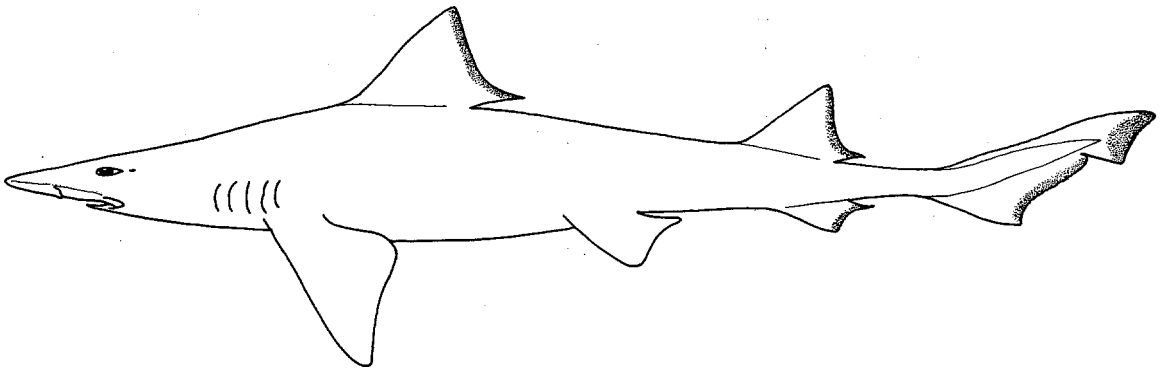
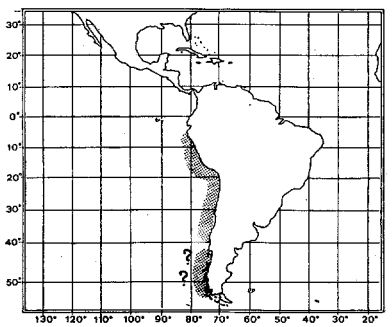


Field Marks: An unspotted, grey, rather stocky Mustelus with strongly cuspidate teeth, lanceolate denticles, short caudal peduncle, and broadly frayed posterior dorsal fin margins.

Diagnostic Features : Body fairly stocky, almost humpbacked. Head fairly long, prepectoral length 20 to 24% of total length; snout moderately long and bluntly angular in lateral view, preoral snout 5.6 to 7.6% of total length, preorbital snout 6.7 to 8.5% of total length; internarial space very broad, 2.9 to 3.7% of total length; eyes fairly large, eye length .2 to 3.1 times in preorbital snout and 2.1 to 3.2% of total length; interorbital space moderately broad, 4.5 to 5.6% of total length; mouth moderately long, slightly longer than eye length and 2.6 to 3.7% of total length; upper labial furrows considerably longer than lowers and 2.6 to 3.7% of total length; teeth cuspidate and asymmetric, with a prominent primary cusp and low cusplets occasionally present; buccopharyngeal denticles confined to anterior fourth of palate and tongue tip. Interdorsal space 16 to 21% of total length; trailing edges of dorsal fins naked, with a conspicuous dark margin of bare ceratotrichia; first dorsal broadly triangular, with posteroventrally sloping posterior margin, midbase closer to pelvic bases than pectorals; pectoral fins fairly large, length of anterior margins 14 to 17% of total length, width of posterior margins 11 to 14% of total length; pelvic fins moderately large, length of anterior margins 7.1 to 9.4% of total length; anal fin height 2.3 to 3.8% of total length; anal-caudal space less than or subequal to second dorsal height, and 4.7 to 7.4% of total length; ventral caudal lobe hardly falcate in adults. Crowns of lateral trunk denticles lanceolate, with longitudinal ridges extending their entire length. Skeleton not hypercalcified in adults; palatine processes of palatoquadrates usually subdivided at symphysis, with a short separate medial segment on each side; monospondylous precaudal centra 36 to 41, diplospondylous precaudal centra 47 to 55, precaudal centra 86 to 93. Colour uniform grey or grey-brown above, lighter below, no white or dark spots or dark bars. Development viviparous. Size moderate, adults 68 to 87 cm.



Geographical Distribution : Eastern South Pacific: Peru to southern Chile.

Habitat and Biology : A common offshore bottom-dwelling shark of the Pacific South American continental shelf, at depths of 16 to 211 m, but most common at 70 to 100 m. Prefers rocky bottom around islands. Viviparous, with 5 to 10 young per litter. Eats crabs, manis shrimp, and small bony fishes.

Size : Maximum at least 87 cm (adult female), smallest adult male 68 cm, smallest adult female 74 cm; size at birth about 25 cm.

Interest to Fisheries : A common species off Peru, and probably figuring in the landings of species of "tollo" there.

Literature : Kato, Springer & Wagner (1967); Chirichigno (1973); Heemstra (1973).

Scylliogaleus Boulenger, 1902

TRIAK Scyl

Genus: Scylliogaleus Boulenger, 1902, Ann.Mag.Nat.Hist., ser. 7, 10(55):51.

Type Species : Scylliogaleus quecketti Boulenger, 1902, by monotypy.

Synonymy : None.

Diagnostic Features : Snout short and broadly rounded in dorsoventral view, preoral length 0.7 to 0.9 times mouth width; eyes horizontally elongated and dorsolateral, subocular ridges strong; anterior nasal flaps triangular, greatly expanded posteriorly and medially, nearly meeting each other medially and overlapping mouth posteriorly; broad, shallow nasoral grooves present between excurrent apertures of nostrils and mouth; internarial width about half of nostril width; mouth broadly arched and short; labial furrows long, uppers

reaching level of upper- symphysis; teeth deep, blunt-crowned, molariform, and without cusps and cusplets; medial teeth not differentiated from anteroposteriors. First dorsal fin moderately large, base about 3/5 of dorsal caudal margin; its origin over pectoral inner margins or free rear tips, its midbase about equidistant between pectoral and pelvic bases or slightly closer to pelvic bases; second dorsal about as large as first, height over 3/4 as high as first; anal fin considerably smaller than second dorsal; ventral caudal lobe hardly developed in young but very short in adults; terminal lobe of caudal fin moderately long and about 2.8 to 3.2 times in dorsal caudal margin.

Remarks: This genus is occasionally placed in its own family, with or without Mustelus, because of its molariform teeth, but it otherwise is close to other triakids while differing from all of them in having expanded anterior nasal flaps and nasoral grooves. For further discussion of its systematic position see Compagno (1979).

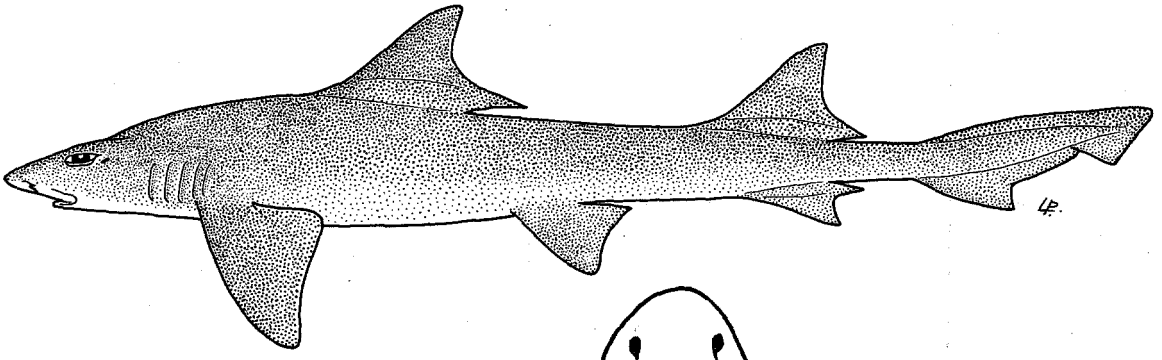
Scylliogaleus quecketti Boulenger, 1902

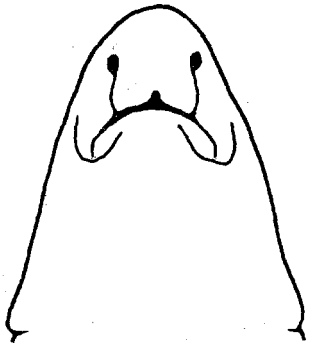
TRIAK Scyl 1

Scylliogaleus quecketti Boulenger, 1902, Ann.Mag.Nat.Hist., ser. 7, 10(55):51, pl. 4. Holotype: British Museum (Natural History), BMNH 1903.2.6.21, 340 mm immature male. Type Locality: Off rocks at Umkomaas, Natal, South Africa.

Synonymy : None.

FAO Names: En - Flapnose houndshark; Fr - Virli à clapet; Sp - Cazón mosqueador.





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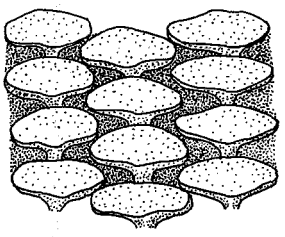
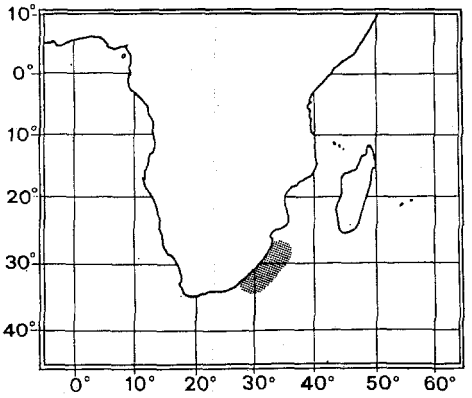


teeth

Field Marks: A houndshark with a blunt short snout, enlarged anterior nasal flaps that are expanded medially and posteriorly to cover mouth, nasoral grooves, molariform teeth, and the second dorsal fin about as large as first and much larger than the anal fin.

Diagnostic Features: See genus.

Geographical Distribution : Western Indian Ocean: South Africa (Natal and northeastern Cape Province).



Habitat and Biology : An inshore warm-temperate or sub-tropical shark of continental waters, found at the surfline and close offshore. Viviparous, with presence or absence of placenta uncertain; size of litters 2 to 4 (usually 2 or 3). Gestation period 9 to 10 months. Feeds primarily on crustaceans (including lobsters), also squid.

Size: Maximum 102 cm, adult males 70 to 89 cm, adult females 80 to 102 cm; size at birth about 34 cm.

Interest to Fisheries : None or minimal, caught by surf anglers.

Literature : Bass, D'Aubrey & Kistnasamy (1975b); Compagno (1979).

Triakis Müller & Henle, 1838

TRIAK Triak

Genus : Triakis Müller & Henle, 1838, Mag.Nat.Hist., 2, n. ser.:36 (no species named).

Type Species : Triakis scyllium Müller & Henle, 1839, by subsequent monotypy.

Synonymy : Genus Triacis Gill, 1862 (emended spelling); Subgenus Cazon de Buen, 1959 (Genus Mustelus Linck, 1790).

Field Marks: Usually stout-bodied houndsharks with short snouts, dorsolateral eyes and strong subocular ridges, broadly arched mouths, teeth formed into a semipavement or not, with cusps and cusplets variably developed but present on at least more medial teeth, medial teeth not differentiated from anterolaterals, second dorsal fin nearly as large as first, and ventral caudal lobe short but strong in adults.

Diagnostic Features: Snout short and broadly rounded in dorsoventral view, preoral length less than 1.1 times mouth width; eyes horizontally elongated and dorsolateral, subocular ridges strong; anterior nasal flaps elongated and lobate, well separated from each other and mouth; no nasoral grooves; internarial width about 1.5 to 2 times the nostril width; mouth broadly arched and moderately short; labial furrows long, uppers nearly or quite reaching level of upper symphysis; teeth semibladelike, somewhat compressed, and similar in both jaws, usually with erect or oblique cusps (sometimes absent from posterior teeth) and variably developed cusplets; medial teeth not differentiated from anteroposteriors. First dorsal fin moderately large, base less than 3/4 of dorsal caudal margin; its origin over pectoral inner margins, its midbase about equidistant between pectoral and pelvic bases or slightly closer to pelvic bases; second dorsal nearly as large as first, height about 3/4 as high as first; anal fin considerably smaller than second dorsal; ventral caudal lobe hardly developed in young but short and strong in adults; terminal lobe of caudal fin moderately long and about 2.5 to 3 times in dorsal caudal margin.

Remarks : The present arrangement of Triakis follows the revisions of Compagno (1970, 1973a, b, c, 1979). The species form two well-defined subgenera, Triakis Müller & Henle, 1838 for T. scyllium and T. semifasciata, and Cazon de Buen, 1959 for T. acutipinna, T. maculata and T. megalopterus.

Key to Species

1a. Body with a bold colour pattern of black saddles and a few large black spots on a grey background ..... **T. semifasciata**

1b. Body either without markings or with small black spots, or black spots and indistinct dusky saddles

2a. Teeth strongly compressed and bladelike in sides of jaws, with oblique cusps and generally well-developed cusplets ..... **T. scyllium**

2b. Teeth symmetrical or nearly so in sides of jaws, with erect cusps and cusplets low or absent

3a. Pectoral fins narrowly falcate in adults. Black spots absent. Total vertebral counts 175 or 176 ..... **T. acutipinna**

3b. Pectoral fins broadly triangular or broadly falcate in adults. Black spots often present on body. Total vertebral counts 162 to 170

4a. Posterior margins of dorsal fins inclined posteroventrally from their apices ..... **T. maculata**

4b. Posterior margins of dorsal fins vertical or nearly so ..... **T. megalopterus**

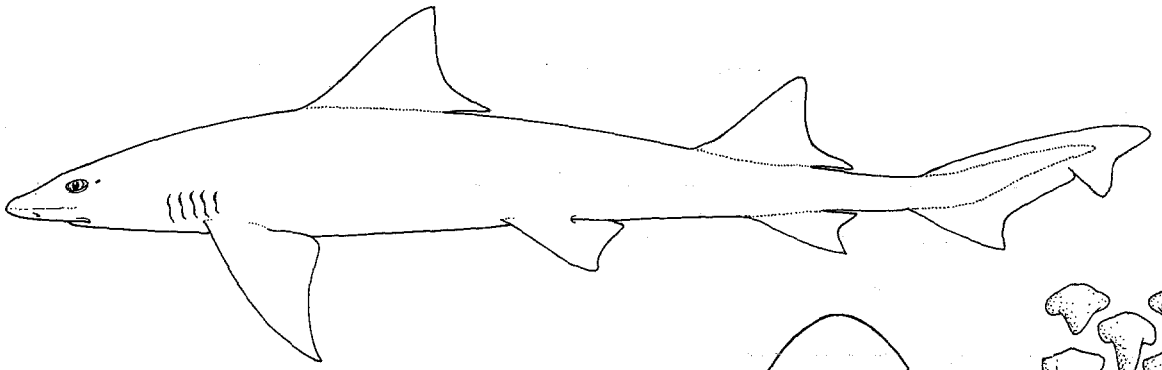
Triakis acutipinna Kato, 1968

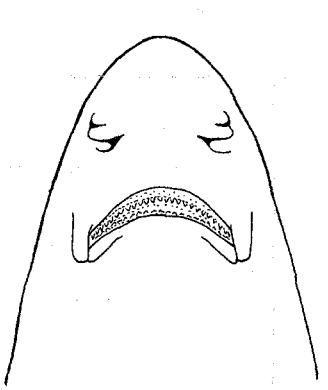
TRIAK Triak 1

Triakis acutipinna Kato, 1968, Copeia, 1968 (2):320, figs. 1-2. Holotype: U.S. National Museum of Natural History, USNM-201409, 1018 mm adult female. Type Locality: Isla de la Plata, Ecuador.

Synonymy : None.

FAO Names : En - Sharpfin houndshark; Fr - Virli équatorien; Sp - Tollo del Ecuador.





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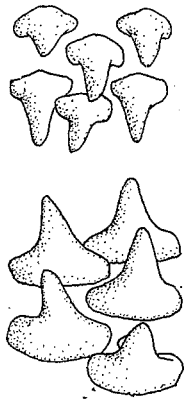
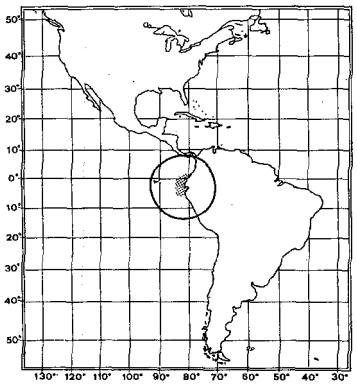


upper and lower teeth

Field Marks: A houndshark with a short broadly rounded snout, lobate anterior nasal flaps that do not reach the mouth and are far separated from each other, long upper labial furrows that reach the lower symphysis of the mouth, teeth not bladelike, with straight erect cusps and cusplets little-developed or absent, narrow fins with the pectorals narrowly falcate and the first dorsal fin with a vertical posterior margin, and no spots.

Diagnostic Features: Teeth with strong erect cusps on most teeth of the dental band except for some more distal teeth, cusplets low or absent on almost all teeth, semi-molariform but not bladelike. First dorsal fin with abruptly vertical posterior margin; pectoral fins narrowly falcate in adults. Total vertebral counts 175 or 176. Body without small black spots.

Geographical Distribution : Eastern South Pacific: Ecuador.



Habitat and Biology : A rare shark of tropical continental waters off Ecuador, known from two specimens. Biology virtually unknown.

Size : Maximum 102 cm (adult female), adult male 90 cm.

Interest to Fisheries : None at present.

Literature : Kato (1968); Compagno (1970, 1979).

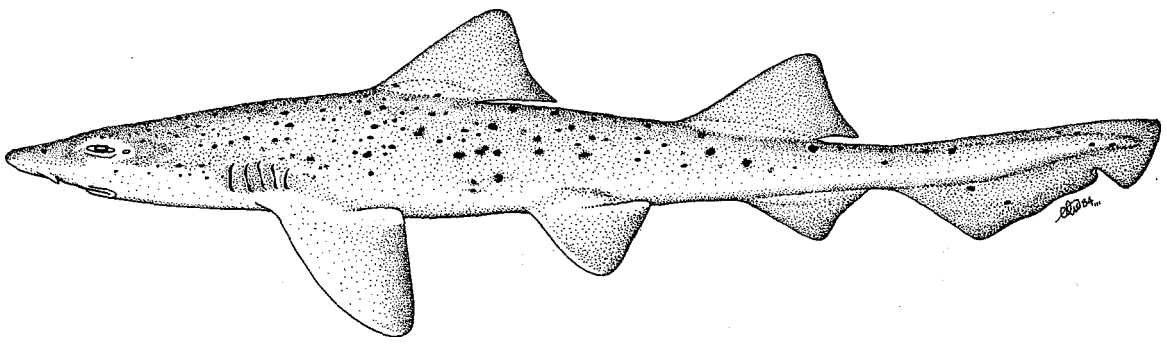
Triakis maculata Kner & Steindachner, 1866

TRIAK Triak 2

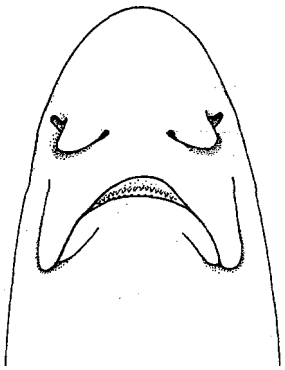
Triakis maculatus Kner & Steindachner, 1866, Sitzber.Akad.Wiss.Wien, 54:391. Holotype: In Naturhistorisches Museum, Vienna? Type Locality: "Sudsee".

Synonymy : Mustelus nigromaculatus Evermann & Radcliffe, 1917.

FAO Names: En - Spotted houndshark; Fr - Virli tacheté; Sp - Tollo manchado.



Field Marks: A very stout houndshark with a short, broadly rounded snout, lobate anterior nasal flaps that do not reach the mouth and are far separated from each other, long upper labial furrows that reach the lower symphysis of the mouth, teeth not bladelike, with straight erect cusps and cusplets little-developed or absent, broad fins with the pectorals broadly falcate and the first dorsal fin with a posteriorly sloping posterior margin, and usually with numerous black spots.



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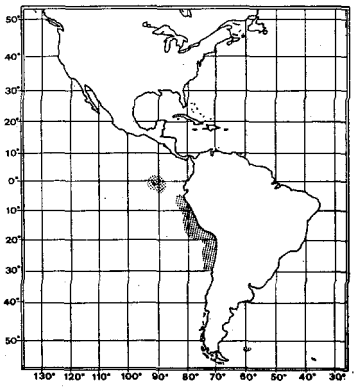
Diagnostic Features : Strong erect cusps on teeth of the middle two-thirds of the dental band, the more distal teeth having no cusp or weak ones, cusplets low or absent on almost all teeth, teeth semimolariform but not bladelike. First dorsal fin with posteroventrally sloping posterior margin; pectoral fins broadly falcate in adults. Total vertebral counts 164 to 170. Body usually with numerous small black spots, sometimes plain-coloured (plain females may have spotted young).

Geographical Distribution : Eastern Pacific: Peru to northern Chile, Galapagos Islands. Mexican records of this species are apparently erroneous.



Habitat and Biology : A little-known, inshore temperate-water shark of waters of the South American continental shelf. Probably ovoviviparous; one female had 14 young to a litter.

Size : Maximum size possibly 240 cm, otherwise 180 cm; full-term fetuses 30 to 40 cm, freeliving young 43 cm.

Interest to Fisheries : Taken in fisheries off Peru and probably also Chile, and used for human consumption.

Literature : Beebe & Tee-Van (1940); Hildebrand (1946); Kato, Springer & Wagner (1967); Compagno (1970, 1979); Heemstra (1973); Chirichigno (1978 and pers. comm.).

Remarks : The Galapagos record is from photographs of a specimen of this species that was caught, tagged and released off Isla Fernandina in 1980 (J.D. McCosker, pers.comm.).

Triakis megalopterus (Smith, 1849)

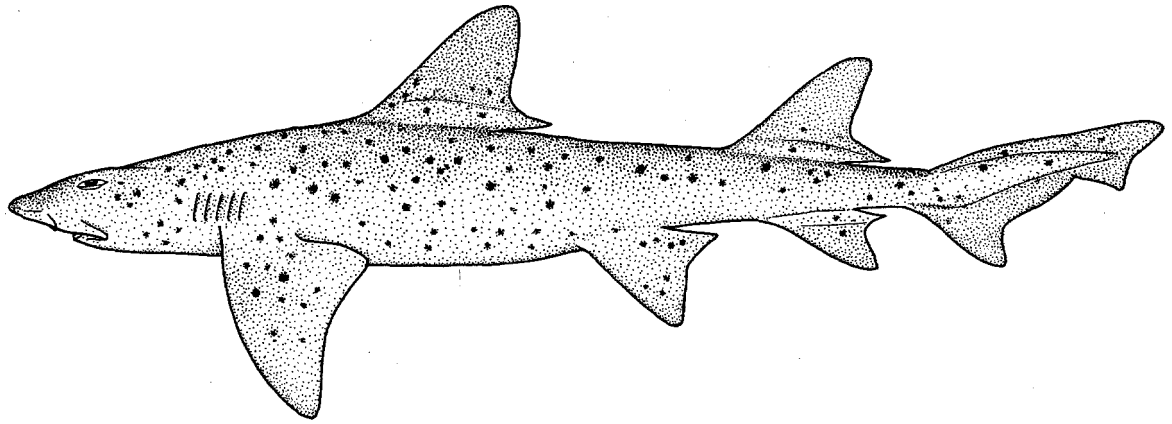
TRIAK Triak 3

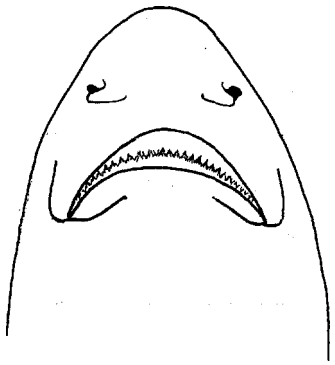
Mustelus megalopterus Smith, 1849, Pisces, Ill.zool.S.Africa , 4:4, pl. 2. Holotype: ? Type Locality: Cape of Good Hope, South Africa.

Synonymy : Mustelus natalensis Steindachner, 1866; Mustelus nigropunctatus Smith, 1952.

Other Scientific Names Recently in Use : Triakis natalensis (Steindachner, 1866).

FAO Names : En - Sharptooth houndshark, Fr - Virli dentu; Sp - Tollo dentudo.





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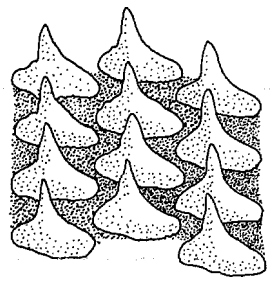
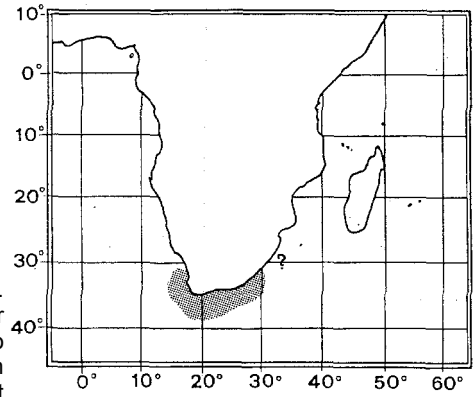


teeth

Field Marks: A very stout houndshark with a short, broadly rounded snout, lobate anterior nasal flaps that do not reach the mouth and are far separated from each other, long upper labial furrows that reach the lower symphysis of the mouth, semimolariform teeth with straight erect cusps and cusplets little-developed or absent, broad large fins with the pectorals broadly falcate and the first dorsal fin with a vertical posterior margin, and often black spots.

Diagnostic Features: Teeth with strong erect cusps on at least. the middle two-thirds of the dental band but often not well developed on more distal teeth, cusplets low or absent on almost all teeth, semi-molariform but not bladelike. First dorsal fin with abruptly vertical posterior margin; pectoral fins broadly falcate in adults. Total vertebral counts 162 to 166. Body with a few to numerous small black spots, few or absent in young, often numerous in adults although plain adults have been recorded.



Geographical Distribution : Eastern South Atlantic and western Indian Ocean: South Africa (Cape coast, rarely northeast to Natal).

Habitat and Biology : A common but little-known inshore bottom-dwelling shark of temperate continental waters, found often in shallow water up to the surfline. It prefers sandy shores and rocks and crevices in shallow bays. During summertime this shark congregates in schools, particularly in False Bay, western Cape, South Africa, which may have many pregnant females.

The sharptooth houndshark is hardy and keeps well in captivity. Observations by the writer of healthy individuals in a large circular tank at the Port Elizabeth Oceanarium, South Africa, shows them to be very active, mostly bottom swimmers, that are usually seen patrolling in irregular patterns close to the bottom in open, flat areas, often with a centimetre or less between the shark's underside and the substrate; they sometimes swim in midwater, but often close to the sides of the tank rather than in the open areas favoured by tope sharks, Galeorhinus galeus, in the same tank.

Ovoviviparous, without a yolk-sac placenta; number of young 6 to 12 per litter.

Eats crabs, bony fishes and small sharks (one had eaten a Scyliorhinus capensis).

Size : Maximum to at least 174 cm; males adolescent at 94 to 130 cm and adult at 140 to 142 cm or more; females maturing between 140 and 150 cm, with adults reported at 140 to 174 cm; size at birth about 30 to 32 cm.

Interest to Fisheries : Very commonly caught by rock and surf sports anglers, but not eaten much although perfectly edible. There is a fairly large commercial shark fishery in Gans Bay in South Africa that probably takes this species along with others; the meat of such sharks is dried into shark 'biltong' or jerky, which sells for a relatively high price.

Literature : Smith (1952); Compagno (1970, 1973c, 1979); Heemstra (1973); Bass, D'Aubrey & Kistnasamy (1975b); van der Elst (1981); L.J.V. Compagno and M. Smale (unpub. data).

Remarks : Placement and synonymy of this species follows Compagno (1973c, 1979), Heemstra (1973), and Bass, D'Aubrey & Kistnasamy (1975b). Bass, D'Aubrey & Kistnasamy (1975b) recognized Triakis natalensis as a separate species based on its better developed cusplets an its teeth and plain coloration, but examination of material of T. megalopterus in the J.L.B. Smith Institute of Ichthyology confirmed the writer's earlier opinion (Compagno, 1979), that the two are synonyms. The characters of natalensis are apparently best considered as juvenile ones within a species, and that as these sharks grow they tend to loose cusplets and even cusps on some replacement teeth and gradually become spotted with black (some adults may retain a plain coloration).

Triakis scyllium Müller & Henle, 1839

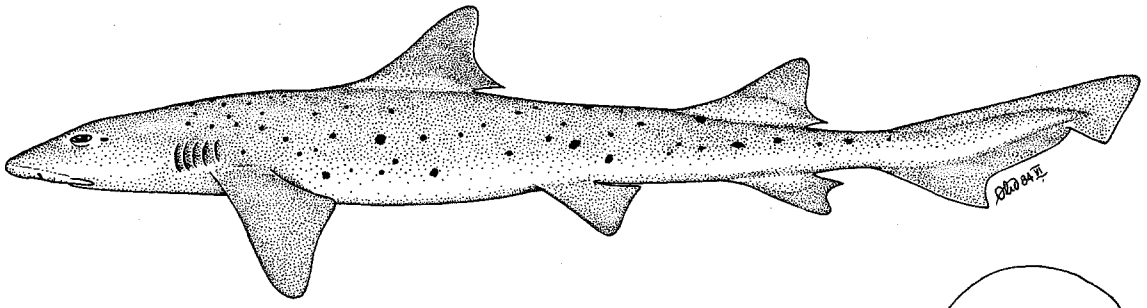
TRIAK Triak 4

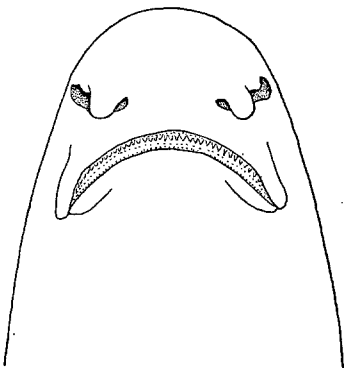
Triakis scyllium Müller & Henle, 1839, Syst.Beschr.Plagiost., pt. 2:63, pl. 26. Holotype: Rijksmuseum van NatuuHijke Historie, Leiden, dried specimen ? Type Locality: Japan.

Synonymy : Hemigaleus pingi Evermann & Shaw, 1927.

Other Scientific Names Recently in Use : .Triakis scyllia Müller & Henle, 1839 (unnecessary emendation by Bigelow & Schroeder, 1948).

FAO Names: En - Banded houndshark; Fr - Virli coro; Sp.- Tollo rayado.





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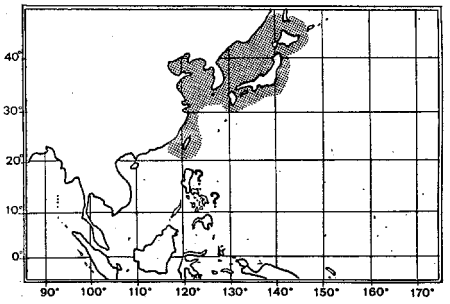
Field Marks: A moderately slender houndshark with a short broadly rounded snout, lobate anterior nasal flaps that do not reach the mouth and are far separated from each other, long upper labial furrows that reach the lower symphysis of the mouth, teeth partially bladelike, with strong, erect to oblique cusps on all teeth and well-developed cusplets, relatively narrow fins, and scattered black spots.

Diagnostic Features : Teeth with strong cusps and cusplets on almost all teeth, not semimolariform, lateroposterior teeth bladelike, with strongly oblique cusps. Pectoral fins broadly triangular in adults. First dorsal fin with nearly vertical or posteroventrally sloping posterior_ margin. Total vertebral counts 149 to 155. Body with sparsely scattered small black spots and broad dusky saddles in young, spots fading and sometimes absent in adults.

Geographical Distribution : Western North Pacific: Southern Siberia, Japan, the Koreas, China (including Taiwan Island), ? The Philippines.



Habitat and Biology : A common to abundant, temperate bottom-dwelling shark of the continental and insular shelves of the Western Pacific, often occurring in shallow water close inshore, on or near the bottom. Favours estuaries and shallow bays, especially sandy and algal-covered areas and eelgrass flats; apparently tolerant of reduced salinities. Seldom gregarious, though some may cluster in resting areas on bottom.

Ovoviviparous, without a yolk-sac placenta; number of young 10 to 20 per litter.

Feeds on small fishes and probably crustaceans and other bottom invertebrates.

Size : Maximum size at least 150 cm, males maturing between 99 and 108 cm.

Interest to Fisheries : Apparently commonly fished off Japan and probably the Koreas and northern China. Details are not known by the writer but its meat is apparently regarded as of inferior quality to other houndsharks in Japan.

Literature : Fowler (1941); Okada (1955); Lindberg & Legeza (1959); Compagno (1970, 1979); Masuda, Araga & Yoshino (1975).

Remarks: Synonymy of Hemigaleus pingi with this species follows Compagno (1979). Philippines records for this shark are doubtful. Four late fetal specimens in the Stanford University Fish Collection from the Philippines identified as T. scyllium by A.W. Herre, their collector, turned out to be an undescribed species of Hemitriakis (see Compagno, 1970, 1979).

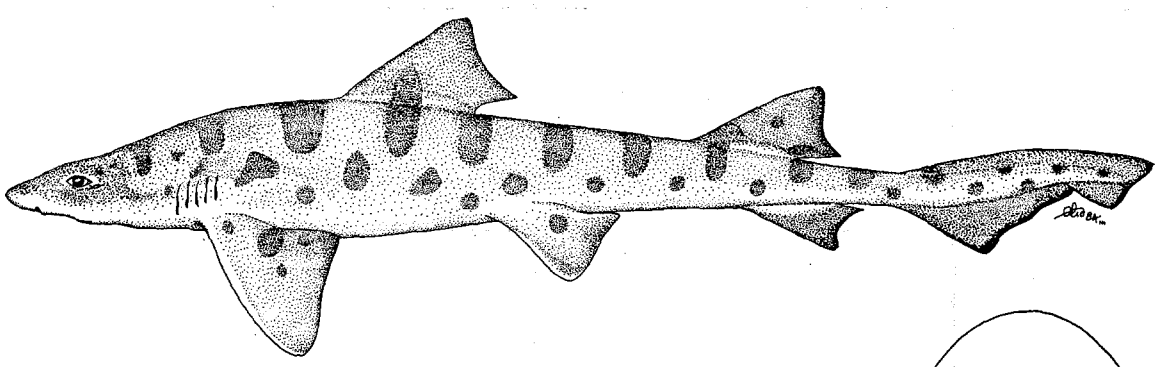
Triakis semifasciata Girard, 1854

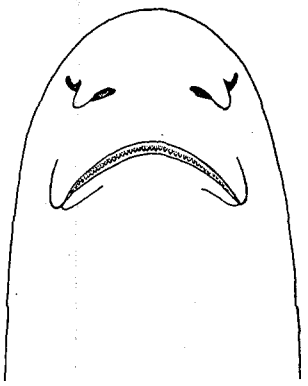
TRIAK Triak 5

Triakis semifasciatum Girard, 1854, Proc.Acad.Nat.Sci.Philad., 7(6):196. Holotype: ? Type Locality: San Francisco, California, USA, near Presidio, San Francisco Bay.

Synonymy : Triakis californicus Gray, 1851 (nomen nudum); Mustelus felis Ayres, 1854 (see remarks below).

FAO Names: En - Leopard shark; Fr - Virli leopard; Sp - Tollo leopardo.



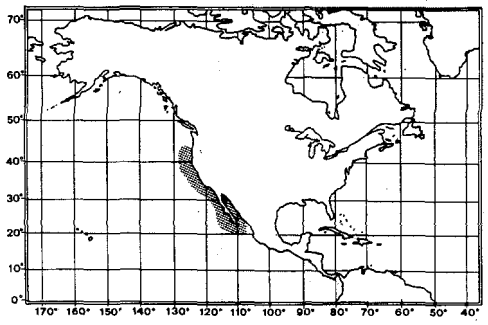


underside of. head

Field Marks: The bold, saddled black colour pattern of this shark is unique.

Diagnostic Features: Strong cusps and cusplets on almost all teeth, teeth not semimolariform, lateroposterior ones bladelike, with strongly oblique cusps. First dorsal fin with posteroventrally sloping posterior margin; pectoral fins broadly triangular in adults. Total vertebral counts 129 to 150. Colour grey or bronzy-grey above, white below, with bold, large, broad black saddle-marks, becoming light-centred in adults, and scattered large black spots.

Geographical Distribution : Eastern North Pacific: from Oregon to Gulf of California, USA, and Mexico.



Habitat and Biology : An abundant, cool to warm-temperate shark of inshore and offshore continental littoral waters, most common on or near the bottom in shallow water from the intertidal to 4 m depth, less common down to 91 m. The leopard shark is commonly found in shallow, enclosed, muddy bays, often entering them as the tide rises and departing when it retreats. It favours flat sandy areas, mud flats, and bottoms strewn with rocks near rocky reefs and kelp beds. This is an active, strong-swimming shark, usually seen in undulating motion, that forms larqe schools sometimes mixed with grey or brown smooth-hound sharks (Mustelus californicus and M. henlei) and piked dogfish (Squalus acanthias). Movements are not well understood, and schools are apparently nomadic; they have been seen to appear in an area for a few hours and then disappear. In a tag-recapture ageing study initiated in 1979 with over 1100 leopard sharks tagged in San Francisco Bay off south San Francisco, Susan E. Smith of the U.S. National Marine Fisheries Service Tiburon Laboratory found that most of the sharks recaptured to date were recovered close to their tagging place, suggesting limited local movements; but that some managed to travel outside the Bay south about 150 km (S. Smith, pers. comm.). Leopard sharks are sometimes seen resting on the bottom by divers, on sand among rocks; and readily do so in aquaria.

This shark readily adapts to captivity, and can live over twenty years if captured when young. In captivity, it shows a strong preference for the bottom, although individuals will swim at midwater or at the surface. It is extremely hardy, and is one of the best sharks to keep in aquaria.

Ovoviviparous, without a yolk-sac placenta; number of young 4 to 29 per litter. S. Smith (pers. comm.), using sectioning technique to demonstrate the growth rings in the vertebrae of leopard sharks and tetracycline to calibrate the rings in sharks recaptured after being tagged, has found that these sharks are slow-growing, and as in the piked dogfish (Squalus acanthias) may take over a decade to mature.

The leopard shark is primarily an opportunistic feeder on bottom-dwelling animals with some littoral prey taken also; invertebrates are somewhat more important in its diet than fish prey. Items taken include cancrid, grapsid, and mole crabs; shrimp and ghost shrimp; clam siphons and sometimes feet and whole clam bodies; polychaete worms; a large, sausage-shaped echiuroid worm, the fat innkeeper or weenie worm (Urechis caupo), which can be- the most frequent prey. item in some localities; octopi; bony fishes, including anchovies, herring, topsmelt, croakers, surf perch, gobies, rockfish, sculpins, flounders, sanddabs, tongue-soles, and midshipmen (Porichthys); and small elasmobranchs, including brown smooth-hounds (Mustelus henlei), guitarfish (Rhinobatos productus), and bat rays (Myliobatis californicus). When available, the eggs of herring, topsmelt, jacksmelt, and midshipmen are avidly eaten by this shark. Crabs, shrimps, bony fish, fish eggs, clam necks and innkeeper worms are the most important prey items of leopard sharks.

There is considerable variation in the diet of the leopard shark with size and season in Elkhorn Slough, California (Talent, 1976). Juveniles below 70 cm feed mostly on crustaceans, primarily small crabs (especially grapsids), but as the sharks approach maturity other prey items increase in importance as crustaceans diminish. Fish are most heavily taken by adults over 130 cm, clam necks and fish eggs are most important to adults 110 to 130 cm, and innkeeper worms are most important to juveniles and adults 80 to 130 cm long. Young sharks feed heavily on grapsid crabs but prey more on larger cancrid crabs as they approach maturity. Small sharks feed mostly on crabs throughout the year while larger sharks show seasonal variation, primarily associated with the availability of fish eggs. Large sharks eat fish mostly during the summer, and fish eggs in winter through early summer when topsmelt, jacksmelt and herring spawn. Clams and crabs were most commonly taken in the autumn, with a shift in importance from grapsid to cancrid crabs and to innkeeper worms during winter and spring.

The common presence of mud-burrowing prey such as ghost shrimps, innkeeper worms, polychaetes, and clams (necks) suggest that these sharks actively feed very close to the mud or in it to a far greater extent that the sympatric brown smooth-hound (Mustelus henlei), which normally does not take clam siphons, rarely takes innkeeper worms, and captures polychaetes far less frequently than leopard sharks. The action of leopard sharks in taking clam siphons has not been seen, but although the clams protrude their siphons some distance from the mud, they are instantly retracted when disturbed, suggesting that the sharks must quickly seize and pull on them until the siphons break or are bitten off by their rather powerful jaws and small but sharp slicing teeth. Sometimes whole clam bodies are found as stomach contents, without shells; the shell removal method is not known, but one possibility is that the shark rips the clams free from their shells while tugging on their siphons, while another is that the shark violently shakes or rubs the shells off after extracting clams from the mud. Innkeeper worms do not leave their burrows but may protrude their bodies slightly, allowing the sharks to pull them out, but more likely the sharks are able to suck them out of their burrows since most of the worms are intact and without bite damage as stomach contents (Russo (1975); Talent (1976)).

Leopard sharks and piked dogfish have been observed catching anchovies together at the surface inside a hollow bridge support structure in San Francisco Bay, slowly swimming counterclockwise into oncoming clockwise-moving, densely packed schools of anchovies with their mouths wide open (Russo, 1975). The sharks did not show any specific hunting behaviour or directed movements toward their prey but simply ingested any anchovies that blundered into their mouths? See the account of the oceanic whitetip shark, Carcharhinus longimanus, for a similar observation with this species.

Eelgrass (Zostera) and marine algae have been found in the stomachs of several leopard sharks, probably taken incidentally by the sharks having fed on prey animals and fish eggs.

This shark was once recorded as harassing a diver with a nosebleed, but in general it is very wary and usually flees when approached underwater. It is generally regarded as harmless to people.

Size : Maximum 180 cm, males maturing between 70 and 119 cm and reaching 150 cm, females maturing between 110 and 129 cm and reaching 180 cm, though most adults are smaller than 160 cm; size at birth about 20 cm.

Interest to Fisheries : In California this species is commonly taken by sports anglers and spearfishers, but in recent years has come to be increasingly taken by smallscale commercial line fisheries. In some areas of California it may be declining in numbers, due to increased pressure by spear and line-fishers. Mexican catches are little-known, but presumably occur. Its meat is excellent and is utilized fresh or fresh-frozen for human consumption.

Literature : Roedel & Ripley (1950); Herald & Ripley (1951); Feder, Turner & Limbaugh (1974);Russo (1975); de Wit (1975); Talent (1976); Susan E. Smith (pers. comm.); L.J.V. Compagno (unpub. data).

Remarks : The earliest name for this species is Triakis californica Gray, 1851, proposed without description and hence a nomen nudum unless the name of the species itself is considered a valid indication of its identity (that is, a member of the hitherto monotypic genus Triakis from California). The writer examined the five syntypes of Triakis californica, British Museum (Natural History BMNH 1953.5.10.8-12 late fetuses, 160 to 173 mm long, from Monterey, California) and confirmed that they are indeed conspecific with T. semifasciata. However, even if T. californica is a valid name, it would not serve nomenclatural stability to replace the well-known and virtually universally used T. semifasciata.

Triakis felis Ayres, 1854 was published about one month (4 December 1854) later than T. semifasciatum Girard, 1854 (November, 1854, possibly on 14 November; Lillian P. Dempster, pers. comm.).

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