

## = Caribbean reef shark =

The Caribbean reef shark ( *Carcharhinus perezii* ) is a species of requiem shark , belonging to the family Carcharhinidae . It is found in the tropical waters of the western Atlantic Ocean from Florida to Brazil , and is the most commonly encountered reef shark in the Caribbean Sea . With a robust , streamlined body typical of the requiem sharks , this species is difficult to tell apart from other large members of its family such as the dusky shark ( *C. obscurus* ) and the silky shark ( *C. falciformis* ) . Distinguishing characteristics include dusky @-@ colored fins without prominent markings , a short free rear tip on the second dorsal fin , and tooth shape and number .

Measuring up to 3 m ( 9 @. @ 8 ft ) long , the Caribbean reef shark is one of the largest apex predators in the reef ecosystem , feeding on a variety of fishes and cephalopods . They have been documented resting motionless on the sea bottom or inside caves , unusual behavior for an active @-@ swimming shark . If threatened , it may perform a threat display in which it frequently changes direction and dips its pectoral fins . Like other requiem sharks , it is viviparous with females giving birth to 4 ? 6 young every other year . Caribbean reef sharks are of some importance to fisheries as a source of meat , leather , liver oil , and fishmeal , but recently they have become more valuable as an ecotourist attraction . In the Bahamas and elsewhere , bait is used to attract them to groups of divers in controversial " shark feedings " . This species is responsible for a small number of attacks on humans . The shark attacks only happen usually in the spring / summer part of the year .

## = Taxonomy and phylogeny =

The Caribbean reef shark was originally described as *Platypodon perezii* by Felipe Poey in 1876 , in the scientific journal *Anales de la Sociedad Española de Historia Natural* . The type specimens were six individuals caught off the coast of Cuba . The genus *Platypodon* was synonymized with *Carcharhinus* by later authors .

Based on morphological similarities , Jack Garrick in 1982 grouped this species with the bignose shark ( *C. altimus* ) and the sandbar shark ( *C. plumbeus* ) , while Leonard Compagno in 1988 placed it as the sister species of the grey reef shark ( *C. amblyrhynchos* ) . A phylogenetic analysis based on allozyme data , published by Gavin Naylor in 1992 , indicated that the Caribbean reef shark is the sister taxon to a clade formed by the Galapagos shark ( *C. galapagensis* ) , dusky shark ( *C. obscurus* ) , oceanic whitetip shark ( *C. longimanus* ) , and the blue shark ( *Prionace glauca* ) . However , more work is required to fully resolve the interrelationships within *Carcharhinus* .

## = Distribution and habitat =

The Caribbean reef shark occurs throughout the tropical western Atlantic Ocean , from North Carolina in the north to Brazil in the south , including Bermuda , the northern Gulf of Mexico , and the Caribbean Sea . However , it is extremely rare north of the Florida Keys . It prefers shallow waters on or around coral reefs , and is commonly found near the drop @-@ offs at the reefs ' outer edges . This shark is most common in water shallower than 30 m ( 98 ft ) , but has been known to dive to 378 m ( 1 @, @ 240 ft ) .

## = Description =

A heavy @-@ bodied shark with a " typical " streamlined shape , the Caribbean reef shark is difficult to distinguish from other large requiem shark species . It usually measures 2 ? 2 @. @ 5 m ( 6 @. @ 6 ? 8 @. @ 2 ft ) long ; the maximum recorded length is 3 m ( 9 @. @ 8 ft ) and the maximum reported weight is 70 kg ( 150 lb ) . The coloration is dark gray or gray @-@ brown above and white or white @-@ yellow below , with an inconspicuous white band on the flanks . The fins are not prominently marked , and the undersides of the paired fins , the anal fin , and the lower lobe of the caudal fin are dusky .

The snout is rather short , broad , and rounded , without prominent flaps of skin beside the nostrils .

The eyes are large and circular , with nictitating membranes ( protective third eyelids ) . There are 11 ? 13 tooth rows in either half of both jaws . The teeth have broad bases , serrated edges , and narrow cusps ; the front 2 ? 4 teeth on each side are erect and the others increasingly oblique . The five pairs of gill slits are moderately long , with the third gill slit over the origin of the pectoral fins . The first dorsal fin is high and falcate ( sickle @-@ shaped ) . There is a low interdorsal ridge running behind it to the second dorsal fin , which is relatively large with a short free rear tip . The origin of the first dorsal fin lies over or slightly forward of the free rear tips of the pectoral fins , and that of the second dorsal fin lies over or slightly forward of the anal fin . The pectoral fins are long and narrow , tapering to a point . The dermal denticles are closely spaced and overlapping , each with five ( sometimes seven in large individuals ) horizontal low ridges leading to marginal teeth .

= = Biology and ecology = =

Despite its abundance in certain areas , the Caribbean reef shark is one of the least @-@ studied large requiem sharks . They are believed to play a major role in shaping Caribbean reef communities . These sharks are more active at night , with no evidence of seasonal changes in activity or migration . Juveniles tend to remain in a localized area throughout the year , while adults range over a wider area .

Caribbean reef sharks are sometimes seen resting motionless on the sea floor or inside caves ; it is the first active shark species in which such a behavior was reported . In 1975 , Eugenie Clark investigated the famed " sleeping sharks " inside the caves at Isla Mujeres off the Yucatan Peninsula , and determined that the sharks were not actually asleep as their eyes would follow divers . Clark speculated that freshwater upwellings inside the caves might loosen parasites on the sharks and produce an enjoyable " narcotic " effect . If threatened , Caribbean reef sharks sometimes perform a threat display , in which they swim in a short , jerky fashion with frequent changes in direction and repeated , brief ( 1 ? 1 @.@ 2 second duration ) drops of the pectoral fins . This display is less pronounced than the better @-@ known display of the grey reef shark ( *C. amblyrhynchos* ) .

Juvenile Caribbean reef sharks are preyed upon by larger sharks such as the tiger shark ( *Galeocerdo cuvier* ) and the bull shark ( *C. leucas* ) . Few parasites are known for this species ; one is a dark variegated leech often seen trailing from its first dorsal fin . Off northern Brazil , juveniles seek out cleaning stations occupied by yellownose gobies ( *Elacatinus randalli* ) , which clean the sharks of parasites while they lie still on the bottom . Horse @-@ eye jacks ( *Caranx latus* ) and bar jacks ( *Carangoides ruber* ) routinely school around Caribbean reef sharks .

= = = Feeding = = =

The Caribbean reef shark feeds on a wide variety of reef @-@ dwelling bony fishes and cephalopods , as well as some elasmobranchs such as eagle rays ( *Aetobatus narinari* ) and yellow stingrays ( *Urobatis jamaicensis* ) . It is attracted to low @-@ frequency sounds , which are indicative of struggling fish . In one observation of a 2 m ( 6 @.@ 6 ft ) long male Caribbean reef shark hunting a yellowtail snapper ( *Lutjanus cysurus* ) , the shark languidly circled and made several seemingly " half @-@ hearted " turns towards its prey , before suddenly accelerating and swinging its head sideways to capture the snapper at the corner of its jaws . Young sharks feed on small fishes , shrimps , and crabs . Caribbean reef sharks are capable of everting their stomachs , which likely serves to cleanse indigestible particles , parasites , and mucus from the stomach lining .

= = = Life history = = =

Reproduction is viviparous ; once the developing embryos exhaust their supply of yolk , the yolk sac develops into a placental connection through which they receive nourishment from their mother . Mating is apparently an aggressive affair , as females are often found with biting scars and wounds

on their sides . At the Fernando de Noronha Archipelago and Atol das Rocas off Brazil , parturition takes place at the end of the dry season from February to April , while at other locations in the Southern Hemisphere , females give birth during the Amazon summer in November and December . The average litter size is four to six , with a gestation period of one year . Females become pregnant every other year . The newborns measure no more than 74 cm ( 29 in ) long ; males mature sexually at 1 @. @ 5 ? 1 @. @ 7 m ( 59 ? 67 in ) long and females at 2 ? 3 m ( 79 ? 118 in ) .

= = Human interactions = =

Normally shy or indifferent to the presence of divers , the Caribbean reef shark has been known to become aggressive in the presence of food and grows sufficiently large to be considered potentially dangerous . As of 2008 , the International Shark Attack File lists 27 attacks attributable to this species , 4 of them unprovoked , and none fatal .

This species is taken by commercial and artisanal longline and gillnet fisheries throughout its range . It is valued for meat , leather , liver oil , and fishmeal . The Caribbean reef shark is the most common shark landed in Colombia ( accounting for 39 % of the longline catch by occurrence ) , where it is utilized for its fins , oil , and jaws ( sold for ornamental purposes ) . In Belize , this species is mainly caught as bycatch on hook @-@ and @-@ line intended for groupers and snappers ; the fins are sold to the lucrative Asian market and the meat sold in Belize , Mexico , and Guatemala to make " panades " , a tortilla @-@ like confection . A dedicated shark fishery operated in Belize from the mid @-@ 1900s to the early 1990s , until catches of all species saw dramatic declines . The flesh of this species may contain high levels of methylmercury and other heavy metals .

= = = Shark feeding = = =

A profitable ecotourism industry has arisen around this species involving organized " shark feeds " , in which groups of reef sharks are attracted to divers using bait . Some US \$ 6 @, @ 000 @, @ 000 is spent annually on shark viewing in the Bahamas , where at some sites a single living Caribbean reef shark has a value between US \$ 13 @, @ 000 and US \$ 40 @, @ 000 ( compared to a one @-@ time value of US \$ 50 ? 60 for a dead shark ) . This practice has drawn controversy , as opponents argue that the sharks may learn to associate humans with food , increasing the chances of a shark attack , and that the removal of reef fishes for bait may damage the local ecosystem . Conversely , proponents maintain that shark feeds contribute to conservation by incentivizing the protection of sharks and educating people about them . Thus far , there has been little evidence that shark feeds have increased the risk of attack in the surrounding area . Shark feeding has been outlawed off the coast of Florida , but continues at other locations in the Caribbean .

= = = Conservation = = =

The International Union for Conservation of Nature ( IUCN ) has assessed the Caribbean reef shark as Near Threatened ; its population has declined off Belize and Cuba from overfishing and exploitation continues in other regions . They are also threatened by the degradation and destruction of their coral reef habitat . Commercial fishing for this species is prohibited in United States waters . They are protected in the Bahamas due to their significance to ecotourism , as well as in a number of Marine Protected Areas ( MPAs ) off Brazil and elsewhere . However , enforcement against illegal fishing is lacking in some of these reserves , and many areas in which this species is abundant are not protected .