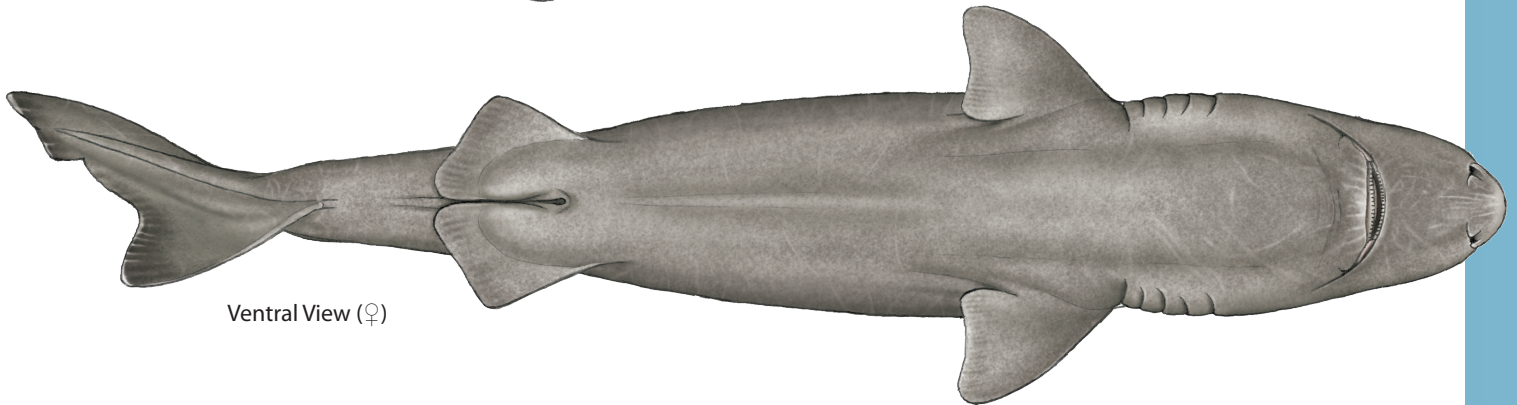


Lateral View (♀)



Ventral View (♀)



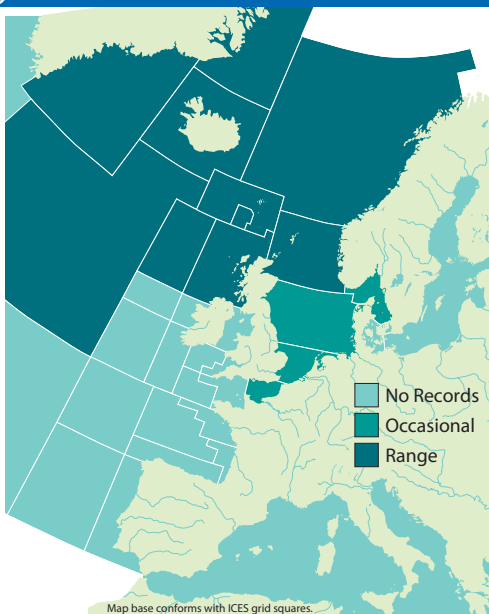
COMMON NAMES

Greenland Shark, Sleeper Shark, Large Sleeper Shark, Ground Shark, Gray Shark, Gurry Shark, Laimargue du Groenland (Fr), Tollo de Groenlandia (Es).

SYNONYMS

Squalus microcephalus (Bloch and Schneider, 1801), *Squalus carcharias* (Gunnerus, 1766), *Squalus squatina* (Pallas, 1814), *Squalus norwegianus* (Blainville, 1816), *Squalus/Somniosus brevipinna* (LeSueur, 1818), *Squalus borealis* (Scoresby, 1820), *Scymnus gunneri* (Thienemann, 1828), *Scymnus glacialis* (Faber, 1829), *Scymnus micropterus* (Valenciennes, 1832), *Leiodon echinatum* (Wood, 1846), *Somniosus antarcticus* (Whitley, 1939).

DISTRIBUTION



The Greenland Shark is known in the east Atlantic from the Seine River mouth, France to Spitsbergen Island, Russia. It is also known from similar latitudes in the west Atlantic. Reports from the South Atlantic and Antarctic are thought to be misidentifications of the Southern Sleeper Shark, *Somniosus antarcticus* (Kyne et al., 2006).

APPEARANCE

- Short rounded snout and a heavy cylindrical body.
- Very small eyes.
- First dorsal fin set behind pectoral fins.
- Second dorsal fin set slightly behind pelvic fins.
- All pre-caudal fins small.
- No anal fin.
- Heterocercal caudal fin with long ventral lobe.
- Medium grey to brown.
- Sometimes pattern of transverse dark bans.
- Also sometimes small dark spots/blotches and small light spots.
- To more than 640cm in length, possibly up to 730cm.

The Greenland Shark is a massive species with a heavy cylindrical body and short rounded snout. Its precaudal fins are all small. The dorsal fins are spineless and equally sized, the first of which is closer to the pelvic fins than pectoral fins. There is no anal fin and no keels are present on the caudal fin (Compagno, 1984).

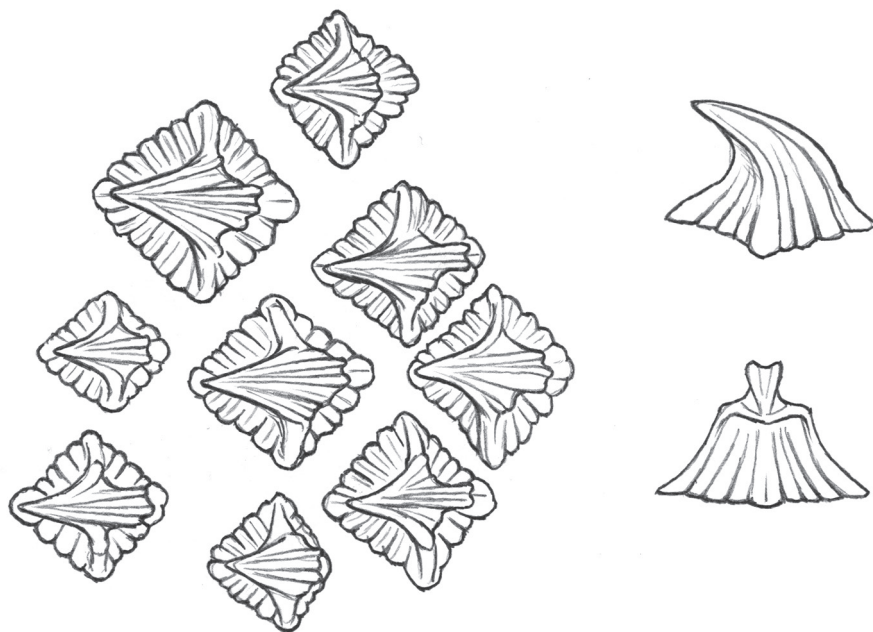
It varies between a uniform black, brown and grey colour, although it may be marked with dark lines or white spots along its back and sides (Eagle, Unknown). It reaches a maximum total length of at least 640cm, possibly to 730cm (Compagno et al., 2005).

SIMILAR SPECIES

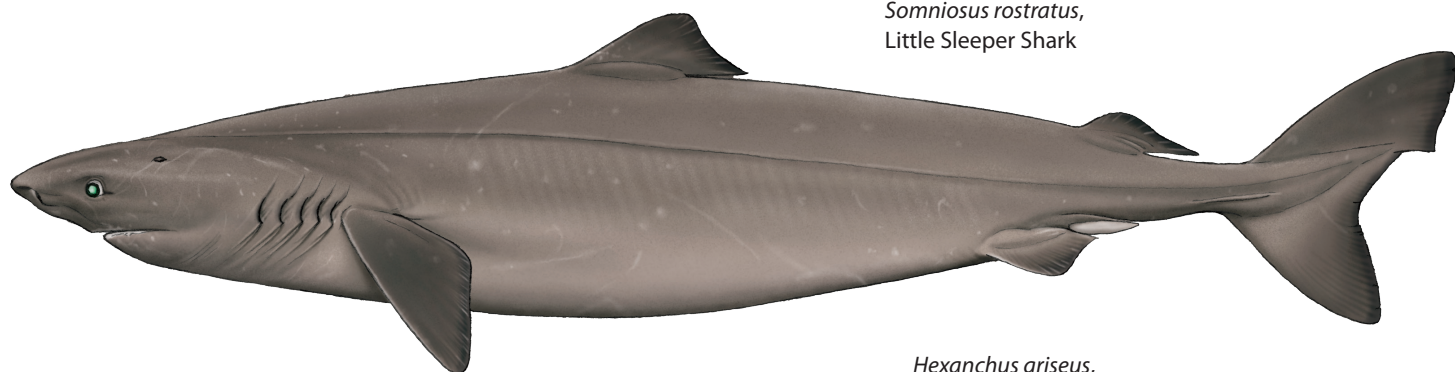
Somniosus rostratus, Little Sleeper Shark

Hexanchus griseus, Bluntnose Sixgill Shark

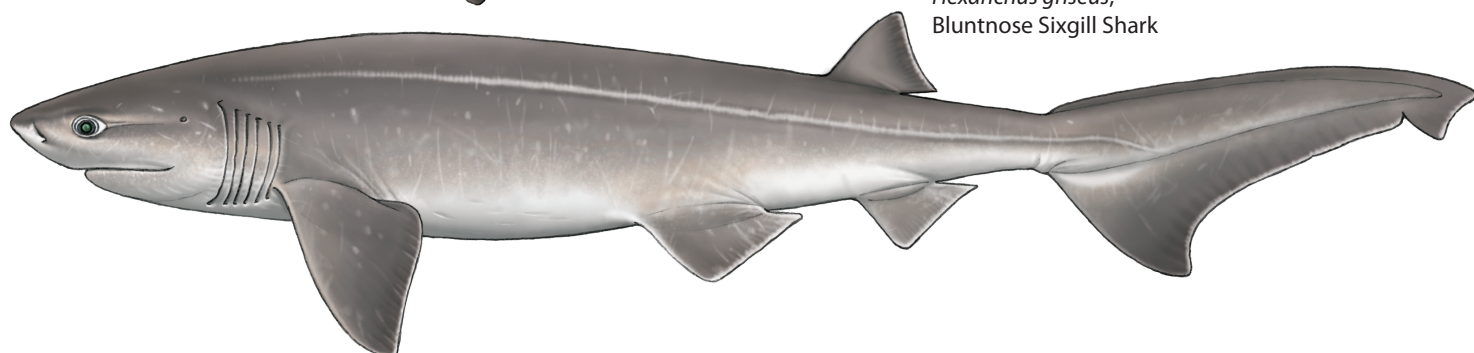
Dermal Denticles of *Somniosus microcephalus*



Somniosus microcephalus,
Greenland Shark



Somniosus rostratus,
Little Sleeper Shark

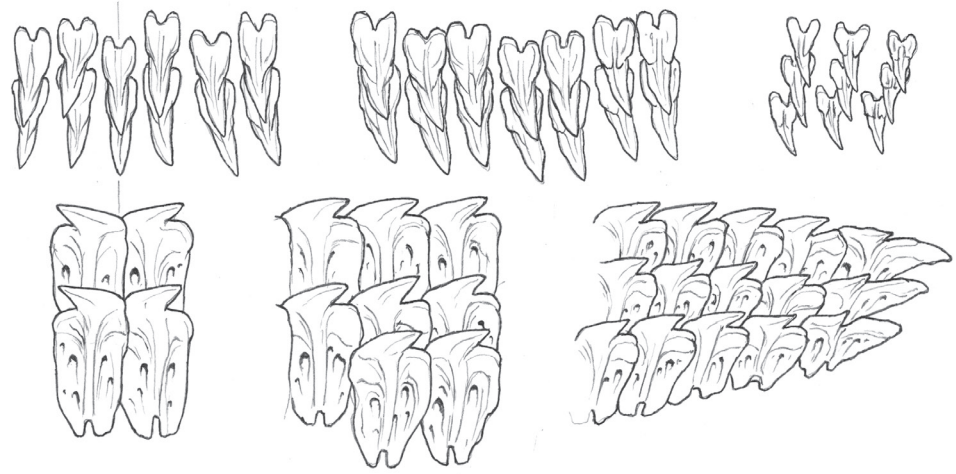


Hexanchus griseus,
Bluntnose Sixgill Shark

(Not to scale)

TEETH

The upper teeth are very thin, pointed and lack serrations, ranging in number from 48–52. The lower teeth are interlocking, broad and square with short, smooth cusps which point outward. These range in number from 50–52 (Eagle, Unknown).



ECOLOGY AND BIOLOGY

HABITAT

The Greenland Shark is found from surface waters in shallow estuaries and bays to depths of at least 1,200m in continental shelf and slope waters. In 1988, a 6m long male was observed at 2,200m on the wreck of the SS Central America off the coast of Savannah, Georgia (Eagle, Unknown). It has been reported from higher latitudes that the species moves into shallower waters during the colder months, retreating to deeper water when the oceans warm in the summer. At lower latitudes the species is believed to remain on the continental shelves during the colder months, moving into shallower water during the spring and summer (Kyne *et al.*, 2006).

Tracking studies from Baffin Island, Canada have shown that daily movements from deeper waters during the morning to shallower waters in the afternoon and at night also occur. These movements are possibly related to preying on seals. It has been recorded in water from 0.6–12°C (Kyne *et al.*, 2006).

DIET

Fish are an important food item for the Greenland Shark and known species that are preyed upon include herring, spiny eels, salmon, char, smelt, cod, ling, pollock, haddock, Atlantic and Greenland Halibut, wolf-fish, redfish, sculpins, lumpfish, and skates and their egg-cases. Marine mammals are also important with seals and small cetaceans found in the stomachs of specimens, the latter probably taken as carrion. Other common prey includes sea birds, squids, crabs, amphipods, marine snails, brittle stars, sea urchins, and jellyfish. The Greenland Shark is an indiscriminate scavenger and feeds on offal and carrion whenever available. Parts of drowned horses and in one case a whole reindeer have been found in larger specimens (Compagno, 1984).

REPRODUCTION

Very little is known of the Greenland Sharks reproduction biology. Until very recently it was believed to be an oviparous species as no gravid females had been observed. It is now known to be ovoviviparous with litters of approximately 10. The pups are born measuring ~37–38cm in length. The size and age at maturity, the gestation period and the reproductive periodicity are all unknown (Kyne *et al.*, 2006).

PARASITISM

The majority of Greenland Sharks are parasitised by the copepod *Ommatokoita elongata*, up to 98.9% of individuals in surveyed populations. It was recorded that 100% of sharks had associated *O. elongata* parasites in a recent tagging study off Baffin Island, Canada. However in some areas this parasitism is less prevalent. Studies of Greenland Shark behaviour in the mouth of the St. Lawrence River have found no individuals with copepod parasites on either eye. This study also revealed that sharks with no parasites reacted in a way to closely approaching divers that had not been observed in parasitised animals. Details of these displays have been described by Harvey-Clark, Gallant and Batt (2005).

When an *O. elongata* female in the nauplius stage encounters a Greenland Shark it infects the cornea of an eye. As this copepod matures, it embeds an anchoring device into the cornea and permanently tethers itself to it, causing corneal lesions which can seriously disrupt the sharks' vision. It has often been speculated that these parasites are bioluminescent and attract potential prey to the shark, making it a mutualistic rather than parasitic relationship. This could explain how such an apparently sluggish shark is able to regularly feed on much faster prey such as marine mammals and fish. However, such bioluminescence has never been observed and this theory is controversial. It may simply be that the Greenland Shark relies on senses other than sight to hunt, allowing it to ambush faster prey in the poor visibility of the deep Arctic Ocean (Benz and Dippenaar, 1998).

COMMERCIAL IMPORTANCE

The Greenland Shark was historically targeted for its liver oil in Norway, Iceland and Greenland. In the 1910's, catches of the Greenland Shark reached 32,000 animals a year in Greenland alone. It is still taken as bycatch in trawl, gillnet and trap fisheries throughout its range as well as being an important target species for artisanal fisheries in the Arctic where it is fished through ice (Kyne *et al.*, 2006). These traditional fisheries utilise the skin for making boots and the lower teeth as knives for cutting hair, as well as eating the flesh after extensive preparation to remove poisons (Eagle, Unknown).

THREATS, CONSERVATION, LEGISLATION

The Greenland Shark is an extremely long lived and slow growing species, tagging studies have shown that medium sized sharks grow at around 1cm a year. While its population dynamics and biology are poorly understood, such a large and slow growing shark is likely to be extremely vulnerable to fishing pressure. While massive fisheries for the species have existed previously, it is now only occasionally taken as bycatch. Artisanal fisheries for this species still exist in the north of its range where it can be relatively easily fished through ice holes due to its sluggish nature. Catches of the Greenland Shark must be carefully monitored if potentially significant declines in populations as are to be avoided (Kyne *et al.*, 2006).

IUCN RED LIST ASSESSMENT

Near Threatened (2005).

HANDLING AND THORN ARRANGEMENT

- Handle with care.
- Massive, powerful shark.
- Sharp teeth.
- Abrasive skin.

REFERENCES

- BENZ, G. W., DIPPENAAR, S. M. 1998. Putting the Bite on Jaws: Copepods as Enemies of Sharks. Cooperative Shark Tagging Program, NOAA. Rhode Island, USA.
- COMPAGNO, L. J. V. 1984. Sharks of the World: An Annotated and Illustrated Catalogue of Shark Species Known to Date. Volume 4, Part 1. Hexanchiformes to Lamniformes. FAO. Rome, Italy.
- COMPAGNO, L. J. V., DANDO, M., FOWLER, S. 2005. Sharks of the World. HarperCollins Publishers Ltd. London, UK.
- EAGLE, D. Unknown. Greenland Shark. Florida Museum of Natural History. www.flmnh.ufl.edu/fish/.
- HARVEY-CLARK, C. J., GALLANT, J. J., BATT, J. H. 2005. Vision and its Relationship to Novel Behaviour in St. Lawrence River Greenland Sharks, *Somniosus microcephalus*. *Canadian Field-Naturalist* 119 (3): 355–359.
- KYNE, P. M., SHERRILL-MIX, S. A., BURGESS, G. H. 2006. *Somniosus microcephalus*. In: IUCN 2008. 2008 IUCN Red List of Threatened Species. www.iucnredlist.org.

Text: Richard Hurst.
Illustrations: Marc Dando.

Citation

Shark Trust; 2010. An Illustrated Compendium of Sharks, Skates, Rays and Chimaera. Chapter 1: The British Isles and Northeast Atlantic. Part 2: Sharks.

Any amendments or corrections, please contact:
The Shark Trust
4 Creykes Court, The Millfields
Plymouth, Devon PL1 3JB
Tel: 01752 672008/672020
Email: enquiries@sharktrust.org

For more ID materials visit www.sharktrust.org/ID.

Registered Company No. 3396164.
Registered Charity No. 1064185