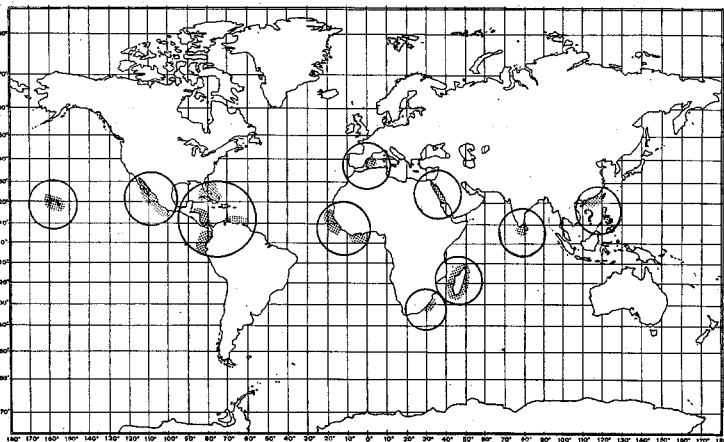


Geographical Distribution : Western Atlantic: Florida, Bahamas, Cuba, Nicaragua, Costa Rica, Venezuela. Eastern North Atlantic: Senegal, Gambia, Sierra Leone, Ivory Coast and Ghana. Mediterranean Sea. Western Indian Ocean: South Africa, Madagascar, India, Red Sea. ? Western Pacific: China. Central Pacific: Hawaii. Eastern Pacific: Gulf of California, southern Mexico, Colombia, Ecuador, Revillagigedo Islands.



Habitat and Biology: A common off-shore, bottom-dwelling warm-temperate and tropical shark usually found in deeper water near the edge of the continental and insular shelves and the uppermost slopes, in depths of 90 m or more down to at least 250 to 430 m. The young may occur in shallower water, up to 25 m depth.

Development viviparous, number of young per litter 3 to 15. Mediterranean sharks give birth in August and September, Madagascar sharks September and October.

Eats a variety of bony fishes, including lizardfish, croakers, batfish, soles, other sharks including dogfish (*Squalus*), catsharks (*Holohalaelurus*), stingrays (*Dasyatis*), and cuttlefish. Although of large size, this species is probably not dangerous to people because of its deep-water habitat.

Size : Maximum possibly about 300 cm, mature males 216 to at least 267 cm, mature females 226 to 282 cm; size at birth probably between 70 and 90 cm.

Interest to Fisheries: Apparently regularly taken in the Caribbean region on deep-set longlines (especially off Cuba, but also southern Florida), and there utilized for fishmeal, oil and shagreen; also taken in bottom trawls in the western Indian Ocean and probably by line or gillnet off India.

Literature : Springer (1950); Fourmanoir (1961); Bass, D'Aubrey & Kistnasamy (1973); Garrick (1982), Morenos & Hoyos (1983).

Carcharhinus amblyrhynchoides (Whitley, 1934)

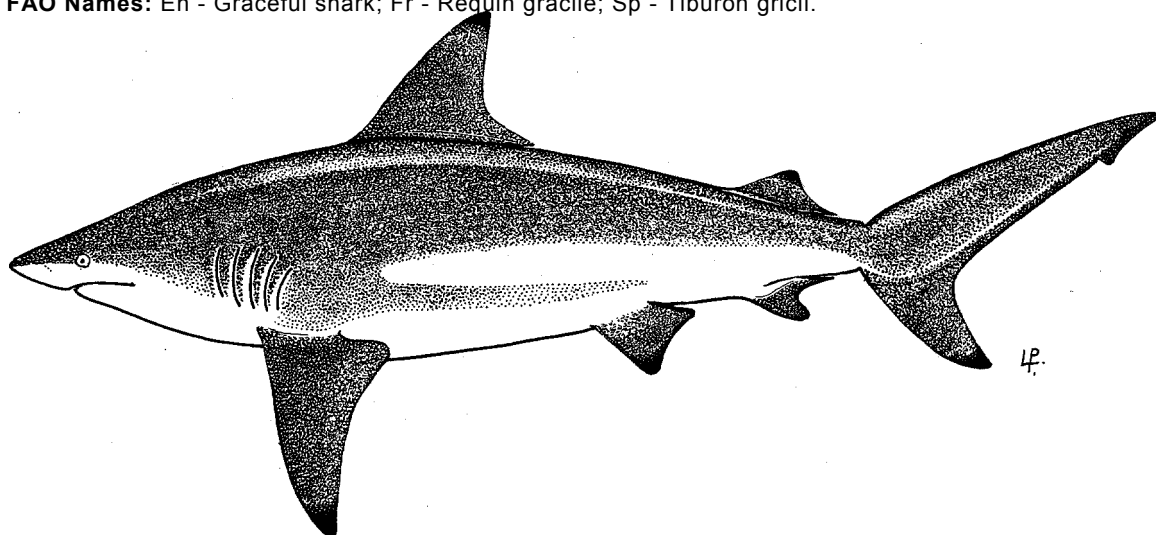
CARCH Carch 18

Gillisqualus amblyrhynchoides Whitley, 1934, *Mem. Queensl. Mus.*, 10(4):189, fig. 4. Holotype: Queensland Museum, QMB I. 2003, 595 mm immature female. Type Locality: Cape Bowling Green, Queensland.

Synonymy : None.

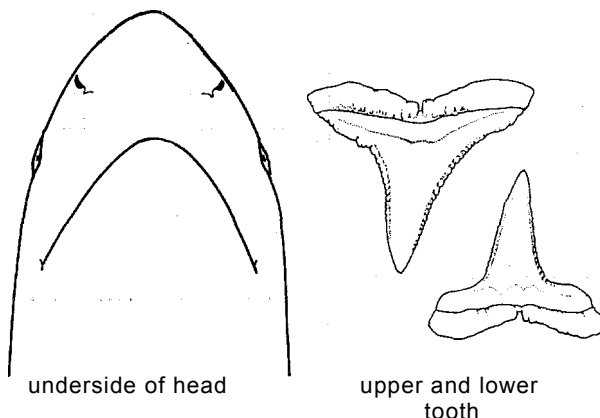
Other Scientific Names Recently in Use: *Carcharhinus pleurotaenia* (Sleeker, 1852), = *C. limbatus* (Valenciennes, in Müller & Henle, 1839).

FAO Names: En - Graceful shark; Fr - Requin gracile; Sp - Tiburón gricil.



Field Marks : A moderately large, tubby grey shark with fairly short, wedge-shaped pointed snout, fairly large eyes, large gill slits, erect and narrow-cusped serrated teeth in both jaws, upper teeth without cusplets, 15/14 to 15 rows of anteroposterior teeth, no interdorsal ridge, moderately large pectoral fins, a large, triangular first dorsal with a short rear tip and a moderately large second dorsal with a short rear tip, a conspicuous white flank mark, and often black-tipped fins.

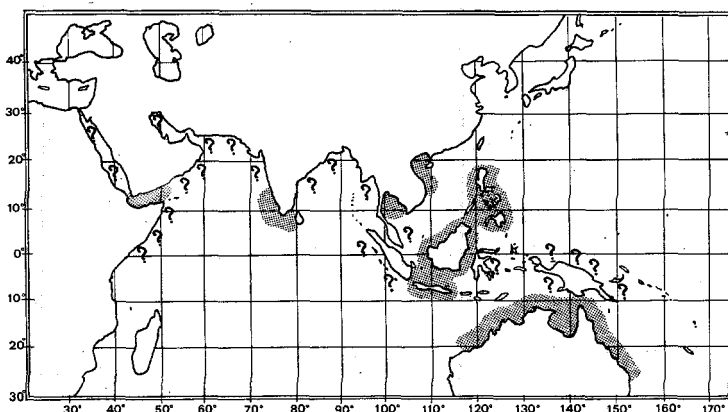
Diagnostic Features: A moderate-sized, stout-bodied species (up to about 1.7 m total length). Snout short and moderately pointed; internarial width 1 to 1.2 times in preoral length; eyes circular and moderately large, 1.2 to 2.1% of total length; upper labial furrows short and inconspicuous; hyomandibular line of pores just behind mouth corners not conspicuously enlarged; 15/14 to 15 rows of anteroposterior teeth in each jaw half; upper teeth with narrow, strongly serrated, erect to slightly oblique cusps, and crown feet with slightly coarser serrations but no cusplets; lower teeth with erect, serrated cusps and transverse roots. No interdorsal ridge. First dorsal fin rather large, broadly triangular and semifalcate, with a pointed or narrowly rounded apex and posterior margin curving ventrally from apex; origin of first dorsal fin over or slightly posterior to pectoral insertion; second dorsal fin large and high, its height 3.1 to 3.7% of total length, its inner margin short and 1 to 1.2 times its height; origin of second dorsal about over or slightly in front of anal fin origin; pectoral fins rather large, falcate, and with narrowly rounded or pointed apex; length of pectoral anterior margins about 18 to 20% of total length in specimens 80 or more cm long; 168 to 193 total vertebral centra, 78 to 96 precaudal centra. Black tips usually present on pectorals, first and second dorsals, and ventral caudal lobe, and sometimes on pelvic fins, and dusky edges usually on dorsal caudal lobe; large adults may have dark fin markings obscure or obsolete. A conspicuous white band present on flank.



Geographical Distribution : Indo-West Pacific: Gulf of Aden, India (southwestern coast), Sri Lanka, Gulf of Thailand (Thailand), The Philippines, Viet Nam, Java, Borneo, Australia (Queensland, northwestern coast).

Habitat and Biology : A little-known but probably common tropical, inshore and offshore, coastal-pelagic species, found over the continental and insular shelves. Viviparous. Probably eats mostly fish as do its relatives *C. brevipinna* and *C. limbatus*. Harmless to people as presently known, but potentially dangerous.

Size : Maximum at least 167 cm (adult female), adult male 140 cm; size at birth about 52 to 55 cm.



Interest to Fisheries : Apparently caught by fisheries off Sri Lanka, India, the Gulf of Thailand, and elsewhere where this species occurs, but details of its fishery status are lacking. Probably caught in gillnets and with line gear, and eaten fresh and dried salted.

Literature : Whitley (1939, 1940); Fowler (1941); Garrick (1982).

Carcharhinus amblyrhynchos (Sleeker, 1856)

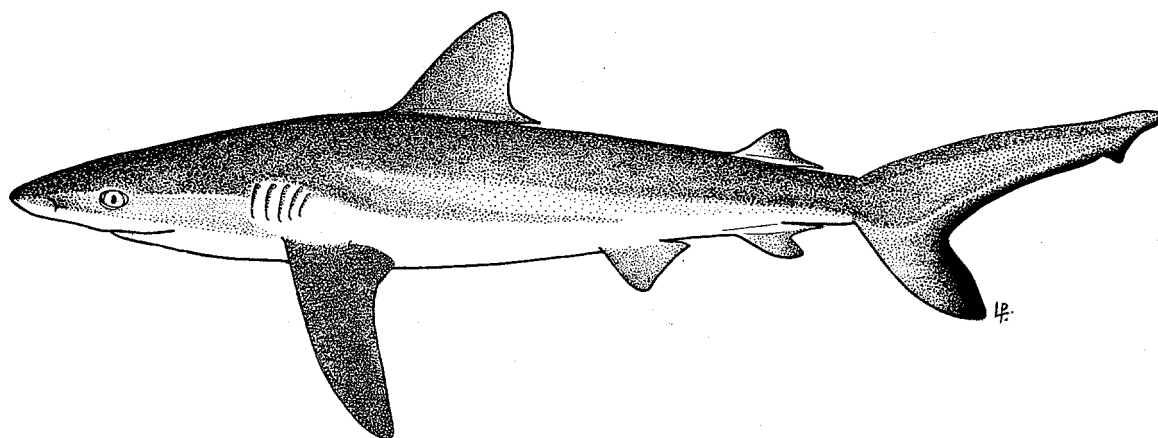
CARCH Carch 19

Carcharis (*Prionodon*) *amblyrhynchos* Bleeker, 1856, *Natuur.Tijdschr.Ned.Indië*, 6:467. Holotype: Rijksmuseum van Natuurlijke Historie, Leiden, RNH 7377, 1540 mm female. Type Locality: Java Sea near Salambo Islands.

Synonymy : *Carcharias nesiodes* Snyder, 1904; *Galeolama fowleri* Whitley, 1944; *Galeolama tufiensis* Whitley, 1949; *Galeolama coongoola* Whitley, 1964.

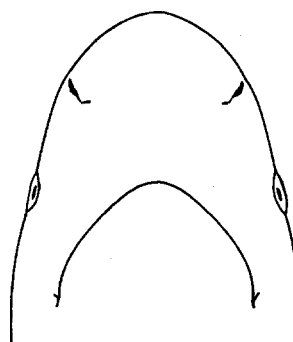
Other Scientific Names Recently in Use : *Carcharhinus menisorrah* (Valenciennes, in Müller & Henle, 1839) = *C. falciformis* (Bibron, in Müller & Henle, 1839) as restricted by Garrick (1982).

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

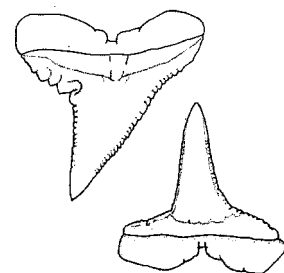


Field Marks : A medium-sized to large grey shark with a moderately long, broadly rounded snout, usually round eyes, no interdorsal ridge, narrow-cusped, serrated upper anteroposterior teeth, usually 14/13 on each side, large second dorsal fin with a short rear tip, and a broad black band on the posterior margin of the caudal fin.

Diagnostic Features : A moderate-sized fairly stocky species (to 2.4 m). Snout fairly long and broadly rounded; internarial width 1 to 1.4 times in preoral length; eyes usually round and fairly large, their length 2 to 2.7% of total length; anterior nasal flaps hardly expanded as very low triangular lobes; upper labial furrows short and inconspicuous; hyomandibular line of pores just behind mouth corners not conspicuously enlarged; gill slits moderate sized, the third 2.8 to 4.2% of total length and less than 2/5 of first dorsal base; usually 14/13 rows of anteroposterior teeth in each jaw half but varying from 13 to 14/13 to 14; upper teeth with narrow, strongly serrated, semierect to oblique, high cusps, and crown feet with coarser serrations and often distal cusplets; lower teeth with erect or semioblique, narrow serrated cusps and transverse roots. Usually no interdorsal ridge. First dorsal fin moderate-sized and semifalcate, with a narrowly rounded or pointed apex and posterior margin curving ventrally from fin apex; origin of first dorsal fin usually over or just in front of pectoral free rear tips; inner margin of first dorsal moderately long, but less than a half dorsal base; second dorsal fin moderately large and high, its height 2.7 to 3.4% of total length, its inner margin fairly long and 1.2 to 1.6 times its height; origin of second dorsal about over anal origin; pectoral fins moderately large, narrow and falcate, with narrowly rounded or pointed apices, length of anterior margins about 18 to 21% of total length; 211 to 221 total vertebral centra, 110 to 119 precaudal centra. Colour grey above, white below; first dorsal plain or irregularly white-edged, entire posterior margin of caudal (terminal, pre- and postventral margins) with a conspicuous broad black margin, pectorals, second dorsal, anal, and pelvic fins with blackish or dusky tips.

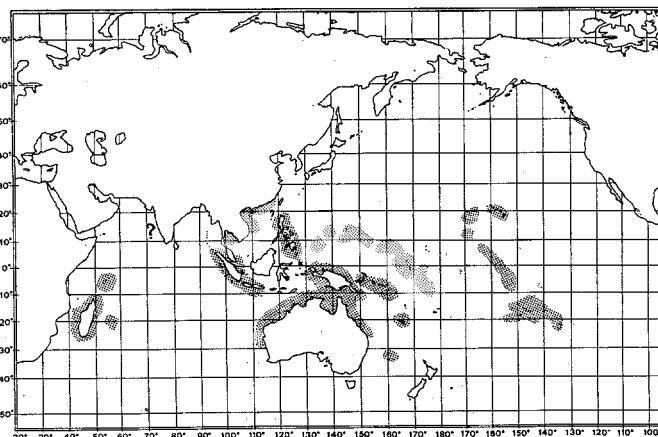


underside of head



upper and lower tooth

Geographical Distribution : Indian Ocean: Madagascar, Mauritius, Seychelles, ? India. Western central Pacific: Singapore, Thailand, Viet Nam, possibly China, The Philippines, Indonesia, New Guinea, Australia (Queensland and Western Australia) east to the Hawaiian Islands and the Tuamotu Archipelago; including New Caledonia and Lord Howe Island, Palau, Caroline Islands, Marshall Islands, Line Islands, Guam, Solomon Islands, Phoenix Islands, Gilbert Islands, Pitcairn Island, Johnston Island, Wake Island and Tahiti.



Habitat and Biology : A coastal-pelagic and inshore species frequenting continental and insular shelves of the Indo-West Pacific and oceanic waters adjacent to them; common on coral reefs, often in deeper areas near drop-offs to the open sea, in atoll

passes, and in shallow lagoons adjacent to areas of strong currents. This shark is often found cruising near the bottom but will visit the surface, especially to investigate food sources; occurs at a depth from the surface and intertidal down to at least 100 m. Sonic-tagged individuals have been shown to venture several kilometres offshore at depths less than 100 m. This is one of the three commonest reef sharks in the Indo-Pacific (the others being the blacktip and whitetip reef sharks); it prefers low, small coral islands and has a preference for their leeward sides. It shows microhabitat separation from the blacktip reef shark; around islands where both species occur, the blacktip occupies shallow flats while the grey reef shark is usually found in deeper areas, but where the blacktip is absent the grey reef shark is commonly found on the flats.

This is an active, strong-swimming social species, that forms daytime schools or aggregations in favoured areas such as reef passes, lagoons, or places near passes. Especially prominent are groups of juveniles on probable pupping and nursery grounds. At night these groups disperse, with individuals moving to different areas. Although this shark is active during the day, it is more active nocturnally.

Viviparous, with a yolk-sac placenta; number of young 1 to 6 per litter. Gestation period about 12 months. Individuals mature at about 7 to 7.5 years, with a maximum age of at least 25 years.

Feeds on reef bony fishes, particular small fishes less than 30 cm long, but also squid, octopi, crabs, lobsters and shrimp. It feeds mostly off but near the bottom, but can capture bottom prey. It complements the whitetip reef shark, as it is far more adept at catching off-bottom fish than the whitetip, but the latter is far more competent in extracting prey from crevices and holes in reefs.

This shark is prone to investigate novel events in circumstances where food stimuli are not present. In seldom-frequented areas divers may be approached very closely by several of these sharks when they first enter the water, but the sharks soon disperse and seldom reappear except at a distance. Repeated dives at the same locality will seldom bring forth the local sharks, which apparently have sated their curiosity. When feeding stimuli are present or when these sharks are accosted they can be aggressive and dangerous despite their usually modest size. Spearfishing will bring these sharks in to boldly contest the catch and, although they generally can discriminate between speared fish and spearfisher, several attacks on people have occurred, including at least one fatal attack. These may be mistaken-identity attacks, especially when a speared fish moves very close to a diver, or when divers stupidly attach fish to their belts, as this shark does not normally take mammalian prey. Observations and subsequent experiments by divers (in some cases using small submarines) revealed that this shark performs what is apparently a threat-display when approached too closely, or when startled by unusual sounds or quick movements, under conditions when no feeding stimuli are present; presence of food stimuli apparently depresses this display. This consists of an exaggerated swimming pattern in which the shark wags its head and tail in broad sweeps, arches its back, lifts its head, depresses its pectoral fins and sometimes swims in a horizontal spiral. The display varies in intensity from merely a component of flight from the accosting diver to a series of figure-8 loops in front of the aggressor. Using a small shark-shaped 'Shark Observation Submersible to approach grey reef sharks, Or Donald R. Nelson was able to elicit threat display from the sharks while other divers filmed the behaviour from a safe distance. When persistently approached by the sub, some of the displaying sharks fled, but a few terminated the display and attacked the sub at high speed, biting one or more times and then fleeing. The speed of the attacks and the damage to the sub was impressive, and is a mute warning that these sharks should be treated with respect and not cornered or harassed by divers. The threat-display behaviour of this shark is thought by some researchers to possibly intimidate potential predators on it.

Size : Maximum possibly 233 to 255 cm, adult males maturing at 130 to 145 cm, adult females maturing at 122 to 137 cm; most adults of either sex below 190 cm, but one male reportedly 255 cm; size at birth between 45 and 60 cm.

Interest to Fisheries : Fished in Thailand, but details of fisheries there and elsewhere not recorded.

Literature : Bass, D'Aubrey & Kistnasamy (1973); Johnson & Nelson (1973); Johnson (1978); Nelson (1981, and pers. comm.); Garrick (1982).

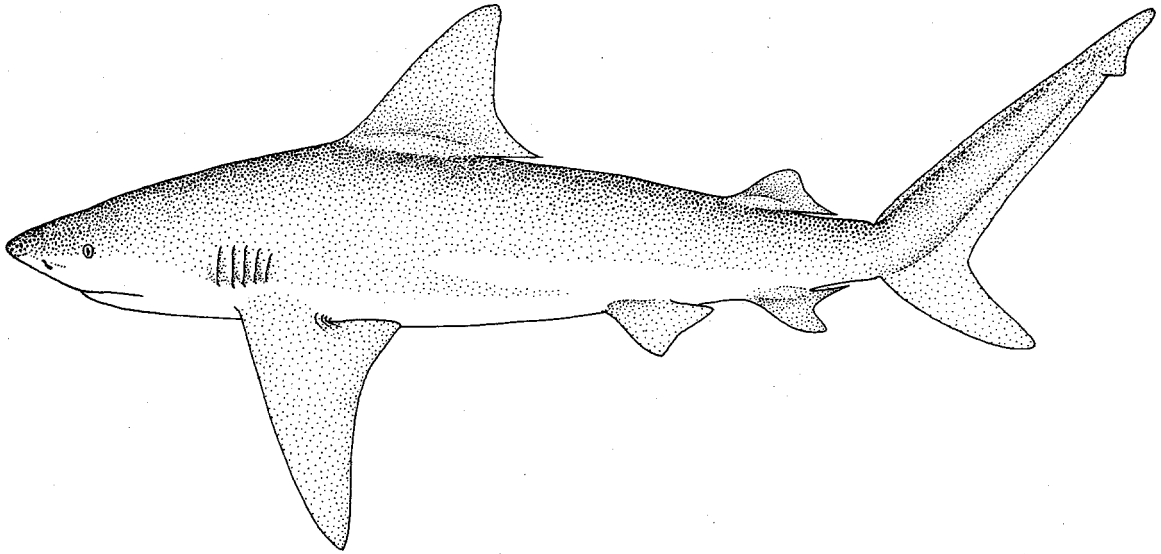
Carcharhinus amboinensis (Müller & Henle, 1839)

LARCH Larch 14

Carcharias (Prionodon) amboinensis Müller & Henle, 1839, Syst.Beschr.Plagiost., (2):40, pl. 19. Holotype: Rijksmuseum van Natuurlijke Historie, Leiden, RHN 2582, stuffed female about 740 mm. Type Locality: Amboina.

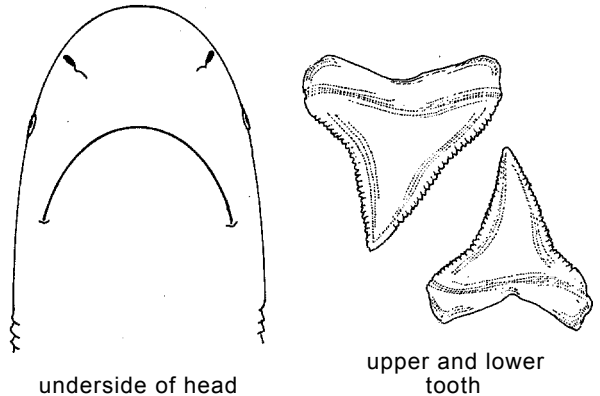
Synonymy : Carcharias (Prionodon) henlei Bleeker, 1855 (not Carcharias (Prionodon) henlei Valenciennes, in Müller & Henle, 1839 = Carcharhinus porosus); Carcharis (Prionodon) brachyrhynchos Bleeker, 1859; Triaenodon obtusus Day, 1878.

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



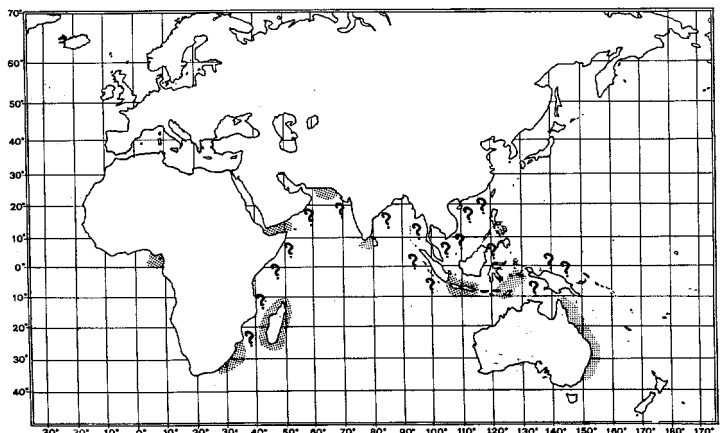
Field Marks: A large, stout grey shark with a very short, bluntly rounded snout, small eyes, broadly triangular serrated teeth in upper jaw, extremely heavy, slightly narrower cusped teeth with arched roots in lower jaw, upper teeth without cusplets, usually 12/11 rows of anteroposterior teeth, no interdorsal ridge, large angular pectoral fins, a large triangular first dorsal with a short rear tip and a small second dorsal with a short rear tip, fins with dusky tips but not strikingly marked.

Diagnostic Features: A large, stocky to very heavy-bodied species (up to about 2.8 m). Snout very short and bluntly rounded; internarial width 0.9 to 1 times in preoral length; eyes circular and small, their length 0.7 to 1.5% of total length; upper labial furrows short and inconspicuous; hyomandibular line of pores just behind mouth corners not conspicuously enlarged; gill slits moderately long, the third 2.9 to 3.8% of total length but less than a third of first dorsal base; usually 12/11 rows of anteroposterior teeth in each jaw half but varying from 11 to 13/10 to 12; upper teeth with broad, triangular, strongly serrated, erect to slightly oblique cusps, that merge smoothly with the coarsely serrated crown feet, but with no cusplets; lower teeth with erect semioblique, very broad serrated cusps and arched roots. No interdorsal ridge. First dorsal fin large and broadly triangular or somewhat falcate, with pointed or sharply rounded apex and posterior margin curving ventrally or posteroventrally from fin apex; origin of first dorsal fin over or just behind pectoral insertions; inner margin of first dorsal short, less than a third of dorsal base or slightly less; second dorsal fin moderate-sized, its height 2.8 to 3.6% of total length, its inner margin short and 0.9 to 1.3 times its height; origin of second dorsal anterior to anal origin; pectoral fins large and broad, triangular to semifalcate, with narrow, pointed apices, length of anterior margins about 20 to 24% of total length; 185 to 195 total vertebral centra, 89 to 95 precaudal centra. Colour grey above, light below, fin tips dusky, especially in young, but not strikingly marked; an inconspicuous white band on flank.



Geographical Distribution : Eastern North Atlantic: Nigeria. Indo-West Pacific: South Africa, Madagascar, Gulf of Aden, Pakistan, Sri Lanka, Indonesia (Java, Amboina, Aru and Lomblen Islands), Australia (Queensland, New South Wales).

Habitat and Biology : An inshore species of the continental and insular shelves, common in shallow waters close inshore, near the surf line and along beaches, from 0 to 60 m depth. In the southeastern Indian Ocean it is far less common on the western side of the Mozambique channel than *C. leucas*, but the reverse may apply to the eastern side off Madagascar, where it is described as abundant and *C. leucas* is apparently rare. It is thought that competitive exclusion may be operational here, but this is uncertain.



Apparently viviparous, but little is known of its reproductive biology.

Preys primarily on bottom fishes, crustaceans and molluscs. Takes bony fishes, including croakers, soles, and hairtails, sharp-nosed sharks and other species, skates, shrimp, cuttlefish, sea snails and whale meat probably as carrion.

This species should be considered as potentially dangerous because of its size and proportionately large jaws and teeth. However, no shark attacks can be attributed to it.

Size : . Maximum 280 cm, males maturing at about 195 cm, females maturing at about 198 to 223 cm; size at birth about 71 to 72 cm.

Interest to Fisheries: Details of fisheries catching this species are sketchy, but apparently taken by longlines in the western Indian Ocean. Utilized fresh for human consumption.

Literature : D'Aubrey (1964, 1971); Garrick (1967, 1982); Bass, D'Aubrey & Kistnasamy (1973); Compagno (1979).

Remarks : The pigeye shark has generally been confused with C. leucas and Glyphis gangeticus. Characters distinguishing it from leucas are listed under the latter species. This species differs from G. gangeticus by the characters differentiating C. leucas from it (see remarks under that species), but additionally has even broader-cusped lower teeth and an even smaller first dorsal fin.

Triaenodon obtusus Day, 1878 has generally been considered a member of that genus (Taniuchi, 1975, Randall, 1977, Compagno, 1979), but examination of the holotype in the Zoological Survey of India, Calcutta (ZSI 2277, ca. 48 cm skin in alcohol, from Karachi, Pakistan), revealed that the species is based on a term fetus of Carcharhinus amboinensis (see also the account of the genus Triaenodon, below).

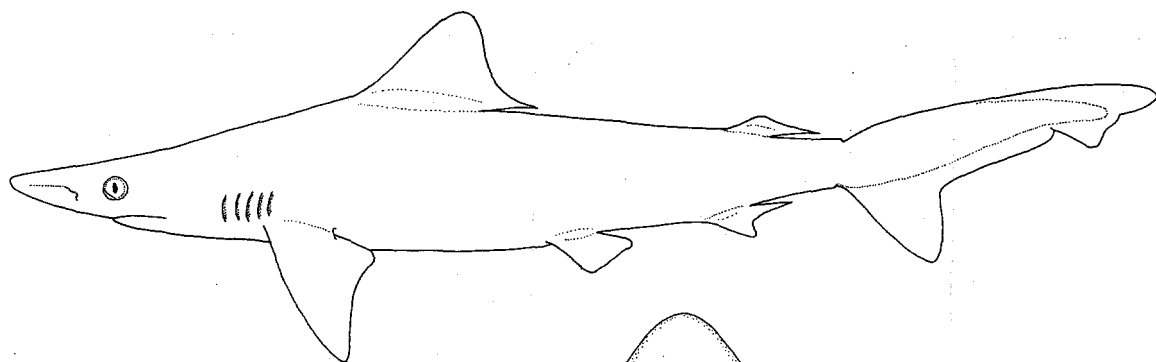
Carcharhinus borneensis (Sleeker, 1859)

ARCH Carch 27

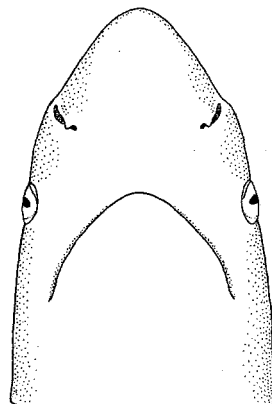
Carcharias (Prionodon) borneensis Bleeker, 1859, Acta Soc.Sci.Indo-Neerl., 1858, 59, 8. Holotype: Rijksmuseum van Natuurlijke Historie, Leiden, RNH 7386, 238 mm immature male. Type Locality: Singkawang, Borneo.

Synonymy : None.

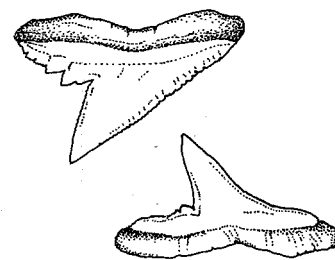
FAO Names : En - Borneo shark; Fr - Requin-tigre houareau; Sp - Tiburón de Borneo.



Field Marks : A small grey shark with a long pointed snout, unique (for the genus) enlarged hyomandibular pores alongside mouth corners, large eyes, oblique-cusped serrated teeth in both jaws, upper teeth with cusplets, usually 12/11 rows of anteroposterior teeth, no interdorsal ridge, small pectoral fins, a small first dorsal with a short rear tip and a small low second dorsal with a short rear tip and its origin about over the anal midbase, and no conspicuous markings on the fins.



underside of head



upper and lower tooth

Diagnostic Features : A small, slender species (up to possibly 1 m). Snout long and pointed; internarial width 1.3 to 1.5 times in preoral length; eyes circular and moderately large, their length 2.1 to 2.6% of total length; anterior nasal flaps high and narrow, nipple-shaped; upper labial furrows short and inconspicuous; hyomandibular line of pores just behind mouth corners conspicuously enlarged; gill slits short, the third 2.5 to 2.9% of total length and less than a third of first dorsal base; usually 12/11 rows of anteroposterior teeth in each jaw half but varying from 11 to 12/11 to 12; upper teeth with narrow, strongly serrated, oblique, moderately high cusps, and crown feet with large distal cusplets; lower teeth with oblique narrow serrated cusps, weak cusplets or large serrations and transverse roots. No interdorsal ridge. First dorsal fin moderately large and triangular, with bluntly pointed apex and posterior margin curving posteroventrally from fin apex; origin of first dorsal fin slightly anterior to pectoral rear tips; inner margin of first dorsal moderately long, half dorsal base or slightly less; second dorsal fin small and low, its height 1.8 to 2% of total length, its inner margin long and 2.2 to 2.4 times its height; origin of second dorsal over or slightly behind anal midbase; pectoral fins small, falcate, with narrowly rounded or pointed apices, length of anterior margins about 13 to 14% of total length; 118 to 121 total vertebral centra, 61 to 63 precaudal centra. Colour brown above, white below, tip of first dorsal and dorsal caudal margin dusky, paired fins and anal fin with light edges, but markings not conspicuous.

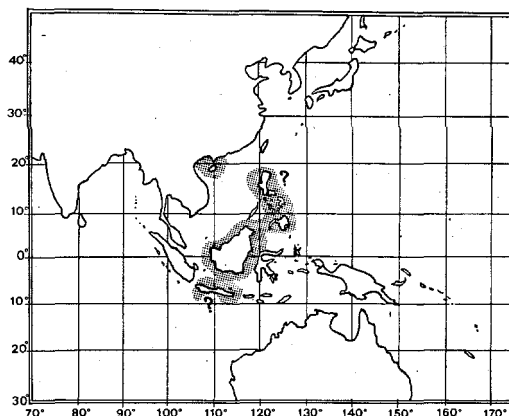
Geographical Distribution : Indo-West Pacific: ? Java, Borneo, China, ? The Philippines.

Habitat and Biology : A rare coastal, inshore, tropical shark, with biology virtually unknown.

Size : Maximum estimated at about 70 cm.

Interest to Fisheries: Apparently rare, but undoubtedly taken in local fisheries.

Literature : Fowler (1941); Compagno (1979); Garrick (1982).



Carcharhinus brachyurus (Günther, 1870)

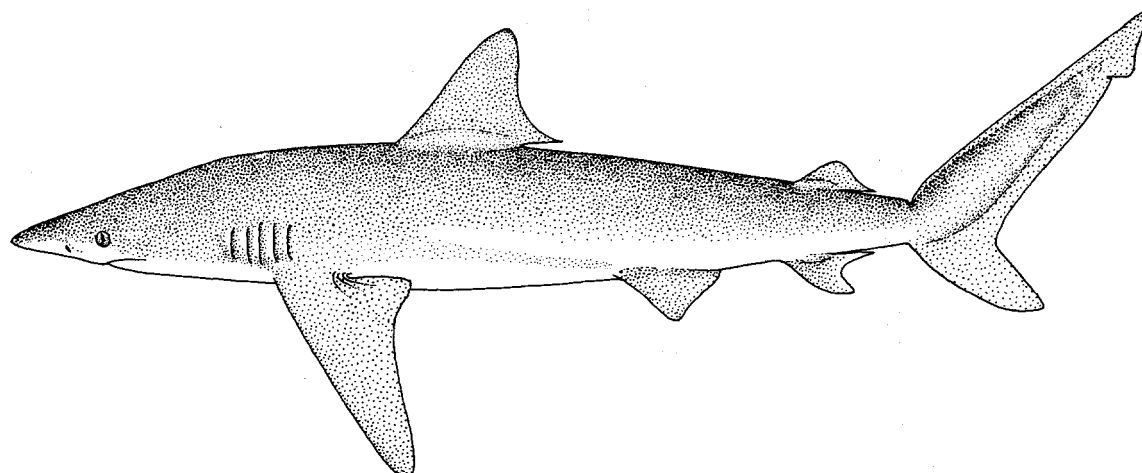
CARCH Carch 15

Carcharias brachyurus Günther, 1870, Cat.Fish.British Mus., 8:369. Neotype: National Museum of New Zealand, NMNZ 2262, 2420 mm female, Wanganui, New Zealand, designated by Garrick (1982:174). New Zealand type material of C. brachyurus in British Museum (Natural History) are apparently lost, and two Australian fetuses referred to the species by Günther (1870) are C. leucas (Garrick, 1982). Type Locality: New Zealand.

Synonymy : Carcharias lamiella Jordan & Gilbert, 1882; Eulamia ahenea Stead, 1938; Carcharhinus improvisus Smith, 1952; Carcharhinus rochensis Abella, 1972; Carcharhinus remotoides Deng, Xiong & Zhan, 1981; Carcharhinus acarenatus Morenos & Hoyos, 1983.

Other Scientific Names Recently in Use : Carcharhinus remotus (not Carcharias (Prionodon) remotus Dumeril, 1865 = Carcharhinus acronotus).

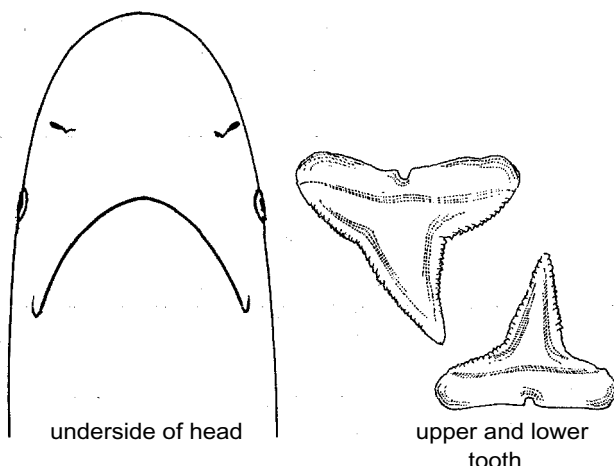
FAO Names : En - Copper shark; Fr - Requin cuivre; Sp - Tiburón cobrizo.



Field Marks: A large, often bronzy grey shark with a moderately long narrowly rounded or pointed snout, narrow and bent-cusped serrated anterolateral teeth without cusplets in the upper jaw usually 15 to 16/15 rows of anteroposterior teeth, usually no interdorsal ridge, long pectoral fins, a small first dorsal with a short rear tip and a small second dorsal with a short rear tip, and no conspicuous markings on the fins.

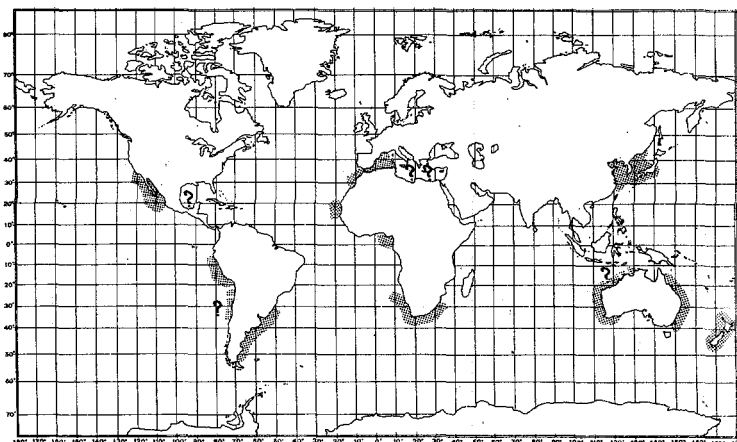
Diagnostic Features: A large, fairly slender species (up to about 2.9 m). Snout moderately long and narrowly rounded or pointed; internarial width 1.1 to 1.4 times in preoral length; eyes circular and moderately large, their length 1.1 to 2.2% of total length; anterior nasal flaps low and poorly developed; upper labial furrows short and inconspicuous; hyomandibular line of pores just behind mouth corners not conspicuously enlarged; gill slits moderately long, the third 2.5 to 4.1% of total length and less than a half of first dorsal base; usually 15 to

16/15 rows of anteroposterior teeth in each jaw half but varying from 14 to 16/14 to 15; upper teeth with narrow, strongly serrated, semierect to oblique, high bent cusps, and crown feet with slightly coarser serrations but no cusplets; lower teeth with semierect, narrow serrated cusps and transverse roots. Usually no interdorsal ridge. First dorsal fin large and falcate, with pointed or narrowly rounded apex and posterior margin curving ventrally or posteroventrally from fin apex; origin of first dorsal fin over or slightly anterior to pectoral rear tips; inner margin of first dorsal moderately long, a third of dorsal base or less; second dorsal fin small and fairly low, its height 1.9 to 2.6% of total length, its inner margin short and 1.2 to 1.8 times its height; origin of second dorsal over or slightly posterior to anal origin; pectoral fins moderately large, falcate, with narrowly rounded or pointed apices, length of anterior margins about 16 to 21% of total length; 179 to 203 total vertebral centra, 96 to 110 precaudal centra. Colour bronzy to olive grey above, white below; most fins with inconspicuous darker edges and dusky to black tips, but fin markings not conspicuous; a moderately prominent white band on flank.



Geographical Distribution : Western

Atlantic: Mexico, Gulf of Mexico, southern Brazil to Argentina. Eastern Atlantic: Mediterranean Sea, off France and Algeria, Morocco, Mauritania, Canary Islands, Guinea, Namibia to South Africa. Western Indian Ocean: South Africa. Western Pacific: Japan, the Koreas, China, southern Siberia; Australia (Queensland, New South Wales, Western Australia), New Zealand. Eastern Pacific: Southern California to Gulf of California; Peru.



Habitat and Biology: An inshore to offshore, warm-temperate shark, occurring from the surfline to at least 100 m depth. An active species, very common but with its biology poorly known because of confusion with other species. Apparently migratory in the northern parts of its range, moving northward in the spring and summertime and southward in autumn and winter.

Viviparous, with a yolk-sac placenta; number of young per litter 13 to 20. Sex ration 1:1 at birth. Off South Africa sexual maturity is said to occur at about 5 years old, with a maximum age of at least 12 years.

Eats a variety of bony fishes, including sardines, sea catfish, mullets, jacks, porgies, gurnards, hake, and sole, as well as spiny dogfish (*Squalus*), torpedo rays, sawfish, squid and cuttlefish. Off South Africa large numbers of these sharks follow sardine shoals along the southern Natal coast in winter. Considered a dangerous species, with a few provoked and unprovoked attacks on swimmers and divers ascribed to it; it is probably much less dangerous than the tiger and bull sharks because of its slender teeth and feeding habits.

Size : Maximum 292 cm, males maturing at 200 to 229 cm and reaching 266 cm, females maturing below 240 cm and reaching 292 cm; size at birth 59 to 67 cm.

Interest to Fisheries : Little is recorded on the use of this species but it is undoubtedly caught and used for human consumption where it occurs. It is taken, in bottom trawls, by line gear, and by sports anglers.

Literature : Bigelow & Schroeder (1948); Garrick & Schultz (1963); Sadowsky (1967a); Garrick (1967a, 1982); Kato, Springer & Wagner (1967); Bass, D'Aubrey & Kistnasamy (1973); Applegate *et al.* (1979); Van der Elst (1981); Morenos & Hoyos (1983).

Remarks : Important vernacular names include 'bronze whaler' (Australia) and 'narrowtooth shark' (United States; Robins et al., 1980).

Carcharhinus brevipinna (Müller & Henle, 1839)

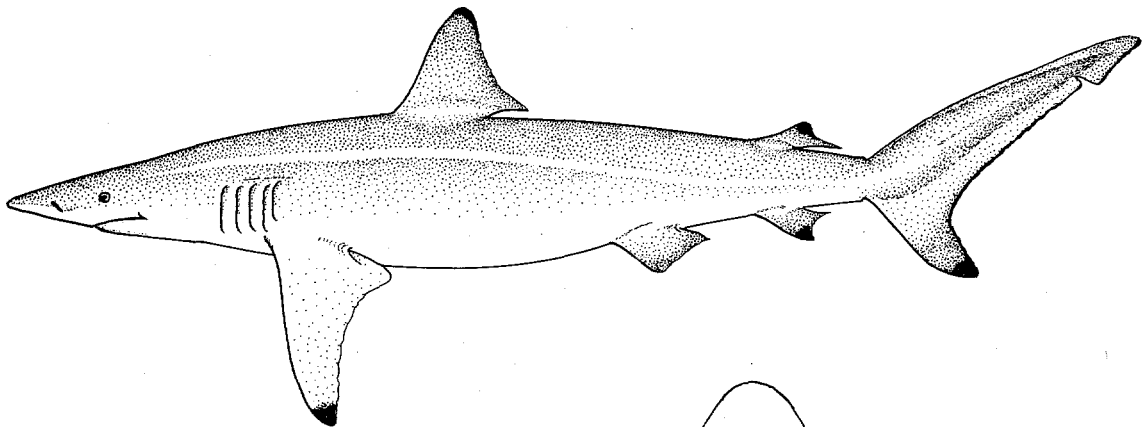
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Carcharias (*Aprion*) *brevipinna* Müller & Henle, 1839, *Syst.Beschr.Plagiost.*, (2):31, pl. 9. Holotype: Rijksmuseum van Natuurlijke Historie, RHN 2525, 785 mm mounted skin. Type Locality: Java.

Synonymy : *Isogomphodon maculipinnis* Poey, 1865; *Uranga nasuta* Whitley, 1943; *Longmania calamaria* Whitley, 1944; *Aprionodon caparti* Poll, 1951; *Carcharhinus johnsoni* Smith, 1951.

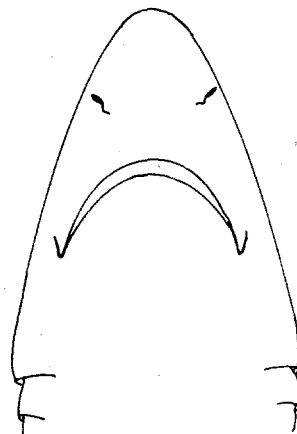
Other Scientific Names Recently in Use : *Carcharhinus maculipinnis* (Poey, 1865); *Aprionodon brevipinna* (Müller & Henle, 1839).

FAO Names : En - Spinner shark; Fr - Requin tisserand; Sp - Tiburón aleta negra.

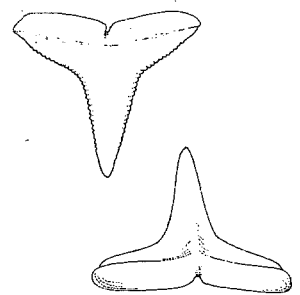


Field Marks : A large fairly slender grey shark with a long pointed snout, small eyes, unusually long (for a grey shark) upper labial furrows, narrow, mostly erect- and narrow-cusped serrated or partly serrated upper anterolateral teeth without cusplets, long gill slits, lower teeth with narrow, smooth-edged cusps, usually 16/15-16 rows of anterolateral teeth, no interdorsal ridge, small pectoral fins, a small first dorsal with a short rear tip and a moderately large second dorsal with a short rear tip, and usually black tips on most fins in juveniles.

Diagnostic Features: A large, slender to slightly stocky species (up to about 2.8 m). Snout long and pointed or narrowly rounded; internarial width 1.5 to 1.8 times in preoral length; eyes circular and fairly small, 1.1 to 2% of total length; anterior nasal flaps relatively low and inconspicuous; upper labial furrows usually long and conspicuous, directed obliquely anterolaterally; hyomandibular line of pores just behind mouth corners not conspicuously enlarged; gill slits long, third 3.7 to 5.5% of total length; usually 16/15 rows of anteroposterior teeth in each jaw half but varying from 15 to 18/14 to 17; upper teeth with narrow, finely serrated, erect to slightly oblique, long cusps, and crown feet with fine serrations but no cusplets (serrations often irregular in young); lower teeth with erect, usually smooth-edged narrow. cusps and transverse roots. No interdorsal ridge. First dorsal fin small and semifalcate, with pointed or narrowly rounded apex and posterior margin curving ventrally from apex; origin of first dorsal fin usually over or slightly posterior to pectoral free rear tip; inner margin of first dorsal short, a third of dorsal base or slightly less; second dorsal fin moderately large, its height 1.8 to 2.6% of total length, its inner margin short and 1.4 to 1.9 times its height; origin of second dorsal over or usually slightly behind anal fin origin; pectoral fins falcate, with narrow, pointed or narrowly rounded tips; relatively small, about 14 to 16% of total length in specimens above 100 cm and slightly smaller in young; 155 to 185 total vertebral centra, 84 to 96 precaudal centra. Young plain-finned but large juveniles to adults with black tips usually present on pectorals, second dorsal, anal and ventral caudal lobe, and sometimes on pelvics, first dorsal and dorsal caudal lobe. A white band on flanks, but often this is not conspicuous.

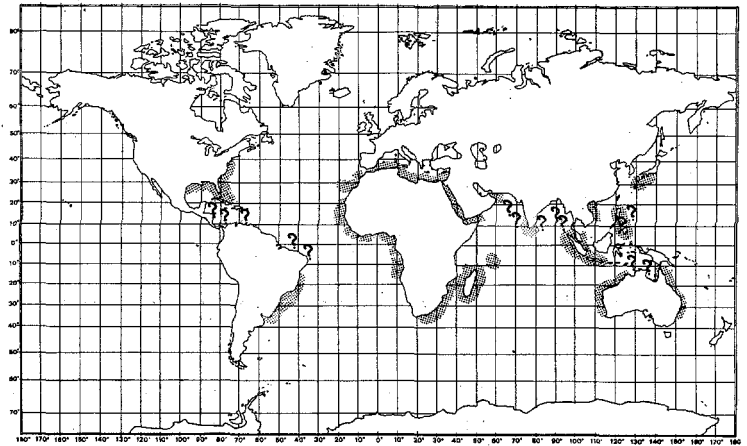


underside of head



upper and lower tooth

Geographical Distribution : Western Atlantic: Northern Carolina to Florida, Bahamas, Cuba, northern Gulf of Mexico, British Guiana, southern Brazil. Eastern Atlantic: Mediterranean, Cape Verde Islands, Senegal, Guinea and Sierra Leone, Togo and Nigeria, Angola. Indo-West Pacific: South Africa, Madagascar, Mauritius, Seychelles, Mozambique, Red Sea, Gulf of Aden, Oman, India, Singapore, Indonesia, (Java, Sumatra), Viet Nam, Japan, New Guinea, Australia (Queensland, New South Wales, Western Australia), possibly the Philippines.



Habitat and Biology : A common coastal-pelagic, warm-temperate and tropical shark of the continental and insular shelves, ranging close inshore and offshore; common in shallow waters at a depth less than 30 m, but ranging down to at least 75 m depth, from the surface to the bottom. The spinner shark is a schooling, active species like *C. limbatus*, but more commonly leaps spinning out of the water. Off Florida and Louisiana in the Gulf of Mexico, USA these sharks are highly migratory, moving inshore in spring and summer for reproduction and feeding, but possibly moving southward and into deeper water during the autumn and winter.

Viviparous, with a yolk-sac placenta; number of young 3 to 15, with larger females carrying more young. Off South Africa young are usually born in the autumn although some may be born in winter, after a gestation period of 12 to 15 months. Off Senegal young are born in summer while in the Gulf of Mexico off Florida and Louisiana young are born in spring to early summer. In the Gulf of Mexico adult sharks remain in shallow water during the summer but retreat possibly southward or into deeper water in the autumn. The Natal coast serves as a nursery ground for one population of this shark; adult females occur there throughout the year while males seasonally occur during the summer. Tagging studies in South African waters suggest that young sharks prefer slightly lower temperatures than adults, and tend to move south and Capeward from Natal when temperatures increase.

Primarily a fish-eater, the diet including ten-pounders (*Elops*), sardines and herring, anchovies, sea catfish, lizardfish, mullets, bluefish, tunas, bonito, croakers, jacks, mojarras, grunts, tongue-soles, stingrays, cuttlefish, squid and octopi. It frequently uses an unusual method of feeding on schools of small bony fishes that gives this shark its common name; it swims rapidly upward through the schools with open mouth, spinning along its long axis and snapping in all directions, and then shoots out of the water after its feeding run. Off Madagascar this species is associated with and probably feeds on migrating schools of scombrids and jacks. As with *C. limbatus*, this species will congregate to eat trash fish dumped off shrimp trawlers, and no doubt participates in feeding frenzies like its smaller relative.

In at least one instance this shark apparently attacked a bather; however, like its relative *C. limbatus*, it is probably not highly dangerous, but could be troublesome to divers when they are spearfishing. It has small, narrow-cusped teeth (smaller than in *C. limbatus*) that are clearly not adapted for feeding on large prey, and probably greatly prefers whole small fishes to mammalian prey.

Size : Maximum reported 278 cm, males maturing at 159 to 203 cm and reaching at least 233 cm, females maturing at 170 to 200 cm and reaching 278 cm; size at birth about 60 to 75 cm.

Interest to Fisheries: Apparently regularly caught in fisheries where found, with pelagic longlines, fixed bottom nets, and on hook-and-line; meat utilized fresh and dried salted for human consumption; also valuable for hides and fins, and for liver oil (vitamins).

Literature : Bigelow & Schroeder (1948); Poll (1951); Cadenat (1957); Fourmanoir (1961); Springer (1960, 1963); Garrick & Schultz (1963); Randall (1963); Gohar & Mazhar (1964); Clark & von Schmidt (1965); Bass, D'Aubrey & Kistnasamy (1973); Cadenat & Blache (1981); Garrick (1982); Branstetter (1982).

Remarks : This common and wide-ranging shark has often been confused with its somewhat smaller relative, *C. limbatus*, in the past, but in addition various growth stages of this shark in different areas has often been considered separate species. The coloration and tooth serrations of this shark change markedly with growth, and these changes have resulted in much confusion in the literature (see Garrick, 1982, for a discussion of the taxonomy and nomenclature of this species).

Bass, D'Aubrey & Kistnasamy (1973) and Garrick (1982) separated this species from *C. limbatus* by its smooth-edged lower teeth, longer, slenderer body, shorter smaller fins, more posterior first dorsal origin, and black-tipped anal fin (in sharks over 130 cm long, smaller with plain anal fins like *C. limbatus* at all sizes). Branstetter (1982) analysed the characters used to separate the two species and noted overlap in lower tooth serrations, first dorsal origin position, and eye size, but noted the species could be separated by the following