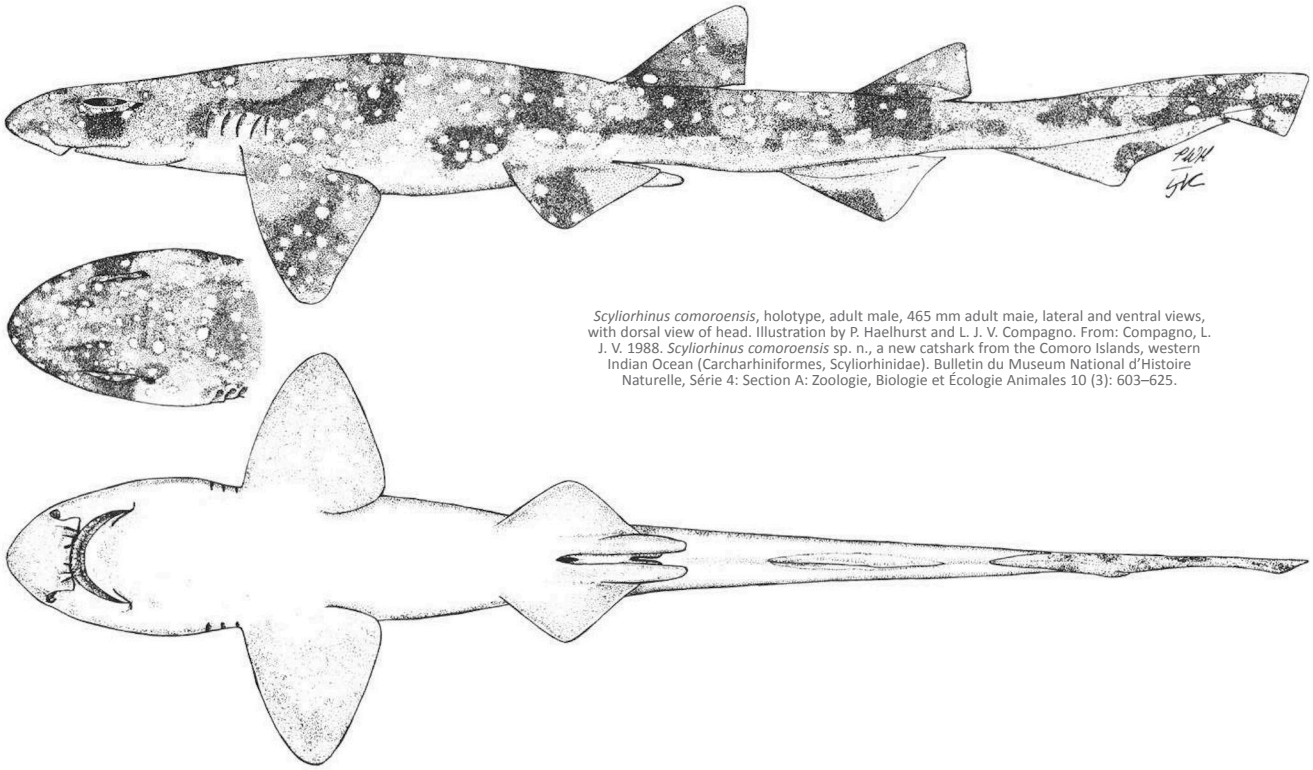
Order CARCHARHINIFORMES

Catsharks

Family **SCYLIORHINIDAE**

Gill 1862



Scyliorhinus comoroensis, holotype, adult male, 465 mm adult maie, lateral and ventral views, with dorsal view of head. Illustration by P. Haelhurst and L. J. V. Compagno. From: Compagno, L. J. V. 1988. *Scyliorhinus comoroensis* sp. n., a new catshark from the Comoro Islands, western Indian Ocean (Carcharhiniformes, Scyliorhinidae). Bulletin du Museum National d'Histoire Naturelle, Série 4: Section A: Zoologie, Biologie et Écologie Animales 10 (3): 603–625.

Cephaloscyllium

Gill 1862

cephalus, from *kephalḗ* (κεφαλή), head, referring to broad and depressed head of *C. laticeps*; *scyllium*, from *skýlion* (σκύλιον), small dog or whelp, i.e., a small shark (sharks were derogatorily called "dogs" or "sea dogs" in ancient times)

***Cephaloscyllium albipinnum* Last, Motomura & White 2008** *albus* (L.), white; *pinna* (L.), fin, but used here as a neuter adjective (finned), referring to distinctive white margins on fins

***Cephaloscyllium cooki* Last, Séret & White 2008** in honor of the late Sidney F. Cook (1953–1997), shark fisheries biologist, "whose energy, dedication and contribution to shark conservation is sadly missed"

***Cephaloscyllium formosanum* Teng 1962** *-anum,* belonging to: Formosa, or Taiwan, referring to type locality off southwestern coast of Taiwan

Cephaloscyllium hiscosellum, holotype, adult male, 458 mm TL. From: White, W. T. and D. A. Ebert. 2008. *Cephaloscyllium hiscosellum* sp. nov., a new swellshark (Carchariniformes: Scyliorhinidae) from northwestern Australia. *In*: Descriptions of new Australian Chondrichthyans. CSIRO Marine and Atmospheric Research Paper No. 022: 171–178.

***Cephaloscyllium hiscosellum* White & Ebert 2008** *hisco* (L.), to open; *sella* (L.), saddle, but used here as a neuter adjective (saddled), referring to distinctive open-centered saddle-like markings that dominate its color pattern

***Cephaloscyllium isabella* (Bonnaterre 1788)** based on "d'*Isabelle*" of Broussonet (1780)[1], who said the shark's color inspired the name; probably derived from isabelline, a pale cream-brown parchment color, consistent with Broussonet's description of "roux cendré" (i.e., fawn, tan or ashy brown) [often incorrectly spelled as an adjective, *isabellum*]

***Cephaloscyllium laticeps* (Duméril 1853)** *latus* (L.), wide or broad; *-ceps* (Neo-Latin), headed, referring to its broad, parabola-shaped head

***Cephaloscyllium pictum* Last, Séret & White 2008** Latin for painted or colored, referring to its "somewhat painted" coloration

***Cephaloscyllium sarawakense* Yano, Ahmed, Gambang, Idris, Solahuddin & Azan 2005** *-ensis*, Latin suffix denoting place: Sarawak, Malaysia, type locality

***Cephaloscyllium signourum* Last, Séret & White 2008** *signa*, from *signum* (L.), flag; *ourá* (οὐρά), tail, but used here as a neuter adjective (tailed), referring to distinctive flag-like dark marking on terminal lobe of caudal fin

***Cephaloscyllium silasi* (Talwar 1974)** in honor of Eric Godwin Silas (1928–2018), Sri Lankan-born Indian ichthyologist and fisheries scientist, Director, Central Marine Fisheries Institute (India), "whose excel-

[1] Broussonet, P. M. A. 1780. Mémoire sur les différentes espèces de chiens de mer. Histoire de l'Académie Royale des Sciences, Paris 1780: 641–680.

lent publications on the ichthyofauna of the continental shelf of the south-west coast of India have added much to our knowledge of the fauna of this region"

Cephaloscyllium speccum **Last, Séret & White 2008** Latin for speckled, referring to dark-brown spots and blotches that dominate its color pattern

Cephaloscyllium stevensi **Clark & Randall 2011** in honor of John Stevens (b. 1947), whose 1994 work (with Peter Last) on Australian sharks was the "foundation for research that led to the descriptions of 37 new chondrichthyan fishes, including 11 species of *Cephaloscyllium*"

Cephaloscyllium sufflans **(Regan 1921)** Latin for puffing, referring to its inflatable stomach

Cephaloscyllium umbratile **Jordan & Fowler 1903** Latin for shaded, described as "marbled above with shades of dark and deep brown"

Cephaloscyllium variegatum **Last & White 2008** Latin for varied or various, referring to strong intraspecific and ontogenetic variability in color pattern and morphology amongst the specimens examined

Cephaloscyllium ventriosum **(Garman 1880)** *venter* (L.), belly; *-osum*, Latin suffix connoting fullness, referring to its inflatable stomach

Cephaloscyllium zebrum **Last & White 2008** derived from the Amharic *zebra*, referring to zebra-like narrow bars on dorsal and lateral surfaces of head and body

Poroderma

Smith 1838

póros (πόρος), hole or passage; *dérma* (δέρμα), skin, allusion not explained nor evident (Smith proposed name without a description)

Poroderma africanum **(Gmelin 1789)** *-anum* (L.), belonging to: Africa, described from South Africa

Poroderma pantherinum **(Smith 1838)** Latin for leopard-like, referring to its variable leopard-like spots, stripes and blotches

Poroderma pantherinum. From: Smith *in* Müller, J. and F. G. J. Henle. 1838–41. Systematische Beschreibung der Plagiostomen. Veit und Comp., Berlin. i–xxii + 1–200, 60 pls. [Description on p. 13, published in 1838.]

Scyliorhinus

Blainville 1816

scylio-, from *skýlion* (σκύλιον), small dog or whelp, i.e., a small shark (sharks were derogatorily called "dogs" or "sea dogs" in ancient times); *rhinus*, an ancient name for sharks, from *rhinós* (ῥινός), skin or hide of a beast, or from *rhínē* (ῥίνη), rasp, both apparently alluding to a shark's rough skin

Scyliorhinus boa **Goode & Bean 1896** presumably referring to its reticulated brownish markings, similar to those of a boa constrictor

Scyliorhinus cabofriensis **Soares, Gomes & Carvalho 2016** *-ensis*, Latin suffix denoting place: off Cabo Frio, northeastern Rio de Janeiro State, Brazil, type locality

Scyliorhinus canicula **(Linnaeus 1758)** diminutive of *canis* (L.), dog; sharks were derogatorily called "dogs" or "sea dogs" in ancient times due to the threat they posed to humans and their unpalatability except as food for the poor

Scyliorhinus capensis **(Müller & Henle 1838)** *-ensis*, Latin suffix denoting place: Cape of Good Hope, South Africa, type locality

Scyliorhinus cervigoni **Maurin & Bonnet 1970** in honor of Venezuelan ichthyologist Fernando Cervigón Marcos (1930–2017), who recognized this shark as a distinct species in 1960

Scyliorhinus comoroensis **Compagno 1988** *-ensis*, Latin suffix denoting place: Comoro Islands, western Indian Ocean, type locality

Scyliorhinus duhamelii **(Garman 1913)** in honor of Henri-Louis Duhamel du Monceau (1700–1782), French physician, naval engineer and botanist, who first noted the differences between this species and *S. canicula* in 1777

Scyliorhinus garmani **(Fowler 1934)** in honor of American ichthyologist-herpetologist Samuel Garman (1843–1927), Museum of Comparative Zoology, Harvard University, for his "excellent" work on sharks and rays

Scyliorhinus hachijoensis **Ito, Fujii, Nohara & Tanaka 2022** *-ensis*, Latin suffix denoting place: off the east coast of Hachijojima Island (Hachijo + *jima*, Japanese for island), Tokyo, Japan, type locality

Scyliorhinus haeckelii **(Miranda Ribeiro 1907)** in honor of Ernst Haeckel (1834–1919), German biologist, philosopher and artist, the "foremost philosophical thinker of the day" (translation)

Scyliorhinus hesperius **Springer 1966** Latin for western, from *hésperos* (ἕσπερος), evening star, probably referring to its occurrence in the western Atlantic, the western Caribbean, and/or off the coast of western Panama

Scyliorhinus meadi **Springer 1966** in honor of American ichthyologist Giles W. Mead (1928–2003), then at the Museum of Comparative Zoology, Harvard University (later director of the Los Angeles County Natural History Museum), who brought this shark to Springer's attention

Scyliorhinus retifer **(Garman 1881)** *rete* (L.), net; *-fer*, from *fero* (L.), to have or bear, referring to its mesh- or chain-like pattern

Scyliorhinus stellaris **(Linnaeus 1758)** Latin for starry or of the stars, referring to many large and small black and white spots on body

Scyliorhinus torazame **(Tanaka 1908)** Japanese vernacular, meaning "tiger shark," referring to its markings

Scyliorhinus torrei **Howell Rivero 1936** in honor of Cuban zoologist Carlos de la Torre (1858–1950), who recognized this species as new and granted Howell Rivero permission to study and describe it

Scyliorhinus ugoi **Soares, Gadig & Gomes 2015** in honor of Ugo de Luna Gomes, son of the third author

Why are some sharks named after dogs and others after cats?

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Why are some sharks named after dogs and others after cats?

By Holger Funk

Some sharks are called "dogfishes." Others, such as the ones discussed above, are called "catsharks." Allusions to both cats and dogs appear in a handful of scientific names. The deepwater catshark (Pentanchidae) genera *Bythaelurus*, *Cephalurus* and *Halaelurus* are based on the Greek noun *aílouros* (αἴλουρος), meaning cat. Despite its common name, the specific epithet of the Small-spotted Catshark *Scyliorhinus canicula* is derived from the Latin word for dog (*canis*). How is it that sharks have been named for both cats and dogs? The "dog" designation dates to the ancient Greeks. The "cat" designation began in the Renaissance. And despite what the venerable Oxford English Dictionary and some otherwise dependable ichthyological references tell you, catsharks are *not* named for their cat-like eyes.

The ancient Greeks subsumed sharks under the collective term "dog" (κύων, *kýōn*) or "sea-dog" (κύων ἡ θαλαττία, *kýōn hē thalattía*). Like the Greeks, the Romans used the term *canis marinus*, "sea-dog." Unlike the comparable English vernacular "dogfish," which usually applies to smaller sharks, the Greek and Latin terms encompassed larger sharks as well. What's important to note here is that from ancient times (Homer) to the late Byzantine (ca. 1400), sharks were only associated with dogs, never with cats.

Ancient sea-dogs did not comprise a clearly defined group, yet we know from the works of two Greeks — Aristotle and Oppian (*Halieutica*, "On Fishing") — the names of nine species that we can identify more or less well with today's genera and species. Of particular interest is a species Aristotle calls σκύλιον (*skýlion*) and Oppian synonymously calls σκύμνος (*skýmnos*). Both names denote a young animal of different quadrupeds, especially a young dog or whelp. By assigning this name to small sharks, the ancients were saying that small sharks were, in a metaphorical sense, small dogs or whelps compared with larger sharks. Interestingly, both *skýlion* and *skýmnos* applied to a young cat or kitten as well, providing an etymological foundation for the curious fact that sharks have been, and still are, referred to as both dogs and cats.

Fig. 1. Rondelet, *Libri de piscibus marinis* (1554: 383), French version *L'histoire entiere des poissons* (1558: 300): Latin *Canicula saxatilis*, called *Chat rochier* or *Catto rochiero* ("Rock cat") in southern France (=*Scyliorhinus stellaris*, Nursehound).

The Romans (mainly Pliny and Ovid), unlike the Greeks, were not very creative when it came to naming fishes. Mostly they adopted Greek names either by transliterating them letter by letter according to the Latin alphabet, but sometime they translated the Greek name into Latin. This happened with the Small-spotted Catshark. Here they translated the aforementioned Aristotelian name σκύλιον as *canicula*, young dog or puppy (diminutive of *canis*, dog). However, they were a little creative at least once, using the term *catulus* alongside *canicula*, which has nothing to do with cats despite how it sounds (Latin for cat is *feles*). In fact, *catulus* is another diminutive for a young animal, particularly a young dog (per Walde & Hofmann, *Lateinisches etymologisches* Wörterbuch, vol. I, 1938, p. 183).

These two designations, *canicula* and *catulus*, entered scholarly discourse in the 16th century when two pioneers of the burgeoning discipline of ichthyology, the Frenchman Guillaume Rondelet and the Italian Hippolito Salviani, cited the classical Greek and Latin names in their accounts. They also cited the vernacular names of their respective home countries. This is when "cat" first enters the shark lexicon. In France, according to Rondelet (1554), the scyliorhinid "Canicula saxatilis" (=*Scyliorhinus stellaris*, Nursehound) is known by the local name *Chat rochier* ("Rock cat") (Fig. 1). In Rome, according Salviani (1558), "Catulus" (=*Scyliorhinus canicula*, Small-spotted Catshark), goes by the popular name *Pescie Gatto* ("Cat fish") (Fig. 2).

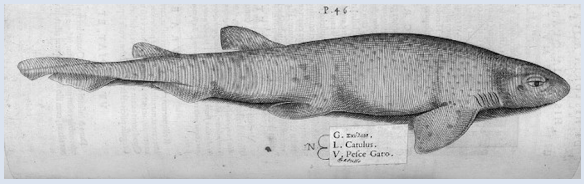

Fig. 2. Salviani, *Aquatilium animalium historiae* (1558: 137v): Greek Σκύλιον. Latin Catulus, called Pescie Gatto ("Cat fish") in Rome (=*Scyliorhinus canicula*, Small-spotted Catshark).

Based on the accounts of Rondelet and Salviani, both the Latin designations and the local vernaculars became firmly established in the ichthyological literature over time. The breakthrough came exactly 200 years later with the 10th edition of Linnaeus' *Systema naturae* of 1758, the official starting point of modern zoological nomenclature. Linnaeus knew about Rondelet's and Salviani's accounts thanks to the large inventory of ancient fish names compiled by his Swedish compatriot and friend Peter Artedi. Consequently, Linnaeus formally proposed the names *Squalus* (now *Scyliorhinus*) *canicula* and *Squalus catulus* (the latter now a junior synonym of the former).

The French and Italian "cat" vernaculars eventually made their way into English. In 1812, Thomas Pennant was one of the first to render σκύλιον, canicula and catulus as "Cat fish" in his *British Zoology: IV. Fishes* (p. 148).

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If one surveys the ancient Greek and Latin names, it becomes clear that canine semantics dominated at all times. But why dogs? Were the ancients comparing the light grayish coloring of some sharks to that of dogs? Or was "dog" a derogatory term since the ancients considered sharks inferior in every respect (harmful to humans and unpalatable except as food for the poor)? Could dog be a reference to the voracious, pack-like feeding behavior of sharks in a feeding frenzy? Whatever the explanation, an association with cats is not documented in neither Greek nor Latin. The alleged "cat-like" eyes of certain sharks that have been brought into play can also be ruled out. Palombi & Santarelli (*Gli animali commestibili dei mari d'Italia*, Milan 2001: 220–222), for example, have noted that in Italian both *Scyliorhinus canicula* with its relatively large eyes and *Scyliorhinus stellaris* with relatively small eyes equally are named *gatto* (kitten). It is more likely that in the national languages that developed from Latin, such as Italian and French, a vulgarization of *catulus* took place, with the original meaning of "dog" fading more and more until being replaced by the meaning "cat." All this happened quite unconsciously and without any objective reasons.

The "cat" name for certain sharks is therefore to be regarded as a misunderstanding and misapplication. "*Catulus*" has nothing to do with cats, and likewise sharks have next to naught in common with cats.