1135
<i>kensak, Doryteuthis</i>	776
King cuttlefish	751
Kisslip cuttlefish	745
Kitefin shark	1225
Knifbone cuttlefish	759
Knight rock shrimp	954
Knobby bobtail squid	717
Kobi cuttlefish	743
Kobi squid	773
<i>kobiensis</i> var. <i>albatrossi, Sepia</i>	743
<i>kobiensis</i> var. <i>andreanooides, Sepia</i>	743
<i>kobiensis</i> var. <i>beppauna, Sepia</i>	743
<i>kobiensis</i> var. <i>crassa, Sepia</i>	743
<i>kobiensis, Loligo</i>	773
<i>kobiensis, Sepia</i>	737, 743
Koch's bottle squid	720
<i>kochii, Sepiadarium</i>	694, 720
<i>koelbeli, Solenocera</i>	884, 887
<i>kuboi, Solenocera</i>	883
Kuruma prawn	917

L

Laai Por	810
<i>laevimanus, Etisus</i>	1100
<i>lalandii, Gecarcoidea</i>	1150
<i>lamellata, Metapenaeopsis</i>	930
<i>Lamiopsis</i>	1312
<i>Lamiopsis temmincki</i>	1350 , 1352
Lamnoid sharks	1197
LAMNIDAE	1196-1197, 1274 , 1314
Lamnoid sharks	1196
<i>lana, Solitosepia</i>	747
<i>lancifera, Sicyonia</i>	952, 954
Land crabs	1049, 1060, 1147
Land hermit crabs	1048, 1061, 1154
Langosta colorete	1021
Langosta de muelas	1023
Langosta del Indo-Pacífico	1004
Langosta duende	1017
Langosta fanguera	1020
Langosta festoneada	1016
Langosta horquilla	1019
Langosta ornamentada	1018
Langouste barriolée	1021
Langouste de vase	1020
Langouste diabolotin	1017
Langouste festonée	1016
Langouste fourchette	1019

- Langouste gibbon 1023
 Langouste ornée 1018
 Langoustes 979, 1005
 Langoustine andamane 992
 Langoustine indienne 991
 Langoustine spinuleuse 988
lar, Macrobrachium **967**
laticaudus, Scoliodon 1351, 1354-**1357**
laticaudus, Squaliolus **1229**
latimanus, Sepia **744**
latisulcatus hathor, Penaeus 918
latisulcatus, Penaeus 914, **918-919**
LATREILLIDAE 1083
Latreillopsis hawaiiensis 1084
latro, Birgus 1048, 1061, 1154, **1155**
Lauridromia 1085
Lauridromia dehaani **1088**
Lauridromia indica **1088**
 Leafscale gulper shark 1224
Leandrites indicus **966**
 Leopard fish 1172
Leptocarpus potamiscus **966**
 Lesser blue-ringed octopus 821
 Lesser flying squid 796
lessoniana, Sepioteuthis 688, 765, **778**, 797
lesuerii, Matuta 1095
lesueuri, Ancistrocheirus 797
leucas, Carcharhinus 1196, 1329, **1339**
leucoperiptera, Hemitriakis **1302**
LEUCOSIIDAE 1092
leucospilota, Holothuria 1176
leucospilota, Holothuria (Mertensiothuria) **1178**
lewini, Sphyrna **1364-1366**
licha, Dalatias **1225**
limata, Arctosepia 739
limbatus, Carcharhinus 1327, 1332, **1340**, 1348
Limnocarcinus intermedius 1150
 Lined lanternshark 1227
lineolata, Sepioloidea **720**
Linuparus 977, 1006, 1011
Linuparus sordidus **1024**
Linuparus trigonus **1024**
LITHODIDAE 1048
litoralis, Ameloctopus **820**
litterata, Varuna **1144**
 Little cuttlefish 760
 Lizardfish 1333
lobifrons, Lupa 1127
 Lobsterettes 977, 982
 Lobsters 976
LOLIGINIDAE 688, 721, **764**, 797
 Loliginids 688, 765
Loligo 765
Loligo australis 774
Loligo budo 776
Loligo chinensis 774
Loligo duvauceli 775
Loligo edulis 765
Loligo etheridgei 765, 774
Loligo formosana 774
Loligo indica 774-775
Loligo kobeensis 773
Loligo n.sp. 766
Loligo oshimai 775
Loligo reesi 766
Loligo rhomboidalis 773
Loligo sibogae 777
Loligo vossi 766, 774
Loligo yokoyae 773
Loliolus 765
Loliolus spp. 688
Loliolus affinis **780**
Loliolus noctiluca **780**
 Lollyfish 1176
LOMIDAE 1077
 Long barrel squid 777
 Long-armed crab 1114
 Longarm furrow lobster 1023
 Longfin catshark 1286
 Longfin mako 1278
 Longfingered peeler crab 1108
 Longhead catshark 1286
longicaudatus, Negogaleus 1311
longicephalus, Apristurus **1286**
longimanus japonicus, Carcinoplax 1114
longimanus typicus, Carcinoplax 1114
longimanus, Carcharhinus 1325, **1341**
longimanus, Carcinoplax **1114**, 1132
longimanus, Justitia 1005, **1023**
longipes femoristriga, Panulirus 1015, 1017
longipes longipes, Panulirus 1017
longipes, Cardisoma 1149, **1151**
longipes, Panulirus 1015, **1017**
longipes, Panulirus longipes 1017
longipes, Parapenaeus **947**
longipes, Trachypenaeus 927, **950**
longistylus, Penaeus 918-**919**
 Longlegged land crab 1151
 Longlegged rough shrimp 950
 Longlegged spiny lobster 1017
 Longnose houndshark 1303
 Longsnout dogfish 1225
 Longtail carpetsharks 1249
 Longtailed carpetsharks 1197
lophos, Calappa 1091, **1094**
Lophozozymus 1049
Lophozozymus pictor 1049, 1098
Loxodon macrorhinus **1351**, 1354-1356
lucifer, Etmopterus **1226**
LUCIFERIDAE 856, 858
 Luminous bay squid 780
lunaris, Ashtoret 1091, 1095-**1096**
lunaris, Cancer 1095
lunaris, Matuta 1095
lunulata, Haplochaena **821**
Lupa lobifrons 1127
lusitanicus, Centrophorus 1224
luteus, Octopus 801, 814
luteus, Octopus cf. **814**
lycidas, Sepia **745**

<i>Lysianassa, Metapenaeus</i>	939	<i>maou, Carcharhinus</i>	1341
<i>Lysiosquilla</i>	829, 835	Marbled mitten lobster	1042
LYSIOSQUILLIDAE	829, 835	Marbled octopus	811
Lysiosquillids	835	<i>marchei, Pelocarcinus</i>	1150
<i>Lysiosquillina</i>	829, 835	<i>margaritifera, Chiloscyllium</i>	1257
<i>Lysiosquillina maculata</i>	829, 835, 837	<i>marginatus, Octopus</i>	815
<i>Lysmata amboinensis</i>	961	<i>marginatus, Penaeus</i>	920
<i>Lysmata debelius</i>	962	<i>maritae, Chaceon</i>	1132
M		<i>marmorata, Bohadschia</i>	1174
Mackerel sharks	1274	<i>marmoratus, Atelomycterus</i>	1288
<i>macleayi, Atelomycterus</i>	1288	<i>marmoratus, Octopus</i>	812
<i>macleayi, Metapenaeus</i>	939	<i>marmoratus, Saron</i>	962
<i>macloti, Carcharhinus</i>	1342 , 1351, 1354-1356	Maroon stone crab	1107
<i>macloti, Hypoprion</i>	1342	Marrajo	1277
<i>Macrobrachium</i> sp.	969	Marrajo carite	1278
<i>Macrobrachium carcinus</i>	964	Marrajo dientuso	1277
<i>Macrobrachium equidens</i>	967	<i>mastersii, Metapenaeus</i>	910, 912
<i>Macrobrachium lar</i>	967	Mastigoteuthid squids	799
<i>Macrobrachium mirabile</i>	968	MASTIGOTEUTHIDAE	798-799
<i>Macrobrachium rosenbergii</i>	855, 957, 964 , 966-967	<i>Mastigoteuthis</i>	799
<i>Macrobrachium rosenbergii dacqueti</i>	964	<i>Mastigoteuthis cordiformis</i>	799
<i>macrochira, Paramola</i>	1083-1084	<i>Matuta banksii</i>	1095
<i>macrodactylus, Equis</i>	1100	<i>Matuta crebripunctata</i>	1095
<i>macromphalus, Nautilus</i>	711	<i>Matuta lesuerii</i>	1095
<i>Macrophthalmus</i> spp.	1048	<i>Matuta lunaris</i>	1095
<i>macropus, Octopus</i>	689, 800-801, 810, 814, 816	<i>Matuta peronii</i>	1095
<i>macrorhinus, Loxodon</i>	1351 , 1354-1356	<i>Matuta planipes</i>	1094
<i>macrostoma, Chaenogaleus</i>	1308 -1310	<i>Matuta victor</i>	1095
<i>macrostoma, Hemigaleus</i>	1308	MATUTINAE	1050, 1091, 1115
MACRURA NATANTIA	854	<i>mauritiana, Actinopyga</i>	1167- 1168
MACRURA REPTANTIA	854	<i>mauritiana, Justitia</i>	1023
<i>maculata, Holothuria</i>	1181	<i>mauritanus, Portunus</i>	1124
<i>maculata, Lysiosquillina</i>	829, 835, 837	<i>maxillipedo, Parapenaeopsis</i>	942, 944
<i>maculatus, Carpilius</i>	1110- 1111	<i>maximus, Cetorhinus</i>	1274
<i>maculatus, Equis</i>	1100	Meat crabs	1126
<i>maculatus, Orectolobus</i>	1247	<i>mederi, Episesarma</i>	1143, 1145
<i>maculosa, Hapalochlaena</i> cf.	821	<i>megalops, Squalus</i>	1230
<i>madagascariensis, Haliporoides sibogae</i>	881	<i>melanobranchius, Parmaturus</i>	1291
<i>madokai, Sepia</i>	751, 759	<i>melanopterus, Carcharhinus</i>	1333, 1343
Madokai's cuttlefish	759	<i>melantho, Solenocera</i>	884 , 886-887
<i>magnificus, Palibythus</i>	1004	<i>melanurus, Squalus</i>	1230
<i>magnocellatus, Octopus</i>	812	<i>membranaceus, Octopus</i>	819
MAJIDAE	1059, 1083, 1136	<i>Menippe granulosa</i>	1107
Majids	1050-1051	<i>Menippe rumphii</i>	1103, 1107
<i>major, Parribacus ursus</i>	1037	MENIPPIDAE	1050, 1103
Mako sharks	1197	<i>menisorrhah, Carcharhinus</i>	1328, 1334, 1346
Makos	1274	<i>merguiensis, Penaeus</i>	890, 916, 921 , 923, 926
<i>malaiana, Trachypenaeus</i>	927- 928 , 950	<i>mestus, Sepia</i>	760
Malayan mud shrimp	886	<i>Metanephrops</i>	975, 977, 982, 985, 992
Malayan rough shrimp	928	<i>Metanephrops andamanicus</i>	992
<i>malayense, Sepiadarium</i>	720	<i>Metanephrops australiensis</i>	992
<i>manazo, Mustelus</i>	1304	<i>Metanephrops neptunus</i>	993
Mandarin dogfish	1224	<i>Metanephrops sibogae</i>	989
<i>mandroni, Sepiella</i>	756	<i>Metanephrops sinensis</i>	993
Mangrove prawn	969	<i>Metanephrops thomsoni</i>	990
Mangrove stone crab	1107	<i>Metanephrops velutinus</i>	994
<i>manillensis, Penaeus monodon</i>	925	<i>Metanephrops</i> spp.	974
<i>manningi, Chaceon</i>	1134	<i>Metapenaeopsis</i>	889-890
Mantis shrimps	829, 855	<i>Metapenaeopsis barbata</i>	907
		<i>Metapenaeopsis barbeensis</i>	908

- Metapenaeopsis lamellata* **930**
Metapenaeopsis mogiensis **930**
Metapenaeopsis novaeguineae 908, **931**
Metapenaeopsis palmensis **908**
Metapenaeopsis rosea **931**
Metapenaeopsis stridulans 908, **932**
Metapenaeopsis toloensis **932**
Metapenaeopsis wellsii **933**
Metapenaeus 853, 890, 910
Metapenaeus affinis **933**
Metapenaeus anchistus **909**, 938
Metapenaeus benettiae **934**
Metapenaeus brevicornis **934**
Metapenaeus burkenroadii 912
Metapenaeus conjunctus **935**
Metapenaeus dalli 912, **935**
Metapenaeus demani **936**
Metapenaeus dobsoni **936**
Metapenaeus eboracensis **937**
Metapenaeus elegans **937**, 940
Metapenaeus endeavouri 909-910, **938**
Metapenaeus ensis . **910**, 912, 933, 935, 937-938, 940
Metapenaeus ensis baramensis 910
Metapenaeus incisipes 910
Metapenaeus insolitus **938**
Metapenaeus intermedius 909, **911**
Metapenaeus lysianassa **939**
Metapenaeus maclayi **939**
Metapenaeus mastersii 910, 912
Metapenaeus monoceros 910
Metapenaeus moyebi **912**
Metapenaeus papuensis **940**
Metapenaeus philippinensis 910
Metapenaeus suluensis **940**
Metapenaeus tenuipes **941**
Metasepia pfefferi **757**
microcheirus, *Sepia* (*Sepiella*) 756
microdon, *Pseudotriakis* **1296**
microstoma, *Hemigaleus* 1308-**1309**-1310
microstoma, *Negogaleus* 1309
Middle shrimp 911
Milandre belette 1311
Milandre chicor 1310
Milandre faucille 1309
Milandre harpon 1308
milberti, *Carcharhinus* 1345
miliaris, *Actinopyga* **1169**-1171
Milk shark 1354
MIMILAMBRIDAE 1050
Mino nylon shrimp 970
mira, *Sepia* **760**
mirabile, *Macrobrachium* **968**
miranda, *Histioteuthis* 787
Mitre squid 774
mitsukurii, *Squalus* **1230**
Miyakea 842
Miyakea nepa 842, **847**
Mogi velvet shrimp 930
mogiensis, *Metapenaeopsis* **930**
mokarran, *Sphyrna* 1364-**1365**-1366
molleri, *Etmopterus* **1226**
MOLPADIDA 1159-1160
Moluccas brush shrimp 960
moluccensis, *Atyopsis* **960**
moluccensis, *Centrophorus* **1223**
Monkey river prawn 967
monoceros, *Metapenaeus* 910
monodon manillensis, *Penaeus* 925
monodon, *Penaeus* 890, 921-**922**
Moon crabs 1057, 1091, 1115
Moroteuthis 784
morsei, *Eupryma* **714**
Mosaic crab 1049
Mosaic drop-arm octopus 822
mototi, *Octopus* **825**
Mottled Sally-light-foot 1142
Moyebi shrimp 912
moyebi, *Metapenaeus* **912**
mozambica, *Sepia* 744
Mud crabs 1057, 1098, 1103, 1110
Mud lobster 1143
Mud lobsters 976, 1048
Mud shrimps 855, 976, 1048
Mud spiny lobster 1020
mülleri, *Physodon* 1357
Musical furry lobster 1004
Musola austral 1304
Musola celestial 1304
Musola gris 1304
Musolón aleta larga 1296
Mustelus 1297
Mustelus antarcticus **1304**
Mustelus griseus **1304**
Mustelus manazo **1304**
Myomenippe fornasinii 1107, **1109**
Myomenippe granulosa 1107
Myomenippe hardwickii 1103, **1107**
Myopsid squids 691, 694
MYOPSIDA 688
Myopsids 688
Mysid shrimps 855
MYSIDACEA 855
MYXINIDAE **1192**
N
nakamurai, *Hexanchus* **1210**
NANNOSQUILLIDAE 835
Natal Sally-light-foot 1142
natalis, *Gecarcoidea* 1150
natator, *Charybdis* 1120-**1121**
natator, *Charybdis* 1121
Nautilé bouton 711
Nautilé flammé 711
NAUTILIDAE 688, **709**
Nautilo común 711
Nautilo ombligo 711
Nautilus 690, 698, **709**
Nautilus belauensis 711
Nautilus macromphalus **711**
Nautilus pompilius **711**

<i>Nautilus repertus</i>	711	<i>obtusus, Triaenodon</i>	1329
<i>Nautilus scrobiculatus</i>	711	<i>occidentalis, Enoplometopus</i>	1000
<i>Nautilus stenomphalus</i>	711	<i>occidua, Solitosepia</i>	747
Nautiluses	688	Oceanic paddler crab	1144
<i>Nebrius concolor</i>	1260	Oceanic squids	688
<i>Nebrius doldi</i>	1260	Oceanic whitetip shark	1341
<i>Nebrius ferrugineus</i>	1260	<i>oceanica, Scylla serrata</i> var.	1126
Needle cuttlefish	736	<i>ocellata, Sepiella</i>	762
Needle shrimp	948	<i>ocellatum, Hemiscyllium</i>	1258
<i>Negaprion</i>	1312	OCTOPODA	689, 801
<i>Negaprion acutidens</i>	1350, 1352	OCTOPODIDAE	689, 800
<i>neglectus, Saron</i>	962	Octopods	694
<i>Negogaleus longicaudatus</i>	1311	OCTOPOTEUTHIDAE	782, 797
<i>Negogaleus microstoma</i>	1309	<i>Octopoteuthis</i>	797
<i>Negogaleus tengi</i>	1311	<i>Octopus</i>	800
<i>nehereus, Harpodon</i>	1357	<i>Octopus abaculus</i>	800, 822
<i>Nematopalaemon tenuipes</i>	968	<i>Octopus aculeatus</i>	800, 822
Neon flying squid	793	<i>Octopus aegina</i>	811 , 815, 819
<i>nepa, Miyakea</i>	842, 847	<i>Octopus alpheus</i>	801, 823
NEPHROPIDAE	977, 982 , 996, 1001, 1007	<i>Octopus arakawai</i>	817
<i>Nephrops sibogae</i>	989	<i>Octopus aspilosomatis</i>	801, 823
<i>Nephrops thomsoni</i>	990	<i>Octopus australis</i>	824
<i>Nephropsis</i>	977, 986	<i>Octopus bimaculatus</i>	812
<i>Nephropsis stewarti</i>	991	<i>Octopus bocki</i>	801
Neptune lobster	993	<i>Octopus cf. luteus</i>	814
<i>neptunus, Metanephrops</i>	993	<i>Octopus cyanea</i>	696, 812 , 817-818
Neritic squids	688	<i>Octopus cyaneus</i>	818
Nervous shark	1333	<i>Octopus defillipi</i>	801
New Caledonia blackfish	1171	<i>Octopus dierythraeus</i>	801, 824
New Caledonia catshark	1288	<i>Octopus dollfusi</i>	811
New Guinea river shark	1360	<i>Octopus exannulatus</i>	825
<i>niaukang, Centrophorus</i>	1224	<i>Octopus graptus</i>	801, 813
<i>nipponensis, Sepiolina</i>	718	<i>Octopus hardwickei</i>	811
<i>nipponicus, Nototodarus</i>	792	<i>Octopus horridus</i>	800-801
<i>Nipponololigo beka</i>	772	<i>Octopus kagoshimensis</i>	815
<i>Nipponololigo</i> spp.	780	<i>Octopus luteus</i>	801, 814
<i>Nipponololigo sumatrensis</i>	773	<i>Octopus macropus</i>	689, 800-801, 810, 814, 816
<i>Nipponololigo uyii</i>	772-773	<i>Octopus magnocellatus</i>	812
<i>nobilis, Holothuria</i>	1181	<i>Octopus marginatus</i>	815
<i>nobilis, Holothuria (Microthele)</i>	1183	<i>Octopus marmoratus</i>	812
<i>noctiluca, Loliolus</i>	780	<i>Octopus membranaceus</i>	819
<i>nocturnus, Octopus</i>	801, 816	<i>Octopus mototi</i>	825
<i>noronhai, Odontaspis</i>	1267	<i>Octopus nocturnus</i>	801, 816
Northern rough shrimp	949	<i>Octopus ornatus</i>	801, 817
Northern velvet shrimp	931	<i>Octopus polyzenia</i>	826
Northern wobbegong	1248	<i>Octopus sp. A</i>	811, 819
Northwest lobster	992	<i>Octopus striolatus</i>	815
<i>Nototodarus gouldi</i>	792	<i>Octopus tetricus</i>	818
<i>Nototodarus hawaiiensis</i>	788, 792 , 795-796	<i>Octopus vulgaris</i>	689, 800
<i>Nototodarus nipponicus</i>	792	<i>Octopus wolffi</i>	801
<i>Nototodarus philippinensis</i>	792, 795	Octopuses	688-689
<i>novaeguineae, Metapenaeopsis</i>	908, 931	<i>Ocypride</i>	1152
<i>novemdentatus, Ibacus</i>	1035	<i>Ocypride ceratophthalma</i>	1152- 1153
<i>nuchalis, Thysanoteuthis</i>	797	<i>Ocypride cordimanus</i>	1153
Nurse sharks	1197, 1260	OCTYPODIDAE	1050, 1060, 1138, 1147, 1152
O		Ocypodids	1048
<i>obesum, Cardisoma</i>	1149	<i>Ocythoe tuberculata</i>	802
<i>obesus, Triaenodon</i>	1325, 1358	OCTYTHOIDAE	802
<i>obscurus, Carcharhinus</i>	1326, 1344	ODONTASPIDIDAE	1196, 1264 , 1314
		<i>Odontaspis ferox</i>	1267

- Odontaspis herbsti* 1267
Odontaspis kamoharai 1268
Odontaspis noronhai 1267
Odontaspis taurus 1266
Odontaspix ferox 1266
 Odontodactylid mantis shrimps 829, 832
ODONTODACTYLIDAE 829, **832**
Odontodactylus 829
Odontodactylus scyllarus 829, **834**
 Oegopsid squids 694
 OEGOPSIDA 688-689
 Oegopsids 691, 694
officinalis, Sepia 725
 Old woman octopus 810
oligolinx, Rhizoprionodon 1354-1356
olivacea, Scylla 1126-**1127**
omani, Sepia 762
Ommastrephes bartramii **793**
Ommastrephes caroli stenodactyla 793
Ommastrephes sloani pacificus 795
 Ommastrephid squid 788
OMMASTREPHIDAE 689, 784, **788**
 Ommastrephids 694, 788, 797
 Onefin catshark 1291
ONYCHOTEUTHIDAE **784, 789**
 Onychoteuthids 784, 797
Onychoteuthis 784
Onykia 784
 OPHIDIIFORMES 1189
 Ophiuroids 1158-1159
opilio, Chionoecetes 1055
opipara, Acanthacaris 988
opipara, Glyptosepia 746
opipara, Sepia **746**
OPISTHOTEUTHIDAE 801
 Orange mud crab 1127
 Orange shrimp 929
oratoria, Oratosquilla 843, **847**
Oratosquilla 842-843
Oratosquilla oratoria 843, **847**
Oratosquillina 842-843
Oratosquillina gravieri 843, **848**
Oratosquillina interrupta 843
Oratosquillina perpensa 843, **848**
Oratosquillina quinquedentata **849**
Oratosquillina sollicitans **849**
ORECTOLOBIDAE **1245**
Orectolobus japonicus **1247**
Orectolobus maculatus **1247**
Orectolobus ornatus **1248**
Orectolobus wardi **1248**
 Oriental spear lobster 1024
orientalis, Dromia 1088
orientalis, Thenus **1040**
ORITHYIIDAE 1050
ornata, Sepiella 762
 Ornate spiny lobster 1018
 Ornate wobbegong 1248
ornatum, Scyllium 1256
ornatus, Octopus 801, **817**
- ornatus, Orectolobus** **1248**
ornatus, Panulirus **1018**
oshimai, Loligo 775
oualaniensis, Sthenoteuthis 689, 694, 788, 793-**794**
oualaniensis, Symplectoteuthis 794
 Ovalbone cuttlefish 741
Ovalipes 1122
Ovalipes australiensis 1122
Ovalipes punctatus **1122**
oxyrinchus, Isurus **1277-1278**
OZIIDAE 1050, 1103
Ozius guttatus **1109**
Ozius tuberculatus **1109**
- P**
- Pacific golden crab 1134
pacifica, Histiototeuthis celetaria 787
pacifica, Rossia 716
pacificus pacificus, Todarodes 795
pacificus pusillus, Todarodes 795
pacificus ssp., Todarodes 788, 796
pacificus, Alloposus 802
pacificus, Ommastrephes sloani 795
pacificus, Todarodes 795
pacificus, Todarodes pacificus 795
 Paddler crabs 1060, 1138
pagenstecheri, Sepia 750
pageorum, Acanthosepion 753
PAGURIDAE 1048, 1154
 Painted harlequin shrimp 963
 Painted spiny lobster 1021
Palaemon concinnus **969**
PALAEMONIDAE 958, **964**
palari, Eledone 801
palasorra, Scoliodon 1354-1355, 1357
palauensis, Actinopyga 1169-**1170-1172**
palawanense, Episesarma 1143, **1145**
 Pale catshark 1286
Palibythus 1001
Palibythus magnificus **1004, 1028**
Palinurellus 1001
Palinurellus wieneckii **1004**
PALINURIDAE 977, 979, 984, 997, 1002, **1005**
Palinustus 1006, 1011
Palinustus unicornatus **1025**
Palinustus waguensis **1025**
 Palm thief 1155
palmata, Sepia 738
palmensis, Metapenaeopsis **908**
PANDALIDAE 855, **969**
Pandalus 957
 Panning's blackfish 1170
Panulirus 975, 977, 1005-1006, 1008, 1012, 1021
Panulirus albiflagellum **1015, 1017**
Panulirus burgeri 1016
Panulirus dasyopus 1016
Panulirus fasciatus 1020-1021
Panulirus homarus **1016**
Panulirus japonicus 1017
Panulirus longipes 1015, **1017**

<i>Panulirus longipes femoristriga</i>	1015, 1017	Pejegato de agallas negras	1291
<i>Panulirus longipes longipes</i>	1017	Pejegato de Borneo	1287
<i>Panulirus ornatus</i>	1018	Pejegato esponjoso	1287
<i>Panulirus pascuensis</i>	1026	Pejegato jaspeado	1288
<i>Panulirus penicillatus</i>	1019 , 1041	Pejegato mallero	1289
<i>Panulirus polyphagus</i>	1020-1021	Pejegato paliducho	1286
<i>Panulirus stimpsoni</i>	1026	Pejegato pintado	1291
<i>Panulirus versicolor</i>	1021	Pejegato velero	1291
Papua shrimp	940	Pelagic squids	688
Papuan cuttlefish	747	Pelagic thresher	1271
Papuan epaulette shark	1258	<i>pelagicus, Alopias</i>	1271-1273
<i>papuensis, Metapenaeus</i>	940	<i>pelagicus, Portunus</i>	1115, 1123- 1124-1125
<i>papuensis, Sepia</i>	747	<i>Pelocarcinus cailloti</i>	1150
<i>Paragaleus tengi</i>	1311	<i>Pelocarcinus marcheii</i>	1150
<i>Paralithodes camtschaticus</i>	1048, 1055	Penaeid shrimps	855, 889
<i>paramamosain, Scylla</i>	1127-1128	PENAEIDAE	855, 869, 876, 889 , 952
<i>Parapenaeopsis</i>	853, 890	PENAEIDEA	858
<i>Parapenaeopsis arafurica</i>	941	Penaeids	889
<i>Parapenaeopsis cornuta</i>	942 , 944	Penaeoid shrimps	856, 866, 889
<i>Parapenaeopsis coromandelica</i>	942	PENAEOIDEA	855-856, 858, 866, 956, 958
<i>Parapenaeopsis cultrirostris</i>	913	Penaeoids	855
<i>Parapenaeopsis gracillima</i>	943	<i>Penaeopsis</i>	889-890
<i>Parapenaeopsis hardwickii</i>	913	<i>Penaeopsis eduardoi</i>	947 , 948
<i>Parapenaeopsis hungerfordi</i>	943	<i>Penaeopsis rectacuta</i>	947-948
<i>Parapenaeopsis maxillipedo</i>	942, 944	<i>Penaeus</i>	853, 889-890, 934
<i>Parapenaeopsis sculptilis</i>	913, 944	<i>Penaeus ashiaka</i>	925
<i>Parapenaeopsis tenella</i>	945	<i>Penaeus bubulus</i>	922
<i>Parapenaeopsis uncta</i>	945	<i>Penaeus caesius</i>	919
<i>Parapenaeopsis venusta</i>	946	<i>Penaeus canaliculatus</i>	914
<i>Parapenaeus</i>	889-890	<i>Penaeus carinatus</i>	922
<i>Parapenaeus fissuroides</i>	946	<i>Penaeus esculentus</i>	915 , 925
<i>Parapenaeus fissurus</i>	946	<i>Penaeus indicus</i>	916 , 921, 923, 926
<i>Parapenaeus longipes</i>	947	<i>Penaeus japonicus</i>	914, 917
PARASCYLLIIDAE	1241	<i>Penaeus jejunus</i>	919
<i>Parascyllum collare</i>	1242	<i>Penaeus latisulcatus</i>	914, 918-919
PARATHELPHUSIDAE	1048, 1050, 1147	<i>Penaeus latisulcatus hathor</i>	918
<i>Parmaturus</i>	1280	<i>Penaeus longistylus</i>	918- 919
<i>Parmaturus melanobranchius</i>	1291	<i>Penaeus marginatus</i>	920
<i>Paromola japonica</i>	1083- 1084	<i>Penaeus merguensis</i>	890, 916, 921 , 923, 926
<i>Paromola macrochira</i>	1083-1084	<i>Penaeus monodon</i>	890, 921- 922
<i>Parribacus</i>	977, 1028, 1031	<i>Penaeus monodon manillensis</i>	925
<i>Parribacus antarcticus</i>	1037	<i>Penaeus penicillatus</i>	916, 921, 923 , 926
<i>Parribacus caledonicus</i>	1041	<i>Penaeus plebejus</i>	924
<i>Parribacus holthuisi</i>	1042	<i>Penaeus semisulcatusv</i>	915, 925
<i>Parribacus scarlatinus</i>	1042	<i>Penaeus semisulcatus exsulcatus</i>	922
<i>Parribacus ursus major</i>	1037	<i>Penaeus semisulcatus paucidentatus</i>	925
PARTHENOPIDAE	1050	<i>Penaeus silasi</i>	916, 921, 923, 926
<i>parva, Sepiola</i>	717	<i>Penaeus sp.</i>	914, 917, 922
<i>parysatis, Heterocarpus</i>	969- 970	<i>Penaeus teraoi</i>	920
<i>parysatis, Amplisepta</i>	738	Pencil squids	764
<i>pascuensis, Panulirus</i>	1026	<i>penicillatus, Panulirus</i>	1019 , 1041
Pastel odontodactylid mantis shrimp	834	<i>penicillatus, Penaeus</i>	916, 921, 923 , 926
<i>paucidentatus, Penaeus semisulcatus</i>	925	<i>Pentanchus</i>	1279
<i>paucus, Isurus</i>	1277- 1278	<i>Pentanchus profundicolus</i>	1291
<i>Pearsonothuria graeffei</i>	1184	<i>peregrina, Solitosepia rozella</i>	752
Peau bleue	1353	Periscope crabs	1048
<i>pectinata, Solenocera</i>	887-888	Periscope shrimp	929
<i>pectinulata, Solenocera</i>	887-888	<i>perlo, Heptbranchias</i>	1210
Pejegato aleton	1286	<i>Perna spp.</i>	1107
Pejegato cabezón	1286	<i>peronii, Ibacus</i>	1035

- peronii, Matuta* 1095
perpensa, Oratosquillina 843, **848**
 Petit taupe 1278
 Pez toro 1266
 Pfeffer's flamboyant cuttlefish 757
pfefferi, Metasepia **757**
 Pharaoh cuttlefish 748
pharaonis, Sepia 744, **748**
philargius, Calappa 1091, 1094, **1097**
 Philippine night octopus 816
 Philippine sawshark 1234
philippinensis, Metapenaeus 910
philippinensis, Nototodarus 792, 795
 Philippines rough shrimp 951
Phoberus brevirostris 988
Phoberus caecus sublevis 988
Phoberus tenuimanus 988
Photololigo 689, 691, 765
Photololigo chinensis 765-766, **774-775, 777**
Photololigo duvaucelii **774-775**
Photololigo edulis 765-766, 774, **776**
Photololigo singhalensis **777**
Photololigo sp. 1 766, 776
Photololigo sp. 2 766, 776
Photololigo sp. 3 766, 774
Photololigo spp. 780
Physodon mülleri 1357
picta, Hymenocera **963**
pictor, Lophozozymus 1049, 1098
 Pigeye shark 1329
PILUMNIDAE 1058, **1112**
 Pilumnids 1112
 Pincer lobsters 977
 Pink lanternshark 1227
 Pink velvet shrimp 931
 Pink-fingered vinegar crab 1145
 Pinkfish 1177
 Pintarroja australiana 1289
 Pintarroja coral 1288
 Pintarroja enana 1290
 Pintarroja rabonegro 1290
 Pintarroja salamanquesa 1289
PIRIMELIDAE 1050
plagiosum, Chiloscylidium 1253-1256-1257
Plagusia tuberculata **1146**
 Plain-body night octopus 823
 Plain-spot ocellate octopus 825
plangon adhaesa, Solitosepia 749
plangon, Sepia **749**
planipes, Matuta **1094**
Platypodia granulosa 1049
PLATYXANTHIDAE 1050
playfairi, Hypoprión 1343
plebejus, Penaeus **924**
Plesiopenaeus edwardsianus **874**
pleurotaenia, Carcharhinus 1327
plumbeus, Carcharhinus **1345**
Podophthalmus 1123
Podophthalmus vigil **1123**
Podopilumnus fittoni 1113
 Poison ocellate octopus 825
 Poisonous crabs 1049
POLYCHELIDAE 977-978, 983, 996, 1002, 1007
 Polynesian furrow lobster 1023
 Polynesian golden crab 1135
polyphagus, Panulirus **1020-1021**
polyzenia, Octopus **826**
pompilius, Nautilus **711**
Ponderisepia eclogaria 744
 Pondicherry shark 1338
 Porbeagles 1274
porosus, Carcharhinus 1359
 Port Jackson shark 1240
 Porter crabs 1050, 1083
PORTUNIDAE 1050, 1059, 1091, **1115**
 Portunids 1115
Portunus 1120, 1124-1125
Portunus mauritianus 1124
Portunus pelagicus 1115, 1123-1124-1125
Portunus sanguinolentus 1115, **1125**
Portunus trituberculatus 1115, 1124-1125
portusjacksoni, Heterodontus **1240**
 Pota cárdena 794
 Pota costera 796
 Pota hawaiana 792
 Pota japonesa 795
 Pota saltadora 793
POTAMIDAE 1048, 1050, 1147
potamicus, Leptocarpus **966**
POTAMOTRYGONIDAE 1196
 Poulpe des sables 815
 Poulpe nain 811
 Poulpe vieille femme 810
poupini, Chaceon 1132, **1135**
POUPINIIDAE 1083
 Poupiniids 1083
 Prickly deep-sea lobster 988
 Prickly redfish 1189
 Prickly shark 1212
Prionace 1312
Prionace glauca **1353**
prionota, Sepia 747
PRISTIDAE 1233
PRISTIOPHORIDAE 1211, 1213, **1233**
Pristiophorus cirratus 1234
Pristiophorus japonicus 1234
Pristiophorus sp. **1234**
Pristiophorus sp. B **1234**
profundicolus, Pentanchus **1291**
profundorum, Deania **1225**
profundus, Alopias 1272
prominentis, Solenocera 884
 Pronghorn decorator crab 1137
 Pronghorn spiny lobster 1019
PROSCYLLIIDAE 1196, 1264, **1293**, 1295, 1298, 1306, 1313
Proscyllium habereri 1293, **1295**
Protozygaena taylori 1356
Pseudocarcharias kamoharai **1268**
PSEUDOCARCHARIIDAE 1196, 1264, **1268**

<i>Pseudocarcinus gigas</i>	1055
PSEUDOTRIAKIDAE	1196, 1296
<i>Pseudotriakis microdon</i>	1296
<i>Pterygioteuthis</i>	781
<i>pubescens, Ibacus</i>	1035- 1036
<i>pubescens, Ibacus ciliatus</i>	1036
<i>Puerulus</i>	977, 1006, 1012
<i>Puerulus angulatus</i>	1027
<i>Puerulus velutinus</i>	1027
Pugnose caridina	961
Pulpo marmóreo	811
Pulpo perforado	810
Pulpo reticulado	815
<i>punctatum, Chiloscyllium</i>	1253-1254, 1256- 1257
<i>punctatus, Ovalipes</i>	1122
Purple land crab	1150
Purple mud crab	1128
Purpleback flying squid	794
<i>pusillus, Todarodes pacificus</i>	795
<i>pygmaeus, Idiosepius</i>	721
Pygmy cuttlefish	721
Pygmy cuttlefishes	688
Pygmy ribbontail catshark	1295
Pygmy shark	1228
<i>Pyroteuthis</i>	781

Q

<i>quadrispinosa, Deania</i>	1225
Queen crab	1055
Queensland river shark	1359
Quelvacho	1223
Quelvacho chino	1224
Quelvacho de aleta corta	1223
Quelvacho negro	1224
<i>quinquedentata, Oratosquillina</i>	849

R

<i>radamae, Carcharhinus</i>	1326
<i>radcliffei, Eridacnis</i>	1295
Rainbow shrimp	944
Ram's horn squid	722
<i>rancureli, Squalus</i>	1231
<i>Ranina dentata</i>	1090
<i>Ranina ranina</i>	1089- 1090
<i>ranina, Ranina</i>	1089- 1090
RANINIDAE	1056, 1089 , 1115
<i>Raoulius cultrifer</i>	834
<i>raphidea, Harpiosquilla</i>	841
<i>rappiana, Sepia</i>	744
Rathbun's vinegar crab	1145
<i>rayneri, Galeocerdo</i>	1349
Rays	1236
Razor mud shrimp	884
Reaper cuttlefish	760
<i>rectacuta, Penaepsis</i>	947- 948
<i>recurvirostra, Sepia</i>	750
Red egg crab	1049
Red reef crab	1111
Red reef lobster	1000
Red shrimp	957

Red-banded lobster	990
Red-eyed crabs	1049
Red-spot king prawn	919
Red-spot night octopus	824
Red-spotted mitten lobster	1042
Redtail prawn	923
Reef box crab	1097
Reef crabs	1048-1049, 1058, 1098, 1110
Reef lobsters	978, 995
Reef odontodactylid mantis shrimp	834
<i>reesi, Loligo</i>	766
<i>regalis, Arctides</i>	1041
<i>remotus, Carcharhinus</i>	1331
Renard	1273
Renard à gros yeux	1272
Renard pélagique	1271
<i>repertus, Nautilus</i>	711
Réquiem babosse	1326
Réquiem de sable	1344
Réquiem macuire	1340
Réquiem océanique	1341
Réquiem plombe	1345
Requiem sharks	1196-1197, 1312-1313
Réquiem soie	1335
Réquiem taureau	1339
Requiem tisserand	1332
Requin à joues blanches	1334
Requin à longue dorsale	1296
Requin à museau pointu	1354
Requin à nez rude	1342
Requin à tache noire	1346
Requin aiguille gris	1355
Requin aiguille réchine	1356
Requin aveugle des roches	1244
Requin aveugle gris-bleu	1244
Requin babosse	1326
Requin baleine	1263
Requin baleinier	1336
Requin balestrine	1329
Requin baliai	1338
Requin bordé	1340
Requin bouledogue	1339
Requin carpette à collarete	1242
Requin carpette à moustache	1242
Requin chat golloum	1295
Requin chat gracile	1295
Requin chat pygmé	1295
Requin citron faucille	1352
Requin corail	1358
Requin crocodile	1268
Requin cuivre	1331
Requin dagsit	1328
Requin de Galapagos	1337
Requin dormeur à crête	1240
Requin dormeur taureau	1240
Requin dormeur zèbre	1240
Requin épée	1357
Requin féroce	1267
Requin gracile	1327
Requin grandes ailes	1350

- Requin gris 1345
 Requin grise 1210
 Requin marteau halicorne 1364
 Requin marteau planeur 1363
 Requin nerveux 1333
 Requin océanique 1341
 Requin perlon 1210
 Requin pointe blanche 1325
 Requin pointes noires 1343
 Requin sable tacheté 1266
 Requin sagrin 1351
 Requin sombre 1344
 Requin soyeux 1335
 Requin tachete 1347
 Requin taureau 1266
 Requin tigre 1349
 Requin tigre commun 1349
 Requin tisserand 1332
 Requin zèbre 1262
 Requin-chabot à taches blanches 1256
 Requin-chabot bambou 1257
 Requin-chabot élégant 1255
 Requin-chabot épaulette 1258
 Requin-chabot gris 1253
 Requin-chabot grivelé 1258
 Requin-chabot marqueterie 1259
 Requin-chabot moine 1259
 Requin-chabot ocellé 1258
 Requin-hâ 1302
 Requin-hâ aile blanche 1302
 Requin-hâ elegant 1303
 Requin-hâ long nez 1303
 Requin-hâ voile 1302
 Requin-marteau commun 1366
 Requin-nourrice fauve 1260
 Requin-tapis barbu 1247
 Requin-tapis moustache 1247
 Requin-tapis paste 1248
 Requin-tapis savetier 1248
 Requin-tapis tacheté 1247
 Requin-tigre houareau 1330
 Reticulated swellshark 1289
RETROPLUMIDAE 1048
rex, Decorisepia 751
rex, Sepia **751**, 759
Rhincodon typus **1263**
RHINCODONTIDAE 1196, **1263**, 1274, 1314
Rhiniodon typus 1263
Rhizoprionodon 1312
Rhizoprionodon acutus **1354**–1356
Rhizoprionodon oligolinx 1354-**1355**-1356
Rhizoprionodon taylori 1354-**1356**
rhoda, Arctosepia 739
 Rhomboid crabs 1058, 1114
 Rhomboid squids 797
rhomboidalis, Loligo 773
rhombus, Thysanoteuthis **797**
Rhynchocinetes durbanensis **971**
Rhynchocinetes uritai 971
RHYNCHOCINETIDAE 958, **971**
- Ridgeback shrimp 882
 Ridged swimming crab 1121
 Robber harpiosquillid mantis shrimp 841
 Rock shrimps 952
 Roe crabs 1126
rosea, Metapenaeopsis **931**
 Rosecone cuttlefish 752
rosenbergii dacqueti, Macrobrachium 964
rosenbergii, Macrobrachium 855, 957, **964**, 966-967
 Roshna prawn 965
Rossia 715
Rossia australis **715**
Rossia bipapillata **716**
Rossia pacifica 716
rostrata, Sepia 740
rostridentata, Aristaeomorpha 872
rotundum, Cardisoma 1149, **1151**
 Rough reeyed crab 1106
 Rough river prawn 967
 Roussette à taches brunes 1292
 Roussette nuageuse 1292
 rouxii, Sepia 2748
 Royal Spanish lobster 1041
rozella peregrina, Solitosepia 752
rozella, Sepia **752**
rozella, Solitosepia 752
 Rugose land crab 1151
rugosus, Scyllarus **1043**
rumphii, Dromia 1087
rumphii, Menippe 1103, **1107**
- S**
- Saa liu 815
 Sagre lucifer 1226
 Sagre porte-feu à queue courte 1226
 Sailback houndshark 1302
 Salicoque balafrée 882
 Salicoque canif 881
 Salicoque chinoise de vase 887
 Salicoque des vases côtières 883
 Salicoque peigne 887
 Sally-light-foots 1060, 1138
 Saltarelle nez-camus 961
 Saltarelle soldat 960
 Sand bird octopus 815
 Sand crab 1122
 Sand devils 1235
 Sand fish 1179
 Sand tiger sharks 1264
 Sandbar shark 1345
 Sandtiger shark 1266
sanguinolentus, Portunus 1115, **1125**
Sargassum spp. 1144
Saron marmoratus 962
Saron neglectus **962**
sauteri, Galeus **1290**
 Saw sharks 1233
 Sawedged spooner 1101
 Sawfishes 1233
scabra var. *versicolor, Holothuria (Metriatyla)* 1179- **1180**

<i>scabra, Holothuria</i>	1173-1174, 1180	<i>Seiche madokai</i>	759
<i>scabra, Holothuria (Metriatyla)</i>	1179-1180	<i>Seiche moisson</i>	760
<i>Scaevargus</i>	801	<i>Seiche petites mains</i>	740
Scalloped hammerhead	1364	<i>Seiche pharaon</i>	748
Scalloped spiny lobster	1016	Selenka's sea cucumber	1187
<i>scarlatinus, Parribacus</i>	1042	<i>semisulcatus exsulcatus, Penaeus</i>	922
Scarlet shrimp	874	<i>semisulcatus paucidentatus, Penaeus</i>	925
<i>Schizophrys</i>	1136	<i>semisulcatus, Penaeus</i>	915, 925
<i>Schizophrys aspera</i>	1137	Sentinel crab	1123
<i>Schizophrys dama</i>	1137	<i>Sepia (Sepiella) microcheirus</i>	756
<i>schultzi, Galeus</i>	1290	<i>Sepia aculeata</i>	736
<i>scintillans, Watasenia</i>	781	<i>Sepia acuminata</i>	759
<i>Scoliodon</i>	1312	<i>Sepia affinis</i>	756
<i>Scoliodon acutus</i>	1351, 1354	<i>Sepia andreana</i>	737, 743
<i>Scoliodon ceylonensis</i>	1351	<i>Sepia andreanoides</i>	743
<i>Scoliodon laticaudus</i>	1351, 1354-1357	<i>Sepia apama</i>	738
<i>Scoliodon palasorra</i>	1354-1355, 1357	<i>Sepia bandensis</i>	757
<i>Scoliodon sorrakowa</i>	1357	<i>Sepia bartletti</i>	758
<i>Scoliodon walbeehmi</i>	1354	<i>Sepia braggi</i>	739
<i>scorpio, Cloridopsis</i>	842, 846	<i>Sepia brevimana</i>	740, 754, 761
Scribbled night octopus	813	<i>Sepia con punta</i>	736
<i>scrobiculatus, Nautilus</i>	711	<i>Sepia cottoni</i>	758
<i>sculptilis, Parapenaeopsis</i>	913, 944	<i>Sepia cultrata</i>	759
Sculptured mitten lobster	1037	<i>Sepia dorada</i>	742
SCYLIIORHINIDAE	1241, 1279, 1293, 1313	<i>Sepia elliptica</i>	741-742
<i>Scyliorhinus garmani</i>	1292	<i>Sepia esculenta</i>	740-742, 748
<i>Scyliorhinus torazame</i>	1292	<i>Sepia faraónica</i>	748
<i>Scylla</i>	1120, 1124, 1126-1127	<i>Sepia formosana</i>	748
<i>Scylla olivacea</i>	1126-1127	<i>Sepia galei</i>	747
<i>Scylla paramamosain</i>	1127-1128	<i>Sepia ganchuda</i>	750
<i>Scylla serrata</i>	1115, 1126-1128	<i>Sepia gigante</i>	738
<i>Scylla serrata</i> var. <i>oceanica</i>	1126	<i>Sepia grácil</i>	739
<i>Scylla tranquebarica</i>	1127-1128	<i>Sepia hedleyi</i>	751
SCYLLARIDAE 977, 979, 984, 997, 1002, 1008, 1028		<i>Sepia hercules</i>	744
<i>Scyllarides</i>	977, 1028, 1032	<i>Sepia indica</i>	736
<i>Scyllarides haanii</i>	1038	<i>Sepia inermis</i>	756
<i>Scyllarides squamosus</i>	1039	<i>Sepia kobí</i>	743
<i>Scyllarus</i>	1028, 1030	<i>Sepia kobeensis</i>	737, 743
<i>Scyllarus bertholdii</i>	1043	<i>Sepia kobeensis</i> var. <i>albatrossi</i>	743
<i>Scyllarus cultrifer</i>	1028	<i>Sepia kobeensis</i> var. <i>andreanoides</i>	743
<i>Scyllarus rugosus</i>	1043	<i>Sepia kobeensis</i> var. <i>beppauna</i>	743
<i>scyllarus, Odontodactylus</i>	829, 834	<i>Sepia kobeensis</i> var. <i>crassa</i>	743
<i>Scyllium ornatum</i>	1256	<i>Sepia kobeensis</i> var. <i>toyamensis</i>	743
<i>Scymnodon</i>	1213	<i>Sepia labiada</i>	745
<i>Scymnodon squamulosus</i>	1228	<i>Sepia latimanus</i>	744
Sea cucumbers	1158, 1163, 1180	<i>Sepia lycidas</i>	745
Sea stars	1158	<i>Sepia madokai</i>	751, 759
Sea urchins	1158	<i>Sepia maziocorta</i>	740
<i>sealei, Carcharhinus</i>	1334, 1346	<i>Sepia mazuda</i>	744
<i>sebana, Eriphia</i>	1106, 1108	<i>Sepia mestus</i>	760
<i>sedili, Trachypenaeus</i>	928, 950	<i>Sepia mira</i>	760
<i>Seiche aiguille</i>	736	<i>Sepia mozambica</i>	744
<i>Seiche andreana</i>	737	<i>Sepia officinalis</i>	725
<i>Seiche baisers</i>	745	<i>Sepia omani</i>	762
<i>Seiche dorée</i>	742	<i>Sepia opipara</i>	746
<i>Seiche géante</i>	738	<i>Sepia pagenstecheri</i>	750
<i>Seiche gracile</i>	739	<i>Sepia palmata</i>	738
<i>Seiche grandes mains</i>	744	<i>Sepia papuensis</i>	747
<i>Seiche hameçon</i>	750	<i>Sepia pharaonis</i>	744, 748
<i>Seiche kobi</i>	743	<i>Sepia plangon</i>	749

- Sepia prionota* 747
Sepia rappiana 744
Sepia recurvirostra **750**
Sepia rex **751**, 759
Sepia rostrata 740
Sepia rouxii 748
Sepia rozella **752**
Sepia segadora 760
Sepia singaporensis 750
Sepia smithi **753**, 755
Sepia stellifera 740-741, **754**
Sepia subaculeata 745
Sepia sulcata **761**
Sepia tigris 748
Sepia vietnamica **761**
Sepia vossi **762**
Sepia whiteleyana 753, **755**
SEPIADARIIDAE 712, **719**
 Sepiadariids 696
Sepiadarium kochii 694, **720**
Sepiadarium malayense 720
Sepiella inermis **756**
Sepiella mandroni 756
Sepiella ocellata **762**
Sepiella ornata 762
Sepiella weberi **763**
SEPIIDAE 689, **723**, 765
 Sepioids 694, 696
Sepiola birostrata **716-717**
Sepiola mariposa 716
Sepiola parva **717**
Sepiola trirostrata 716-**717**
 Sépiole gros yeux 718
 Sépiole papillon 716
SEPIOLIDAE **712**, 719
 Sepioids 696
 Sepiolina 718
Sepiolina nipponensis **718**
Sepioloidea lineolata **720**
Sepioteuthis 725, 765, 797
Sepioteuthis arctipinnis 778
Sepioteuthis lessoniana 688-689, 765, **778**, 797
SERGESTIDAE 858, **860**, 869, 876, 891, 953
 Sergestoid shrimps 855-856, 858
SERGESTOIDEA 855-856, 858, 866, 956, 958
serrata var. *oceanica*, *Scylla* 1126
serrata, *Scyllav* 1115, **1126-1128**
serrulatus, *Acetes* **864**
SESARMINAE 1048
 Sevengill sharks 1208
 Sharpnose sevengill shark 1210
 Sharpnose sharks 1312
 Short-spined nylon shrimp 970
 Shortclub cuttlefish 740
 Shortfin mako 1277
 Shortleg river prawn 968
 Shortnose spurdog 1230
 Shortspine spurdog 1230
 Shorttail lanternshark 1226
 Siboga lobster 989
sibogae australiensis, *Haliporoides* 881
sibogae madagascariensis, *Haliporoides* 881
sibogae, *Acetes* **864**
sibogae, *Apristurus* **1286**
sibogae, *Doryteuthis* 776-777
sibogae, *Haliporoides* **881**
sibogae, *Heterocarpus* 969-**970**
sibogae, *Hymenopenaeus* 881
sibogae, *Loligo* 777
sibogae, *Metanephrops* **989**
sibogae, *Nephrops* 989
 Sicklefin lemon shark 1352
 Sicklefin weasel shark 1309
Sicyonella 858
Sicyonia cristata 954
Sicyonia lancifera 952, **954**
SICYONIIDAE 855, 869, 876, 890, **952**
signatus, *Atergopsis* **1102**
silasi, *Penaeus* 916, 921, 923, **926**
 Silky shark 1335, 1341
Sillago 1333
 Silvertip shark 1325
similis, *Bohadschia* **1173-1174**
sinensis, *Eriocheir* 1055
sinensis, *Metanephrops* **993**
sinensis, *Solenocera* 883
 Singapore rough shrimp 950
 Singapore vinegar crab 1146
singaporensis, *Episesarma* 1143, **1146**
singaporensis, *Sepia* 750
singhalensis, *Doryteuthis* 774
singhalensis, *Photololigo* **777**
 Sixgill sharks 1208
 Slender bambooshark 1255
 Slender cuttlefish 739
 Slender sawtail catshark 1290
 Slender smooth-hound 1295
 Slendertail lanternshark 1226
 Slipper lobster 1038
 Slipper lobsters 977, 979, 1028
 Sliteye shark 1351
sloani pacificus, *Ommastrephes* 795
 Small furrow lobster 1022
 Small-spot night octopus 814
 Smalleye pigmy shark 1229
 Smalleyed squillid mantis shrimp 847
 Smallfin gulper shark 1223
 Smalltooth sand tiger 1267
 Smelt-whiting 1333
 Smith's cuttlefish 753
smithi, *Sepia* **753**, 755
smithii, *Eriphia* **1106**, 1108
 Smooth fan lobster 1035
 Smooth hammerhead 1366
 Smooth redeyed crab 1108
 Smooth spooner 1100
 Smooth squillid mantis shrimp 846
 Smooth stone crab 1109
 Smooth-shelled swimming crab 1130
 Smoothhounds 1297

Smoothshell shrimp	945	<i>spinea, Actinopyga</i>	1169-1171
Snaggletooth shark	1310	Spined pygmy shark	1229
Snake fish	1175	Spineless cuttlefish	756
Snow crab	1055	<i>spinimana, Thalamita</i>	1129
Soldier brush shrimp	960	<i>spinipes, Atyopsis</i>	960
Soldier crabs	1048	Spinner shark	1332
<i>Solenocera</i>	875	Spiny claw swimming crab	1129
<i>Solenocera alfonso</i>	884-885	Spiny greasyback shrimp	909
<i>Solenocera alticarinata</i>	882, 885 , 887	Spiny lobster	975
<i>Solenocera australiana</i>	884, 886	Spiny lobsters	977, 1005-1006, 1037-1038, 1040
<i>Solenocera choprai</i>	882 , 885, 887	Spiny spooner	1102
<i>Solenocera crassicornis</i>	883	<i>Spirula spirula</i>	722
<i>Solenocera halli</i>	884, 886	<i>spirula, Spirula</i>	722
<i>Solenocera indicus</i>	883	SPIRULIDAE	722
<i>Solenocera koelbeli</i>	884, 887	Splendid lanternshark	1227
<i>Solenocera kuboi</i>	883	Splendid spooner	1101
<i>Solenocera melantho</i>	884 , 886-887	<i>splendidus, Etisus</i>	1101
<i>Solenocera pectinata</i>	887-888	<i>splendidus, Etmopterus</i>	1227
<i>Solenocera pectinulata</i>	887-888	Sponge crabs	1056, 1083, 1085
<i>Solenocera prominentis</i>	884	Spongehead catshark	1287
<i>Solenocera sinensis</i>	883	<i>spongiceps, Apristurus</i>	1287
<i>Solenocera sp.</i>	882	<i>Spongiocola venusta</i>	955
<i>Solenocera subnuda</i>	883	Spooner crabs	1098
Solenocid shrimps	875	Spotless smooth-hound	1304
SOLENCERIDAE	855, 869, 875 , 890, 953	Spottail shark	1347
<i>solicitans, Oratosquillina</i>	849	Spotted marbled shrimp	962
<i>Solitosepia genista</i>	747	Spotted reef crab	1111
<i>Solitosepia lana</i>	747	Spotted squillid mantis shrimp	846
<i>Solitosepia occidua</i>	747	Spotted wobbegong	1247
<i>Solitosepia plangon adhaesa</i>	749	Spottedbelly rock crab	1109
<i>Solitosepia rozella</i>	752	Spotty bobtail squid	717
<i>Solitosepia rozella peregrinav</i>	752	Spotty cuttlefish	762
<i>Solitosepia submestus</i>	747	Squale bouclé	1212
Solrayo	1267	Squale bouclé du Pacifique	1212
<i>sordidus, Linuparus</i>	1024	Squale liche	1225
<i>sorrah, Carcharhinus</i>	1347	Squale moustache	1224
<i>sorrakowa, Scoliodon</i>	1357	Squale nain	1229
Southern bobtail squid	714	Squale pygmée	1228
Southern mauxia shrimp	864	Squale-chagrin cagaou	1223
Southern rough shrimp	927	Squale-chagrin commun	1223
Southern velvet shrimp	908	Squale-chagrin de l'Atlantique	1224
Spadenose shark	1357	Squale-chagrin quelvacho	1224
Spanner crab	1090	Squale-grogneur velouté	1228
Spanner crabs	1056, 1089, 1115	Squale-savate à long nez	1225
Spear shrimp	913	Squale-savate lutin	1225
Speartooth shark	1359	Squalelet féroce	1228
Speckled carpetshark	1259	SQUALIDAE	1196-1197, 1211, 1213 , 1314
Speckled catshark	1291	<i>Squaliolus</i>	1213
Spectacled box crab	1097	<i>Squaliolus aliae</i>	1229
<i>Sphyrna blochii</i>	1363	<i>Squaliolus laticaudus</i>	1229
<i>Sphyrna diplana</i>	1364	<i>Squalus brevirostris</i>	1230
<i>Sphyrna lewini</i>	1364-1366	<i>Squalus japonicus</i>	1229
<i>Sphyrna mokarran</i>	1364- 1365-1366	<i>Squalus megalops</i>	1230
<i>Sphyrna tudes</i>	1365	<i>Squalus melanurus</i>	1230
<i>Sphyrna zygaena</i>	1364- 1366	<i>Squalus mitsukurii</i>	1230
Sphyrnid sharks	1197	<i>Squalus rancureli</i>	1231
SPHYRNIDAE	1196-1197, 1314, 1361	<i>Squalus sp. A</i>	1231
Spider crabs	1050, 1059, 1083, 1136	<i>Squalus sp. B</i>	1231
Spider prawn	968	<i>Squalus sp. F</i>	1232
Spindle crabs	1083	<i>squammosus, Scyllarides</i>	1039

- squamosus, Centrophorus* **1224**
squamulosus, Scymnodon **1228**
 Square-shelled crab 1113
 Squat lobsters 976, 1048
Squatina australis **1237**
Squatina japonica **1237**
Squatina sp. A **1237**
SQUATINIDAE . . . 1196, 1211, 1214, **1235**, 1246, 1314
 Squid 692
 Squids 688, 694, 696, 698
 Squillid mantis shrimps 830, 842
SQUILLIDAE 830, **842**
 Squillids 842
 Sri Lanka crab 1127
 Staregaze cuttlefish 746
 Starry cuttlefish 754
 Starspotted smooth-hound 1304
 Steenstrup's bay squid 780
Stegostoma fasciatum **1262**
Stegostoma tygrinus 1262
Stegostoma varium 1262
STEGOSTOMATIDAE . . . 1197, 1250, 1261-**1262**, 1269
stellifera, Sepia 740-741, **754**
stenodactyla, Ommastrephes caroli 793
stenodactylus, Atypopenaeus **929**
stenomphalus, Nautilus 711
 Stenopodid shrimps 856, 955
STENOPODIDAE 855, 870, 877, 891, 953, **955**
 STENOPODIDEA 855-856, 859, 866, 955, 958
 Stenopodids 855
Stenopus 955
Stenopus hispidus 955
stewarti, Nephropsis **991**
Sthenoteuthis oualaniensis . . . 694, 689, 788, 793-**794**
STICHOPODIDAE 1160, **1185**
Stichopus chloronotus **1186**
Stichopus godeffroyi 1187
Stichopus horrens **1187**
Stichopus variegatus **1188**
stimpsoni, Panulirus **1026**
 Stingrays 1196
 STOMATOPODA 855
 Stone crabs 1048, 1057, 1098, 1103, 1110
 Stork shrimp 941
 Stout red shrimp 873
strahani, Hemiscyllium **1259**
 Straight-tooth weasel shark 1311
stridulans, Metapenaeopsis 908, **932**
strigosus, Grapsus 1142
 Striking cuttlefish 749
striolatus, Octopus 815
 Striped dumpling squid 720
 Striped hinge-beak shrimp 971
 Striped reef lobster 999
 Stumpy bobtail squid 715
 Stumpy spined cuttlefish 757
styliferus, Exopalaemon **965**
subaculeata, Sepia 745
sublevis, Phoberus caecus 988
submestus, Solitosepia 747
subnuda, Solenocera 883
sulcata, Sepia **761**
 Sulu shrimp 940
suluensis, Metapenaeus **940**
sumatrensis, Nipponololigo **773**
 Sundaic paddler crab 1144
SUNDATHELPHUSIDAE 1050, 1147
superciliosus, Alopias 1271-**1272**-1273
 Surf redfish 1168
 Swimming crabs 1059, 1115
 Swordtip squid 776
Symplectoteuthis oualaniensis 794
SYNAPTIDAE 1160
SYNAXIDAE 977, 979, 983, 996, **1001**, 1008
T
 Taiwan gulper shark 1224
 Taiwan mauxia shrimp 863
Taningia 797
 Tapicero barbudo 1247
 Tapicero japonés 1247
 Tapicero manchado 1247
 Tapicero ornamentado 1248
 Tapicero zapatilla 1248
tasmanica, Eupryma **714**
 Tasselled wobbegong 1247
 Taupe bleu 1277
taurus, Carcharias 1196, **1266**-1267
taurus, Eugomphodus 1266
taurus, Odontaspis 1266
 Tawny nurse shark 1260
taylori, Rhizoprionodon 1354-1356
taylori, Protozygaena 1356
 TELMESSINAE 1050
temmincki, Carcharhinus 1350
temmincki, Eulamia 1350
temmincki, Lamiopsis **1350**, 1352
tenella, Parapenaeopsis **945**
tengi, Negogaleus 1311
tengi, Paragaleus **1311**
tenuicrustatus, Grapsus **1142**
tenuimana, Acanthacaris **988**
tenuimanus, Phoberus 988
tenuipes, Metapenaeus **941**
tenuipes, Nematopalaemon **968**
teraoi, Penaeus 920
tetricus, Octopus **818**
 TEUTHIDA 688
 Teuthoids 694
 Thai vinegar crab 1145
Thalamita 1129
Thalamita crenata **1129**
Thalamita spinimana **1129**
Thalassina 1143
Thalassina anomala 1048
Thalassina spp. 1048
THALASSINIDAE 976, 1048
 THALASSINIDEA 855, 976
THAUMASTOCHELIDAE . . . 977, 983, 996, 1001, 1007
Thelenota ananas **1189**

<i>Thelenota anax</i>	1190	Tollo cigarro	1228
<i>Thenus</i>	977, 1028	Tollo coludo elegante	1295
<i>Thenus orientalis</i>	1040	Tollo coludo grácil	1295
THIIDAE	1050	Tollo coludo pigmeo	1295
Thin shrimp	943	Tollo flecha	1225
<i>thomsoni</i> , <i>Metanephrops</i>	990	Tollo lucero diablo	1226
<i>thomsoni</i> , <i>Nephrops</i>	990	Tollo lucero mocho	1226
Three-spot swimming crab	1125	Tollo mandarín	1224
Thresher shark	1273	Tollo pigmeo	1228
Thresher sharks	1197, 1269	Tollo pigmeo espinudo	1229
THYSANOTEUTHIDAE	797	Tollo trompalarga	1225
<i>Thysanoteuthis</i>	797	Tolo velvet shrimp	932
<i>Thysanoteuthis nuchalis</i>	797	<i>toloensis</i> , <i>Metapenaeopsis</i>	932
<i>Thysanoteuthis rhombus</i>	797	Tope shark	1302
Tiburón acebrado	1262	Topes	1297
Tiburón aleta negra	1332	<i>torazame</i> , <i>Scyliorhinus</i>	1292
Tiburón aleton	1350	Toro bacota	1266
Tiburón alinegro	1346	Torpedo shrimp	944
Tiburón arenero	1344	Toutenon japonais	795
Tiburón azul	1353	Toutenon souffleur	796
Tiburón baboso	1326	<i>toyamensis</i> , <i>Sepia kobeensis</i> var.	743
Tiburón baleta	1329	<i>Trachypenaeopsis</i>	889-890
Tiburón ballena	1263	<i>Trachypenaeus</i>	890
Tiburón ballenero	1336	<i>Trachypenaeus anchoralis</i>	948
Tiburón cariblanco	1334	<i>Trachypenaeus asper</i>	927, 950
Tiburón ciego de roca	1244	<i>Trachypenaeus curvirostris</i>	927-928, 950
Tiburón ciego gris	1244	<i>Trachypenaeus fulvus</i>	928
Tiburón cobrizo	1331	<i>Trachypenaeus gonospinifer</i>	949
Tiburón cocodrilo	1268	<i>Trachypenaeus granulatus</i>	949
Tiburón de arrecifes	1328	<i>Trachypenaeus longipes</i>	927, 950
Tiburón de Borneo	1330	<i>Trachypenaeus malaiana</i>	927-928, 950
Tiburón de clavos	1212	<i>Trachypenaeus sedili</i>	928, 950
Tiburón de Galápagos	1337	<i>Trachypenaeus unicus</i>	928
Tiburón de Milberto	1345	<i>Trachypenaeus villaluzi</i>	951
Tiburón de Pondicherry	1338	<i>tranquebarica</i> , <i>Scylla</i>	1127-1128
Tiburón de puntas blancas	1325	<i>treba</i> , <i>Arctosepia</i>	739
Tiburón de puntas negras	1343	TREMOCTOPODIDAE	802
Tiburón grácil	1327	<i>Tremoctopus violaceus</i>	802
Tiburón jaquetón	1335	Trévang	1163-1164
Tiburón macuira	1340	Trévang à canaux blancs	1178
Tiburón negro espinoso	1212	Trévang curry	1188
Tiburón nervioso	1333	Trévang rose	1177
Tiburón oceánico	1341	Trévang vert	1186
Tiburón ojuelo	1351	<i>Triaenodon</i>	1312
Tiburón rabo manchado	1347	<i>Triaenodon obesus</i>	1325, 1358
Tiburón sarda	1339	<i>Triaenodon obtusus</i>	1329
Tiburón segador	1352	TRIAKIDAE	1196, 1264, 1294, 1297, 1306, 1313
Tiburón trompudo	1342	<i>Triakis</i>	1297
Tiburón trozo	1345	<i>tricuspidatus</i> , <i>Carcharias</i>	1266
Tiger dumpling squid	720	<i>trigonus</i> , <i>Linuparus</i>	1024
Tiger shark	1197, 1349	<i>trirostrata</i> , <i>Sepiola</i>	716-717
<i>tigris</i> , <i>Sepia</i>	748	<i>trispeculare</i> , <i>Hemiscyllium</i>	1259
<i>tilstoni</i> , <i>Carcharhinus</i>	1340, 1348	<i>trispinosus</i> , <i>Gecarcinus</i>	1113
Tintorera	1349	<i>trituberculatus</i> , <i>Portunus</i>	1115, 1124-1125
<i>tjutjot</i> , <i>Carcharhinus</i>	1334	Tropical sawshark	1234
<i>Todarodes pacificus</i>	788, 795	True crabs	1048
<i>Todarodes pacificus pacificus</i>	795	True lobster	974
<i>Todarodes pacificus pusillus</i>	795	True lobsters	976-977, 982
<i>Todarodes pacificus</i> ssp.	788, 796	<i>truncata</i> , <i>Charybdis</i>	1120, 1131
<i>Todaropsis eblanae</i>	796	Tsivakihini paste shrimp	862

- tuberculata, Ocythoe* 802
tuberculata, Plagusia **1146**
 Tuberculated Sally-light-foot 1146
tuberculosis, Ozius **1109**
tudes, Sphyrna 1365
 Two-spot locust lobster 1043
 Twospined arm swimming crab 1130
tygrinus, Stegostoma 1262
typicus, Carcinoplax longimanus 1114
typus, Rhincodon **1263**
typus, Rhiniodon 1263
- U**
- Uca* spp. 1048
 Umbrella squids 787
 Uncta shrimp 945
uncta, Parapenaeopsis **945**
 Unicorn blunthorn lobster 1025
unicornutus, Palinustus **1025**
unicus, Trachypenaeus 928
Upogebia spp. 1048
UPOGEBIIDAE 976, 1048
uritai, Rhynchocinetes 971
Uroteuthis 764
Uroteuthis bartschi **779**
ursulae, Crumenasepia 748
ursus major, Parribacus 1037
urvillei, Cardisoma 1149
utilis, Etisus **1101**
uyii, Nipponololigo 772-773
- V**
- Vampyromorphs 696
vanrooyeni, Carcharhinus 1339
 Variable squillid mantis shrimp 849
variegatus, Stichopus **1188**
varium, Stegostoma 1262
Varuna 1138, 1144
Varuna litterata **1144**
Varuna yui **1144**
velutinus, Metanephrops **994**
velutinus, Puerulus **1027**
 Velvet dogfish 1228
 Velvet lobster 994
 Velvet shrimp 933
 Velvet whip lobster 1027
 Venus flower basket shrimp 955
 Venus shrimp 955
venusta, Parapenaeopsis **946**
venusta, Spongicola 955
vericeli, Justitia **1023**
verreauxi, Amplisepia 738
versicolor, Episesarma **1143**
versicolor, Holothuria 1180
versicolor, Holothuria (Metriatyla) 1179
***versicolor, Holothuria (Metriatyla) scabra* var.** 1179-1180
versicolor, Panulirus **1021**
versuta, Arctosepia 739
verweyi, Apristurus **1287**
victor, Matuta **1095**
- Viet Nam cuttlefish 761
 Vietnamese crest prawn 965
 Vietnamese squillid mantis shrimp 848
vietnamica, Sepia **761**
vietnamicus, Exopalaemon **965**
vigil, Podophthalmus **1123**
villaluzi, Trachypenaeus **951**
 Vinegar crabs 1048, 1060, 1138
violaceus, Tremoctopus 802
 Violet vinegar crab 1143
 Violet-spotted reef lobster 999
virilis, Aristeus **873**
vitiensis, Bohadschia **1174**
VITRELEDONELLIDAE 802
 Voss' cuttlefish 762
vossi, Loligo 766, 774
vossi, Sepia **762**
vulgaris, Acetes **865**
vulgaris, Octopus 689, 800
vulpinus, Alopias **1271-1273**
- W**
- waddi, Brachaelurus*** **1244**
waguensis, Palinustus **1025**
walbeehmi, Scoliodon 1354
wardi, Orectolobus **1248**
Watasenia 781
Watasenia scintillans 781
 Water crabs 1126
 Weasel sharks 1196-1197, 1305
 Web's cuttlefish 763
weberi, Caridina **961**
weberi, Heteroteuthis **715**
weberi, Sepiella **763**
wellsi, Metapenaeopsis **933**
 Western king prawn 918
 Western school shrimp 935
 Whale shark 1263
 Whale sharks 1196, 1263
wheeleri, Carcharhinus 1328
 Whiskered velvet shrimp 907
 White shark 1197
 White sharks 1274
 White teatfish 1181
 White threads fish 1178
 White whisker spiny lobster 1015
 White-striped octopus 817
 Whitecheek shark 1334
 Whitefin topeshark 1302
 Whitespotted bambooshark 1256
 Whitetip reef shark 1358
 Whitley's cuttlefish 755
whitleyana, Sepia **753, 755**
whitleyanum, Acanthosepion 755
wieneckii, Palinurellus **1004**
 Winghead shark 1363
 Witch prawn 914
 Wobbegongs 1245
wolfi, Octopus **801**
 Wood shrimp 935

woodmasoni, *Erugosquilla* 842, **846**

X

Xanthid stone crabs 1098

XANTHIDAE 1048-1049, 1057, 1061, **1098**,
1103, 1110, 1114

Xanthids 1112

xera, *Arctosepia braggi* 739

Y

Yellow moon crab 1096

Yellow shrimp 934

yokoyae, *Loligo* 773

York shrimp 937

yui, *Varuna* **1144**

Z

zambezensis, *Carcharhinus* 1339

Zebra bullhead shark 1240

Zebra shark 1262

Zebra sharks 1197, 1262

zebra, *Heterodontus* **1240**

Zorro 1273

Zorro ojón 1272

Zorro pelágico 1271

Zosimus aeneus 1049, 1098

zygaena, *Sphyrna* 1364-**1366**