

SHARKS! The word commonly conjures up a mixed response of awe and terror, particularly in seafaring communities. The presence of sharks is specially feared by divers in turbid waters where poor visibility would prevent any patrolling shark from being noticed until about an arm's length from the body. Peter Benchley's "Jaws" has served to perpetuate and popularise the misconception that all sharks are voracious creatures that exist to terrorise the human community.

Sharks are cartilaginous fishes. Unlike the bony fishes, there is a marked absence of certain features such as scales and operculum covering the gill slits, and gill rakers. Also, in contrast to the bony fishes, sharks have fleshy fins with unexposed, soft fin rays. This contributes to the use of shark fins as food.

Sharks in actual fact, are largely misunderstood creatures, as only 13 of the 250 existing species have been known to attack man unprovoked. Even so, research has shown that a large number of shark attacks could have occurred because of mistaken identity, where humans, especially those wearing wetsuits and flippers,

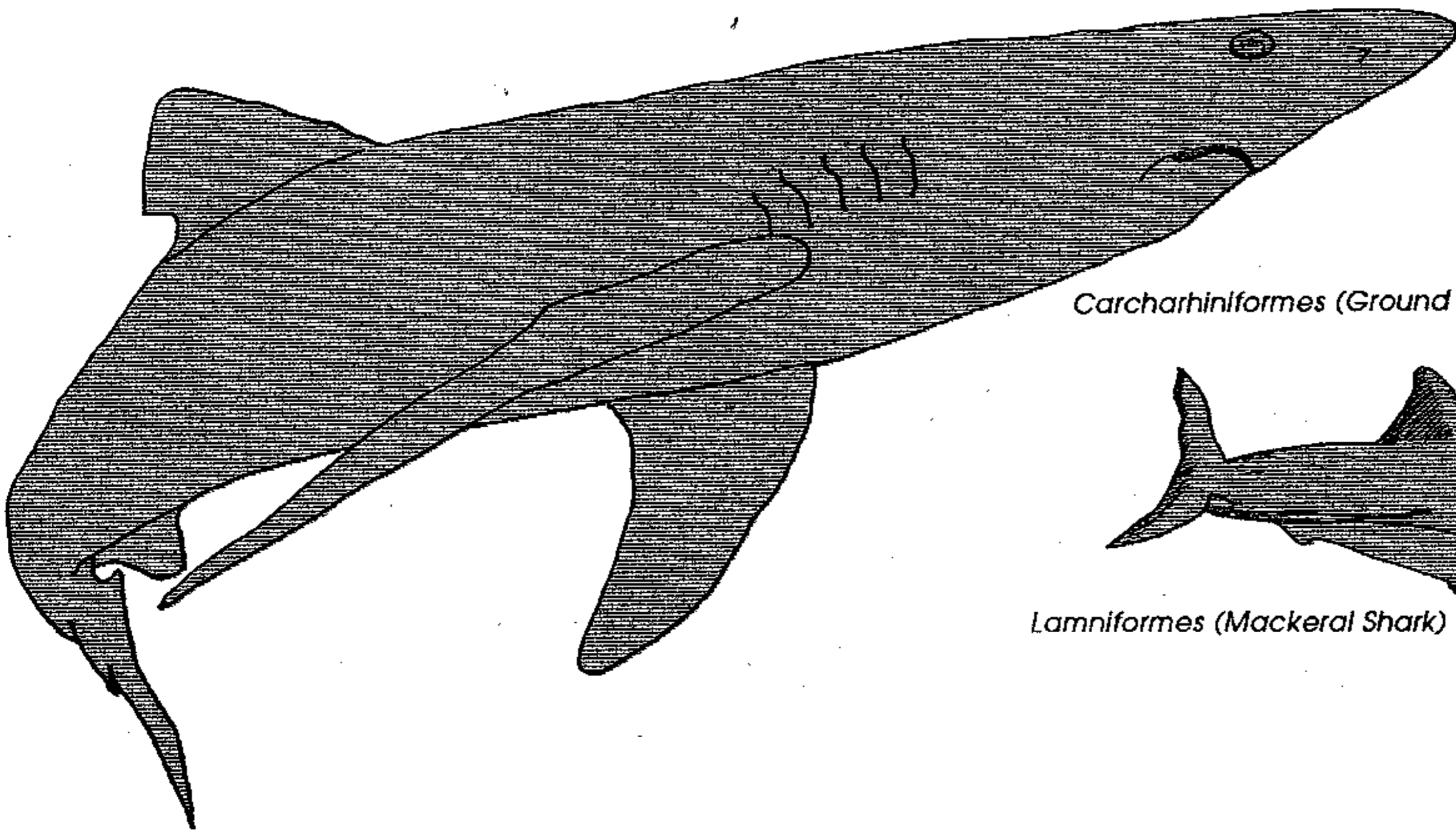
resemble mammals such as seals, which make up part of the shark's diet.

Sharks are more a cause for wonder than fear. They are true living fossils, remaining relatively unchanged for the past 300 million years or so. Sharks can simply be divided into eight orders: Sawsharks (Pristiophoriformes), Ground sharks (Carcharhiniformes), Carpet sharks (Orectolobiformes), Dogfish sharks (Squaliformes), Angel sharks (Squatiformes), Bullhead sharks (Heterodontiformes), Mackerel sharks (Lamniformes), and Filled sharks (Hexachiformes).

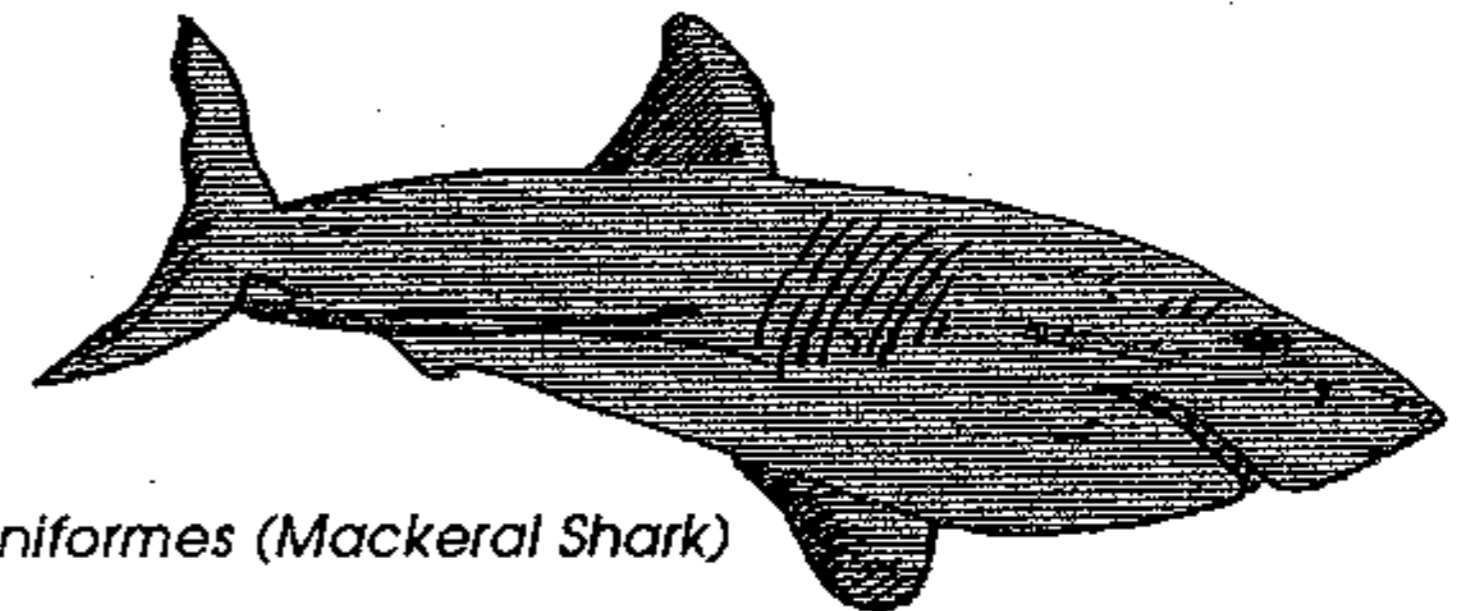
The sharks cover an extremely wide range of sizes, from the dwarf shark at less than 30 cm to the whale shark topping the group at 12 metres. Ironically, this largest shark of all is a plankton eater, straining tiny particles from the water for food.

Sharks paradoxically are one of the most primitive, yet most advanced creatures on the face of the earth. Although they possess one of the smallest brain-to-body volume ratios in the animal kingdom, the sharks are able to learn behavioural patterns in fairly short

periods of time. This was demonstrated by John Stoneman and his research crew when they trained a pair of grey nurse sharks in an isolated lagoon to ring a buzzer to obtain food. In a separate experiment conducted by other researchers, lemon sharks were trained to 'run' a maze in a similar manner as mice. Sharks compensate for their small brains by having extensive and highly developed sensory networks. Their sense of smell is developed to such a point that they are capable of detecting minute quantities of blood in the water even over extensive distances. Sharks, unlike the bony fishes, do not have a lateral line system, but have in their tough skin, a system of pits and depressions that enable them to detect changes in pressure. Also present are two sets of unique and highly specialized sensors, one of which detects electrical charges, and the other functions remarkably like taste buds. A shark is liable to brush its prey in passing, assessing its 'palatability' before it attacks.



Carcharhiniformes (Ground shark)



Lamniformes (Mackerel Shark)

Kings of the

Much has been publicised about the feeding frenzy sharks go into in the presence of copious quantities of blood, so much so that they attack each other. Sharks have the amazing ability of retaining food in their stomachs undigested, for long periods of time. A feeding frenzy therefore arises when sharks gorge themselves in times of abundant food to prepare for the event when food is scarce. This uncanny property has, in the past, been responsible for the apprehension of murderers on a few occasions. In one case, a captured sand tiger placed in a tank swam around discomfited for over an hour before regurgitating the contents of its gut, amongst which floated the severed arm of a man! Investigators called in discovered, on examination, a tattoo on the arm which led to the arrest of a murderer who had fed the remains of his victim to the sea. Not an isolated case, there have been other instances when captured

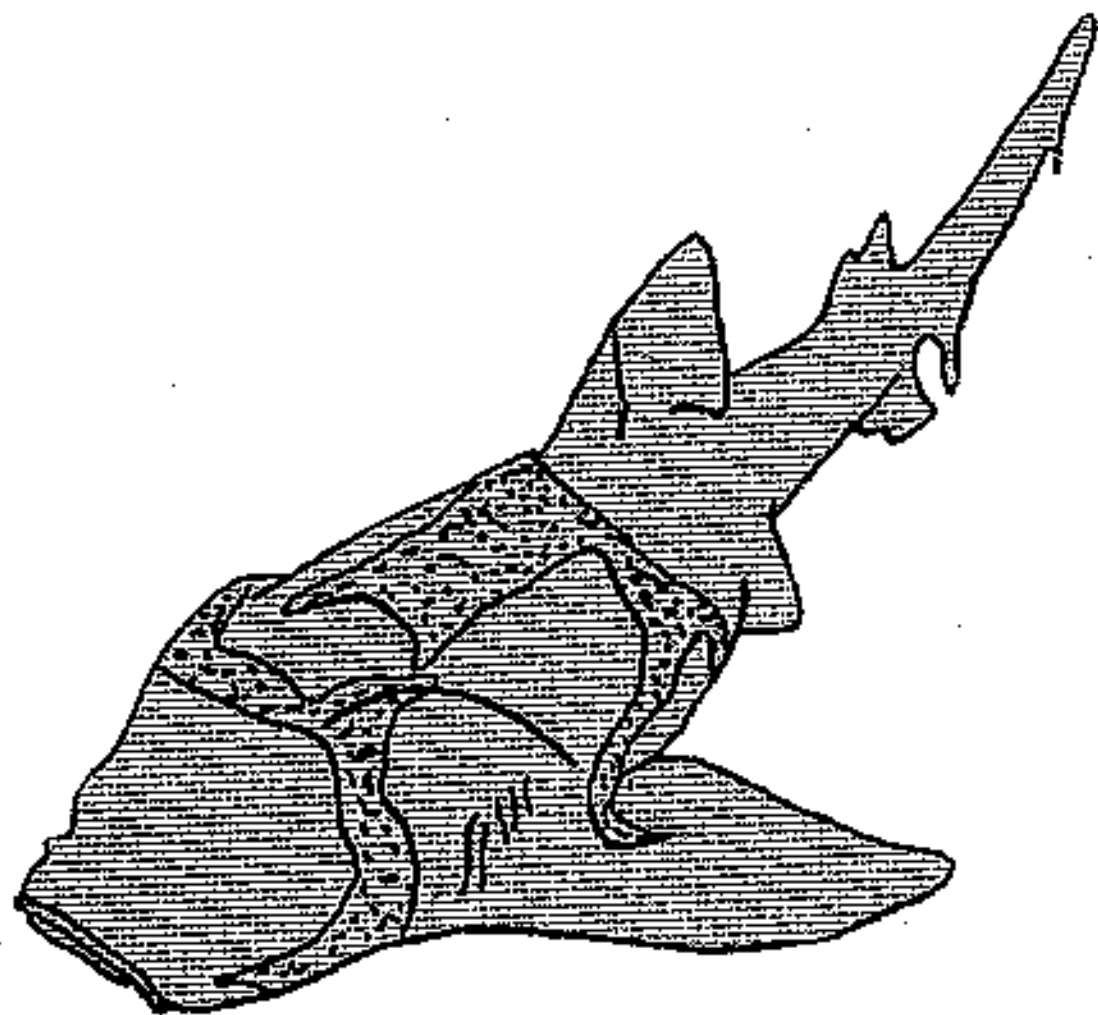
sharks either threw up previously ingested food whole, or were found to have whole animals or foreign objects in the stomach on being cut up.

The fact that sharks have their mouths situated on the undersides of their bodies have given rise to the myth that sharks have to turn over to attack their prey. This has since been disproved, as sharks in the wild were observed to hunch their bodies before attacking, their jaws moving forward and down, such that the mouth opens at an angle of 90 degrees. Sharks have teeth that are adapted to their diet and mode of feeding. This makes the teeth distinctive within each species, enabling them to be identified from their teeth alone. An average shark's jaw contains several rows of teeth lined up behind each other. A shark usually loses a number of teeth whenever it takes a bite. New replacement teeth will move up within 24 hours.

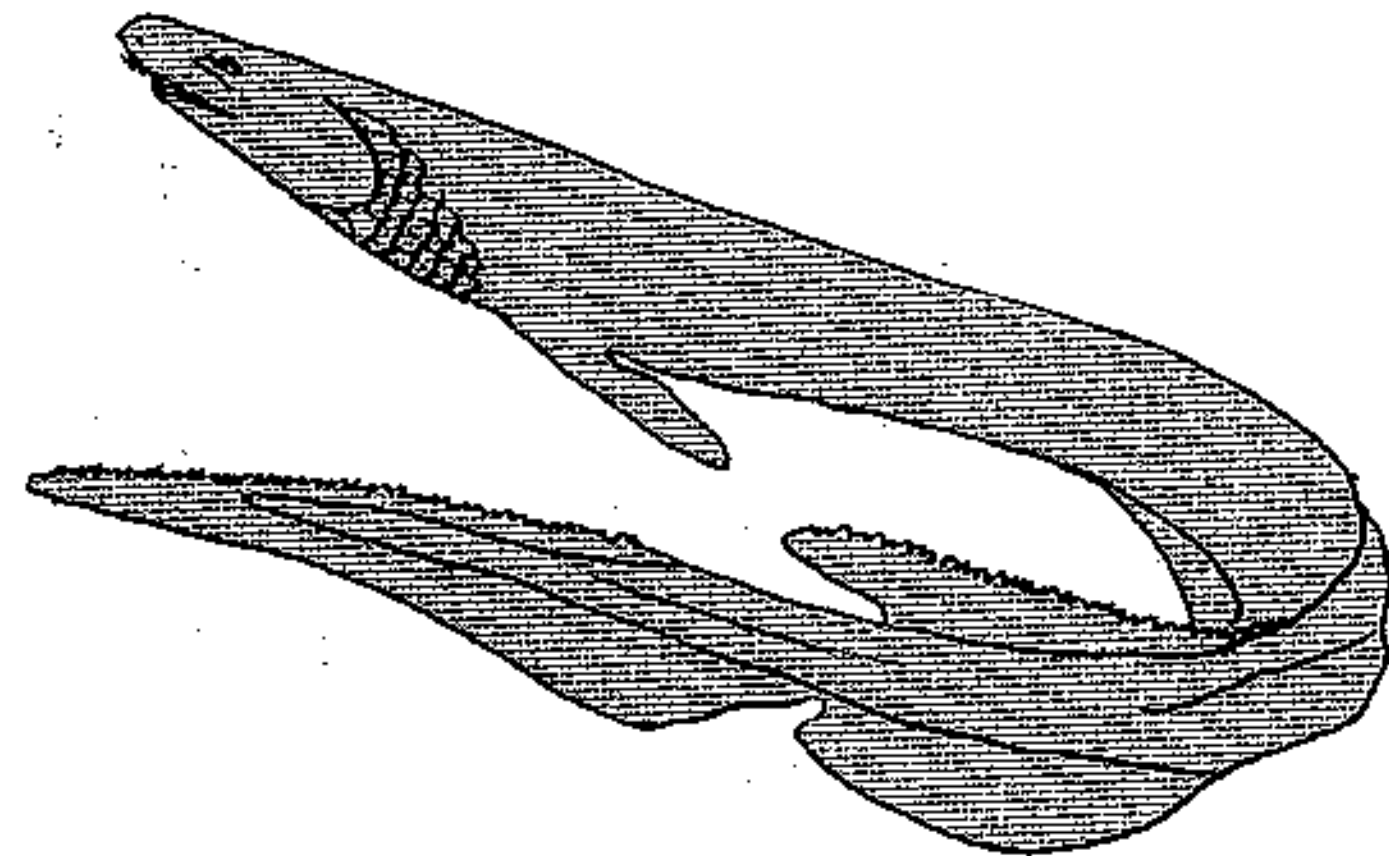
Sharks inhabit various areas of the world, and are found in such inhospitable conditions as the Antarctic, where the Greenland shark abounds. More common in local waters are the long-finned and short-finned makos, the black-tip reef sharks, the sand tiger sharks, and several species of hammerheads.

Often sought after as gamefish, sharks are heralded as hard-fighting, fierce fish, especially on light tackle. The target of both sport fishermen and commercial fishermen to whom the fins bring in good revenue, sharks are significantly diminishing in numbers. It is easier to appeal for the conservation of dolphins, pandas and other 'nice' animals, but if the widespread hunting of sharks is not controlled, these tremendously well adapted kings of the oceans may well be on their way to extinction.

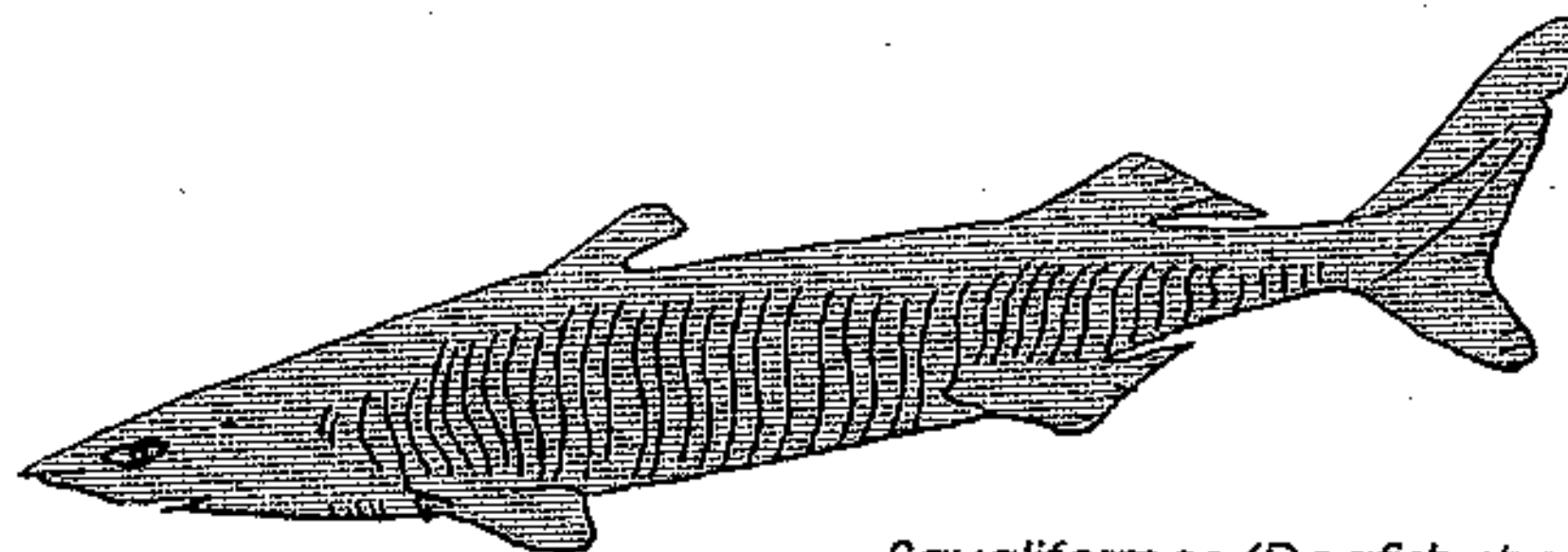
Sin Tsai Min and Chou Loke Ming



Heterodontiformes (Bullhead shark)

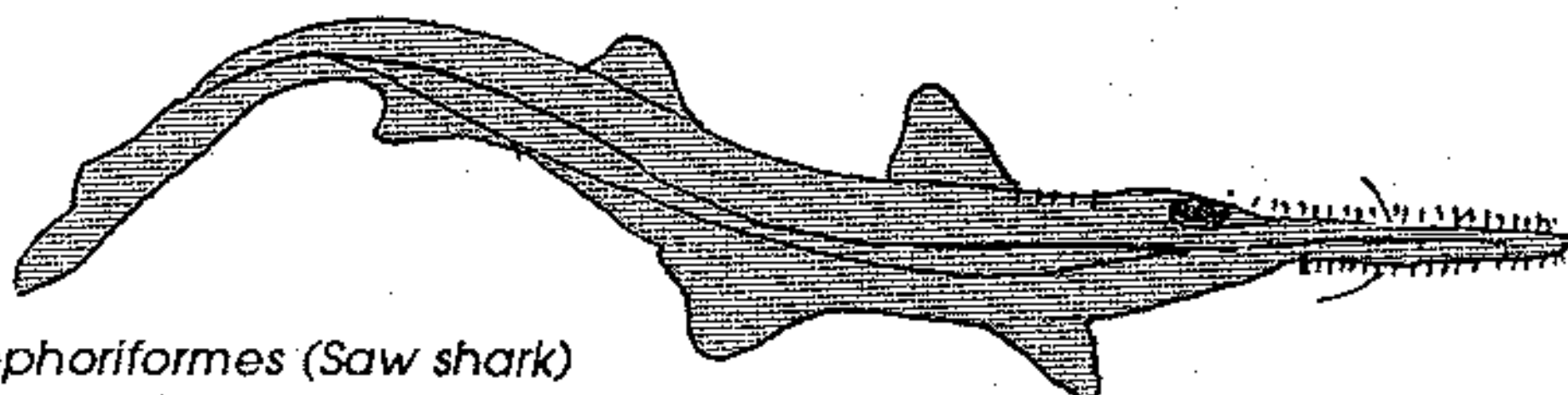


Hexandriformes (Filled shark)

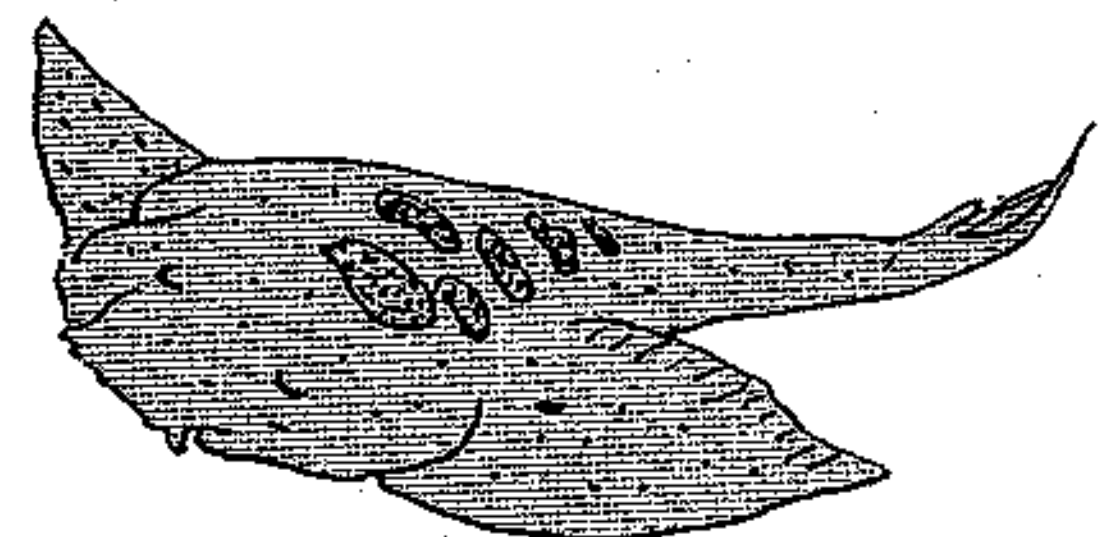


Squaliformes (Dogfish shark)

Oceans



Pristiophoriformes (Saw shark)



Squatiniformes (Angel shark)