**Hexanchus Rafinesque, 1810**

**Genus:** Hexanchus Rafinesque, 1810, Caratt gen.sp.anim.plant Sicilia, Palermo, Pt. 1:14. Type Species: *Squalus griseus* Lacepède, by original designation, equals *Squalus griseus* Bonnaterre, 1788.

**Synonymy:** Subgenus Monopterhinus Blainville, 1816 (genus *Squalus* Linnaeus, 1758); Subgenus Notidanus Cuvier, 1817 (genus *Squalus* Linnaeus, 1758); Genus Hexanchias Swainson, 1838; Genus Notidamus Münster, 1842; Genus Hexancus Agassiz, 1846.

**Diagnostic Features:** Head broad or narrow and pointed, with 6 pairs of gill slits; eyes small to large; mouth narrow and parabolic or wide and arcuate; large lower comblike teeth low and long, with mesial serrations, a low to moderately high cusp, and 8 to 10 distal cusplets in adults; caudal peduncle short to long, distance from dorsal fin insertion to upper caudal origin varying from slightly longer to about twice as long as dorsal base; body without spots, no black tips on fins.

**Remarks:** Following Springer & Waller (1969), two species are recognized for this genus, *H. griseus* (Bonnaterre, 1788) and *H. vitulus* Springer & Waller, 1969.

---

**Squalus griseus** (Bonnaterre, 1788)


**Synonymy:** *Squalus vacca* Bloch & Schneider, 1801; *Notidanus monge* Risso, 1826; *Hexanchus corinus* Jordan & Gilbert, 1880; *Notidanus vulgaris* Perez Canto, 1886; *Hexanchus griseus australis* De Buen, 1960.

**FAO Names:** En - Bluntnose sixgill shark; Fr - Requin griset (= Requin grisé, Fishing Area 34/47 in part); Sp - Cañabota gris.

**Field Marks:** A heavy-bodied, broad-headed sixgill shark, mouth ventral with 6 rows of lower bladelike, comb-shaped teeth on each side, one dorsal fin.

**Diagnostic Features:** Body rather stout; size very large, to at least 4.8 m. Head broad and rounded to bluntly pointed; eyes small; lower jaw usually with 6 rows of large, comblike teeth on each side, these with relatively short cusps. Caudal peduncle short and stout, distance from dorsal fin insertion to upper caudal origin about equal or slightly greater than length of, dorsal fin base.
**Geographical Distribution:** Wide-ranging in temperate and tropical seas. Western Atlantic: North Carolina to Florida, USA, northern Gulf of Mexico, Cuba, Nicaragua, Costa Rica, Venezuela, also southern Brazil to northern Argentina. Eastern Atlantic: From Iceland, Norway to Senegal, possibly Ivory Coast and Nigeria, Angola and Namibia, also Mediterranean Sea. Indian Ocean: Off South Africa, southern Mozambique, Madagascar, Aldabra Island group, Comores Islands. Western Pacific: Japan (eastern coast), Taiwan (Province of China). Malaysia, Sumatra, Australia (New South Wales and Victoria), New Zealand. Central Pacific: Hawaiian Islands, Palau (Belau). Eastern Pacific: from Aleutian Islands, USA, to Baja California, Mexico, also Chile.

**Habitat and Biology:** Marine and benthic or pelagic, on the continental and insular shelves and upper slopes, depths from surface to at least 1875 m. Young often close inshore, adults often in deeper water below 91 m. A mostly deepwater shark, sluggish but strong-swimming; found near and well off the bottom. Captive individuals become greatly disturbed at even moderately high light levels, indicating a great sensitivity to light at very low levels. Large individuals offer little resistance when captured, but small ones may snap and thrash vigorously. It may sit on the bottom by day, and rise to the surface at night to feed. Feeds on a wide range of marine organisms, including other sharks (known to attack hooked conspecifics, sometimes following them up to the surface from deep water), rays, chimaeras, many types of bony fishes including dolphinfishes, small swordfish and marlin, herring, flounders, gurnards and anglers, as well as squids crabs, shrimp, carrion, and even seals. Ovoviviparous, litters very large, 22 to 108. Not known to have attacked people without provocation; young will snap when captured.

**Size:** Maximum total length at least 482 cm, females mature at about 450 to 482 cm, size at birth about 65 to 70 cm.

**Interest to Fisheries:** Locally common and taken by line gear, gillnets, traps and pelagic and bottom trawls; utilized fresh, frozen, dried salted for human consumption, and for fishmeal and oil.

**Literature:** Bigelow & Schroeder (1948); Springer & Waller (1969); Bass, d'Aubrey & Kistnasamy (1975c); D. Ebert & B. Saunders (pers.comm.).

**Remarks:** I follow Springer & Waller (1969) in including Hexanchus corinus in synonymy of H. griseus. The account of H. griseus australis by De Buen (1960) indicates that this subspecies differs from typical H. griseus in having only 5 rows of large, comblike anterolateral teeth on each side of the lower symphysis and a more elongated, more prominent ventral caudal lobe (H. griseus with 6 rows of comblike lower anterlateral teeth on each side and with a weak ventral caudal lobe). H. vitulus also differs from typical H. griseus in having a stronger ventral caudal lobe and only 5 rows of comblike lower anterolateral teeth, but other descriptive information and measurements in De Buen (1960) indicate that H. griseus australis has fin and body proportions and lower teeth otherwise similar to typical H. griseus rather than H. vitulus. The taxonomic position of H. griseus australis is dubious at present, because the holotype of this subspecies and other De Buen species from deep water off Chile were apparently lost (J.D. McEachran, pers.comm.). I have been unable to examine Hexanchus material from Chile and tentatively rank H. griseus australis in synonymy of H. griseus without recognizing it as a subspecies.

**Hexanchus vitulus** Springer & Waller, 1969


**Synonymy:** Hexanchus griseus nakamurai Teng, 1962 (see remarks below).

**FAO Names:** En - Bigeyed sixgill shark; Fr - Requin vache; Sp - Cañabota ojigrande.
Field Marks: A slender-bodied, narrow-headed sixgill shark, mouth ventral with 5 rows of lower bladelike, comb-shaped teeth on each side, one dorsal fin.

Diagnostic Features: Body rather slender; size moderate, up to 1.8 m long. Head narrow and pointed; eyes large; lower jaw with 5 rows of large, comblike teeth on each side, these with relatively long cusps. Caudal peduncle long and slender, distance from dorsal fin insertion to upper caudal origin at least twice length of dorsal fin base.

Geographical Distribution: Widely but spottily distributed in warm temperate and tropical seas; in the western North Atlantic: off the Bahamas, northern Cuba, Nicaragua, and Costa Rica; eastern Atlantic: off Gibraltar and possibly Ivory Coast and Nigeria; Indian Ocean: off southern Africa, Aldabra Island (India), Madagascar and Kenya; western Pacific, off Taiwan Island and the Philippines (Luzon).

Habitat and Biology: Continental and insular shelves and slopes from 90 to 600 m depth, usually on or near bottom, but occasionally at the surface in the tropics.

A little-known, primarily deepwater shark. Ovoviviparous, number of young 13 in one litter. Eats small to medium-sized fishes, and probably bottom invertebrates. Not dangerous to people as far as is known.

Size: Maximum total length about 180 cm, length at birth about 43 cm, females mature at 142 to 178 cm, males at 123 to 157 cm.

Interest to Fisheries: Apparently uncommonly taken on line gear and in trawls and of relatively slight importance to fisheries.

Literature: Bigelow & Schroeder (1948); Teng (1962); Chen (1963); Springer & Waller (1969); Forster et al. (1970); Bass, d’Aubrey & Kistnasamy (1975c).

Remarks: Specimen of this species were listed and illustrated as H. griseus by Nakamura (1936, pl. 1, fig. 1) from Taiwan Island. Teng (1962) described a new Taiwanese subspecies, H. griseus nakamura, based on two specimens from Keelung: Taiwan Fisheries Research Institute No. 2515, 750 mm juvenile male, designated as its holotype, and no. 3280, 970 mm female, designated as paratype. Teng also described and illustrated typical H. griseus from Taiwan as H. g. griseus. Springer & Waller (1969) described the new H. vitulus but failed to mention Nakamura’s and Teng’s earlier accounts.

Comparison of the original descriptions of H. griseus nakamura and of H. vitulus strongly suggests that the two are synonyms. I retain H. vitulus because the question exists as to whether Teng’s (1962) work was actually published and if his names are available. It has been cited as a publication by Chen (1963) and Springer (1979), but may be an unpublished Ph.D thesis (Or S.C. Shen, pers.comm. to Or P.C. Heemstra). Chen (1963:1) stated that “Hexanchus griseus nakamura n.subsp.” was a synonym of H. griseus, and under that species (p. 6) listed nakamura as a synonym. If Teng’s name is not available from his 1962 monograph, it is an open question whether its citation in Chen establishes it beyond: the status of nomen nudum.
**Notorynchus Ayres, 1855**


**Type Species:** Notorynchus maculatus Ayres, 1855, by original designation, equals *Squalus cepedianus* Peron, 1809.

**Synonymy:** Genus *Notorhynchus* Gill, 1864 (emended spelling).

**Diagnostic Features:** Head broad and rounded or bluntly pointed, with 7 pairs of gill slits on head; eyes small; mouth wide and arcuate; large lower comblike teeth high and short, with menial serrations, a low cusp, and 5. or 6 distal cusplets in adults. Caudal peduncle short, distance from dorsal fin insertion to upper caudal origin about equal to length of dorsal base. Colour: body usually with numerous small black spots, but dorsal fin and upper caudal lobe without black tips.

---

**Notorynchus cepedianus** (Peron,1807)


**Synonymy:** Notidanus indicus Agassiz, 1835; Notorynchus maculatus Ayres., 1855; Notorhynchus borealis Gill, 1864; Heptranchias pectorosus Garman, 1884; Notidanus-ferox Perez Canto, 1886; ?Heptranchias haswelli Ogilby, 1897; Notidanus medinse Philippi, 1901; Notidanus wolniczkyi Philippi, 1901; Heptranchias spilotus Lahille, 1913; Notorhynchus ocellatus Devincenci, 1920; Notorynchus macdonaldi Whitley, 1931.

**Other Scientific Names Recently in Use:** Notorynchus pectorosus (Garman, 1884).

**FAO Names:** En - Broadnose sevengill shark; Fr - Platnez; Sp - Cariabota gata.

---

Field Marks: A broad-headed, small-eyed, large seven-gilled shark with one dorsal fin and usually small, numerous black spots on body.

**Diagnostic Features:** See genus.
Geographical Distribution: Wide-ranging in mostly temperate seas. Western South Atlantic: From southern Brazil to northern Argentina. Eastern South Atlantic and Western Indian Ocean: From Namibia, southern Africa to India. Western Pacific: From southern Japan, the Koreas, China, also Australia (New South Wales, Victoria, Tasmania, South Australia), and New Zealand. Eastern Pacific: From British Columbia, Canada to southern California, USA, Gulf of California, Mexico, also from Peru to central Chile.

Habitat and Biology: Marine and benthic, neritic, on the continental shelves; depth to at least 46 m, but often shallow water less than 1 m deep and at the surface. A coastal shark, common in shallow bays and close to shore, often caught at the surfline, but with larger individuals ranging into deeper water offshore and deep channels in bays. Active and strong-swimming, often found cruising steadily and slowly near the bottom but sometimes at the surface; can dash at speed when attacking prey. Apparently coordinates its movements in bays with the tidal cycle, moving in with a tidal rise and out with its fall.

Ovoviviparous but with reproduction little known; litters large, up to 82 young. Gravid females apparently drop their young in shallow bays.

A powerful predator, rather indiscriminate in its feeding habits; may prefer other sharks (including spiny dogfish, houndsharks, and also hooked conspecifics which it readily attacks) and rays (eagle rays commonly taken), also bony fishes (Pacific salmon, sturgeon, herring, anchovies, and probably many others) and carrion (including porpoise, dolphin, rats, and even human flesh). Aggressive when provoked, and regarded as potentially dangerous to people in open waters: It has attacked divers in captivity, and may have been involved in a few shark attacks off California and South Africa; however, verified attacks by this species on people in open waters have not been recorded. It vigorously snaps and thrashes when captured by fishermen, and is often subdued by firearms or powerheads before being boated.

Size: Maximum total length about 290 cm and possibly between 3 and 4 m; an old record at 4.6 m was based on Hexanchus griseus. Size at birth between 45 and 53 cm; males maturing between 150 and 180 cm and reaching at least 226 cm; females maturing between 192 and 208 cm and reaching at least 288 cm.

Interest to Fisheries: The large size, local abundance and high-quality flesh of this shark makes it the subject of fisheries in several areas where it occurs. In California, USA and southern Australia it is fished by sport and commercial fishermen for human consumption, but it is also utilized in China for its skin, which produces leather of good quality, and its liver, which yields oil with high concentrations of Vitamin A. It is fished with rod and reel and longline gear, on the bottom. In California fishermen capture it from boats at moderate depths (down to at least 30 m), but on the Cape coast, South Africa, sports’ fishermen commonly hook it from shore.

Literature: Whitley (1940); Fowler (1941); Roedel & Ripley (1950); Kato, Springer & Wagner (1967); Hart (1973); Bass, d’Aubrey & Kistnasamy (1975c); D. Ebert, B. Welton & J. Burton (pers.comm.).

Remarks: 1 follow Bass, d’Aubrey & Kistnasamy (1975c) and Kemp (1978) in tentatively recognizing a single species of Notorynchus, N. cepedianus. The characters used by Fowler (1941) to separate N. pectorosus from N. cepedianus presence of a medial tooth on the upper symphysis and serrations on the premedial or symphyseal edge of the lower comblike anterolateral teeth of the former, and absence of a medial tooth on the upper symphysis and serrations weak or absent in the latter) apparently are the result of individual variation within a single species (Kemp, 1978; also from series of Notorynchus specimens from San Francisco Bay, California, USA, examined by the writer).

The identity of the species of Notorynchus from Indian waters needs to be confirmed. This is often accorded a separate species, N. indicus (Agassiz, 1835), but this is not separable from N. cepedianus using available data on the species. I tentatively include it in N. cepedianus pending new information clarifying its status. A visit to India by the writer in 1982 revealed no extant material of Notorynchus in collections, but uncovered the first record of Heptranchias perlo from India (Compagno & Talwar, 1982, in press). It is possible that records of Notorynchus from India are erroneous (P. K. Talwar, pers.comm.).