= Izak catshark =

The Izak catshark (or simply Izak , Holohalaelurus regani) is a species of catshark , belonging to the family Scyliorhinidae , common off the coasts of South Africa and southern Namibia . It typically inhabits the outer continental shelf at depths of 100 ? 300 m (330 ? 980 ft) , with the males found deeper than the females and juveniles . The Izak catshark has a short , wide , flattened head and a robust body tapering to a long , slender tail . It can be identified by its ornate color pattern of dark brown spots (in juveniles) or reticulations and blotches (in adults) on a light yellowish background , as well as by the enlarged dermal denticles over its pectoral fins and along its dorsal midline from the snout to the second dorsal fin . This species reaches 69 cm (27 in) in length , with the males larger than females .

Bottom @-@ dwelling and perhaps relatively active in nature , the Izak catshark feeds mainly on a diverse array of bony fishes , crustaceans , and cephalopods . A significant portion of its diet may be scavenged from offal discarded by fisheries . This species is oviparous , with females producing encapsulated eggs two at a time year @-@ round . The Izak catshark is regularly caught incidentally by a South African bottom trawl commercial fishery , but is discarded rather than utilized . Despite the fishing pressure , its population has been increasing and thus the International Union for Conservation of Nature (IUCN) has assessed it as Least Concern .

= = Taxonomy = =

The Izak catshark was originally described by South African ichthyologist John Gilchrist in a 1922 fisheries survey report . He assigned the new species to the genus Scylliorhinus , and gave it the specific epithet regani in honor of fellow ichthyologist Charles Tate Regan . In 1934 , Henry Weed Fowler assigned this species to his newly created Holohalaelurus , a subgenus of Halaelurus . Holohalaelurus has since been elevated to the rank of full genus . As there do not appear to be any existing type specimens referable to Gilchrist 's account , in 2006 Brett Human designated a 63 cm (25 in) long male caught in Hondeklip Bay as the species neotype .

Historically , there has been much confusion in the scientific literature between H. regani , H. punctatus , and H. melanostigma , the last of which at various times had been considered a junior synonym of H. regani and was itself confounded with H. grennian . Furthermore , two forms of H. regani were once recognized : the " Cape " or " typical " form and the " Natal " or " northeastern " form . The latter " northeastern " form was described as a separate species , H. favus , in 2006 .

= = Description = =

The body of the Izak catshark is firm and stout , tapering dramatically towards the tail . The head is very short , wide , and flattened , with a blunt snout . The horizontally oval eyes are placed high on the head and have thick ridges beneath ; each has a rudimentary nictitating membrane and is followed by a spiracle . The nostrils are preceded by triangular flaps of skin that almost reach the long , angular mouth . The mouth contains prominent papillae on both the roof and the floor , and lacks furrows at the corners . The upper and lower jaws contain on average 65 and 60 tooth rows respectively ; each tooth is relatively large , with a narrow central cusp flanked by 1 ? 2 smaller cusplets . There are five pairs of gill slits .

The pectoral fins are rather long and broad . The first dorsal fin originates over the rear of the pelvic fin bases ; the second dorsal fin is slightly larger and originates over the rear of the anal fin base . The pelvic and anal fins are long and low , and larger than the dorsal fins . The free rear tips of the pelvic fins may be fused together to some degree , but never completely ; males have slender , pointed claspers . The caudal peduncle is long and thin , particularly in younger sharks . The caudal fin makes up one @-@ fourth to one @-@ fifth of the total length and has a weak lower lobe and a ventral notch near the tip of the upper lobe . The thick skin is covered by well @-@ calcified dermal denticles , except around the gill slits . Enlarged , spike @-@ like denticles are found on the upper surface of the pectoral fins and along the dorsal midline from the snout to the second dorsal fin

origin . Juvenile Izak catsharks are boldly patterned with many irregularly shaped dark brown spots on a light yellow to yellowish brown background . The spots enlarge and fuse with age to form an intricate pattern of reticulations and U @-@ shaped markings in adults . The underside is plain white , with obvious black sensory pores beneath the head , body , and paired fins . Like other Holohalaelurus species , but contrary to the pattern in most cartilaginous fishes , males attain a much greater maximum length than females : 69 cm (27 in) versus 52 cm (20 in) .

= = Distribution and habitat = =

Endemic to the southern tip of Africa , the range of the Izak catshark extends from Lüderitz , Namibia in the west to Durban , South Africa in the east . Older records further north along the East African coast (e.g. Somalia) most likely refer to other Holohalaelurus species . This abundant , bottom @-@ dwelling species inhabits the outer continental shelf and upper continental slope , from 40 m (130 ft) to at least 1 @,@ 075 m (3 @,@ 527 ft) deep . Off South Africa , it is most common in areas with a wider continental shelf , and at depths of 100 ? 200 m (330 ? 660 ft) off the south coast and 200 ? 300 m (660 ? 980 ft) off the west coast . Females and juveniles tend to be found in shallower water than males . For the most part , the number of sharks in a given area remains largely constant throughout the year . However , sharks at the southernmost point of the Agulhas Bank may perform a small autumn migration towards the shore .

= = Biology and ecology = =

Compared to other deep @-@ sea sharks , the Izak catshark has a large heart suggestive of a relatively active lifestyle . It is a generalist that feeds on a wide variety of bony fishes , crustaceans , and cephalopods ; larger sharks consume proportionately more crustaceans and fewer fishes . At least some part of its recorded diet probably represents scavenging from fishery discards , given the presence of fast @-@ moving , pelagic species that the shark is unlikely to have captured live . Polychaete worms , hydrozoans , gastropods , and hagfish eggs may also be occasionally ingested . This species often has nematode and flatworm parasites in its stomach .

The Izak catshark is oviparous and reproduction proceeds throughout the year without seasonal patterns . Mature females have a single functional ovary and two functional oviducts ; a single egg matures within each oviduct at a time . Each egg is contained within a purse @-@ shaped capsule 3 @.@ 6 ? 4 @.@ 3 cm (1 @.@ 4 ? 1 @.@ 7 in) long and 1 @.@ 2 ? 1 @.@ 5 cm (0 @.@ 47 ? 0 @.@ 59 in) across . The capsule is light brown with long tendrils at the four corners that likely serve to anchor it to rocks ; its surface has a velvet @-@ like texture and bears lengthwise striations . The rate of egg laying is unknown but thought to be high , based on this shark 's resilience to fishing pressure . The preponderance of females and juveniles at shallower depths may indicate that such waters serve as nursery areas . The young hatch at under 11 cm (4 @.@ 3 in) long . Males and females mature sexually at 45 ? 50 cm (18 ? 20 in) and 40 ? 45 cm (16 ? 18 in) long respectively .

= = Human interactions = =

The Izak catshark is harmless and of no commercial value . It is regularly caught incidentally (and discarded) by a bottom trawl fishery targeting hake south of Cape Town . In contrast to most cartilaginous fishes , its numbers have been increasing in the presence of commercial fishing . The reasons for this may include its high reproductive rate , its breeding in less @-@ fished shallower waters , its hardiness allowing for high post @-@ capture survival , and its opportunistic diet . The International Union for Conservation of Nature (IUCN) has consequently listed the Izak catshark under Least Concern , while still noting that it merits continued population monitoring because of its highly restricted range .