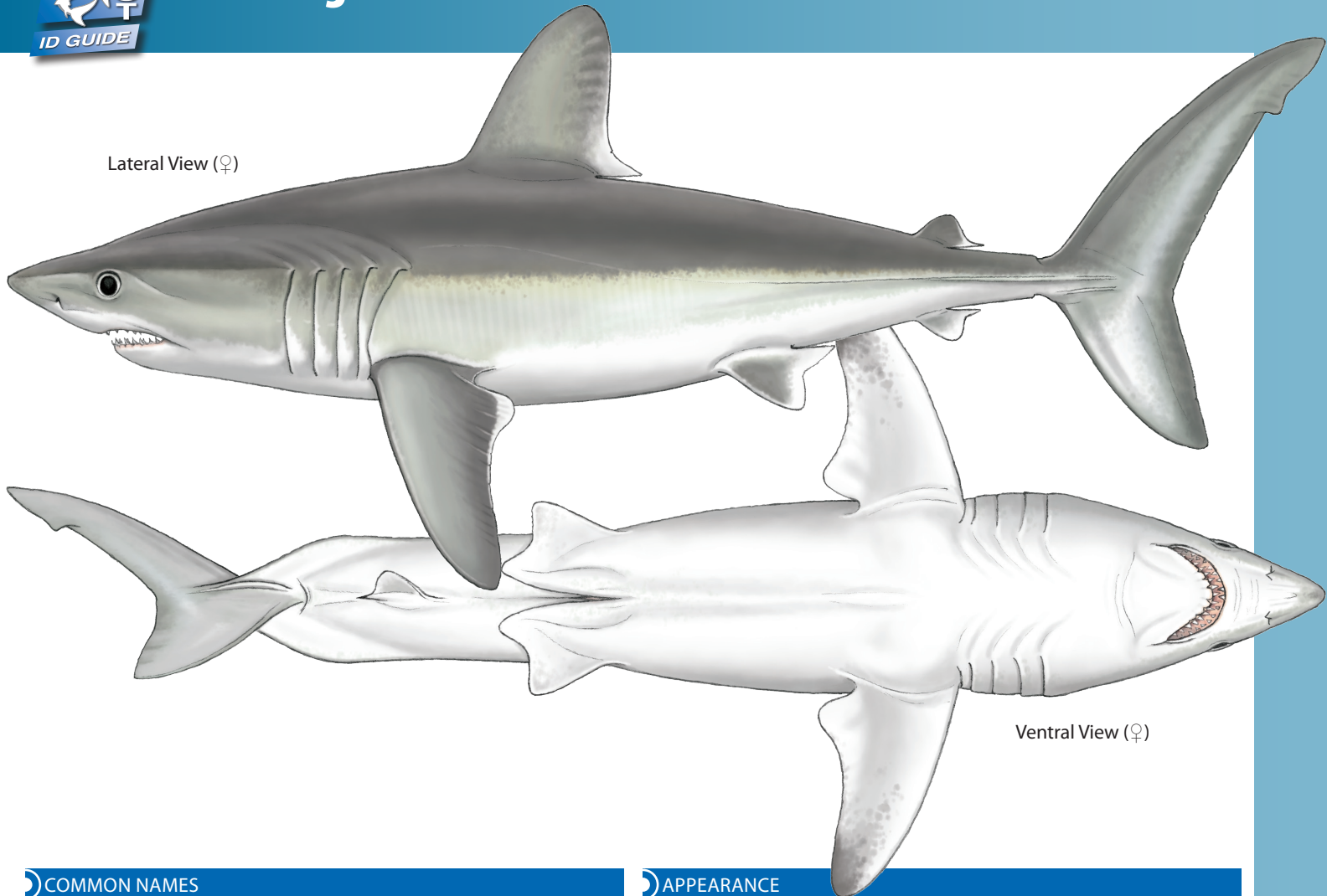


Lateral View (♀)



Ventral View (♀)

### COMMON NAMES

**Porbeagle Shark**, Atlantic Mackerel Shark, Blue Dog, Bottle-nosed Shark, Beaumaris Shark, Requin-Taupe Commun (Fr), Marrajo Sardinero (Es), Tiburón Sardinero (Es), Tintorera (Es).

### SYNONYMS

*Squalus glaucus* (Gunnerus, 1758), *Squalus cornubicus* (Gmelin, 1789), *Squalus pennanti* (Walbaum, 1792), *Lamna pennanti* (Desvaux, 1851), *Squalus monensis* (Shaw, 1804), *Squalus cornubiensis* (Pennant, 1812), *Squalus selanonus* (Walker, 1818), *Selanonius walkeri* (Fleming, 1828), *Lamna punctata* (Storer, 1839), *Oxyrhina daekyi* (Gill, 1862), *Lamna philippi* (Perez Canto, 1886), *Lamna whitleyi* (Phillipps, 1935).

### DISTRIBUTION



In the northern hemisphere, the Porbeagle Shark occurs only in the North Atlantic and Mediterranean, whilst in the southern hemisphere it is found in a circumglobal band (Francis *et al*, 2008).

### APPEARANCE

- Heavily built but streamlined mackerel shark.
- Moderately long conical snout with a relatively large eyes.
- Large first dorsal fin with a conspicuous white free rear tip.
- Second dorsal fin and anal fin equal-sized and set together.
- Lunate caudal fin with strong keel and small secondary keel.
- Dorsally dark blue to grey with no patterning.
- Ventrally white.
- Maximum length of 365cm, though rarely to this size.

The Porbeagle Shark is a large, streamlined mackerel shark with a conical snout and powerful body. The first dorsal fin is large and originates above or slightly behind the pectoral fins. It has a free rear tip which is white. The second dorsal fin is tiny and is set above the anal fin, to which it is comparable in size. The caudal fin is strong and lunate with a small terminal notch. The caudal keel is strong and, uniquely for the northeast Atlantic, a smaller secondary caudal keel is present. Dorsally, it is dark blue to grey with no patterning. Ventrally it is white with darker patterning on the edges of the pectoral fins. The maximum recorded length is 365cm but animals less than 300cm in length are much more commonly encountered (Compagno, 2001).

In European waters it can be confused with the White Shark, *Carcharodon carcharias*, the Shortfin Mako Shark, *Isurus oxyrinchus*, the Longfin Mako Shark, *Isurus paucus*, and the Blue Shark, *Prionace glauca*. However, it is distinguished from all of these species by its white free rear tip on the first dorsal fin and the secondary caudal keel.

## SIMILAR SPECIES

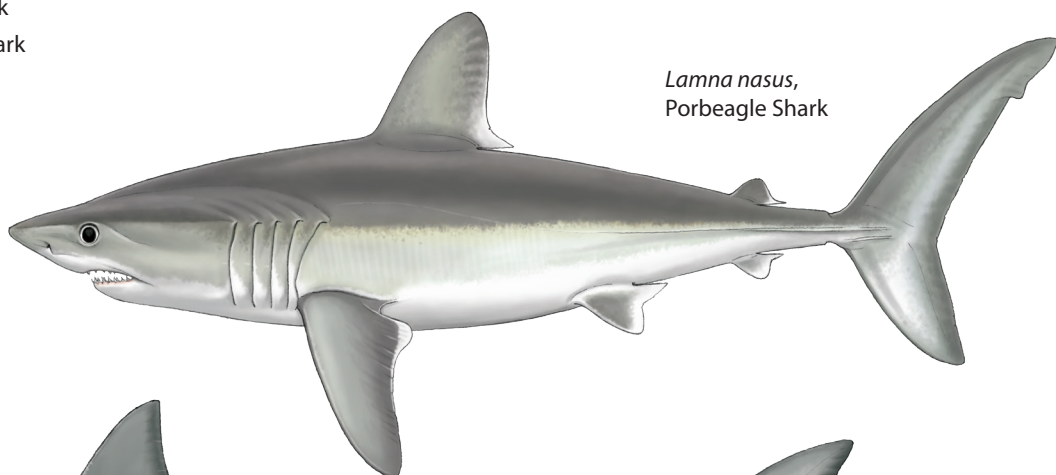
*Carcharodon carcharias*, White Shark

*Isurus oxyrinchus*, Shortfin Mako Shark

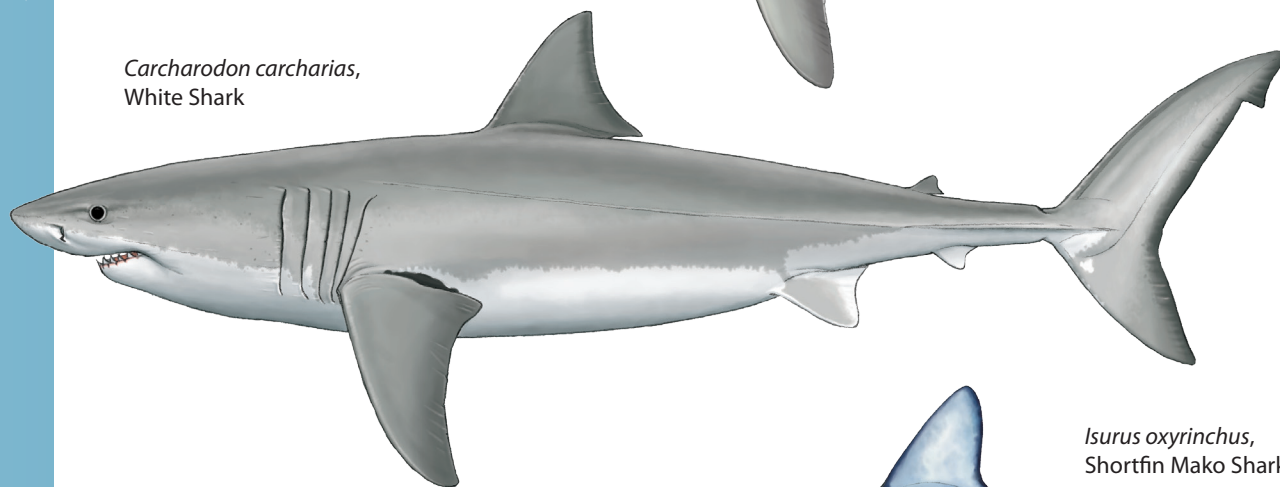
*Isurus paucus*, Longfin Mako Shark

*Prionace glauca*, Blue Shark

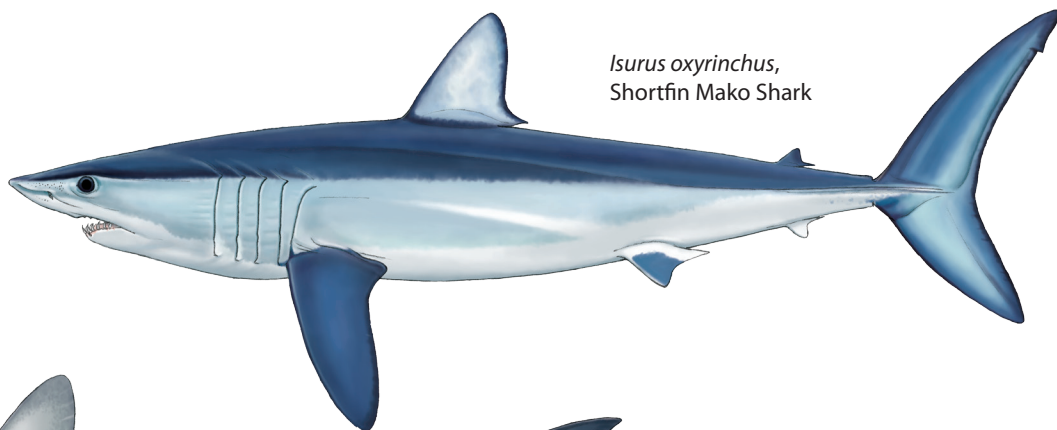
*Lamna nasus*,  
Porbeagle Shark



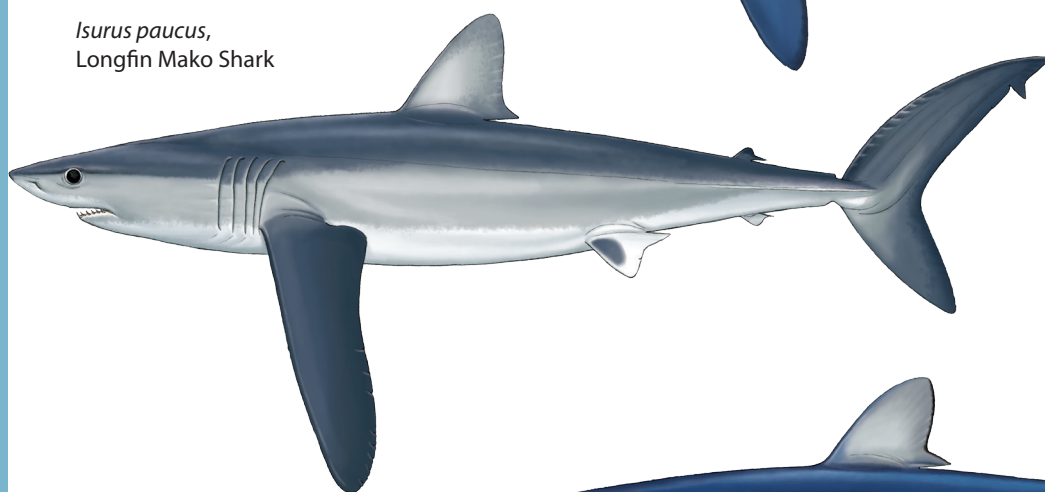
*Carcharodon carcharias*,  
White Shark



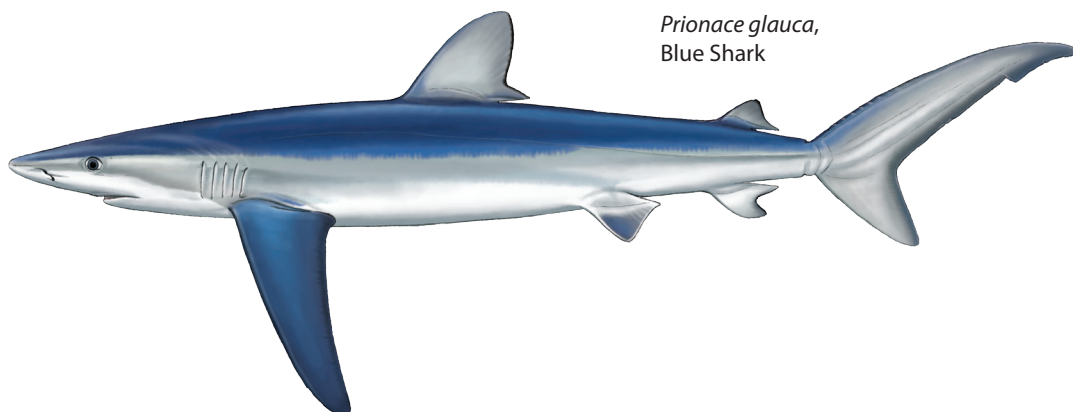
*Isurus oxyrinchus*,  
Shortfin Mako Shark



*Isurus paucus*,  
Longfin Mako Shark



*Prionace glauca*,  
Blue Shark



(Not to scale)

### TEETH

The teeth are moderately large and blade-like with lateral cusps. The first upper lateral teeth have nearly straight cusps (Roman, Unknown).



### ECOLOGY AND BIOLOGY

#### HABITAT

The Porbeagle Shark can be found from the surface to 715m in coastal and pelagic waters (Roman, Unknown). Tagging studies have revealed a preference for shelf waters, although one tagged individual travelled 1,800km into the mid-Atlantic. There is only one record of a tagged shark crossing the Atlantic from Ireland to Canada and it appears that the two populations are separate (Francis *et al.*, 2008). While it does not appear to enter freshwater, catches from a brackish estuary in Argentina have been reported (Roman, Unknown).

In the southern hemisphere it may move further north, out of its usual range, during the cooler months but is not found further north than 35°S during the summer. Around Australia it may move into subtropical waters during the winter. It appears to be limited to waters between 1–23°C, with abundance declining above 19°C (Francis *et al.*, 2008).

In the North Atlantic, temperatures of -1–15°C have been recorded with a mean of 7–8°C. Its abundance is also governed by seasonal variations with records of Porbeagles moving north along the coast of North America during the spring and early summer with the return migration in late autumn (Francis *et al.*, 2008).

The Porbeagle Shark appears to segregate by sex and size. In Spanish waters, males dominate catches over females in a ratio of 2:1, while 30% more females than males are caught off Scotland. In the Bristol Channel, smaller individuals are found with a dominance of males over females (Francis *et al.*, 2008). This segregation is likely to have evolved as a mechanism of reducing predation of neonates by adults and also to limit breeding to appropriate seasons (Roman, Unknown).

#### DIET

The Porbeagle Shark is primarily a piscivore with teleost fish constituting 90% of the diet of some individuals. It has been reported that pelagic fish are preferred during the spring and summer when abundant. During the autumn and winter, groundfish are the dominant prey. (Roman, Unknown). Compagno (2001) lists the most common prey items as mackerels, pilchards and herring, various gadoids including cod, hakes, haddock, cusk, and whiting, and john dories, dogfishes and hound sharks (*Squalus* and *Galeorhinus* spp.), and squids (Compagno, 2001).

#### REPRODUCTION

Species in the family lamnidae are viviparous with embryos nourished either by a continual supply of unfertilized eggs (oophagy) or through feeding on less developed siblings (adelphophagy, known only from the Sandtiger Shark, *Carcharias taurus*) (Martin, 1984). The Porbeagle Shark employs oophagy to supply nutrients to embryos once the original yolk-sac supply has been depleted. Its ovaries are well adapted to this task and may contain up to 200,000 unfertilised eggs, measuring 1.5–5mm in diameter (Lombardi, 1998).

It has been reported from the northwest Atlantic that females mature at 200–219cm and 50% are mature by 208cm. Males mature at 155–177cm with 50% mature by 166cm. In the southern hemisphere off New Zealand, females mature at 170–180cm and males mature at 140–150cm (Francis *et al.*, 2008).

In the North Atlantic mating occurs in autumn and winter and the females give birth during spring and summer after an 8–9 month gestation period. It appears that populations in the southern hemisphere may breed at different times but data is lacking. The females give to birth to a litter of 1–5 pups, although 4 is normal with 2 pups to each uterus. Each of these pups measures 58–67cm long at birth (Francis *et al.*, 2008).

## COMMERCIAL IMPORTANCE

One of the most valuable elasmobranch species to commercial fisheries, the Porbeagle Shark is taken across its range in targeted longline fisheries and its flesh is used for human consumption, its fins for sharkfin soup, its liver oil for vitamins and its carcass can be processed for fishmeal. It is also regularly taken as bycatch, particularly in tuna longline fisheries in the South Pacific but also in trawl, handline and gillnet fisheries. It is an important recreational species on both sides of the North Atlantic (Stevens *et al.*, 2006).

## THREATS, CONSERVATION, LEGISLATION

The Porbeagle Shark has been fished commercially since the early 1800's, principally by Scandinavian fishers, to provide flesh for human consumption, fins for sharkfin soup, liver oil for vitamins and carcass for fishmeal (Gauld, 1989). Global catches peaked in the 1960's at around 9,000 tons, followed by a rapid decline to 1,300–2,600 tons in the 1990's (Francis *et al.*, 2008). Catches in the North Atlantic have varied wildly during the 20th century, particularly in the case of the Norwegian targeted fishery. In 1926, 279 tons were landed. This increased to 3,884 tons in 1933 followed by a sharp decline due to the reduction in fishing effort during the Second World War. In 1947, catches were back up to 2,824 tons but then declined steadily to 207 tons in 1970 and just 25 tons in 1994. The fishery attempted to boost catches by moving across to the west Atlantic stock but had to switch focus to other species such as the Shortfin Mako Shark, *Isurus oxyrinchus*, and swordfish (Compagno, 2001).

Currently in the North Atlantic, the Porbeagle Shark is taken primarily in directed longline fisheries, although there is some bycatch from bottom trawls, handlines and gill nets. The majority of the catch in the southern hemisphere is bycatch from tuna longline fleets in the South Pacific and southern Indian Ocean, although there is a small Norwegian targeted fishery (Francis *et al.*, 2008). The only landings reported to the FAO from the southern hemisphere are from the New Zealand fishery, meaning that the fishing mortality for the southern stock is almost unknown (Compagno, 2001).

In the northeast Atlantic, the Porbeagle Shark is covered by EC Regulation No. 1185/2003 which prevents the removal of its fins at sea and the subsequent discard of the body. This applies to all vessels operating in EC waters, as well as to EC vessels operating anywhere (CPOA Sharks, 2009). In addition, a total allowable catch (TAC) applies to this species in European Waters. In 2008 this TAC was 581 tons. Despite scientific advice for a zero TAC for 2009, it was lowered by only 25% to 436 tons with a maximum landing size of 210cm designed to protect breeding individuals (European Commission, 2008). In 2010, the TAC was finally reduced to zero meaning the species cannot be landed by commercial fishers in the EU.

## IUCN RED LIST ASSESSMENT

Vulnerable (2005).

Critically Endangered in northeast Atlantic.

## HANDLING AND THORN ARRANGEMENT

- Handle with care.
- Large shark.
- Powerful jaws and sharp teeth.
- Abrasive skin.



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