

Cephaloscyllium Gill, 1862

SCYL Cep

Genus: Cephaloscyllium Gill, 1862, Ann.Lyceum Nat.Hist.N.Y., 7:408, 412.**Type Species :** Scyllium laticeps Dumeril, 1853 by original designation.**Synonymy :** None.**Field Marks :** Stocky, short-tailed scyliorhinid with no labial furrows, an inflatable stomach, and the second dorsal fin much smaller than the first.

Diagnostic Features: Body not tadpole-shaped, very stout and spindle-shaped, tapering considerably to caudal fin; body firm and thick-skinned, with well-calcified dermal denticles; stomach inflatable with air or water; tail short, length from vent to lower caudal origin between 2/5 to slightly less than 1/2 of snout-vent length. Head very depressed and broad, narrowly rounded and not wedge-shaped in lateral view; head fairly short, between 1/4 to 1/5 to less than 1/5 of total length in adults; snout very short, less than 1/2 of mouth width, thick, and somewhat flattened, bluntly pointed in lateral view; snout not expanded laterally, rounded-parabolic or subangular in dorsoventral view; ampullar pores not greatly enlarged on snout; nostrils not enlarged, with incurrent and excurrent apertures only slightly open to exterior; anterior nasal flaps broadly tringular to elongated and lobate, without barbels, falling slightly anterior to mouth or reaching it; internarial space 1 to 1.7 times the nostril width; nasoral grooves absent; eyes dorsolateral on head, broad subocular ridges present below eyes; mouth broadly arched or angular, very large and long, with lower symphysis usually somewhat behind upper so that upper teeth are well-exposed in ventral view (lower jaw covering upper teeth in C. silasi); labial furrows absent or vestigial; bronchial region not greatly enlarged, distance from spiracles to fifth gill slits 1/2 to 2/5 of head length; gills lateral on head. Two dorsal fins present, with the second considerably smaller than the first; origin of first dorsal about over anterior halves of pelvic bases; origin of second dorsal over or slightly posterior to the anal origin; pectoral fins large, but with their widths varying from less to considerably greater than mouth width; inner margins of pelvic fins not fused over claspers in adult males; claspers moderately long and thick to slender and very long, distally rounded, extending 1/2 to 4/5 of their length behind the pelvic fin tips; anal fin moderately large, but not greatly elongated, subequal to pelvic and first dorsal fins, but much larger than second dorsal, its base length 1.2 to 1.4 times the second dorsal base; origin of anal well behind pelvic bases, and its insertion separated from lower caudal origin by a space 3/4 to 3/5 of anal base; caudal fin short and broad, between a fourth and a fifth of total length in adults. No crests of denticles on the caudal margins; supraorbital crests present on cranium. Colour varying from uniform grey or brown to variegated with obscure darker saddles and blotches, reticulated dark lines, or numerous dark spots in addition to the saddles and blotches.

Remarks : The present arrangement of Cephaloscyllium is tentative and follows the revision of Springer (1979) with modifications. Scyliorhinus (Halaelurus) silasi Talwar, 1974 was placed by Springer (1979) in Halaelurus, as an apparent synonym of H. quagga, but it is quite evidently a dwarf species of Cephaloscyllium.

Springer (1979) separated Cephaloscyllium isabellum, from New Zealand, from the Australian Cephaloscyllium laticeps by egg-case morphology only (ridged or 'laminated' in the Australian species and smooth in the New Zealand form), but this was done under the assumption that there was only a single species of Cephaloscyllium in Australian waters. New material from Australia under study by the writer and Dr. John Stevens suggests that, apart from the dwarf Cephaloscyllium fasciatum which was lately collected off northwestern Australia, the Australian swellsharks may comprise at least two large-sized species, a highly variegated and spotted species probably referable to C. laticeps, and the broad-blotched unspotted C. nascione with conspicuous light fin margins. There are also some small Australian swellsharks of uncertain species, that feature scattered black spots on a uniform background. The question arises as to whether C. laticeps really differs from C. isabellum by having 'laminated' egg-cases, or if these come from C. nascione or some other species. Whitley (1940) thought that C. laticeps laid smooth eggs, but noted that "Mr H.M. Hale records 'laminated' eggs as having been laid by South Australian specimens in March, 1929". Unfortunately the swellsharks from which the 'laminated' eggs were taken were not described. With uncertainty as to the type of egg laid by C. laticeps, and no morphological differences between this species and C. isabellum, except possibly colour pattern, the separation of these species becomes questionable. They are listed separately in the species accounts below, at least until Australian and New Zealand swellsharks of the isabellum type can be critically compared.

Springer (1979) also synonymized the Japanese C. umbratile and the Taiwanese C. formosanum with C. isabellum. While this may or may not be correct, there is an additional complication in the form of a dwarf swellshark that occurs in the western North Pacific, that has been generally confused with the large C. umbratile (= C. isabellum) but which differs in its simple blotched colour pattern, differently formed anterior nasal flaps, and longer snout. This probably represents an undescribed species, which is not placed in the key below.

Key to Species

- 1a. Colour pattern of bold dark lines forming saddles and open-centred blotches on back and sides C. fasciatum
- 1b. Colour pattern variable but not in the form of dark lines

- 2a. A strongly variegated colour pattern of close-set dark saddles and blotches, numerous dark spots and occasional light spots on a lighter background
- 3a. Anterior nasal flaps extending to mouth. Underside heavily spotted C. ventriosum
- 3b. Anterior nasal flaps not reaching mouth. Underside not spotted C. isabellum
C. laticeps
- 2b. Colour pattern not strongly variegated, usually simple broad dusky saddles on a light background, no dark or light spots
- 4a. Anterior nasal flaps broadly triangular, overlapping mouth. Caudal peduncle slender. Claspers narrow and greatly elongated. A dwarf species, adults less than 40 cm..... C. silasi
- 4b. Anterior nasal flaps narrow based and lobate, not overlapping mouth. Caudal peduncle stout. Claspers broad and not greatly elongated. Large species, adults to one metre or more
- 5a. Colour pattern of obscure dusky saddles on back, sometimes obsolete in adults, fins not conspicuously light-edged C. sufflans
- 5b. Colour pattern of prominent dusky saddles on back and broad dark lines on head, fins dusky with conspicuous light edges C. nascione

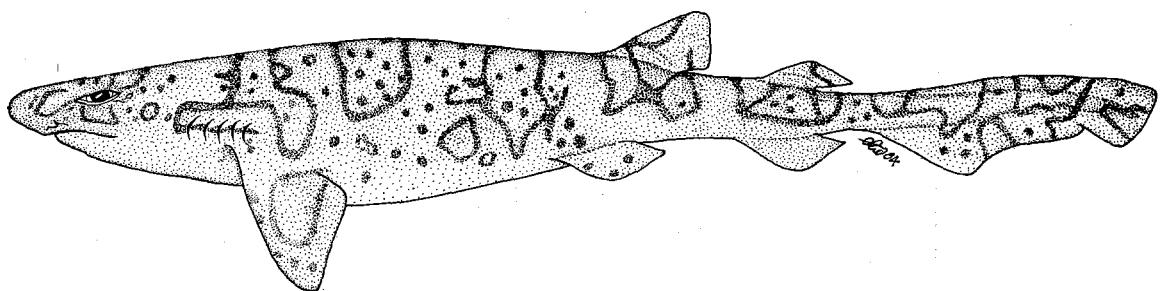
Cephaloscyllium fasciatum Chan, 1966

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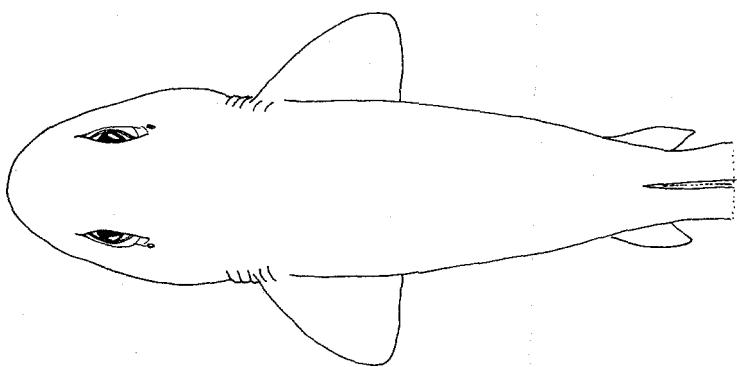
Cephaloscyllium fasciatum Chan, 1966, J.Zool., Lond., 148:252, fig. 6. Holotype: British Museum (Natural History), BMNH 1965.8.11.1, 422 mm adolescent or adult female. Type Locality: 15°55.7'N, 109°18.5'E, from 205 to 315 m depth.

Synonymy : None.

FAO Names : En - Reticulated swellshark; Fr - Holbiche bouffie; Sp - Pejegato mallero.



Field Marks: A catshark with a stout body, no labial furrows, and with a striking colour pattern of narrow dark lines arranged as open-centred saddles, loops, reticulations and spots, as well as moderately large dark spots (absent in young) on light ground colour, anterior nasal flaps elongate, lobate, and not overlapping mouth posteriorly, and second dorsal fin much smaller than first.



partial dorsal view

Diagnostic Features: Snout rounded-angular in dorsoventral view, very short; anterior nasal flaps narrowly lobate, not overlapping mouth posteriorly. Colour pattern of dark brown lines formed into open-centred saddles, spots, and reticulations on a light greyish brown background, also some small dark brown spots on sides and back; underside of head and abdomen spotted; fins without conspicuous light margins. A small species, adult at less than 50 cm.

Geographical Distribution : Western Pacific: Viet Nam, China (Hainan Island), northwestern Australia.

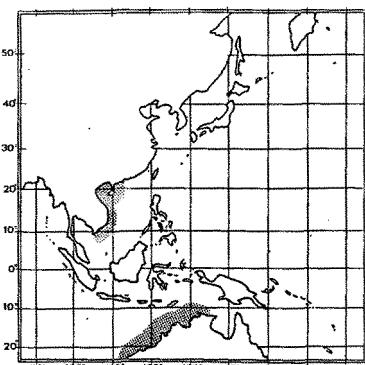
Habitat and Biology : A tropical swellshark found in deepish water on or near the bottom on the outer continental shelf and uppermost slope, at depths of 219 to 314 m; caught on mud bottom. Can expand itself with air or water.

Size : Maximum at least 42 cm (adolescent or adult female).

Interest to Fisheries : None at present, caught by commercial bottom trawlers.

Literature: Chan (1966); Springer (1979).

Remarks : Recently taken off northwestern Australia (Dr J.D. Stevens, pers.comm.).



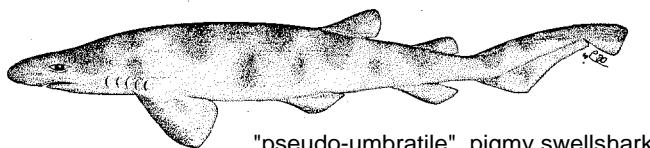
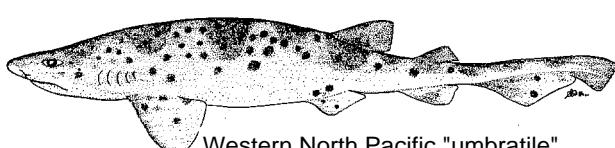
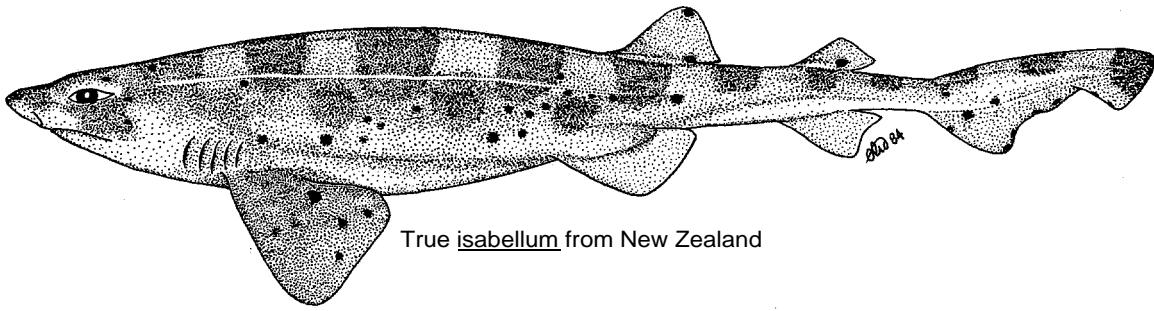
Cephaloscyllium isabellum (Bonnaterre, 1788)

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Squalus isabella Bonnaterre, 1788, Ichthyologia, 6. Holotype: Apparently lost, according to Springer (1979). Type Locality: "La mer du sud".

Synonymy : Scyllium sabella Gmelin, 1789; Scyllium lima Richardson, 1842; ? Cephaloscyllium umbratile Jordan & Fowler, 1903; ? Cephaloscyllium formosanum Teng, 1962.

FAO Names : En - Draughtsboard shark; Fr - Holbiche damier; Sp - Pejegato ajedrezado.



Field Marks : A catshark with a stout body, no labial furrows, and with a striking colour pattern of dark dorsal saddles, lateral blotches, and small to moderately large dark spots on light ground colour, anterior nasal flaps short, subtriangular, and not overlapping mouth posteriorly, and second dorsal fin much smaller than first.

Diagnostic Features: Snout broadly rounded-angular in dorsoventral view, rather short and broad; anterior nasal flaps subtriangular, not overlapping mouth posteriorly. Claspers short and stout. Colour pattern variegated, with up to 11 dark brown irregular saddles and laterally interdigitating blotches in a checkerboard pattern in the typical New Zealand form, but with more irregular dark blotches and mottling in Taiwanese and Japanese representatives of the species (if not distinct); a scattering of numerous dark brown or blackish' small spots on a grey or brown background; underside of head and abdomen unspotted; fins without conspicuous light margins. A large species (see size below).

Geographical Distribution: Western Pacific: New Zealand, China (Taiwan Island) and Japan (southeastern Honshu).

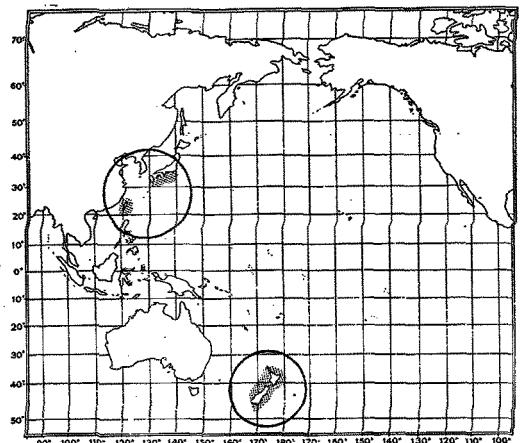
Habitat and Biology : A common, sluggish inshore and offshore warm-temperate catshark found on rocky and sandy bottoms in deepish water on the continental and insular shelves, at depths of 18 to 220 m; said to avoid open areas but favours reefs. Can expand itself with air or water. Oviparous. Eats crabs, worms and other invertebrates, and probably bony fishes.

Size : Maximum 92 to 100 + cm, said to reach 244 cm off New Zealand but possibly due to confusion with some other shark, such as Notorynchus cepedianus; adult males 69 + cm; adult females 86 cm.

Interest to Fisheries : None or limited at present, caught by commercial bottom trawlers.

Literature : Jordan & Fowler (1904); Whitley (1940); Fowler (1941); Teng (1962); Garrick & Paul (1974); Springer (1979).

Remarks : As noted in the generic remarks, above, the synonymy of this species is tentative, and follows Springer (1979). The holotype of Cephaloscyllium umbratile in the Stanford University collections (a 95 cm adult male specimen, SU 12693, preserved as a skin according to Jordan & Fowler, 1904), could not be located by Springer (1979) or the writer, and is presumed lost. Several writers, including Teng (1962), Chen (1963), Fourmanoir & Nhu-Nhung (1965), Chan (1966), Bessednov (1969), and Nakaya (1975) have reported a species of Cephaloscyllium from Viet Nam, China, (including Taiwan Island) and Japan as C. umbratile. This apparently differs from C. isabellum (or C. umbratile-formosanum, if distinct) in its smaller size at maturity (adult males 39 to 42 cm, females at 36 to 42 cm, versus isabellum at over 60 cm), colour pattern of indistinct dusky saddles and blotches without small spots and mottling, longer snout, and more elongated nasal flaps. Comparison of Jordan & Fowler's (1904) original description of C. umbratile with Teng's (1962) accounts of C. umbratile and C. formosanum suggests that the latter writer renamed the true large umbratile as C. formosanum in the belief that the small species was umbratile. The writer has examined specimens of the small "umbratile" from off Hong Kong and suspects that these represent an undescribed species of dwarf swellshark, not conspecific with the other small species C. silasi and C. fasciatum.



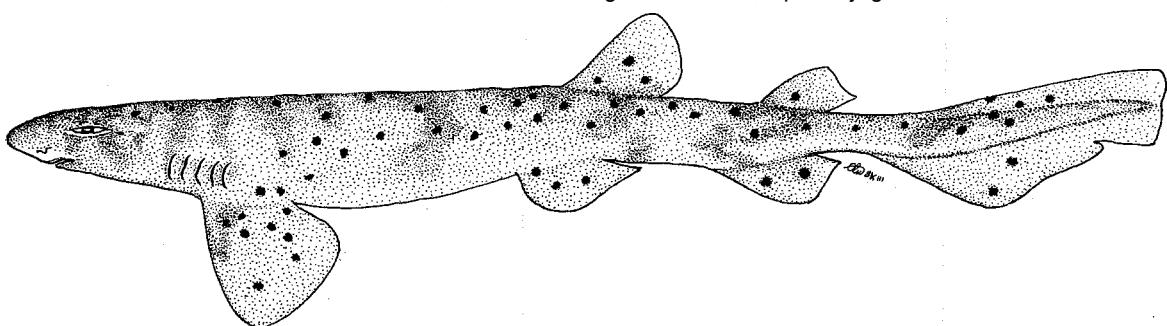
Cephaloscyllium laticeps (Dumeril, 1853)

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Scyllium laticeps Dumeril, 1853, Rev Mag Zool., ser. 2, 5:84. Holotype: Museum National d'Histoire Naturelle, Paris, MNHN A.9378, stuffed male 790 mm long. Type Locality: New Holland (Tasmania).

Synonymy : None.

FAO Names : En - Australian swellshark; Fr - Holbiche gressouillette; Sp - Pejegato australiano.



Field Marks : A catshark with a stout body, no labial furrows, and with a striking colour pattern of mottled dark dorsal and lateral blotches and small to moderately large dark spots on light ground colour, light undersides with slight mottling on at least. fins, anterior nasal flaps short, subtriangular, and not overlapping mouth posteriorly, and second dorsal fin much smaller than first.

Diagnostic Features: Snout broadly rounded in dorsoventral view, rather short and broad; anterior nasal flaps subtriangular, not overlapping mouth posteriorly. Claspers short and stout. Colour pattern of variegated dark brown or greyish blotches and saddles and numerous dark and some light spots on a lighter grey or chestnut background on body and fins, underside of head and abdomen cream, not strongly spotted; fins without conspicuous light margins.

Geographical Distribution : Western Pacific: Australia (South Australia, Tasmania, Victoria, New-South Wales).

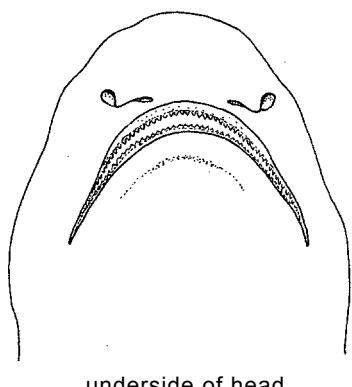
Habitat and Biology : A temperate-water swellshark found in shallow to deepish water on or near the bottom on the continental shelf from close inshore down to 220 m. Can expand itself with air or water. Oviparous.

Size : Maximum at least 97 cm (adults).

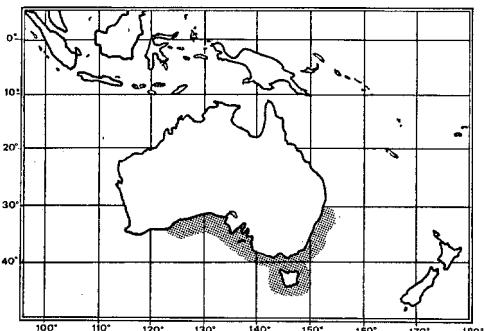
Interest to Fisheries : None at present, caught by commercial bottom trawlers.

Literature : Whitley (1940); Fowler (1941); Stead (1963); Springer (1979).

Remarks : See generic remarks, above, for a discussion of the separation of this species from C. isabellum, which is uncertain at present.



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Cephaloscyllium nascione Whitley, 1932

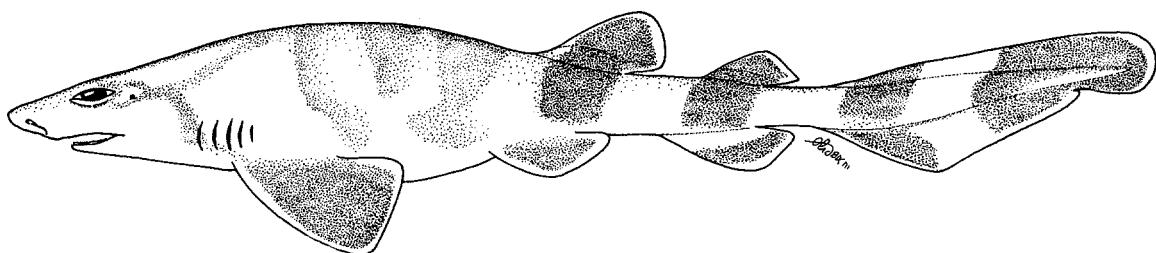
SCYL Cep 4

Cephaloscyllium i. (isabella) laticeps, forma nascione Whitley, 1932, Rec.Aust.Mus., 18(6):324, fig. 2, no. 2. Holotype: Australian Museum, Sydney, AMS IA 2829, 255 mm female, immature. Type Locality: Montague Island, New South Wales, Australia (165 m depth).

Synonymy : None.

Other Scientific Names Recently in Use: Cephaloscyllium laticeps forma nascione Whitley, 1932 (Whitley, 1940).

FAO Names : En - Whitefinned swellshark; Fr - Holbiche isabelle; Sp - Pejegato bordeado.



Field Marks: A catshark with a stout body, no labial furrows, second dorsal fin much smaller than first, and with a simple colour pattern of dark saddles and light-margined fins, anterior nasal flaps elongate, lobate, and not overlapping mouth posteriorly.

Diagnostic Features: Snout broadly rounded-angular in dorsoventral view, moderately short; anterior nasal flaps elongate and lobate, not overlapping mouth posteriorly. Claspers short and stout. Colour pattern of eight or nine prominent grey-brown saddles on a light tan or grey-brown background, underside of head and abdomen unspotted; precaudal fins grey-brown with conspicuous light margins. A large species (see size below).

Geographical Distribution : Western Pacific: Australia (New South Wales, and South Australia).

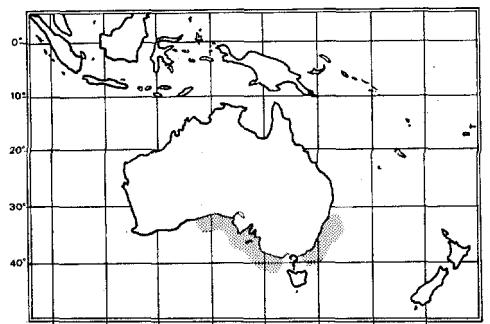
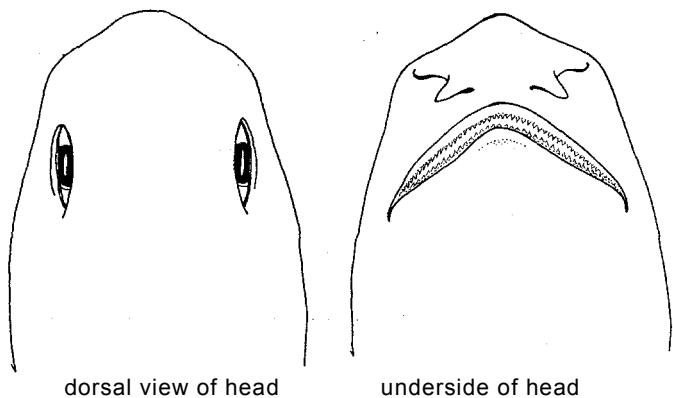
Habitat and Biology : A little-known, bottom-dwelling shark of the outer continental shelf, occurring at depths of 146 to 220 m. Probably oviparous, although egg-cases of this species remain to be positively identified.'

Size : Probably at least 1 m, adult males over 80 cm.

Interest to Fisheries : Very limited, taken by commercial trawlers with bottom trawls.

Literature : Whitley (1940).

Remarks : This species was considered a 'form' or subspecies of C. laticeps or C. isabella by Whitley (1932, 1940), and included in synonymy of C. isabella by Springer (1979), but examination of the holotype (illustrated) and other material suggests that this is a separate species. It is apparently not identical to the small western North Pacific swellshark termed C. umbratile by various writers, which has a superficially similar colour pattern.



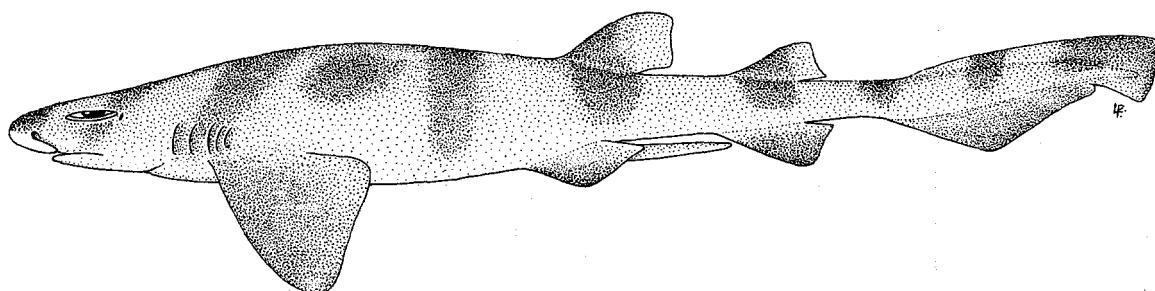
Cephaloscyllium silasi (Talwar, 1974)

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Scyliorhinus (Halaelurus) silasi Talwar, 1974, J.Mar.Biol.Assoc.India, 14(1):779, fig. 1. Holotype: Zoological Survey of India, Calcutta, ZSI F.6562/2, 318 mm female. Type Locality: Indian Ocean, off Quilon, Kerala, India, 9°N, 76°E at 300 m depth.

Synonymy : None.

FAO Names : En - Indian swellshark; Fr - Holbiche indienne; Sp - Pejegato de Silas.



Field Marks : A small catshark with a stout body, no labial furrows, and with a simple colour pattern of dark saddles, head extremely broad, snout obtusely wedge-shaped, anterior nasal flaps elongate, lobate, and overlapping mouth posteriorly.

Diagnostic Features: Snout obtusely wedge-shaped in dorsoventral view, extremely broad and short; anterior nasal flaps broadly subtriangular and with a triangular rear margin, overlapping mouth posteriorly. Claspers very slender and elongated. Colour pattern of seven moderately broad dark brown saddles on a light brown background, plus an obscure darker blotch over the pectoral inner margins, underside of head and abdomen unspotted and light brown; fins without conspicuous light margins. A dwarf species (see size below).

Geographical Distribution : Presently known only from the vicinity of Quilon, India, where it is relatively common P.K. Talwar, pers.comm.).

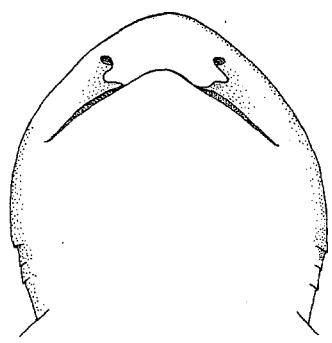
Habitat and Biology : A little-known bottom-dwelling shark of the uppermost continental slope. The type series, including the holotype and three paratypes, were collected at 300 m depth with an otter trawl.

Size : Probably a dwarf species, as the largest known specimen, a male, is adult at 36 cm long.

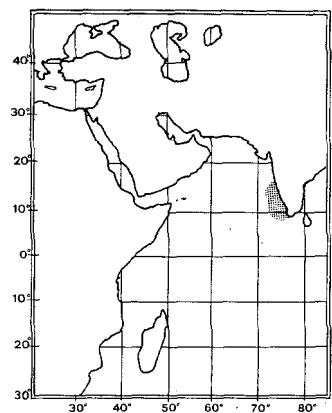
Interest to Fisheries : None at present.

Literature : Talwar (1974); Springer (1979); Compagno & Talwar (1983, in press).

Remarks : Springer (1979) listed this species in Halaelurus as an apparent synonym of Halaelurus guagga, but stated that the species was of uncertain validity. Reexamination of the type series of S. (H.) silasi indicates that the species is valid and a distinct member of the genus Cephaloscyllium (Compagno & Talwar, 1983, in press). The illustration is based on an adult male paratype.



underside of head



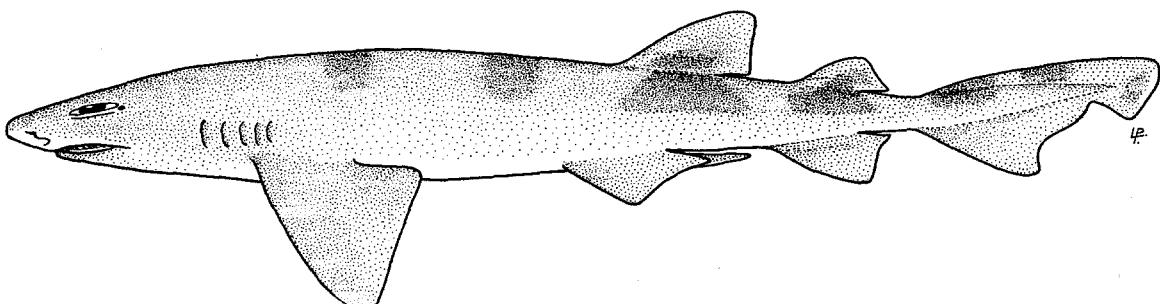
Cephaloscyllium sufflans (Regan, 1921)

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Scyliorhinus (Cephaloscyllium) sufflans Regan, 1921, Ann. Mag. Nat. Hist. (Ser. 9), 7(41):413. Holotype: British Museum Natural History, 750 mm. Type Locality: About 24 to 35 km off Uvoti River, Natal, South Africa in 220 to 238 m depth.

Synonymy : None.

FAO Names : En - Balloon shark; Fr - Holbiche souffle; Sp - Pejegato balón.



Field Marks : A moderately large, stout catshark with no labial furrows, second dorsal much smaller than first, a simple colour pattern of obscure dark saddles, often obsolete, snout broadly rounded, anterior nasal flaps elongate; lobate, and not overlapping mouth posteriorly.

Diagnostic Features: Snout broadly rounded-angular in dorsoventral view, broad and short; anterior nasal flaps fairly elongate and lobate, not overlapping mouth posteriorly. Claspers moderately short and stout. Colour pattern of 7 light grey-brown saddles on a lighter, pale-grey brown background, these saddles obscure or absent in adults, pectorals dusky above, underside unspotted; fins without conspicuous light margins. A large species (see size below).

Geographical Distribution : Western Indian Ocean: South Africa and Mozambique, doubtfully from Gulf of Aden.

Habitat and Biology : A common warm-temperate and subtropical offshore catshark on the continental shelf and uppermost slope at depths from 40 to 440 m, commonly on sand and mud bottom (unlike C. ventriosum, which prefers rocky bottom and is appropriately spotted and mottled). As with other members of the genus, this catshark can inflate itself when disturbed.

Oviparous, apparently laying one egg-case per oviduct. Immature individuals of this shark are common in trawl hauls off Natal at 40 to 440 m depth, but adults are not, and egg-cases have yet to be found. This suggests that adults mostly live in deeper water than these juveniles and lay eggs there, or are geographically displaced, perhaps off northern Mozambique.

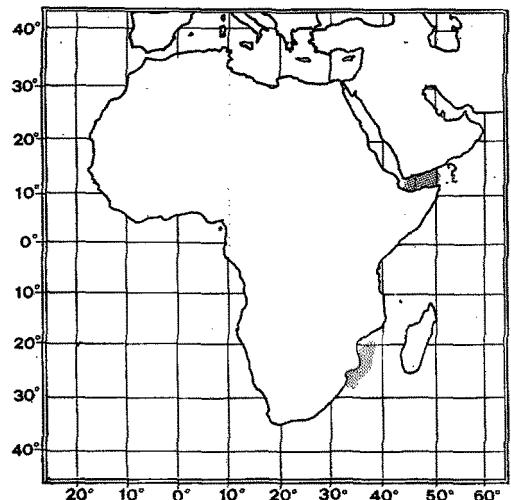
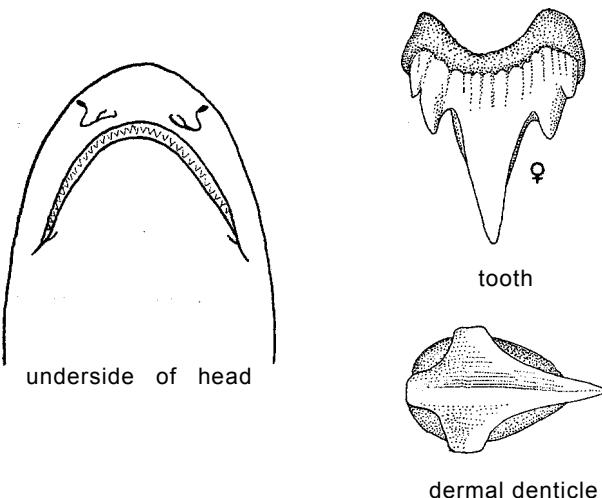
These sharks eat a variety of bottom prey including mostly crustaceans (lobsters and shrimp) and cephalopods, but also bony fishes and other elasmobranchs, taken on muddy or sandy bottom.

Size : Maximum 106 cm; males adolescent at 70 to 75 cm, adult males to 89 cm; females immature at 71 cm or less, adult females 82 to 109 cm; size at hatching about 20 to 22 cm.

Interest to Fisheries : Apparently none at present, although often taken by commercial bottom trawlers.

Literature : Fowler (1941); Smith (1949); Bass, D'Aubrey & Kistnasamy (1975); Springer (1979).

Remarks : Bass, D'Aubrey & Kistnasamy (1975) cast doubt on the identity of C. sufflans specimens recorded from the Gulf of Aden (Norman, 1939), which include an adolescent male only 30 cm long. Nominal records of this species from Viet Nam (Fourmanoir & Nhu-Nhung, 1965) are apparently based on an undescribed swellshark usually termed C. umbratile but apparently not that species (see also Bass, D'Aubrey & Kistnasamy, 1975a).



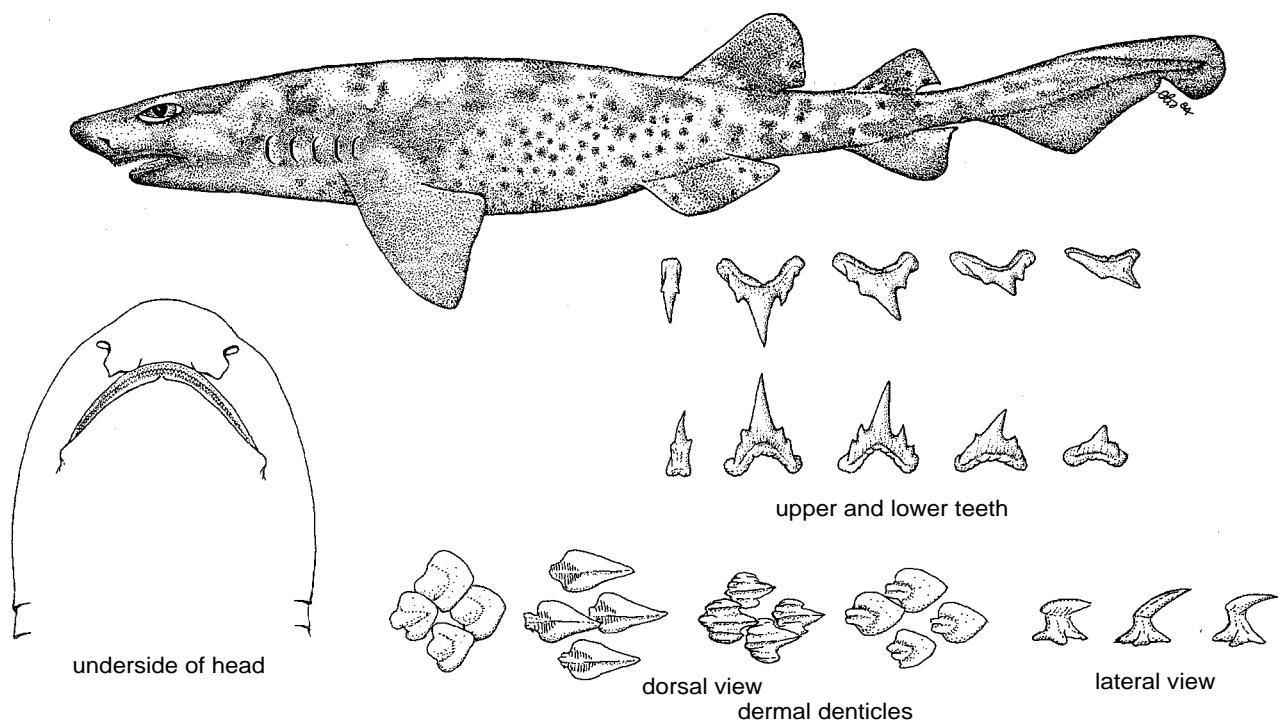
Cephaloscyllium ventriosum (Garman, 1880)

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Scyllium ventriosum Garman, 1880, Mem. Mus. Comp. Zool. Harv. Coll., 6(11):167. Holotype: Museum of Comparative Zoology, Harvard, 740 mm adult female. Type Locality: Valparaiso, Chile.

Synonymy : Catulus uter Jordan & Gilbert, in Jordan & Evermann, 1896.

FAO Names : En - Swellshark; Fr - Holbiche ventrue; Sp - Pejegato hinchado.

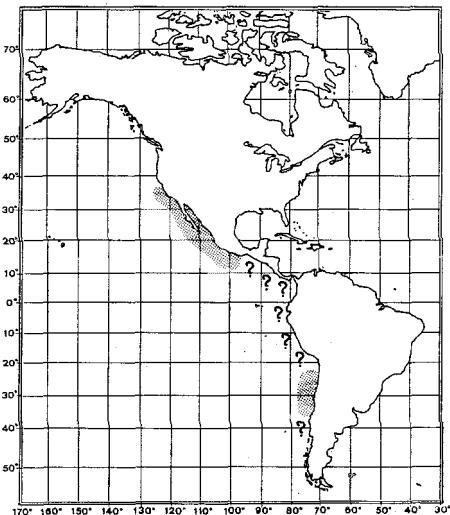


Field Marks : A large variegated catshark, with small dark and light spots, undersides spotted, no labial furrows, second dorsal smaller than first, anterior nasal flaps reaching mouth.

Diagnostic Features : Snout broadly rounded-angular in dorsoventral view, extremely short; anterior nasal flaps broadly lobate or subtriangular, overlapping mouth posteriorly. Claspers short and stout. Colour pattern of variegated dark brown blotches and saddles and numerous dark and some light spots on a yellow-brown background on body and fins, underside of head and abdomen spotted; fins without conspicuous light margins. A large species (see size below).

Geographical Distribution: Eastern Pacific: Central California (Monterey Bay) to Gulf of California and southern Mexico; central Chile.

Habitat and Biology : A sluggish, nocturnal benthic and epibenthic shark of warm-temperate and subtropical continental waters, on the continental shelves and upper slopes, with a depth range from inshore to 457 m, commonest at depths of 5 to 37 m. This species prefers rocky, algal-covered areas of kelp beds, but also occurs on algal-covered bottom without kelp. The swell shark usually spends the day lying on the bottom motionless in rocky caves and crevices but becomes active at night and swims slowly through bottom algae or in open water close to the bottom. Swellsharks may occur in aggregations of several individuals while resting, sometimes piled atop one another. This is a hardy species in captivity, and will live in tanks for several years. Under experimental conditions this species was shown to have an endogenous, circadian activity pattern that is clearly calibrated by diel changes in light.



The swellshark is oviparous and lays its eggs in large, greenish-amber, purse-shaped egg-cases, which hatch in 7.5 to 10 months depending on water temperature; the young hatch at 13 to 15 cm long. These have a double row of enlarged denticles down the back that apparently are used as an antislip ratchet to aid the young to force their way out of their egg-case. Females will lay eggs in captivity.

This shark feeds on bony fishes; alive and dead, and probably crustaceans. It is hypothesized that the nocturnal activity pattern of this sluggish, slow and weak-swimming shark aids in capture of its prey. The swellshark has a huge mouth and relatively small, sharp-pointed holding teeth that can handle large prey, but the shark itself seems incapable of dashing after active prey and may specialize in catching day-active bony fishes that lie on the bottom at night and are relatively inactive and unresponsive.