



Shark killer. A Giant Trevally on the Great Basses Reef. Image © Rex I. De Silva.

THE SHARK KILLERS AND OTHER SHARK LORE

Rex I. De Silva

Reefcomber@gmx.com

Sharks are usually considered to be among the ocean's apex predators. While this is true for many species it is generally not known that some bony fish kill sharks. Two of these "shark-killers" are described below together with some other selachian and mammalian killers of sharks. I also discuss some other matters relating to sharks.

Bony fish as shark killers

The Giant Trevally *Caranx ignobilis* (aka. Giant Caranx, Giant Jack etc. **S. Goli Parava**, *Atanagul Parava*) is the largest of its genus growing to a maximum weight of around 175 pounds although individuals of that size are rare. Females and young males are silvery-grey whereas mature males tend to be darker with silvery vertical striations on the dark dorsal surface, as can be seen in the large individual I photographed on the Great Basses Reef many years ago (Plate 1). Completely black individuals are encountered on rare occasions which, I suspect, could be older males at

the peak of their breeding cycles. The Giant Trevally can be distinguished from most other carangids by its large head with blunt forehead. In smaller sizes it is a good food-fish but the flesh of large individuals tends to be rather coarse.

Although the species was first described by Forsskal in 1775, there was much confusion in the 1950s and 1960s regarding this large trevally, when the species was often misidentified as *C. hippos*, *C. lessonii*, *C. ekala*, *C. sansun* etc. It was Sri Lanka's diving legend Rodney Jonklaas who, in the late 1950s, first recognized that the large trevally in our waters is *C. ignobilis*. The species is fairly common in Sri Lanka's coastal waters and is familiar to most divers and anglers who consider it a prize gamefish. To the best of my recollection the largest individuals taken by Sri Lankan divers were the 78 pounder speared by Rodney Jonklaas and 74 pounder by Turab Jafferjee, both in the early 1960s. The largest caught by a Sri Lankan angler weighed 92 pounds (H. Martenstyn – pers. comm.). Late one evening in the 1970s while

spearfishing at Yakadagala (south coast) I encountered an exceptionally large male, which I estimated would weigh between 125 and 150 pounds. The great fish kept its distance from me, so I was content to watch as it slowly swam away. A lifetime moment.

An interesting and rather astonishing fact is that the Giant Trevally has been recorded as killing sharks in the Pacific Ocean (Helfman, G. 2015). One or sometimes two trevallies will attack a shark using the blunt forehead to repeatedly ram the victim in the gill region and sides causing the shark to bleed to death. These attacks often result in injuries to their foreheads, which the trevallies appear to ignore while concentrating on the kill. The puzzling thing is that they do not eat the sharks they kill, so why do they do it? Their principal victims appear to be Blacktip Reefsharks *Carcharhinus melanopterus* (Plate 2) although there is a record from the Pacific Ocean of a Giant Trevally attacking a Tiger Shark *Galeocerdo cuvier* (Plate 3). Interestingly, the trevallies usually kill sharks which are much larger than themselves. This may seem puzzling at first but, as the trevally is very agile, it can easily outmanoeuvre most sharks. There is also the record of a large individual ramming and breaking several ribs of a spearfisherman in Hawaii (Helfman, *op cit*). In his classic book on the fish of our estuaries Grenier (1954) states, "The charge of the *Goli* is like a shot from a gun; swift, ruthless, unerring". In 1967 Rodney Jonklaas was taking photographs on the wreck of the aircraft carrier 'Hermes' when a Giant Trevally charged him, ramming his Rolleimarine camera almost knocking it out of his hands (Trevor Ferdinands - pers comm.).

Plate 2. A Blacktip Reefshark caught at Wellawatte (Colombo).

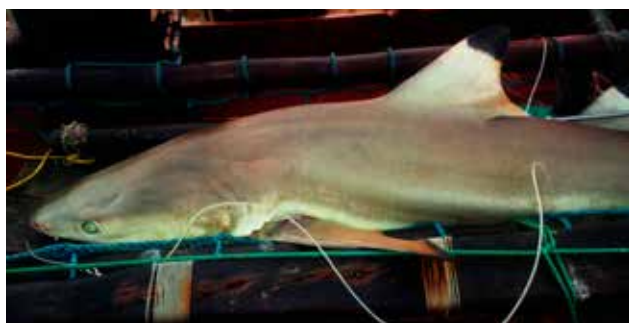
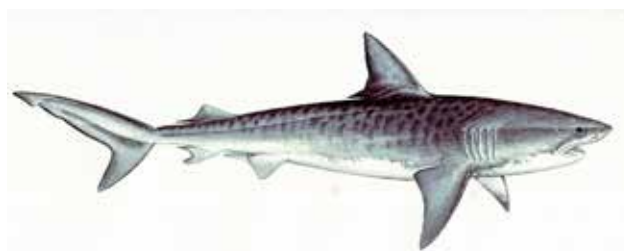


Image courtesy Brindley de Zylva.

The Giant Grouper *Epinephalus lanceolatus* is the largest known Serranid (Plate 4). De Bruin *et al.* (1994) give the maximum length as around 9 feet and weight at 880 pounds. Of course, the majority of individuals are smaller. Nonetheless in the mid-1950s to early 1960s an enormous individual exceeding 12 feet in length and estimated to weigh well over 1,000 pounds was seen in deep water at the Sunken dock

Plate 3. A Tiger Shark.



Painting by Jayantha Jinasena from THE SHARKS of SRI LANKA.

(Trincomalee) by many divers including Tony Buxton, Arthur C. Clarke - who estimated its length at fifteen feet (Clarke 1957), Carlyle Ranasinghe, Rodney Jonklaas, Langston Pereira, Mike Wilson, Rex De Silva (the writer) and many others. Giant Groupers were never very common in our seas and they are now rare, probably a result of overfishing. The species is known to kill and eat Whitetip Reefsharks *Triaenodon obesus* (Plate 5) and possibly other small sharks as well. In the 1960s Jonklaas was at a small fishing village on the east coast where he witnessed a large grouper being cut up. A Whitetip Reefshark, which had been swallowed whole, was found in its stomach (R. Jonklaas – pers comm.).

Plate 4. Giant Grouper. A shark killer.



Image courtesy John P. Hoover.

Sharks as shark killers

Many sharks are opportunistic feeders and will on occasion kill and eat other sharks. Nevertheless some species treat other, usually smaller, sharks as a part of their normal diet. Sri Lankan sharks which are known to prey fairly regularly on other sharks include the Bluntnose Sixgill *Hexanchus griseus* (Plate 6), Bramble Shark *Echinorhinus brucus* (Plate 6), Prickly Shark *E. cookei*, Kitefin Shark *Dalatias licha* (Plate 7), Shortfin Mako *Isurus oxyrinchus*, Longfin Mako *I. paucus*, Sandtiger Shark *Carcharias taurus*, Smalltooth Sandtiger *Odontaspis ferox*, Snaggletooth Shark *Hemipristis elongatus*, Silvertip Shark *Carcharhinus albimarginatus*, Bignose Shark *C. altimus*, Pigeye

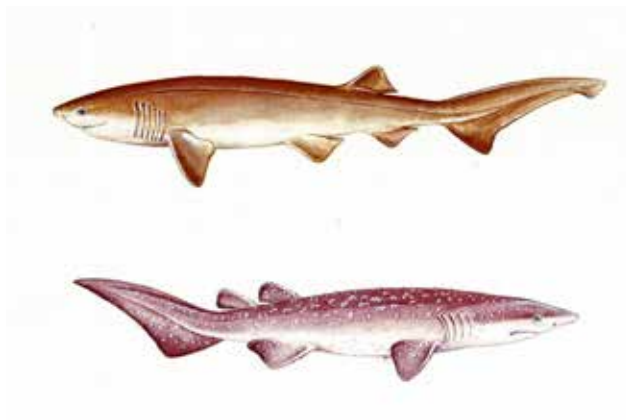
Plate 5. Whitetip Reefshark. The victim.



Image courtesy Dharshana Jayawardene

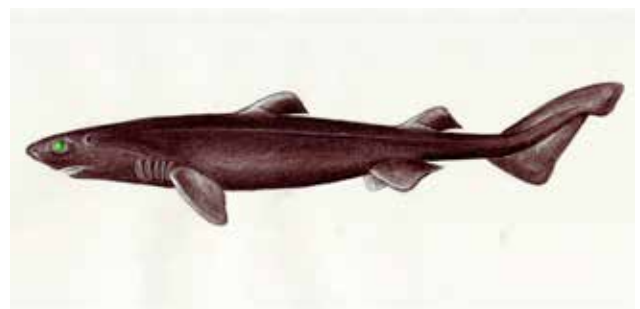
Shark *C. amboinensis*, Bull Shark *C. leucas*, Blacktip Shark *C. limbatus*, Oceanic Whitetip *C. longimanus*, Sandbar Shark *C. plumbeus*, Tiger Shark *Galeocerdo cuvier* (Plate 3), Sharptooth Lemonshark *Negaprion acutidens*, Scalloped Hammerhead *Sphyrna lewini*, Great Hammerhead *S. mokarran* (Plate 8) and Smooth Hammerhead *S. zygaena*. Some species, including the Tiger Shark, are cannibalistic and occasionally prey on their own species including the new-born and young.

Plate 6. Broadnose Sixgill and Bramble Sharks.



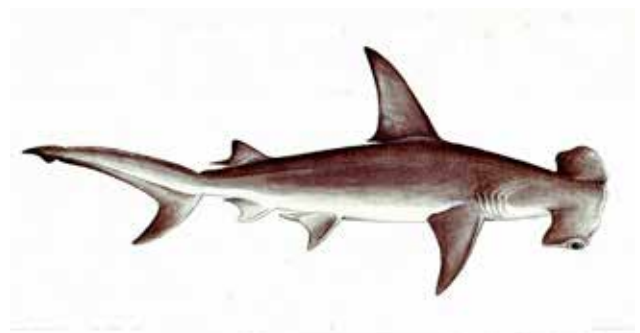
Paintings by Jayantha Jinasena from THE SHARKS of SRI LANKA.

Plate 7. Kitefin Shark.



Painting by Jayantha Jinasena from THE SHARKS of SRI LANKA.

Plate 8. Great Hammerhead Shark.



Painting by Jayantha Jinasena from THE SHARKS of SRI LANKA.

Marine mammals as shark killers

Several marine mammals are known to kill sharks. Dolphins, singly and in groups, kill sharks by ramming them in their gill and lateral regions using their snouts as weapons. Killer whales (aka Orcas) *Orcinus orca* have no difficulty in disposing of even large sharks including the Shortfin Mako and Great White Shark *Carcharodon carcharias*. Killer whales have even been recorded as teaching their juveniles to flip Great Whites upside down, at which point the shark becomes catatonic, when it can easily be killed and eaten. In temperate waters Sea Lions kill and consume several shark species including juvenile thresher sharks *Alopias* sp. Sperm whales *Physeter macrocephalus* (Plate 9) are known to kill a variety of sharks including the rare Megamouth *Megachasma pelagios* (Plate 10).

Plate 9. Sperm Whale.



© Out of the Blue 2013

Plate 10. Megamouth Shark.



Image Courtesy Daniel Fernando.

Humans as shark killers

It must be acknowledged that the greatest killer of sharks is *Homo sapiens* who kills an estimated 100 million sharks each year. Commercial fisheries which use drift gillnets, bottom set gillnets, bottom longlines, hand lines, beach seines etc., are largely responsible for the severe depletion in shark numbers suffered over the last several years. Sharks are either deliberately targeted or else taken as bycatch (accidentally caught non-target species). The shark-fin trade takes a heavy toll on shark populations. Ghost nets are a serious problem as they kill sharks (and other fish) over an extended period thereby reducing shark populations in the areas in which they occur.

A note on the conservation laws and some other matters related to sharks

All three species of Thresher Shark, the Oceanic Whitetip and Whale Sharks are protected by the Sri Lanka 'Shark Fisheries Management Regulations, 2015'. Additionally the four species of Hammerhead receive a degree of protection under CITES Appendix II. It is relevant to consider the extent to which the laws are actually effective in protecting these species. Recent research (Gallagher, Orbsen, Serafy and Hammerschlag, 2013) shows that Oceanic Whitetip and Tiger Sharks which are hooked on longlines and released promptly have high survival rates (97 and 77 percent respectively), whereas the rate is low for several other species. For example the survival rate for released thresher sharks is 45 percent, makos 44 percent and hammerheads 42 percent. It is clear therefore, that more than half of the freed sharks die soon after release. It is possible that the trauma of capture is detrimental to the survival of these species. Shark catches in Sri Lanka have decreased in recent years (Jayathilaka and Maldeniya, 2015). This is probably a reflection of the reduced numbers of sharks in our waters, the result of decades of overfishing. Of course it is likely that other factors may have also played a part.

Shark feeding is a controversial activity whereby divers feed sharks primarily to attract them for viewing and photography by tourists. The practice is prohibited in several places (Australia's Great Barrier Reef Marine Park, New Caledonia, Florida USA etc.) and is not carried out in Sri Lanka at present. Several videos have been made which portray this as an exciting activity; although it is seldom acknowledged that there are adverse environmental concerns inherent in the practice.

When sharks are fed regularly the natural balance in an area is likely to be upset and feeding patterns

may change. There is an increase in inter-species and intra-species competition when the larger and more aggressive sharks take over the territory and drive away or kill the smaller and less aggressive individuals (Anon. 2014). There is also evidence to show that feeding may make some sharks associate humans with food, which could result in an increased risk of attacks on people. For example, there is a well-documented report from Shram-El-Sheik in Egypt of an Oceanic Whitetip, which had previously been fed by divers, attacking several people over a two-month period; all of the victims were severely injured (Levine *et al.* 2014). There are similar reports from other areas as well. Shark feeding from boats can also be harmful as after a while some sharks become bold and approach boats for handouts; this is especially true of the Whale Shark *Rhincodon typus* which becomes vulnerable to poaching, scarring, possible entanglement and propeller injuries. Also whale sharks which have been fed tend to remain in the feeding areas and not go about their regular migrations. Many whale sharks congregate in close proximity to one another in the feeding areas where they compete for food, and it is possible that this close contact could encourage the spread of parasites and diseases (Raterta, 2014).

A mystery

On several occasions divers have reported encountering large sharks which were accompanied by Cobia *Rachycentron canadum*. I witnessed this in 1963 when I speared a pompano *Trachinotus blochii* on an offshore reef at Dodanduwa and a large requiem shark accompanied by a pair of sizeable cobia came up to investigate. The following excerpt from a letter dated 17th June 1987 by Rodney Jonklaas is also relevant.

“... Did he [Trevor Ferdinands] tell you of the time he took a Coral Trout off Chapel Rocks and when I went down I saw a real monster shark with good-sized Cobias rubbing themselves on him?”

David Ebert (pers. comm.) suggests that cobia associate with or follow larger sharks in order to scavenge for food and that the ‘rubbing behavior’ could be connected with parasite removal.

Acknowledgments

I am grateful to Brindley de Zylva, Daniel Fernando, John P. Hoover and Dharshana Jayawardena for permission to use their images. David Ebert commented on the association of Sharks and Cobia. Trevor Ferdinands informed me of Rodney Jonklaas’s encounter with a

Giant Trevally. Howard Martenstyn provided information and permission to use the illustration of a Sperm Whale from his book ‘Out of the Blue’. Jayantha Jinaseena’s paintings from ‘The Sharks of Sri Lanka’ are reproduced courtesy of the Field Ornithology Group of Sri Lanka (FOGSL).

References

- Anon. 2014.** Should you take the bait? The pros and cons of Shark ecotourism. 2014. One Green Planet. <http://www.onegreenplanet.org/animalsandnature/should-you-take-the-bait-the-pros-and-the-cons-of-shark-ecotourism/> (Accessed 05 December 2015).
- Clarke, Arthur C. 1957.** The Reefs of Taprobane. London. Frederick Muller.
- De Bruin, G. H. P., B. C. Russel, and A. Bogusch. 1994.** A FAO species identification field guide for fishery purposes. The Marine Fishery Resources of Sri Lanka. Rome. FAO.
- De Silva, R. I. 2015.** The Sharks of Sri Lanka. Colombo. Field Ornithology Group of Sri Lanka.
- Gallagher, A. J. V., E. S. Orbsen, Serafy, J. E. Hammerschlag, 2013.** Vulnerability of Oceanic Sharks as pelagic longline bycatch *in* Global Ecology and Conservation DOI 10.1016/j.gecco.2014-06-003. (accessed 18 July 2014).
- Grenier, J. A. R. 1954.** Tales of Fish and People of the Ceylon Estuary. Colombo. Caxton Printing Works.
- Helfman, G. 2015.** Wild things: Turning the tables on the sharks in the gray suits. <http://jhupressblog.com/2012/03/22/wild-thing-turning-the-tables-on-the-men-in-the-gray-suits/> (Accessed 02 December 2015).
- Jayathilaka, R. A. M and R. Maldeniya 2015.** Impact of policies on the conservation of sharks in the large pelagic fishery. IOTC–2015–WPEB11–18 Rev_1. <http://www.iotc.org/fr/documents/impact-policies-conservation-sharks-large-pelagic-fishery> (Accessed 02 December 2015).
- Levine, M., R. S. Collier, E. Ritter, M. Fouda, and Vincent Canabal. 2014.** Shark Cognition and a Human Mediated Driver of a Spate of Shark Attacks. Open Journal of Animal Sciences, 2014, 4, 263-269 Published Online October 2014 in SciRes. <http://dx.doi.org/10.4236/ojas.2014.45033> (Accessed 01 June 2015).
- Martenstyn, H. 2013.** Out of the Blue: A Guide to the Marine Mammals of Sri Lanka, Southern India and the Maldives. Colombo, Sri Lanka.
- Raterta, L. J. J. 2014.** The connection of manual feeding to changes in Whale Shark behavior. A comparative study of the behavior of *Rhincodon typus* Oslob, Cebu, & Donsol, Sorsogon. https://www.researchgate.net/publication/268146631_The_Connection_of_Manual_Feeding_to_Changes_in_Whale_Shark_Behavior_A_Comparative_Study_of_the_Behavior_of_Rhincodon_Typus_in_Oslob_Cebu_and_Donsol_Sorsogon (Accessed 02 December 2015).