

Student Information Sheet 7

The Grey Nurse Shark

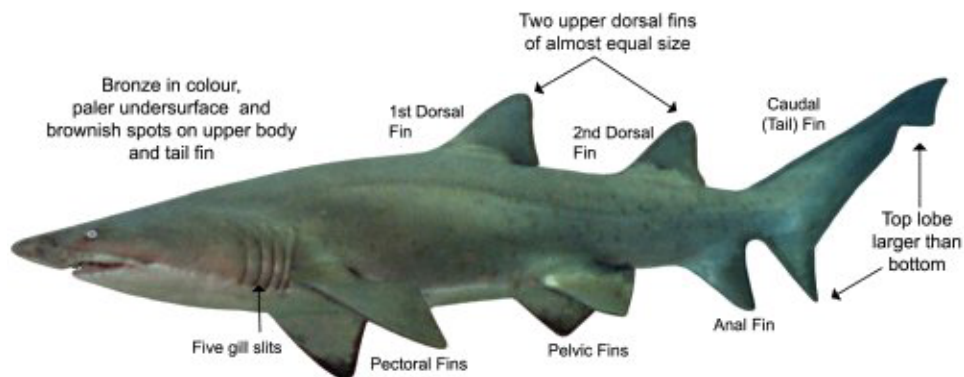
What do they look like?

Grey nurse sharks generally occur alone or in small schools, with larger groups occurring during courtship and mating. This species can be easily distinguished from other sharks as they have a first and second **dorsal fin** of almost equal size.

They are generally bronze in colour, with a pale undersurface and have brown spots on the upper body and tail (caudal) fin. The maximum length recorded for a grey nurse was 3.18 metres.



The grey nurse shark, *Carcharias taurus*
 (© Ken Hoppen, oceannotions@primus.com.au)



The grey nurse shark showing some outer features.
 (© David Harasti).

Where are they found?

The grey nurse shark is found mainly in warm-**temperate** inshore waters around the main continents of the world. In Australia, grey nurse sharks are restricted to two populations, one on the east coast from southern Queensland to southern New South Wales and the other around the south west coast of Western Australia. It is believed that the east and west coast populations do not interact and research has shown that the populations are **genetically** different. The grey nurse shark is now considered to be extinct in Victorian waters, although it was recorded there in the past.

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What do they eat?

Grey nurse sharks feed on a wide variety of **bony fishes**, small sharks, rays, squid and sometimes crabs and lobsters. In addition, groups of these sharks can feed by working together to gather schools of fish into tight bunches before feeding on them.

How do they reproduce?

The grey nurse shark uses **oophagy** and **intra-uterine cannibalism** to reproduce. This results in a maximum of two young per litter. Embryos hatch into the **uterus** at about 5.5 cm long. At lengths of around 10 cm they develop teeth and consume other embryos in the uterus. The single remaining embryo in each uterus (there are two) then feeds on unfertilised eggs as the female continues to produce them. The shark pups measure about 1 metre long at birth. **Gestation** is between 9–12 months and females only reproduce once every two years.

The timing of mating and pupping in Australian waters is unknown, but it appears that these sharks give birth at select **pupping grounds**. Many sharks with bite marks gained during mating, have been observed at Pimpernel Rock, New South Wales, during the months of March and April.

The age at maturity might be around 9–10 years. The average life span of a grey nurse is unknown although it is probably more than 16 years.

What kind of environment do they live in?

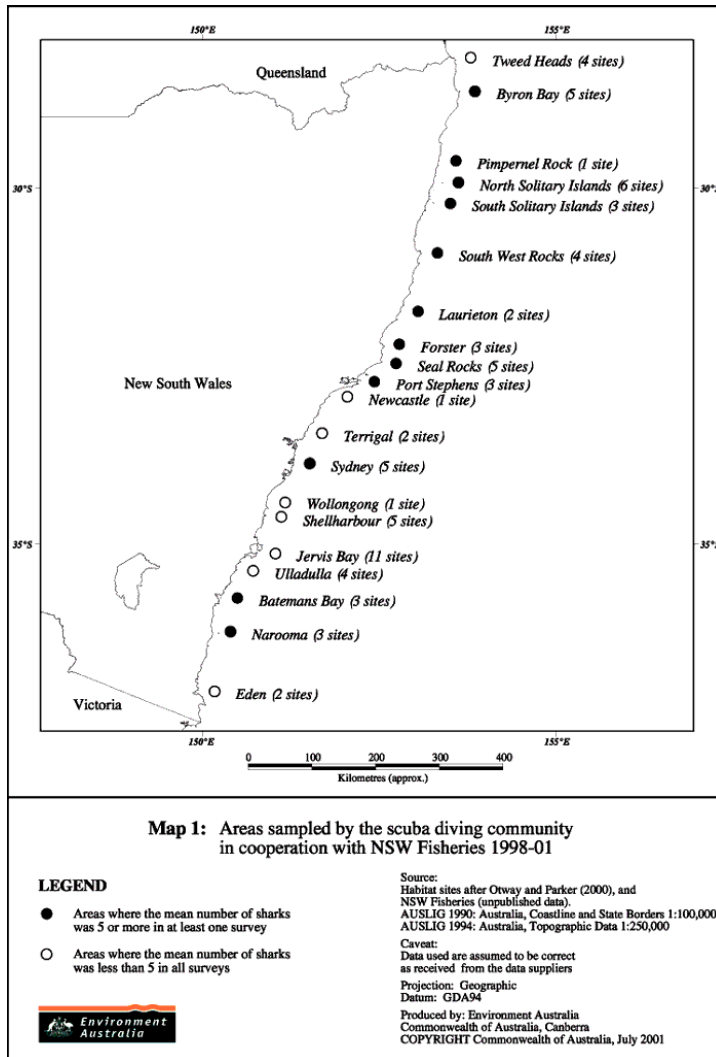
Grey nurse sharks are found in areas ranging from rocky inshore reefs, occasionally in the **surf zone** and in shallow bays and to depths of around 200 metres on the **continental shelf**.

In New South Wales, a number of sites have been identified as grey nurse critical-habitats, which are vital to the survival of the species. Rules for divers and snorkellers in each grey nurse shark critical habitat area are:

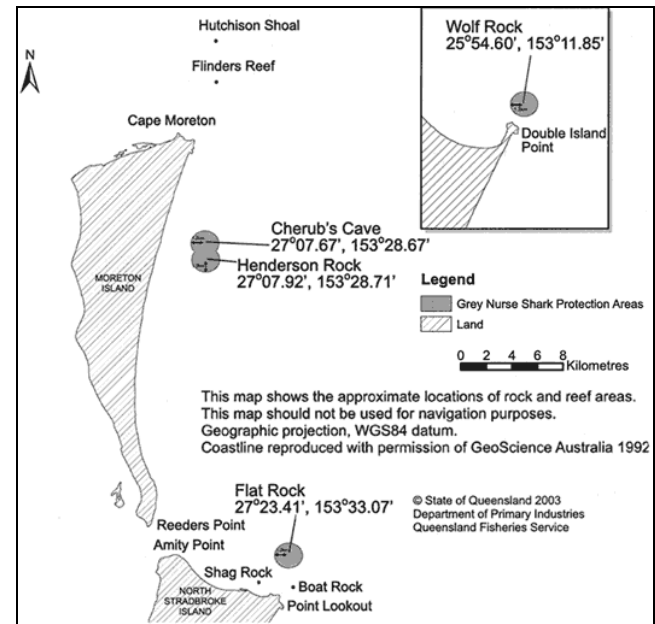
- No scuba diving between sunset and sunrise;
- No blocking entrances to caves or gutters when the sharks are there;
- No feeding or touching the sharks;
- No chasing or harassing the sharks;
- No electronic shark repelling devices; and
- No underwater scooters.

In Queensland, there are restrictions on diving in three areas in the Moreton Bay Marine Park. In Western Australia, very little is known about the grey nurse shark population. They are rarely seen by divers but are caught as **bycatch** in other shark fisheries.

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a) Locations of grey nurse habitats in New South Wales (©Department for the Environment and Heritage);



b) Locations of grey nurse sightings in Queensland (© Queensland DPI).

Do they migrate?

A tagging program was started in 2002 to understand the movements of grey nurse sharks along the east coast of Australia. Twenty-four sharks were tagged ranging in size from 1 metres to 2.61 metres. Of these, 20 individuals had been resighted on at least one occasion within one year of tagging. The research found that the same grey nurse sharks occupied particular sites along the coast at various times during the year. The sharks spent different amounts of time at particular sites. They traveled in one direction for distances up to 880 km and traveled from sites in Queensland to sites in central and southern New South Wales (and vice-versa).

Researchers are currently examining local grey nurse shark movements within the critical-habitat sites. The results of this work have shown that the sharks move out at least 1.2 km from their gathering site.

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What threatens the survival of Grey Nurse Sharks?

Recreational fishing (sportfishing, spearfishing, gamefishers)

- Grey nurse sharks can take baited hooks that are often set for **demersal** species such as snapper, kingfish and mulloway. This can cause infection and death when these get caught in the jaws of the grey nurse and/or puncture the stomach, the **sac** around the heart and **oesophagus**.
- Recreational **gamefishers** have voluntarily banned grey nurse captures since 1979.
- **Spearfishing** for grey nurse sharks in Commonwealth and State waters is not allowed.

Commercial fishing

- Set lines are often left overnight and unattended by **commercial fishers**. This method catches more grey nurse sharks than any other fishing method.
- **Trawling** can also capture this species as bycatch. The high demand for shark fins can impact upon this species as this may lead to targeting.

Beach netting

- Shark control programs are a major threat to the grey nurse shark in New South Wales and Queensland. These sharks are caught as bycatch in shark nets, but are not targeted in these programs as they are not seen as a threat to humans.

Ecotourism

- Diving regulations have been introduced for diving with grey nurse sharks and will help minimise impacts from diving in the future.
- If divers continue to keep an acceptable distance from these sharks, it is unlikely that scuba diving will have any harmful effects on their survival.

Are they protected?

Grey Nurse Sharks are protected species in Commonwealth waters under the *Environment Protection and Biodiversity Conservation Act 1999*.

Alex Gaut adapted this information sheet for children (which is suitable for primary school students) from the information sheet compiled for the general public by from © Brad Norman (ECOCEAN) [info@whaleshark.org].

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