3.3 FAMILY OXYNOTIDAE Gill, 1872


Synonymy: Subfamily Centrinae Swainson, 1838 (family Squalidae).

FAO Names: En - Rough sharks; Fr - Centrines; Sp - Cerdos marinas, Tiburones ojinotos.

Field Marks: Unmistakable compressed, rough-skinned small sharks with high, sail-like spined dorsal fins and no anal fin.

Diagnostic Features: Trunk stout and compressed, high, with strong abdominal ridges. Head slightly depressed. Fifth (last) gill slits not abruptly expanded in width. Spiracles large and close behind eyes. Nostrils enlarged and close to each other, separated by a space much less than their width. Mouth transverse, with long labial furrows that virtually encircle the mouth; lips expanded and papillose. Teeth strongly differentiated in upper and lower jaws, with a strong cusp and no cusplets; upper teeth small and narrow, not bladelike, lower large, compressed and bladelike, and with erect, broad, triangular cusps. Two very large, high, sail-like, spined dorsal fins, both larger than the pelvic fins, with spines buried in the fin up to their tips; first dorsal with its base extending anteriorly to over the pectoral fin bases and gill openings. Caudal fin with a subterminal notch.

Habitat, Distribution and Biology: Oxynotids are temperate to tropical, poorly known, deepwater bottom sharks of distinctive and bizarre appearance, that live on the upper continental and insular slopes and outer shelves at depths of 40 to 720 m. They currently have a disjunct distribution, off Venezuela in the western Atlantic, British Isles to South Africa in the eastern Atlantic, and Australia and New Zealand in the western Pacific. All the four species are small and harmless sharks, mostly smaller than 1 m but exceptionally to 1.5 m in one species.

These sharks, judging from their appearance are probably sluggish and rely on their expanded body cavities and large oily livers (16 to 23% of total weight in one species) to attain neutral buoyancy, so they can hover and slowly swim above the substrate without needing forward motion for lift. The prey of these sharks is little known, and includes polychaetes. Their mouths are very small and ringed with papillose lips, and their teeth are small though strong, suggesting a diet of small bottom invertebrates and fishes. The very large nostrils and nasal organs and labial papillae may be especially important in locating prey. Development is ovoviviparous, without a placenta; litters 7 or 8.

Interest to Fisheries: Very limited, as these sharks are relatively uncommon catches in bottom and pelagic trawl fisheries. They are mostly processed for fishmeal and oil, but also prepared smoked and dried salted for human consumption.

Remarks: This family, with its single genus Oxynotus, is very close to the Family Squalidae, Subfamily Somniosidae (genera Centroscymnus, Scymnodon, Scymnodalatias, and Somniosus) of Compagno (1973c), and is often synonymized with the Squalidae. Pending further works on squaloid interrelationships I prefer to retain it as a family following Bigelow & Schroeder (1957) and Bass, d'Aubrey & Kistnasamy (1976).


Type Species: Oxynotus centrina Rafinesque, 1810, by monotypy, a junior synonym of Squalus centrina Linnaeus, 1758.

Synonymy: Subgenus Centrina Cuvier, 1817 (Genus Squalus Linnaeus, 1758); Genus Centrinus Swainson, 1838 (? emendation).

Key to Species

1a. First dorsal fin spine inclined backward. Colour blackish or dark brown ........................................... O. paradoxus

1b. First dorsal fin spine inclined forward. Colour either light grey-brown or variegated, with dark and light bands

2a. Spiracle large and vertically elongated. Supraorbital ridges greatly expanded posteriorly, forming a rounded knob just in front of spiracle on each side covered with enlarged denticles ................................................................. O. centrina

2b. Spiracle smaller and circular. Supraorbital ridges not greatly expanded and not forming a rounded knob in front of spiracle.
3a. Apices of dorsal fins broadly triangular, posterior margins straight or weakly concave. Colour uniform grey-brown, without prominent markings. ........................................................................... O. bruniensis

3b. Apices of dorsal fins narrowly triangular, posterior margins strongly concave. Colour pattern of dark bands on a light background ........................................................................... O. caribbaeus

**Oxynotus bruniensis** (Ogilby, 1893)  


**Synonymy:** None.

**FAO Names:** En - Prickly dogfish; Fr - Centrine aiguille; Sp - Cerdo marino agujeta.

**Field Marks:** Short, blunt snout, high, sail-like dorsal fins with spines and broad apices, no anal fin, first dorsal spine inclined backward, high, thick, triangular body with large, rough denticles, circular spiracles, lanceolate upper teeth, lower bladelike teeth in less than 12 rows, uniform grey-brown coloration.

**Diagnostic Features:** Spiracle small and circular. Supraorbital ridges not greatly expanded and not forming a knob in front of spiracles. Apices of dorsal fins broadly triangular, posterior margin straight or weakly concave; first dorsal spine inclined backward. Colour uniform grey-brown, without prominent markings.

**Geographical Distribution:** Confined to temperate waters of the western South Pacific, off southern Australia (South Australia, Victoria, Tasmania, and New South Wales) and New Zealand.

**Habitat and Biology:** A little-known but fairly common deep-water bottom shark of the outer continental and insular shelves and uppermost slopes, at depths from 46 to 500 m. Ovoviviparous, a litter of 7 embryos reported for one female.

**Size:** Maximum total length about 72 cm, adults males 60 cm, adults females 72 cm. Size at birth greater than 10 cm.

**Interest to Fisheries:** None at present, taken incidentally in bottom trawlers but probably not used.

**Literature:** Norman (1932); Whitley (1940); Bigelow & Schroeder (1957); Garrick (1960a); Stead (1963); Cadenat & Blache (1981); Ayling & Cox (1982).

Synonymy: None.

FAO Names: En - Caribbean roughshark; Fr - Centrine antillaise; Sp - Tiburón ojinoto.

Field Marks: Short, blunt snout, high, sail-like dorsal fins with spines, no anal fin, first dorsal spine inclined forward, high, thick, triangular body with large, coarse denticles, small, circular spiracles, lanceolate upper teeth, lower bladelike teeth in less than 12 rows, colour pattern of dark bands on a light background.

Diagnostic Features: Spiracle small and circular. Supraorbital ridges not greatly expanded and not forming a knob in front of spiracles. Apices of dorsal fins narrowly triangular, posterior margins strongly concave; first dorsal spine inclined forward. Colour grey or brownish, with dark blotches and small spots on head, body, tail, and fins, separated by prominent light areas over pectoral and pelvic fins.

Geographical Distribution: Western North Atlantic: Venezuela.

Habitat and Biology: A little-known bottom shark of the upper continental slope off Venezuela and possibly elsewhere in the Caribbean, at depths of 402 to 457 m (bottom temperatures 9.4 to 11.1 °C).

Size: Maximum total length 49 cm (adult male), immatures (male and female) 20 to 21 cm.

Interest to Fisheries: None at present.

Literature: Cervigon (1961); Carpenter (1966); Compagno & Vergara (1978); Cadenat & Blache (1981).

**Synonymy**: *Centrina salviani* Risso, 1826; *Centrina oxynotus* Swainson, 1839; *Centrina vulpecula* Moreau, 1881

**FAO Names**: En - Angular roughshark; Fr - Centrine commune; Sp - Cerdo marino.

**Field Marks**: Short, blunt snout, high, sail-like dorsal fins with spines, no anal fin, first dorsal spine inclined forward, high, thick, triangular body with large, rough denticles, massive knobs on supraorbital ridges, vertically elongated spiracles, lanceolate upper teeth, lower bladelike teeth in less than 12 rows, colour pattern of darker marks on a light background.

**Diagnostic Features**: Spiracle large and vertically elongated, crescent or oval in shape. Supraorbital ridges enlarged over eyes, with a knoblike posterior expansion studded with large denticles and ending in front of spiracles. Apices of dorsal fins broadly triangular, posterior margins shallowly concave; first dorsal spine inclined forward. Colour grey or grey-brown above and below, with darker blotches on head and sides; a light horizontal line separates dark areas on head and another crosses cheeks below eyes.

**Geographical Distribution**: Eastern Atlantic: Bay of Biscay and Mediterranean Sea to Senegal, north apparently as a stray to Cornwall, England; also possibly from Liberia to Nigeria, Gabon to Namibia, and South Africa.

**Habitat and Biology**: An uncommon, little-known bottom shark of the continental shelf and upper slope at depths of 60 to 660 m. Ovoviviparous, litters probably of 7 or 8 young. Eats polychaetes.

**Size**: Maximum total length about 150 cm, but most individuals smaller; maturing at about 50 cm.
Interest to Fisheries: Caught in bottom and pelagic trawls and utilized for fishmeal, oil, and smoked and dried salted for human consumption. Apparently not abundant and mainly a minor bycatch of large offshore trawler fleets.

Literature: Lozano y Rey (1928); Norman (1932); Poll (1951); Bigelow & Schroeder (1957); Cadenat (1957); Maurin & Bonnet (1970); Bass, d’Aubrey & Kistnasamy (1976); Cadenat & Blache (1981); Compagno (1981).

Remarks: Bass, d’Aubrey & Kistnasamy (1976) noted that the Oxynotus recorded as O. centrina from Angola, Namibia, and South Africa may not be that species but an undescribed one, differing from O. centrina in having a much shorter interdorsal space. If this is correct, the records of O. centrina from tropical West Africa need to be reexamined, but until the problem is resolved the southern and southwestern African Oxynotus is retained in O. centrina.

Oxynotus paradoxus Frade, 1929


Synonymy: None

FAO Names: En - Sailfin roughshark; Fr - Humantin; Sp - Cerdo marino velero.

Field Marks: Short, blunt snout, high, sail-like dorsal fins with spines, no anal fin, first dorsal spine inclined backward, high, thick, triangular body with large, rough denticles, lanceolate upper teeth, lower bladelike teeth in less than 12 rows, blackish coloration.

Diagnostic Features: Spiracle small and circular. Supraorbital ridges not greatly expanded and not forming a knob in front of spiracles. Apices of dorsal fins narrowly triangular, posterior margins strongly concave; first dorsal spine inclined backward. Colour blackish or dark brown, without prominent markings.

Habitat and Biology: An uncommon deepwater bottom shark found on the Atlantic continental slope at depths from 265 to 720 m. Moderately abundant off British Isles. Ooviviparous.

Size: Maximum total length about 118 cm; size at birth about 25 cm.

Interest to Fisheries: Caught in bottom trawls and used for fishmeal. Uncommon as a bycatch of offshore trawling fleets.

Literature: Norman (1932); Maurin & Bonnet (1970); Wheeler (1978); Cadenat & Blache (1981).