

= Prickly shark =

The prickly shark (*Echinorhinus cookei*) is one of the two species of sharks in the family Echinorhinidae (the other one is the bramble shark) , found in the Pacific Ocean over continental and insular shelves and slopes , and in submarine canyons . Bottom @-@ dwelling in nature , it generally inhabits cool waters 100 ? 650 m (330 ? 2 @,@ 130 ft) deep , but it also frequently enters shallower water in areas such as Monterey Bay off California . This stocky , dark @-@ colored shark grows up to 4 @.@ 0 m (13 @.@ 1 ft) long , with two small dorsal fins positioned far back on its body and no anal fin . It is characterized by a dense covering of thorn @-@ like dermal denticles , hence its common name .

Nocturnally active , the prickly shark rests during the day in deeper offshore waters and performs a diel migration to shallower inshore waters at dusk . Individual sharks have a small home range and tend to remain within a given local area . This species consumes a variety of bony and cartilaginous fishes , and cephalopods . Since it moves slowly , it may use suction to capture prey . It is aplacental viviparous , with females producing sizable litters . The prickly shark is not known to be dangerous to humans and has minimal economic value . It is caught incidentally by commercial deepwater fisheries , which are expanding and may potentially threaten its population . Thus , the International Union for Conservation of Nature (IUCN) has assessed this species as Near Threatened .

= = Taxonomy = =

Austrian ichthyologist Viktor Pietschmann described the prickly shark as a new species in two separate publications : a brief German account in a 1928 volume of *Anzeiger der Akademie der Wissenschaften in Wien* and a more detailed English account in a 1930 volume of *Bishop Museum Bulletin* . Pietschmann named the shark in honor of C. Montague Cooke Jr . , a conchologist at the Bishop Museum . However , prickly sharks were continually misidentified as bramble sharks (*E. brucus*) and referred to as such in scientific literature until 1960 , when Jack Garrick redescribed the species . Since the original holotype from Kauai , Hawaii had been lost , Garrick designated a 2 @.@ 0 m (6 @.@ 6 ft) long male from Palliser Bay , New Zealand as a new type specimen . Other common names for this species include Cook 's bramble shark and spinous shark .

= = Description = =

The prickly shark has a flabby and cylindrical body , with the adults markedly bulkier than juveniles , and a short , moderately flattened head . The nostrils are placed far apart and preceded by small flaps of skin . The spiracles are tiny and positioned well behind the eyes , which lack nictitating membranes . The mouth forms a broad arch , with very short furrows at the corners . There are 21 ? 25 and 20 ? 27 tooth rows in the upper and lower jaws respectively . The knife @-@ like teeth each have a strongly angled main cusp flanked by up to three smaller cusplets on either side ; the lateral cusplets are absent in young sharks . There are five pairs of gill slits , with the fifth pair the longest .

The lateral line runs along each side of body in a conspicuous furrow . The pectoral fins are short , while the pelvic fins are relatively large with long bases . The first dorsal fin is small and originates at or behind the level of the pelvic fin origins ; the second dorsal fin is similar to the first and positioned close behind . The anal fin is absent , and the stout caudal peduncle lacks depressions at the caudal fin origins . The caudal fin has a longer upper lobe without a notch in the trailing margin , and an indistinct lower lobe . The skin has a dense , uniform covering of non @-@ overlapping dermal denticles measuring up to 0 @.@ 4 cm (0 @.@ 16 in) across , which are never fused together as in the bramble shark . Each denticle is thorn @-@ like , with strong ridges running down the central spine and radiating out over the star @-@ shaped base . The denticles beneath the snout are very fine in adults . The prickly shark is plain brown or gray , often with a purplish tint , and has black trailing margins on the fins . The underside is paler , most obviously on the snout and around the mouth . It may reach a length of 4 @.@ 0 m (13 @.@ 1 ft) . The maximum recorded weight is 266 kg (586 lb) for a 3 @.@ 1 m (10 ft) long female .

= = Distribution and habitat = =

The prickly shark is widely distributed around the Pacific Ocean . In the western and central Pacific , it has been reported off Japan , Taiwan , Victoria and Queensland in Australia , and New Zealand , as well as around the islands of Palau , New Caledonia , Tonga , Hawaii , and possibly the Gilberts . In the eastern Pacific , it is known to occur from Oregon to El Salvador (including the Gulf of California) , around the Cocos and Galapagos Islands , and off Peru and Chile . This species generally seems to be uncommon ; an exception is in Monterey Canyon off California , where sharks of both sexes are abundant throughout the year .

Favoring cooler temperatures of 5 @. @ 5 ? 11 ° C (41 @. @ 9 ? 51 @. @ 8 ° F) , the prickly shark is mostly found below depths of 100 ? 200 m (330 ? 660 ft) , particularly in the tropics . It has been recorded from at least 650 m (2 @, @ 130 ft) down and may occur much deeper , possibly to 1 @, @ 500 m (4 @, @ 900 ft) . On the other hand , at higher latitudes it frequently enters shallow inshore waters ; for example , in Monterey Canyon it can be consistently found at depths of 15 ? 35 m (49 ? 115 ft) , and off Moss Landing one individual was captured in water only 4 m (13 ft) deep . This shark inhabits continental and insular shelves and slopes , where it swims close to the bottom . It can also be found inside submarine canyons , close to the walls . It prefers areas with a muddy or sandy substrate . It is tolerant of low dissolved oxygen levels , allowing it to inhabit oceanic basins inaccessible to other sharks .

= = Biology and ecology = =

The prickly shark is a slow swimmer and has been observed hovering just above the sea floor . A tracking study in Monterey Canyon found that this species exhibits strong diel migration patterns . The sharks were inactive during the day , resting in discrete refuge areas located near the sea floor in deep , offshore waters . They became active at dusk , swimming towards the coast to the head of the canyon and rising into the water column ; this upward movement is likely related to feeding on schooling fishes . Individual sharks seldom strayed from the local area and had very small home ranges , no more than 2 @. @ 2 km² (0 @. @ 85 sq mi) . The prickly sharks in Monterey Canyon regularly form aggregations that may number over thirty .

The size and structure of the prickly shark 's mouth and pharynx suggests that it uses suction to capture prey . This species feeds on a variety of benthic and pelagic bony fishes , including hake , flounders , rockfishes , lingcod , topsmelt , mackerel , and herring , and on cartilaginous fishes , including elephantfishes (*Callorhinchus*) , spiny dogfish (*Squalus acanthias*) , young bluntnose sixgill sharks (*Hexanchus griseus*) , and ghost catshark (*Apristurus*) egg cases . Octopuses and squid , including the Humboldt squid (*Dosidicus gigas*) are also consumed . Young prickly sharks may themselves fall prey to the bluntnose sixgill shark , while adults likely face few threats . Reproduction in this species is aplacental viviparous , with the unborn young sustained by yolk . There is only one known record of a pregnant female , which was gestating 114 embryos ; this ranks among the largest known litters from any shark . The young are probably under 40 cm (16 in) long at birth . The length at sexual maturity has not been precisely determined but is thought to be around 2 @. @ 0 m (6 @. @ 6 ft) for males and 2 @. @ 5 ? 3 @. @ 0 m (8 @. @ 2 ? 9 @. @ 8 ft) for females .

= = Human interactions = =

Interactions with divers show that the prickly shark behaves inoffensively towards humans , either tolerating contact or fleeing when closely approached . It is susceptible to incidental capture by commercial bottom trawls , gillnets , or line gear . It has little commercial value since the meat is soft and poorly regarded . The International Union for Conservation of Nature (IUCN) has assessed the prickly shark as Near Threatened , citing its patchy known distribution and the continuing expansion of deepwater fisheries .

