

# Christmas Island National Park

[environment.gov.au/parks/christmas](http://environment.gov.au/parks/christmas)



## Marine and freshwater life

### Cetaceans (sea mammals)

Spinner dolphins (frequently) and common dolphins (occasionally) are seen in inshore waters.

### Reptiles

Small numbers of green and hawksbill turtles nest on Dolly and Greta beaches. Undetermined species of sea snakes occur round the island, with the only species recorded being the pelagic yellow-bellied seasnake (*Pelamis platurus*).

### Fish

The faunal composition is typical of Indo-Pacific islands with nearly 68 per cent of species widespread in the Pacific and Indian Oceans. Altogether, the fish fauna is more closely allied to the West Pacific province of the Indo-West Pacific faunal region than to the East Indian Ocean region. As is the case with most Indo-Pacific islands the rate of endemism is low and only three species, the pygmy angel fish and two undescribed pseudochromids, are apparently endemic to Christmas and the [Cocos \(Keeling\) Islands](#). Whaleshark sightings occur regularly from November to March each year.



Barracuda | manta ray

### The open ocean

There is no place to hide in the surface layers of the open ocean. The pelagic (open ocean) fish that live in this environment are fast swimmers and escape danger by bursts of speed. Many are schooling fish and find added safety by gathering together and swimming about in large numbers. Most pelagic fishes have protective colouration - blue or dark grey above and white or silvery underneath, making them less visible to predators from above or below them.

Pelagic species include tunas, wahoo, barracuda, rainbow runners, mackerel scad, sailfishes, marlin, swordfishes and trevallies.

The manta ray is the largest of all rays, growing to over seven metres across and weighing over three tonnes. They feed on small fish and plankton. The large flaps on either side of the head are used to direct planktonic food into the mouth where it is sieved.

### Reef fishes

Around 575 species of fish have been identified from the island's waters and are

mostly fishes associated with coral reefs.

#### Butterflyfishes

Renowned for their striking colour patterns, delicate shapes and graceful swimming movements. Most are solitary dwellers or form pairs.



Angelfish

#### Angelfishes

These colourful fishes shelter in holes and crevices feeding on algae and sponges. They are territorial.



Parrotfish

#### Triggerfishes

These fish have leathery skin and a small mouth with powerful crushing jaws. Their 'trigger device' is used to wedge themselves into coral crevices and holes. Some males will viciously guard their eggs when breeding.



Surgeonfish

#### Parrotfishes

These fishes graze over the reef, scraping algal food from the surface of coral. They are the main contributors of sediment, expelling fine particles of coral limestone during feeding.

#### Wrasses

A most diverse group of fish in terms of size and form. Most wrasses are carnivores, feeding on invertebrates and fishes; others are planktivores, corallivores or cleaners that feed on external parasites of other fishes.

#### Surgeonfishes

These fishes feed mainly on algae. Their name is derived from the sharp scalpel-like spines on the sides of their tail base that are used for defence.

#### Moray eels

Usually seen with their head sticking out from a crevice. They may bite if provoked.

### Invertebrates

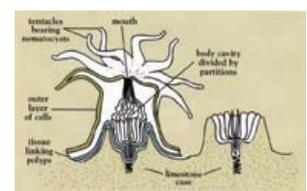
Over 88 species of reef building corals were collected around the Island during a survey in 1987. There is considered to be a low coral species diversity and this is attributed to the small size of the Island, its isolation from sources of planktonic coral larvae, and the limited range of marine habitats present. The most abundant octocoral on the reefs around the island is blue coral. Gorgons and antipatharians are found in the deeper slopes. Five species of clownfish sea anemones are recorded. Numerous sponges, including endemic species and varieties, have been found around the island.

The crustacean fauna reflects the dominance of coral and coral rubble habitats with relatively small areas of sand substrate and the minimal occurrence of mud and fine silts.

Parks Australia maintain moorings within the National Park which are used by divers and recreational fishermen. These moorings help prevent damage to coral from boat anchors.

### Corals

Corals are tiny animals called polyps that live in colonies. They build a chalky limestone case as they grow. Each polyp builds its case with calcium taken from sea water. Coral colonies grow as the polyps divide and multiply in a process known as budding. Reef building corals are known as hard, stony or true corals.



Coral diagram - click to enlarge

Trying to identify particular species of coral is difficult. The shape of a coral colony depends on its environment. A species which grows in a rounded mass in areas with strong waves may produce slender branches in deeper, calmer water. Light level and the amount of sediment in the water also influences coral colony shapes.

Soft corals and sea fans do not have hard external limestone skeletons. Their soft body is defended by chemicals which make the coral toxic and bad tasting to predators. In addition to their swaying bodies, soft corals can be distinguished from hard corals in that they have eight fringed tentacles per polyp. Hard corals have tentacles usually in multiples of six. Sea fans (also called gorgonians) also have only eight branched tentacles per polyp. Their colony is supported by a flexible skeleton made of a substance similar to fingernails, called gorgonin.

## Molluscs

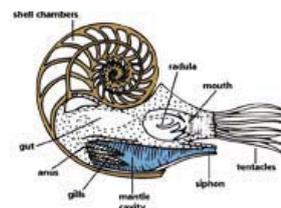
There are three major types or Classes of molluscs that occur on coral reefs: bivalves, gastropods and cephalopods.

### Bivalves

The body of a bivalve shell is flattened and is attached to both its hinged shells. Bivalves do not have a head. The largest of all bivalves is the Giant clam. Other bivalves include scallops, oysters and mussels.

### Gastropods

Gastropods are the most common type of molluscs on coral reefs. Most of the body of a typical gastropod is hidden within its shell, which offers protection from predators. Cone shells are hunters. Their rasp-like tongue (common to most molluscs) has been modified into a hollow harpoon filled with venom that they use to kill prey. Cone shell venom can affect humans. Anyone stung by one should seek medical attention.



Nautilus diagram - click to enlarge

The colourful nudibranches have discarded the characteristic shell of other snails and rely on toxins within their skin for protection. For many their bright colours serve as a warning to predators while others use camouflage to evade predation. The name nudibranch means 'naked gill' and refers to the gill structure on their backs. There are two main groups of nudibranches - the dorids and aeolids. Dorids feed mainly on sponges. Aeolids are easily identified by the tubular projections on their back. This type of nudibranch feeds on anemones, corals and hydroids.



### Cephalopods

The nautilus is the only cephalopod with a true external shell. The inside of the shell is divided into many gas-filled chambers. Buoyancy is controlled by taking in or pumping out water. The nautilus spends daylight in deep cool waters, rising at night to feed on crustaceans on the reef. They have more than ninety tentacles.

Octopi, cuttlefishes, squids and nautiluses are all cephalopods. They are the most highly advanced form of mollusc and the most intelligent vertebrate group. All cephalopods except nautiluses have an ink sac. Ink is expelled to confuse predators.

Squids are torpedo shaped and adapted for fast swimming. They propel themselves by jetting water through a siphon in the body and hunt for fish with other squids. They are noted for their rapid colour change.

## Algae

There are two kinds of marine plants - algae (seaweeds) and seagrasses. Coral reefs are 'turfed' with fine hair-like algae which are grazed by many animals. Some red algae form hard pink crusts which cement sand and dead coral together.

## Sponges

Sponges stand out from the reef community with their bright colours and range of shapes. Sponges are filter feeders, taking in water and straining off tiny plants and animals, bacteria and oxygen. A typical sponge pumps four to five times its own volume of water each day. Sponges should never be removed from the water as they are killed by even short exposure to air. Many sponges contain toxins for defence. One of the few predators of sponges are nudibranches.



Bryozoan

## Bryozoans

Bryozoans filter food from the water. A Bryozoan colony is made up of individuals called zooids, all of which are descended by division from one founder parent. Colony members are independent of each other, but all retract as one when disturbed.

## Ascidians

These little sea squirts are very advanced in structure. They have a hollow body with two openings and may be either found solitary or in colonies. They attach themselves to the reef and play two vital roles. Firstly they filter reef waters, keeping them clear and secondly they strain minute plants and animals from the water for food and release the resulting nutrients in wastes which are used by other organisms.



Ascidians

## Echinoderms

Echinoderms include sea stars, brittle stars, feather stars, sea urchins and sea cucumbers. The skins of these creatures are hard plates or spines. Starfish are known for their powers of regeneration. A new animal can grow from a small fragment. Sea urchins are usually nocturnal, spending daylight hours wedged under rocks or in crevices. They are herbivorous and graze on algae on the reef. Triggerfishes and pufferfishes eat urchins.

## Crustaceans

Crabs, crayfish and shrimps belong to a group of ten-legged crustaceans called decapods. The Banded coral shrimp is one of the best known cleaner shrimp species. They clean parasites and excess mucus off fish.



Banded coral shrimp

## Sea jellies

Sea jellies have a two part life cycle. The first is a polyp stage before the free-swimming bell like stage, when they use their tentacles which are covered in stinging cells to catch their prey of plankton, shrimp and small fishes. The stinging cells are also used for defence.

## Hydroids

Hydroids are diverse in appearance and include fire corals, stinging hydroids and bluebottles. Although looking like coral, fire coral is actually a hydroid. Their shape is variable ranging from sheets to staghorn like forms. Their smooth skeleton contains minute holes in which the hydroid polyps live.



Fire coral

## Anemones

A sea anemone is a large polyp whose feeding tentacles surround the mouth and each one contains stinging cells. These are used to capture the plankton and small creatures the anemone feeds on. Some species have special symbiotic relationships with anemonefish. These fish hide amongst the tentacles of anemones to protect themselves and are not affected by the anemone's sting.



Anemone

## Freshwater species

The limited availability of permanent, above-ground freshwater sources has restricted the numbers and types of aquatic vertebrates found on Christmas Island, although further study is warranted. At least seven species have been recorded from freshwater environments on the Island, all except one of which are probably introduced.

Only one species, the native brown gudgeon, has been recorded from caves. Those species recorded to date are the Asian bony tongue (*Scleropages formosus*), brown gudgeon (*Eleotris fusca*), tilapia (*Oreochromis sp.*), guppy (*Poecilia reticulata*), mosquito fish (*Gambusia affinis*), swordtail (*Xiphophorus maculatus*) and 'terrapins' (Class *Reptilia*). Terrapins occur in the tank at Ross Hill Gardens but they have not been identified.