

Sphyrna tudes (Smalleye Hammerhead Shark)

Family: Sphyrnidae (Hammerhead Sharks)

Order: Carcharhiniformes (Ground Sharks)

Class: Chondrichthyes (Cartilaginous Fish)



Fig. 1. Smalleye hammerhead shark, *Sphyrna tudes*.

[<http://otlibrary.com/wp-content/gallery/golden-hammerhead-shark/hammerhead-jeff-pierce-lo-res.jpg>, downloaded 7 January 2015]

TRAITS. One of the smaller species of hammerhead (Family Sphyrnidae), the smalleye hammerhead shark can reach a length of 1.5m and weigh around 9 kg. They have a streamlined, slender body as opposed to their bulkier relatives (Martin, 1999). Adult males may range from 110-130cm total length while adult females have an average length of 120-145cm. Newborns are usually about 30cm at birth. Common to all hammerhead sharks is the mallet/hammer shaped cephalofoil, which has a width of 28-32% of body length, and is wide and long. Newborns typically have a longer cephalofoil, which is more curved and with a smaller indent than that of adults (Castro, 1989). These hammerheads have considerably smaller eyes compared to that of other hammerheads, hence its name, and have tri-layered eyelids for protection. However the most distinctive trait being their golden coloration (Fig. 1), which gives the species other names like the golden hammerhead or the curry shark (Gallagher, 2010). Their colour may range from

bright gold to orange-yellow; however these colours only appear at the juvenile stage, usually when a length of 45cm is reached, and fade at sexual maturity (Castro, 1989). These sharks have long, slender, serrated teeth arranged in 15-16 rows on the upper jaw and 15-17 on the lower jaw in its narrowly arched mouth (Compagno, 1984). Their primary dorsal fin is slightly falcate (curved), tall and originates after the pectoral fins. The secondary dorsal fin is smaller compared to the primary, with a moderately concave posterior margin. Both dorsal fins are smaller than the much taller and longer caudal fin.

DISTRIBUTION. The small eye hammerhead can be found in sub-tropical waters off the east coast of South America, from Venezuela to Uruguay (Fig. 2). Does not occur very often further west than the Orinoco Delta, southeast of Trinidad (Castro, 1989).

HABITAT AND ACTIVITY. This shark is known to inhabit murky, muddy waters inshore and close to coastlines, in depths no more than 5-40m. New-born small eye hammerheads prefer to stay in very shallow waters until a length of 40cm total length, after which they migrate to deeper waters. Adult females can usually be found at depths of 9-18m, while adult males and larger juveniles can be found at depths of 26-38m (Castro, 1989). The small eye hammerhead is also very tolerant of briny waters with a salinity range of 20-34 ppt (Lessa et al., 1998). Other hammerhead species may exist within the range of *Sphyrna tudes*; the great hammerhead, bonnethead and scoophead, and the scalloped hammerhead. However competition between these species is low due to their varying dietary and habitat preferences (Castro, 1989). The small eye hammerhead is the dominant predator in these dark, murky waters due to turbidity which greatly reduces vision of many other species, hence the reason for its proportionally smaller eyes. Small eye hammerheads may be found in groups or singly. At night they tend to be solitary hunters and during the day may be found in large numbers (OMG Sharks, 2012).

FOOD AND FEEDING. Their diet mainly includes sea catfish, shrimp and other crustaceans. Like many other species of hammerhead sharks, the small eye hammerhead is a solitary nocturnal hunter; however during the day they may often form large schools to circle prey as they hunt. Juveniles and adult males may form schools when hunting, however the adult females appear to be mainly solitary. Like many other hammerheads, this species is a ground shark, that is, they hunt for food mainly at the sea floor. The hammer shaped head allows for a large surface area, equipped with sensors which give the shark an advantage when scanning the sea floor for food. Juvenile small eye hammerheads (less than 67cm long) primarily consume penaeid shrimps while bony fish are preyed on by the larger sharks. They particularly prefer feeding on sea catfish and their eggs. The golden coloration of young small eye hammerheads (Fig. 3) is due to the carotenoid pigments that are found in the shrimps. They have also been known to prey on the new-borns of their relative, the scalloped hammerhead. Small eye hammerheads may be preyed upon by larger sharks like the bull shark, while younger sharks of this species may be consumed by larger bony fish such as groupers (Gallagher, 2010).

REPRODUCTION. Female small eye hammerhead sharks are viviparous (live-bearing) and ovulate and mate off the shores of Trinidad in shallow, dark, murky waters during August. Growing pups of this species are nourished during the later stages of gestation via the yolk-sac placenta, similar to many other shark species. The gestation period of the small eye hammerhead seems to last 10 months, from late May to June. Female small eyes give birth to 5-12 pups, which

measure nearly 30cm in length at birth. Their ovarian cycle occurs alongside the gestation period, hence it is assumed that the female small eye are fertilized shortly after giving birth and reproduce every year. This is in contrast to larger carcharhinids, such as the blacknose shark, which have a 2 year reproductive cycle, where the female takes a year off after giving birth to recover before resuming mating (Martin, 1999). After birth the new-born sharks are not nursed by the parents. The new-born small eye hammerheads swim together in groups and head towards warmer waters where they remain until they are older and large enough to be self-sufficient and eventually go their separate ways (Aquatic Community, 2012).

BEHAVIOUR. Anti-predator behaviour: Small eye hammerheads may be preyed upon by larger sharks like the bull shark, while younger sharks of this species may be consumed by larger bony fishes (Gallagher, 2010). However adult small eye hammerheads have no natural predators as it is the dominant predator in the dark, murky waters of its habitat (Fig. 4), due to turbidity which greatly reduces vision of many other species, hence the reason for its proportionally smaller eyes. It is also believed that its unique orange coloration may provide further camouflage in its natural habitat (Castro, 1989). They also swim together in groups after birth which may serve to dissuade predators from attacking.

Communication: Hammerhead sharks generally communicate their intent to mate by thrashing their heads from side to side violently. This is done by large female hammerhead sharks in the centre of a large school. This action sends pulses through the water, sending smaller females to the outer regions of the schools. Although it is only found during the day, there is a ranking system present, organized in terms of size, age and gender within schools of hammerhead sharks. Sharks also are incapable of vocal communication and may rely solely on visual, electrical and vibrational methods of communication. Hammerhead sharks generally contain many electrical sensors in the cephalofoil which allow them to recognize vibrations and electrical signals from other sharks and aquatic organisms within a certain range (Shark World, 2015).

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Posted online: 2015



Fig. 2. Smalleye hammerhead shark geographic distribution.

[http://upload.wikimedia.org/wikipedia/commons/c/c8/Sphyrna_tudes_distribution_map.svg, downloaded 7 January 2015]



Fig. 3. Smalleye hammerhead shark golden coloration ranges from bright gold to orange yellow.

[<https://www.flmnh.ufl.edu/fish/gallery/descript/smallleyehammerhead/smallleyehammerhead3.JPG>, downloaded 7 January 2015]

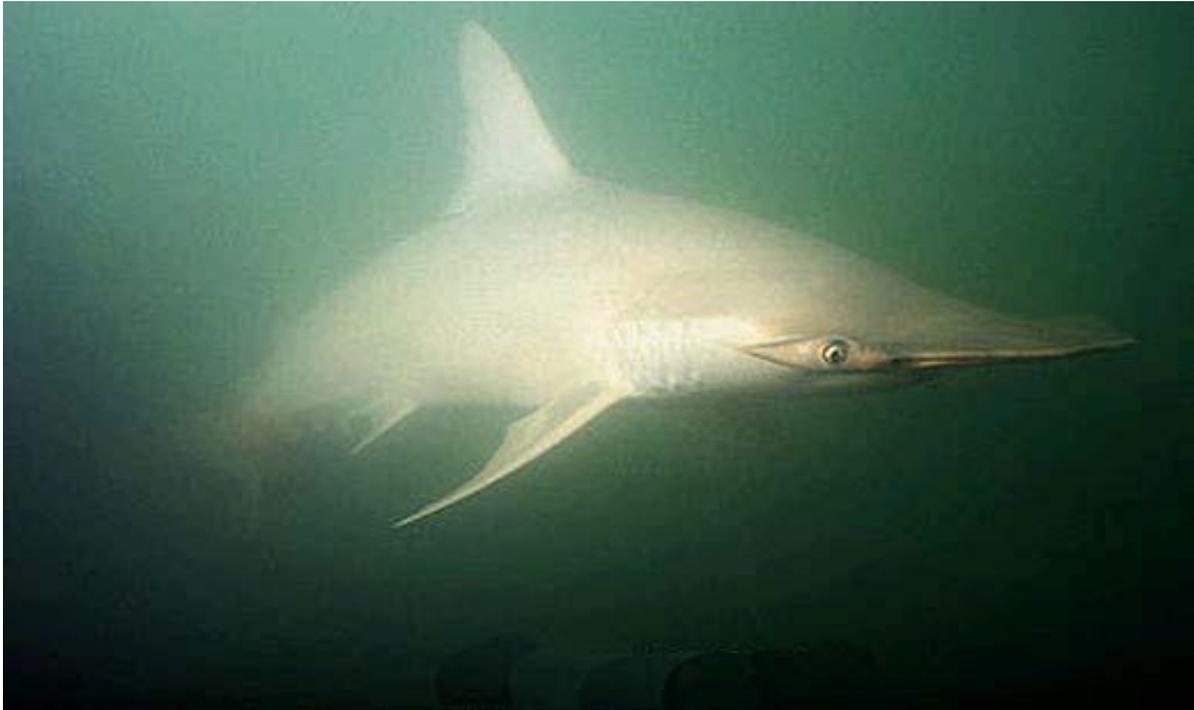


Fig. 4. Smalleye hammerhead shark in its murky aquatic habitat.

[<https://www.flmnh.ufl.edu/fish/gallery/descript/smalleyehammerhead/smalleyehammerhead2.JPG>, downloaded 7 January 2015]

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