

FACT SHEET



LADY ELLIOT ISLAND

Sharks & Rays

Sharks and rays are the Great Barrier Reef's most sophisticated, fascinating and sometimes feared residents. Sharks and rays may be regarded as fish but are in a subclass of their own called *Elasmobranchii* (pronounced e-las-mo-brank-ke-i). This is because their skeleton is made of cartilage, not bones; just like the human nose and ears. There are over 134 species of sharks and rays found on the Great Barrier Reef, which is 12% of the total species worldwide.

SHARKS

Sharks have existed for over 400 million years. They come in all shapes and sizes and range from the small bottom-dwelling Epauvette shark to larger mid water species like the Tiger Shark. They also have different characteristics, habitats and diets but overall they share some intriguing features:

- Sharks cruise at speeds of 2–8km/h and can reach burst speeds of 19km/h.
- Sharks have 5–7 gill slits on each side of their body. They extract oxygen from seawater as it passes over their gills like other fish.
- In order to stay afloat and gain oxygen most sharks have to swim constantly. This means that they do not get to sleep as such, but rather alternate between active and restful periods.
- Sharks are able to replace their teeth constantly. New teeth slide forward when the old teeth get worn out or are lost.
- Sharks have dermal denticles instead of scales. These are a lot like teeth and their shape and position helps reduce friction in the water.

FEEDING & REPRODUCTION

Sharks teeth are shaped according to their diet. Spiky teeth are used by sharks that seize prey such as squid and fish; saw-edged teeth are utilised by sharks that need to cut or tear through flesh like turtle shells or whale blubber and flattened teeth are used to crush up prey like crustaceans and molluscs. Some sharks don't even use teeth and instead rely on their gill rakers to filter plankton.

Sharks reproduce internally; the male shark has two claspers which are inserted into the female shark's cloaca to transfer sperm. Sharks can lay eggs which they attach to the reef, give birth to fully developed young or a combination of both, where the eggs develop within the mother and are released shortly after hatching.

Compared to fish, sharks take a long time to reach sexual maturity and produce fewer young. The average shark's lifespan is 25–30 years.

DID YOU KNOW?

- The shark has the greatest electrical sensitivity of any animal. The *Ampullae of Lorenzini* are electrically sensitive organs that sharks use to detect the electromagnetic field that all living things produce through muscle movement, brain activity and their heartbeat. This helps them find prey in dark and turbid water or buried in the sand.
- Sharks have a sharp sense of smell which, with some scents, is 10,000 times better than humans. They have the ability to detect one drop of scent in a million drops of water – that's equivalent to a grain of sugar in an Olympic-size swimming pool!
- Some sharks, if inverted or stroked on the nose can enter a natural state of tonic immobility. This interesting method has been used by some shark researchers to study their behaviour.
- The largest shark is the whale shark which may grow up to 20m long.
- Some are apex predators at the top of the food chain and play a vital role in the health of the reef ecosystem. They help to regulate the populations of prey species and maintain an ecological balance.

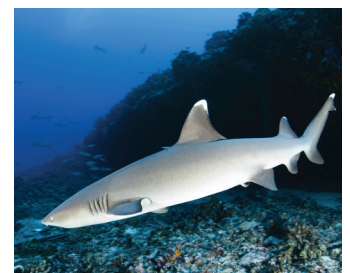
SHARKS OF LADY ELLIOT ISLAND

Some common species of shark found on the reef of LEI are:

- **Black Tip Reef Shark** (*Carcharhinus melanopterus*)
Identified by the black tips on each of its fin tips.
Frequently seen in shallow water. Reaches 1.8m in length.



Black Tip Reef Shark



White Tip Reef Shark

- **White Tip Reef Shark** (*Triaenodon obesus*)
Identified by the white tips on its dorsal and caudal fins, it is a timid shark regularly seen resting under coral ledges.
Can reach up to 1.5m in length.

- **Leopard Shark** (*Stegostoma fasciatum*)
Sand coloured with black spots, usually seen resting on the sea floor and foraging on the sandy bottom for shellfish and crustaceans. Can reach up to 3m in length.



Leopard Shark

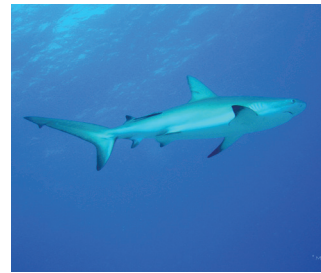


Wobbegong

- **Wobbegong** (*Oretolobus* spp)
Identified by irregular blotched patterns on the flattened body and fringing tassels around the mouth. Feeds on crustaceans and small fish. Some species reach 3m in length.
- **Epauvette Shark** (*Hemiscyllium ocellatum*)
Seen in the shallow water of the lagoon. It is most active after dark, feeding on worms, shrimps and crabs. The large spots on each of its "shoulders" give it its name. Reaches 1m in length.



Epauvette Shark

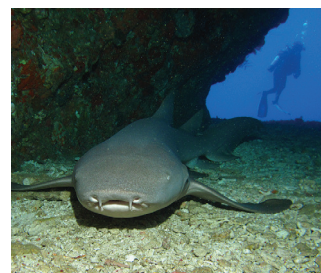


Common Blacktip Whaler

- **Common Blacktip Whaler** (*Carcharhinus limbatus*). Identified by a bronze dorsal surface and black tips to most fins. These active mid water sharks are best sighted during the twilight hours. Can reach 2.5m in length.
- **Grey Reef Shark** (*Carcharhinus amblyrhynchos*)
Active mid water sharks, their diet consists of small fish, cephalopods and crustaceans. They are mostly grey with a black margin on caudal fin. Can exceed 2m in length.

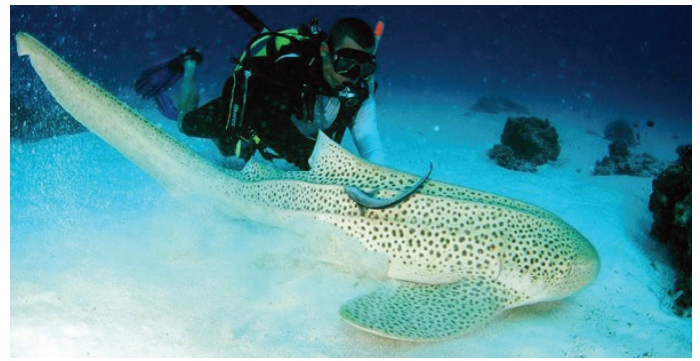


Grey Reef Shark



Tawny Nurse Shark

- **Tawny Nurse Shark** (*Nebrius ferrugineus*)
Large bottom dwelling shark most commonly seen resting on the sandy sea floor. Short nasal barbels and two similar sized dorsal fins. Feeds on cephalopods, invertebrates and other reef fishes. Can grow to 3.2m.



HUMANS AND SHARKS

People are often scared of sharks but somewhat ironically (and sadly) shark populations are now under threat by the actions of humans. We have little or no data regarding the population status of some species and they are at great risk from over-fishing and shark-finning. Shark-fin soup is a delicacy dish served among the wealthy in China and is the driving force behind the planet's largest shark fisheries. Fins are of far greater value than the shark carcass itself, and can be sold as much as \$1,400 per kilogram. Therefore, the most common scenario is that the shark is caught, its fins removed and it is then thrown back into the water where it will slowly suffocate and die. The meat is also marketed worldwide and goes under a variety of names including flake, huss and dogfish. Shark meat contains very high levels of mercury. The United Nations Food and Agricultural Organisation estimate that the global catch is over 100 million sharks every year which is equivalent to three every second.

Shark tourism on the other hand, is a growing industry and can provide a long term sustainable income. It is thought that a shark carcass is worth as little as a tenth of what a single shark can earn through tourism in one year.

WHAT YOU CAN DO TO HELP SHARKS

No-take zones on the GBR, such as the waters surrounding LEI, will help protect shark populations. There are also things you can do to help save our important shark populations:

- Do not purchase shark products.
- Talk about your own shark experiences and help to adjust the stigma surrounding sharks.
- Raise awareness about the importance of sharks and the problems sharks face as a result of human actions and the pressures of finning.
- In developing countries support tourism operations that employ a large staff base of local people. People earning money from living sharks are less likely to export shark products.
- Support a not-for-profit group such as **Project Aware** that help conserve shark populations and raise awareness about the shark fin trade.

RAYS

Rays possess characteristics similar to sharks but have evolved a flattened body shape. Gill slits are located on the underside of their bodies and their pectoral fins are greatly expanded and attached to their heads creating wing-like appendages. The largest ray is the Oceanic Manta Ray which can have a 7–8m wing span.

RAY CHARACTERISTICS

They have moveable eyes, good eyesight and use electro-receptors to locate their prey. For most rays, their mouth lies on their underside. Their teeth are very small and are used for grinding up small fish, shellfish, worms, and other bottom-dwelling animals. Like sharks, most rays have light undersides and colour-camouflaged backs to conceal them in their environment. This is called countershading.

Rays reproduce internally, the paired claspers on the male transfer sperm to through the female cloac. Some rays lay eggs and others give birth to live young.

Stingrays have one or more barbs on their tails that they can use to defend themselves. The adaptation is used as a defence for sharks that primarily feed on them (such as the Hammerhead). Human incidents with stingrays are extremely rare and will only occur if they are caught, cornered, stepped on or harassed. The barb contains a painful venom but stingray wounds are rarely fatal.

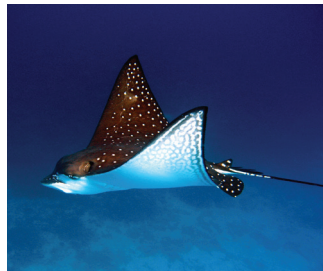
RAY SPECIES OF LEI

Some common species of rays found on the reef of LEI are:

- **Manta Ray** (*Manta alfredi*): The iconic logo of Lady Elliot Island. The Reef Manta is the smaller of the two known Manta species, having a maximum wingspan of 5m. Manta Rays are often seen feeding at the surface and use paddle-like appendages called cephalic lobes to direct plankton into their broad mouth. Unlike stingrays, mantas have no barb and their only defence is their speed. Check out our factsheet on Manta Rays for more information.



Manta Ray



Spotted Eagle Ray

- **Spotted Eagle Ray** (*Aetobatus narinari*): A fast mid water ray that is often seen travelling in groups and are timid of snorkellers and divers. The head is distinctive with a protruding snout. They dig for molluscs and crustaceans on the sea floor. Up to 3m disc width.

- **Blue-spotted Fantail Ray** (*Taeniura lymma*)
A small, abundant ray that is frequently seen in shallow water and is shy around snorkelers. Their diet consists of molluscs, worms and small crustaceans. They can reach 1m in length.

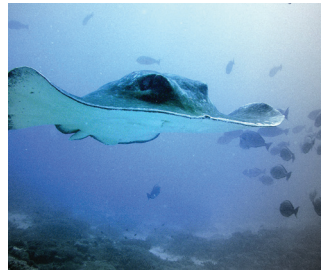


Blue-spotted Fantail Ray

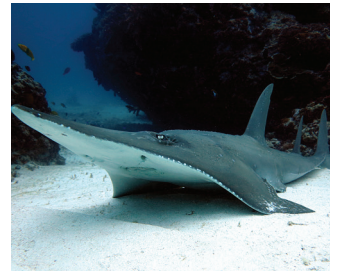


Cowtail Stingray

- **Cowtail Stingray** (*Pastinachus atrus*)
A large uniformly dark (greyish-black) stingray. A broad flap of skin extends to the tip of the tail. Can be seen in the shallow waters of the reef flats and on the western side over sand. Reach 3m in length.
- **Bull Ray** (*Taeniura meyeni*): A large ray with a black to brown dorsal surface that sometimes has blotched lateral patterns. Can be seen cruising and feeding over the sandy bottom. Up to 1.8m disc width.



Bull Ray



White-spotted Guitarfish

- **White-spotted Guitarfish** (*Rhynchobatus djiddensis*):
A shark-like ray with a wedge-shaped snout and two tall dorsal fins. Generally found resting on the sandy bottom, this species feeds on crustaceans, molluscs and small fish. Reaches 3m in length.

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