

## Sharks

### Shark classification

Sharks are members of a group of fishes (Class Chondrichthys) which have an internal skeleton formed of cartilage instead of bone. Living chondrichthian representatives can be divided into two lines: the sharks and rays (Elasmobranchii) with 5-7 gill openings, and the chimaeras (Holocephali) with a single gill opening.

Within the Elasmobranchii, two major groups are recognized: the more generalized sharks, with gill slits positioned laterally on the sides of their head, and the rays, which are flattened from top to bottom and have gill slits on the undersides of their head.

### Shark biology

Sharks are mainly confined to the marine environment and are found in the shallowest of coastal waters down to the true deep sea; only a few species venture into fresh waters. The distribution of most species depends on water temperature and depth, although some species are confined to relatively small geographic areas.

There are about 500 species of shark worldwide, compared with more than 25 000 species of living fishes. Up to 190 shark species are known from Australian waters. These range in size from tiny luminescent sharks to the enormous Whale sharks. The smallest is the deepwater Dwarf Lantern Shark which only grows to a length of 20 centimetres. The giant Whale Shark, however, reportedly reaches a length of 20 metres, although few grow more than 12 metres.

Sharks have a fearsome reputation as being dangerous man-killers. Most species, however, are harmless to humans and only a few have been involved in attacks. While all sharks are carnivores, most feed on rather small fish – and the largest of all, the Whale Shark, feeds on tiny plankton and small creatures living near the surface of the ocean. The reputation of sharks as being scavengers is also mostly inaccurate, as many are quite selective when searching for food.

### Shark teeth – a proper tool for every job

Tooth shape differs from species to species depending on their diet. Shark teeth can be broadly categorized as grasping, cutting and crushing teeth and the preferred prey of a species can be determined solely on the shape of its teeth.



Grasping teeth of a Grey Nurse Shark  
Source: Museum Victoria

Grasping teeth are usually narrow and sharply pointed and may have a single pointed element known as a 'cusp', or have several cusps of equal or different sizes. These are designed to hold onto prey, which are then either swallowed whole or cut up by teeth of a different shape in the opposing jaw.

Cutting teeth are compressed and often have serrated edges to facilitate the cutting action. They are found in species that feed on prey that cannot be swallowed whole.



Cutting tooth of a White Pointer  
Source: Museum Victoria

Crushing teeth are short, stubby and occasionally rounded and are well-suited for breaking the shells of invertebrates such as molluscs, crustaceans and echinoderms.



Crushing teeth of a Port Jackson Shark  
Source: Museum Victoria

## Further Reading

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