

## *Carcharhinus falciformis* (Silky Shark)

Family: Carcharhinidae (Requiem Sharks)

Order: Carcharhiniformes (Ground Sharks)

Class: Chondrichthyes (Cartilaginous Fish)



**Fig. 1.** Silky shark, *Carcharhinus falciformis*.

[<http://otlibrary.com/silky-shark/>, accessed 9 March 2016]

**TRAITS.** *C. falciformis* is a large slender shark with moderately large eyes, long rounded snout, and long slender crescent-shaped pectoral fins (Knickle, 2016). Dorsally, they are blue-grey to dark brown, while typically white ventrally (Fig. 1). Densely packed dermal denticles (small tooth-like bones) cover their skin, giving it a soft touch, hence the name silky shark. *C. falciformis* exhibits sexual dimorphism with the females being larger than the males; 2-2.25m and 1.8-2m, respectively (Frazelle, 2016).

**DISTRIBUTION.** A native to Trinidad and Tobago, *C. falciformis* is circumglobally distributed in the tropics (IUCN, 2016) (Fig. 2).

**HABITAT AND ACTIVITY.** This pelagic shark favours warm water, and is commonly found around continental shelves (Knickle, 2016) or in the epipelagic zone (the upper 100-200m of deeper water, where sunlight penetrates) (IUCN, 2016). Juveniles can be found in coastal nurseries, while adults may travel between 20-500m underwater (Frazelle, 2016).

**FOOD AND FEEDING.** *C. falciformis* is a top level predator (Frazelle, 2016), a piscivorous shark that feeds on a variety of fish (IUCN, 2016), and can often be found accompanying a school of tuna (FAO, 2016). In addition, they consume cephalopods such as squid (IUCN, 2016), and crustaceans. They can be considered opportunistic carnivores (Frazelle, 2016) as they will devour any pelagic animal that is smaller than they are when food is scarce (FAO, 2016). Silky sharks' feeding is aided by their superior sense of smell and accousticolateralis systems which allows them to smell and hear injured or struggling prey over great distances (Frazelle, 2016).

**POPULATION ECOLOGY.** Adult silky sharks are abundant and can live up to 22 years (Knickle, 2016), they are typically solitary animals but can be seen travelling in intraspecific groups, or interspecific groups such as with scalloped hammerheads (Frazelle, 2016). While there is no sexual segregation among *C. falciformis*, there is size segregation (Knickle, 2016). Juveniles primarily travel in aggregations until maturity (Frazelle, 2016).

**REPRODUCTION.** *C. falciformis* are dioecious; males release pheromones to attract females, but other aspects of their mating rituals remain unknown. Upon acquiring a mate, the male's claspers are inserted into the female's cloaca, and his sperm is released. Males are polygamous and mate with several females in one season. Females reproduce biennially (every two years). However, sharks in the tropics do not have a defined mating season, unlike those in the Gulf of Mexico that breed during July/August (Frazelle, 2016), and those in the western North Atlantic that mate during May/June (Knickle, 2016). Males typically reach reproductive maturity at 6-7 years, while females reach maturity at 7-9 years. Sharks in the Indian and Pacific Oceans mature approximately two years younger and are smaller in size (Frazelle, 2016). Females are viviparous, they have a gestation period of 12 months. Litter size varies by region and can range from 2-14 pups per litter (Knickle, 2016). Juveniles are capable predators at birth and receive no additional parental care. Juveniles range from 70-75cm at birth and grow an additional 25-35cm by the first winter (Frazelle, 2016).

**BEHAVIOUR.** Silky sharks can be seen raising their heads, arching their backs, and lowering their tails, a display that is used when dealing with territory, mates, and predators. Males use pheromones to attract females and repel competing males. In addition, these inquisitive sharks often make close peaceful passes at divers (Frazelle, 2016). However, when approached by divers, they exhibit the display described above (FAO, 2016).

**APPLIED ECOLOGY.** *C. falciformis* is commonly used for scientific studies which examine the sensory biology of sharks (Knickle, 2016). Their fins are used for soup (Fig. 3) and their livers for oil (IUCN, 2016), their hides for leather (FAO, 2016), and their jaws as souvenirs in the tropics (Frazelle, 2016). The major threats faced by *C. falciformis* is hunting; they are the main shark caught using fishing aggregating devices (IUCN, 2016), they are caught in the Caribbean, and around the mid-Atlantic coasts of the United States (Knickle, 2016). Additionally, they are caught in pelagic longline fisheries (Fig. 4), consisting of 70-80% of the catch in the Maldives and Sri Lanka, frequently caught in Japan (Knickle, 2016), and are one of the most important shark species caught in Cuba (IUCN, 2016). Finally, they are frequently caught as bycatch (Fig. 5) in the Gulf of Mexico (Knickle, 2016) where there has been a 90% decline in their population since the 1950s (Clarke et al., 2011), and are the most caught shark species in the purse seine fisheries for tuna in the eastern Pacific Ocean (IUCN, 2016).

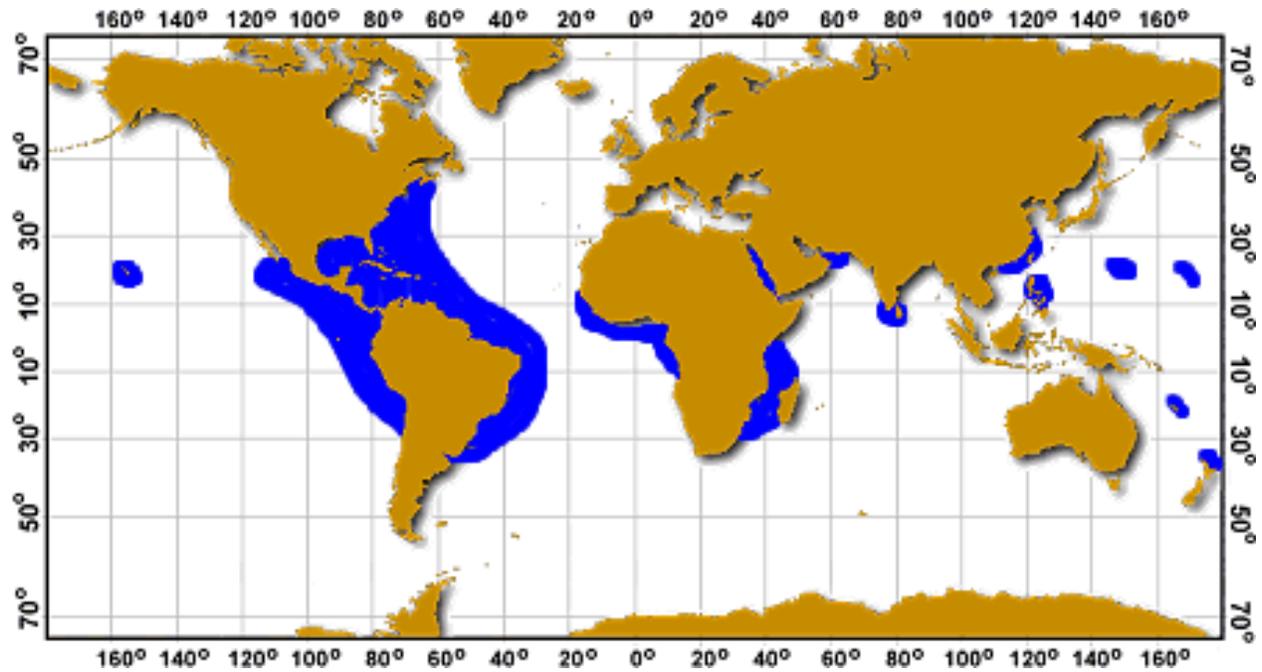
In January 2016, the Convention of Migratory Species listed the silky shark under Annex I, therefore they are covered by the Conservation Plan (CMS, 2016). The objectives of the Conservation Plan include monitoring, information exchange, and research, ensuring the sustainability of shark and related fisheries, ensuring the protection of habitats, increasing public awareness, enhancing public participation in shark conservation, and enhancing cooperation between states (CMS, 2016). While the Convention of Migratory Species is not a legally binding document, Trinidad and Tobago as a “range state” is expected to conserve and restore the habitats, prevent impeding migration, and prohibit animal capture for purposes other than scientific study or conservation, of all species listed under Annex I (CMS, 2016). Finally, Trinidad and Tobago ratified its agreement under the United Nations Convention on the Law of the Sea (UNCLOS) (United Nations, 2016). UNCLOS lists the Carcharhinidae family under Annex I (IUCN, 2016), therefore we regional signatories are mandated to cooperate through international organizations or a regional organization established for this purpose, with respect to conservation and sustainable fisheries management (United Nations, 2016).

## REFERENCES

- Clarke, C., Lea, J. S. E. and Ormond, R. F. G.. (2011). Reef-use and residency patterns of a baited population of silky sharks, *Carcharhinus falciformis*, in the Red Sea. *Mar. Freshwater Res.* 62 (6): 668. doi:10.1071/mf10171, accessed 27 February 2016.
- CMS. (2016). Convention of Migratory Species: Amendments to annex 3 of the sharks MOU: Conservation plan, In Second Meeting Of The Signatories To The Memorandum Of Understanding On The Conservation Of Migratory Sharks. [http://www.cms.int/sharks/sites/default/files/document/CMS\\_Sharks\\_MOS2\\_Outcome\\_3.pdf](http://www.cms.int/sharks/sites/default/files/document/CMS_Sharks_MOS2_Outcome_3.pdf), accessed 1 March 2016.
- FAO. (2016). Food And Agriculture Organization Of The United Nations. Species fact sheets - *Carcharhinus falciformis*. <http://www.fao.org/fishery/species/2021/en>, accessed 29 February 2016.
- Frazelle, J. (2016). *Carcharhinus falciformis* (silky shark). [http://animaldiversity.org/accounts/Carcharhinus\\_falciformis/](http://animaldiversity.org/accounts/Carcharhinus_falciformis/), accessed 11 February 2016.
- Knickle, C. (2016). *Carcharhinus falciformis* : Florida Museum of Natural History. <https://www.flmnh.ufl.edu/fish/Gallery/descript/silkyshark/silkyshark.html>, accessed 11 February 2016.
- IUCN. (2016). Red List Of Threatened Species: *Carcharhinus falciformis* (silky shark). <http://www.iucnredlist.org/details/39370/0>, accessed 11 February 2016.
- United Nations. (2016) United Nations convention on the law of the sea. Ebook. 1st ed. [http://www.un.org/depts/los/convention\\_agreements/texts/unclos/unclos\\_e.pdf](http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf), accessed 8 March 2016.

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**Fig. 2.** *Carcharhinus falciformis* global distribution.

[<http://www.fao.org/fishery/species/2021/en>, downloaded 29 February 2016]



**Fig. 3.** *Carcharhinus falciformis* fin being removed.

[<http://www.arkive.org/silky-shark/carcharhinus-falciformis/image-G79798.html>, downloaded 9 March 2016]



**Fig. 4.** *Carcharhinus falciformis* caught on longline.

[<http://www.arkive.org/silky-shark/carcharhinus-falciformis/image-G80492.html>, downloaded 9 March 2016]



**Fig. 5.** *Carcharhinus falciformis* as bycatch in a fishing net, dead.

[<http://www.arkive.org/silky-shark/carcharhinus-falciformis/image-G79806.html>, downloaded 9 March 2016]

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