

## CITES Identification Manual for the White Shark.

### *Carcharodon carcharias* (Linnaeus, 1758)

#### Taxonomy

<i>Class</i>	Elasmobranchii
<i>Order</i>	Lamniformes
<i>Family</i>	Lamnidae
<i>Species</i>	<i>Carcharodon carcharias</i>

#### Scientific Synonyms

*Carcharias lamia* Rafinesque, 1810; *Carcharias verus* Cloquet, 1822; *Carcharias rondeletti* Bory de St. Vincent, 1829; *Squalus (Carcharias) vulgaris* Richardson, 1836; *Carcharodon smithii* Agassiz, 1838 or Bonaparte, 1839; *Carcharias atwoodi*, Storer, 1848; *Carcharodon capensis* Smith, 1849; *Carcharias vorax* Owen, 1853; *Carcharias maso* Norris, 1898 (not *Squalua (Carcharias) maou* Lesson, 1830); *Carcharodon albimors* Whitley, 1939 (Food and Agriculture Organisation of the United Nations 1999).

#### Common Names

Great White Shark, White shark, White pointer, White death, (English)  
 Grand requin blanc, Ami, Lamea, Lamie, Lameo, le Carcharodonte lamie, le Grand requin, Pei can (French); Jaquetón blanco, Ca mari, Marraco, Salproig, Salproix, Gran tiburón blanco, (Spanish); Squalo bianco, Carcarodonte, Cagnia, Cagnesca grande, Cagnia, Caniscu, Carcarodonte lamia, Carcarodonte di rondelet, Imbestinu, Lamia, Masinu feru, Pesce cane, Pesca can, Pesce can grande, Pesciu can, Pesci cani grossu, Pesci mastinu (Italian); Weisshai, Menschen fresser, Menchenhai, Merviel fras (German); Hohojirozame, Hitokiuzame, Oshirosame (Japan); Lamia (German); Niuhi (Hawaiian Islands); Gab doll (Malta); Tubarao branco (Portuguese) Gench, Kersch (Red Sea).

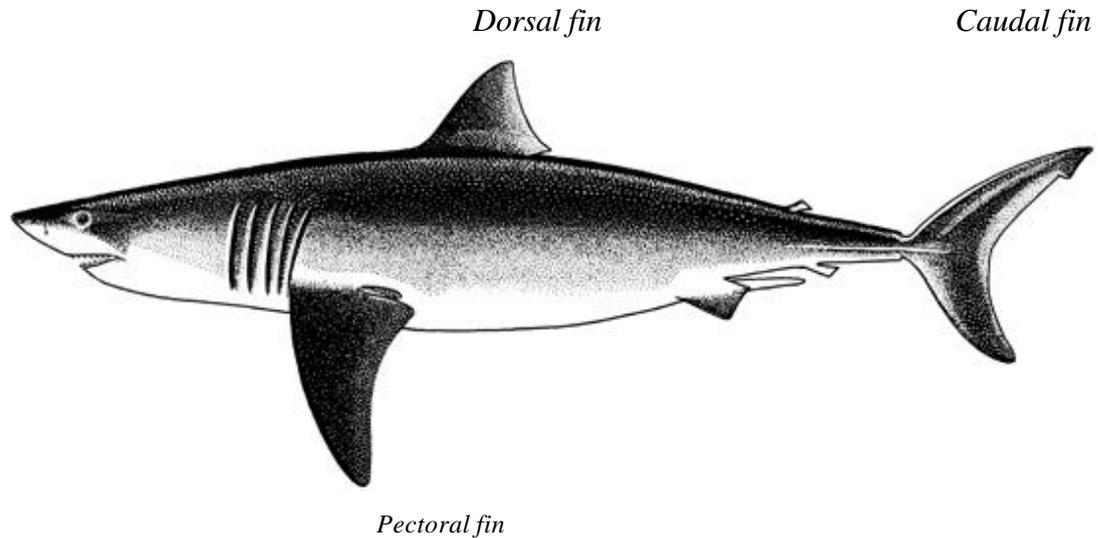
#### Distribution

Temperate and subtropical oceans, with a preference for temperate waters. The white shark is most frequently encountered off South Africa, southern Australia, northern California and the northeastern United States (Last & Stevens 1994). In Australia, its range extends primarily from Moreton Bay in Southern Queensland, around the southern coastline to the North West Cape of Western Australia (Bruce 1995).

#### Characteristics

Whole specimens: White sharks have a moderately stout, torpedo-shaped body; are coloured grey to grey-brown on the upper surface and white below; have large serrated triangular teeth, and a distinctive lateral keel along the body midline immediately before a crescent shaped tail. White

sharks grow to at least 6m in length, although there are unconfirmed reports of specimens up to 7 metres. The white shark also has a heat-exchanging circulatory system allowing it to maintain body temperatures up to 14° C above that of the surrounding seawater.



**Traded products:** Traded products derived from White Sharks include fins, jaws, teeth and meat (fresh, frozen or salted for human consumption), cartilage (used as a health food), and possibly hide (for leather products). While processed meat, oil and cartilage are almost impossible to identify without undertaking DNA testing in the laboratory, individual jaws, teeth, fins and fin sets can be identified more easily, especially where traded intact or only partly processed.

**Fins:** Shark fins are among the world's most expensive fishery products. They are processed to yield shark fin needles, a tasteless gelatinous product used, with other ingredients, to prepare shark fin soup. Virtually all species of sharks and some shark-like batoid fishes have commercially valuable fins, although their value depends on factors such as colour, size, thickness and fin needle content. 'Vegetarian shark fin', usually made from seaweed extracts and other products may occasionally appear on the market.

Large valuable shark fins are usually traded in sets of the four largest fins. These are the caudal or tail fin (very valuable because of its high fin needle content and size, although sometimes only the lower lobe of the tail is used), the paired pectoral fins, and the first dorsal fin. The smaller second dorsal fin, pelvic (or ventral) fins and anal fin are of lower commercial value. They are usually only removed from large sharks or species with particularly large fin sets, and then may be sold as secondary or miscellaneous fins, sometimes after processing.

Otherwise, shark fins are graded individually according to size and colour (because it is difficult to identify fins to species when imported dried). Larger fins are worth more than smaller fins, and 'white' fins are generally worth more than 'black' fins because they have a higher needle content. Grading systems differ considerably between countries, and may also take into account water content, rehydration capacity, number and length of needles, degree of whiteness, presence of blemishes and the general quality of initial processing.

Fins usually enter international trade for the first time intact (dried or frozen) with the skin on, or semi-prepared (with the skin, cartilaginous base plate and remaining meat removed but the fibres intact). Fin shape is unaltered by removal of the skin and base plate. Further preparation of fins may include the removal of the hard cartilage of the dorsal fins and the cartilaginous platelets between the two layers of fin needles before drying.

Fins are then processed to produce fin needles or fin nets. This is carried out by soaking and boiling to remove the gelatinous fin ray membrane and expand and expose the fin needles (which occur as a bundle in the centre of the fin). Fin needles may be further processed to sun-dried fin nets.

The skeletal structure of the pectoral fins is characteristic, but radiography is required to examine the fin cartilage in intact fins.

The fins of White Sharks are large, with first dorsal and tail fins reaching to over one (1) metre in height in mature adults. They are generally brown to brown-grey in colour. Pectoral fins are generally a dark grey colour on the dorsal surface and are white with black tips on the ventral surface.

The first dorsal fin becomes more triangular as the shark becomes larger, and is approximately triangular when the species reaches maturity. The caudal fin is almost crescent shaped with a deep notch near the top of the upper trailing edge.

A key feature on the caudal fin that distinguishes Lamnid sharks (of which there are five species) from other sharks is the broad caudal keel that runs along the caudal peduncle and part of the tail. Both the porbeagle and the salmon shark (from the north Pacific) have a secondary keel beneath the main keel which readily distinguishes them from the white shark and the two species of mako sharks. The two mako shark species are blue in colour when they are alive but can dull to a grey colour after death, and it would be very difficult to tell them apart from the white shark with just the caudal fin, although the white patch beneath the caudal keel on the white shark could be a feature to separate it from the makos. This feature is however highly variable by individual.

The dorsal fin on its own would be extremely difficult to recognise as a white shark unless they were from a really large white shark or were found in conjunction with the caudal or pectoral fin.

Both the porbeagle and the white have the black ventral surface tips on the pectoral fins, the makos don't.

**Shark fin sets**

A fin set which has the above features of: 1) a triangular dorsal fin grey to brown-grey in colour; 2) a caudal fin that is grey to grey-brown and; is crescent shaped with a deep notch near the top of the upper trailing edge; has a broad keel that runs along the caudal peduncle and part of the tail but does not have a secondary keel; and may have a white patch beneath the caudal keel; and 3) has pectoral fins that are dark grey colour on the dorsal surface and white with black tips on the ventral surface – can be confidently identified as being from a white shark.

Drawing and x-rays of fins are attached to aid in identification.

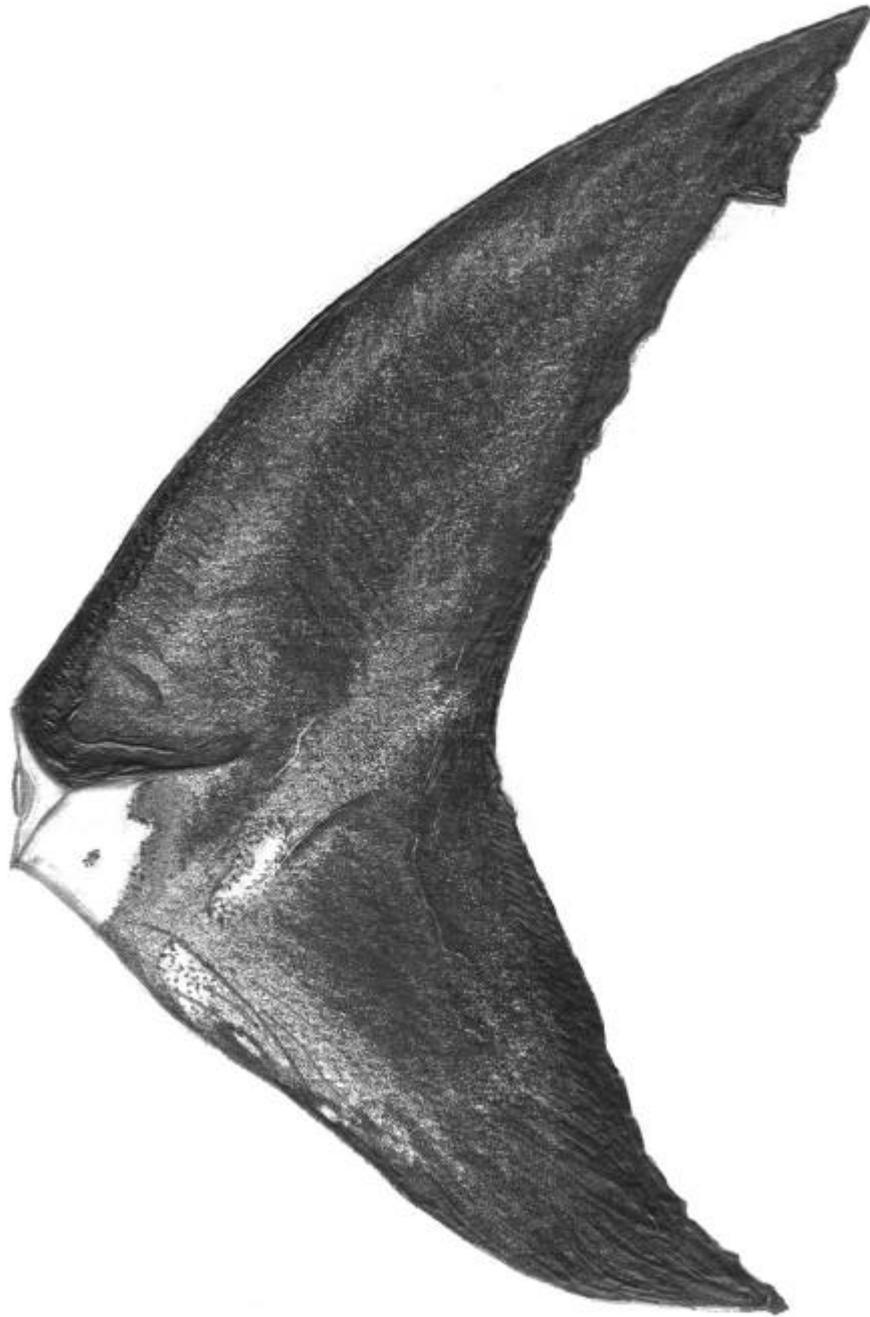
**Teeth and jaws:**

The most distinctive feature of jaws of the species is their size. The mouth is broadly parabolic. The teeth are large, flat, triangular, with broad, serrated, nearly straight cusps, and lateral cusplets only in juveniles below 2 m long (which may have at least some smooth-edged or partially smooth); intermediate teeth in upper jaw very large, over half height of upper anteriors.

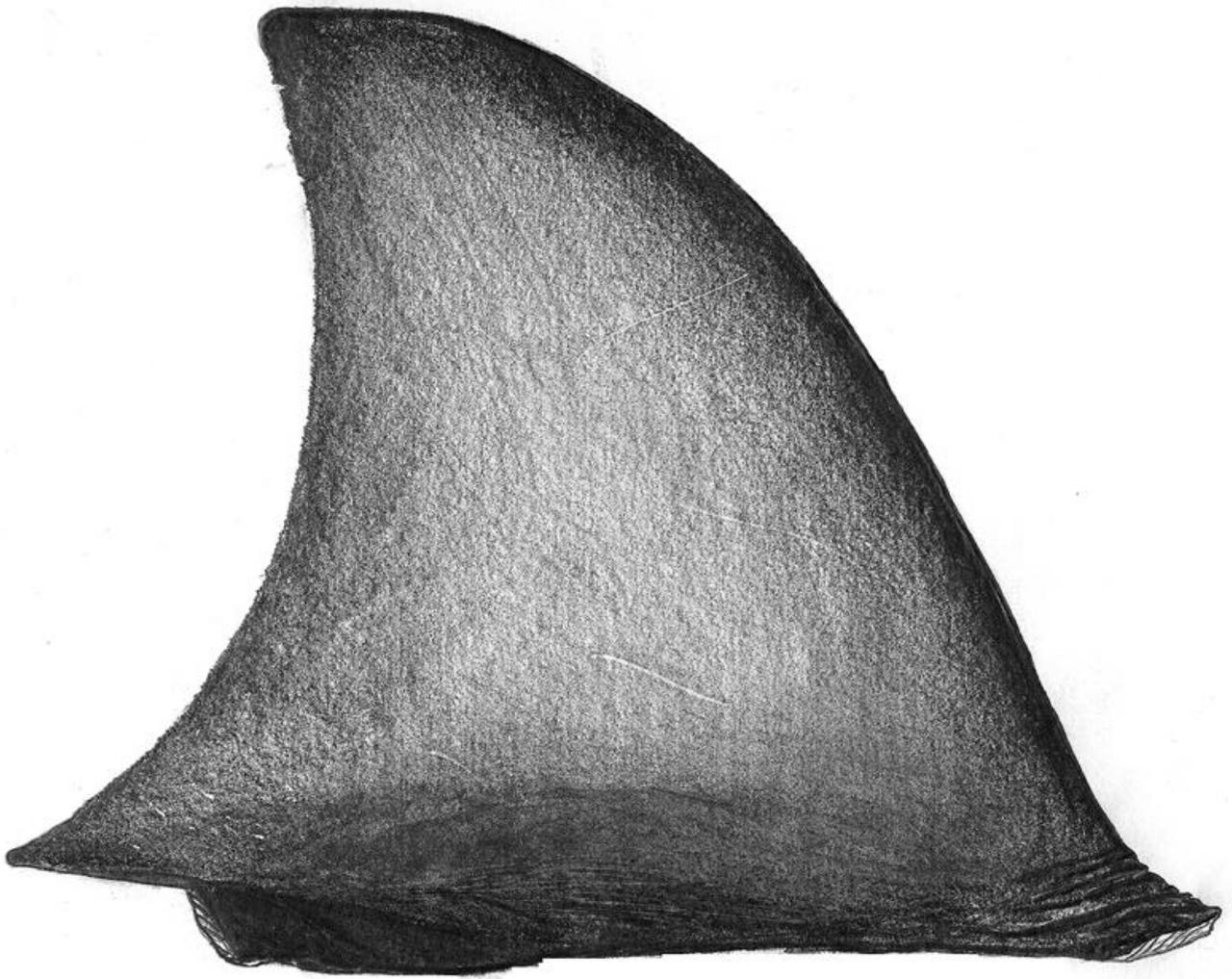
A distinctive feature of white shark teeth is the fine serrations down both edges on a broadly triangular tooth (although in very small whites the triangular shape isn't quite so distinctively triangular).

**Trade:**

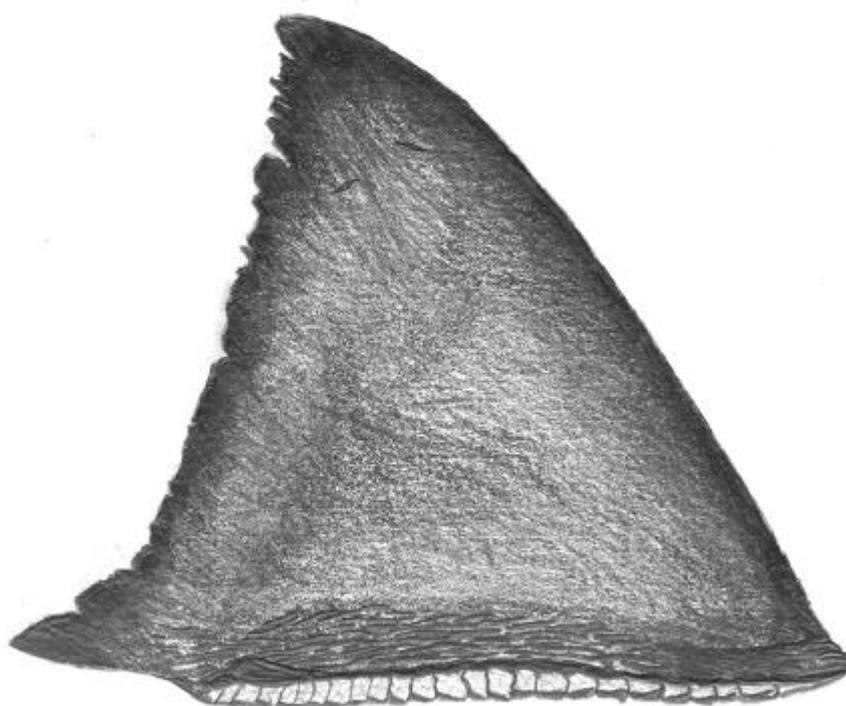
Most of the world trade in shark fins involves imports, exports and re-exports between China, Hong Kong and Singapore. Hong Kong Customs data record shark fin imports from 125 countries and re-exports to 75 countries during the period 1980-1995 (Rose 1996). Many of the fins entering Hong Kong are processed in China before being re-exported in processed form via Hong Kong. There is known to be some international trade from Norway to Singapore and Japan, and exports of sharks taken in bycatch in New Zealand and Europe also enter international trade.



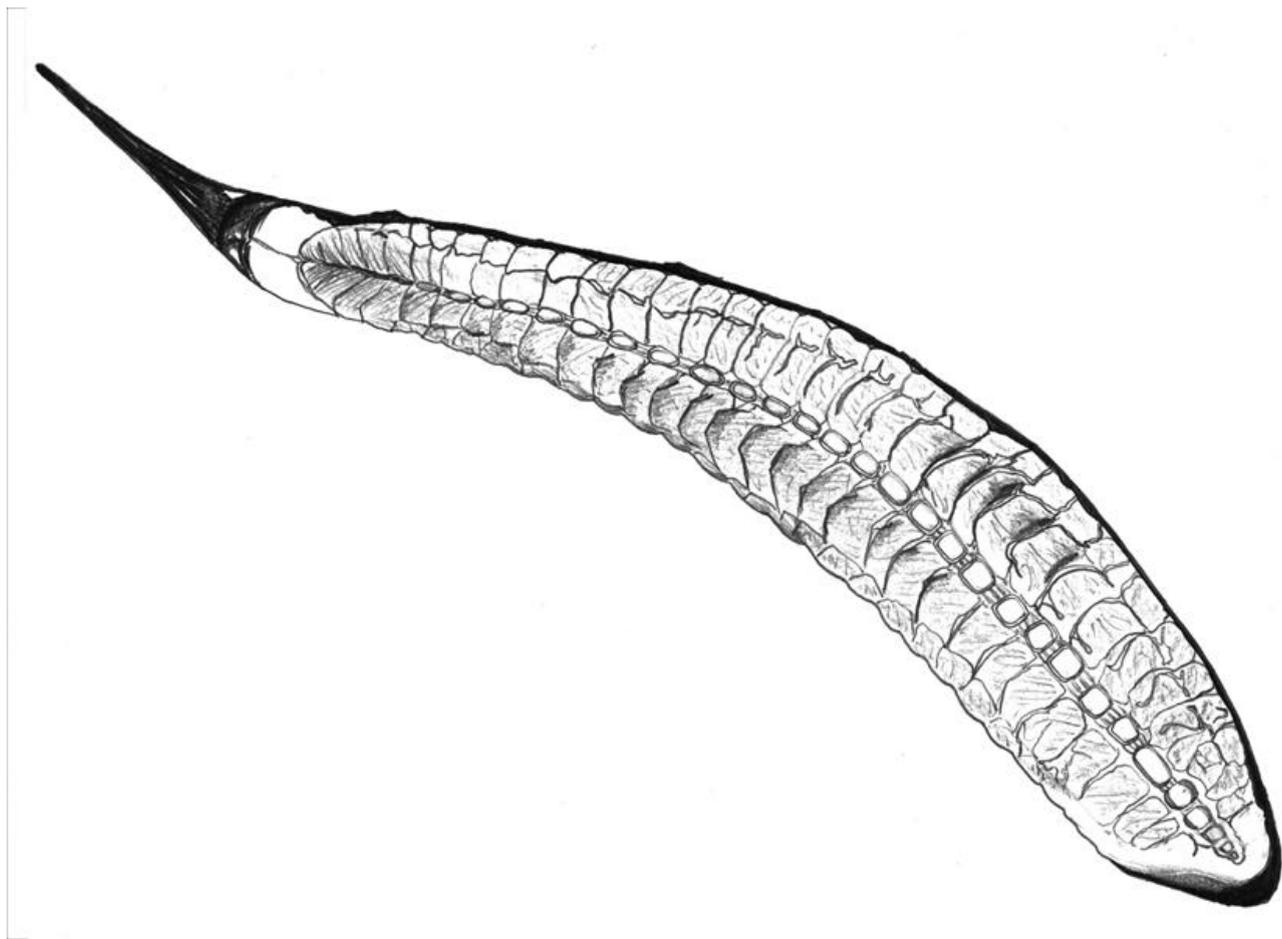
Caudal fin



Dorsal fin – 2 metre shark



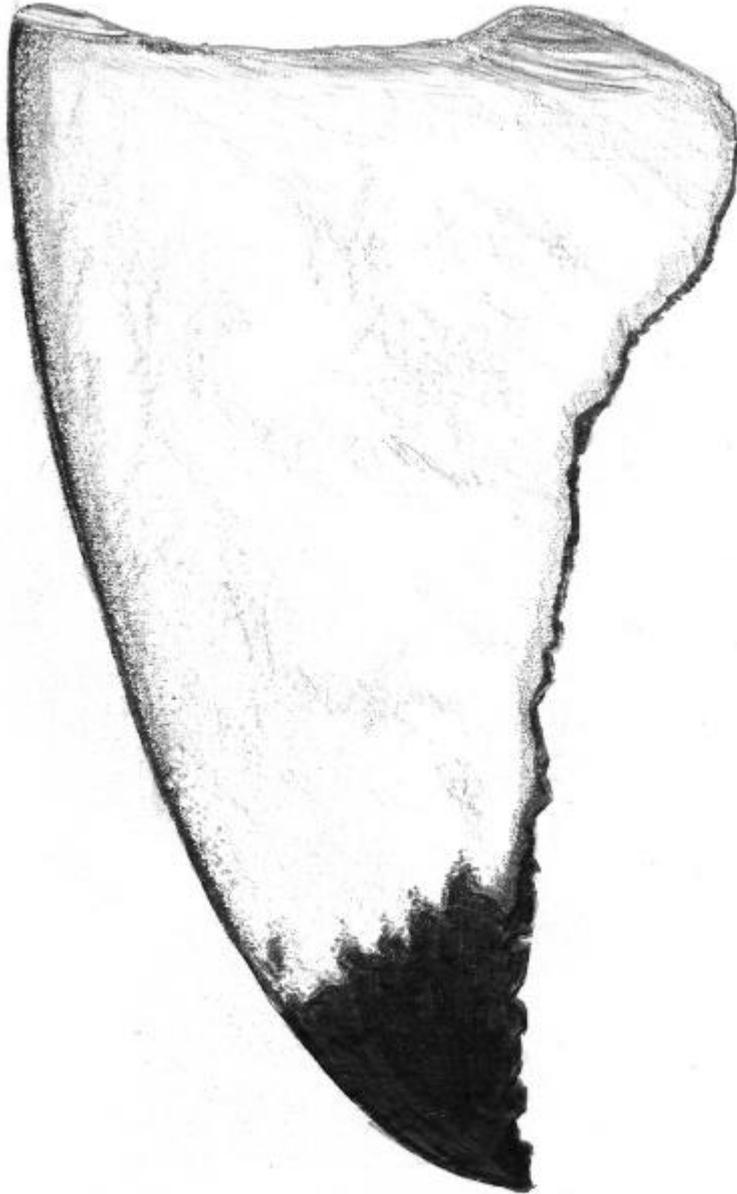
Dorsal fin – 5 metre shark



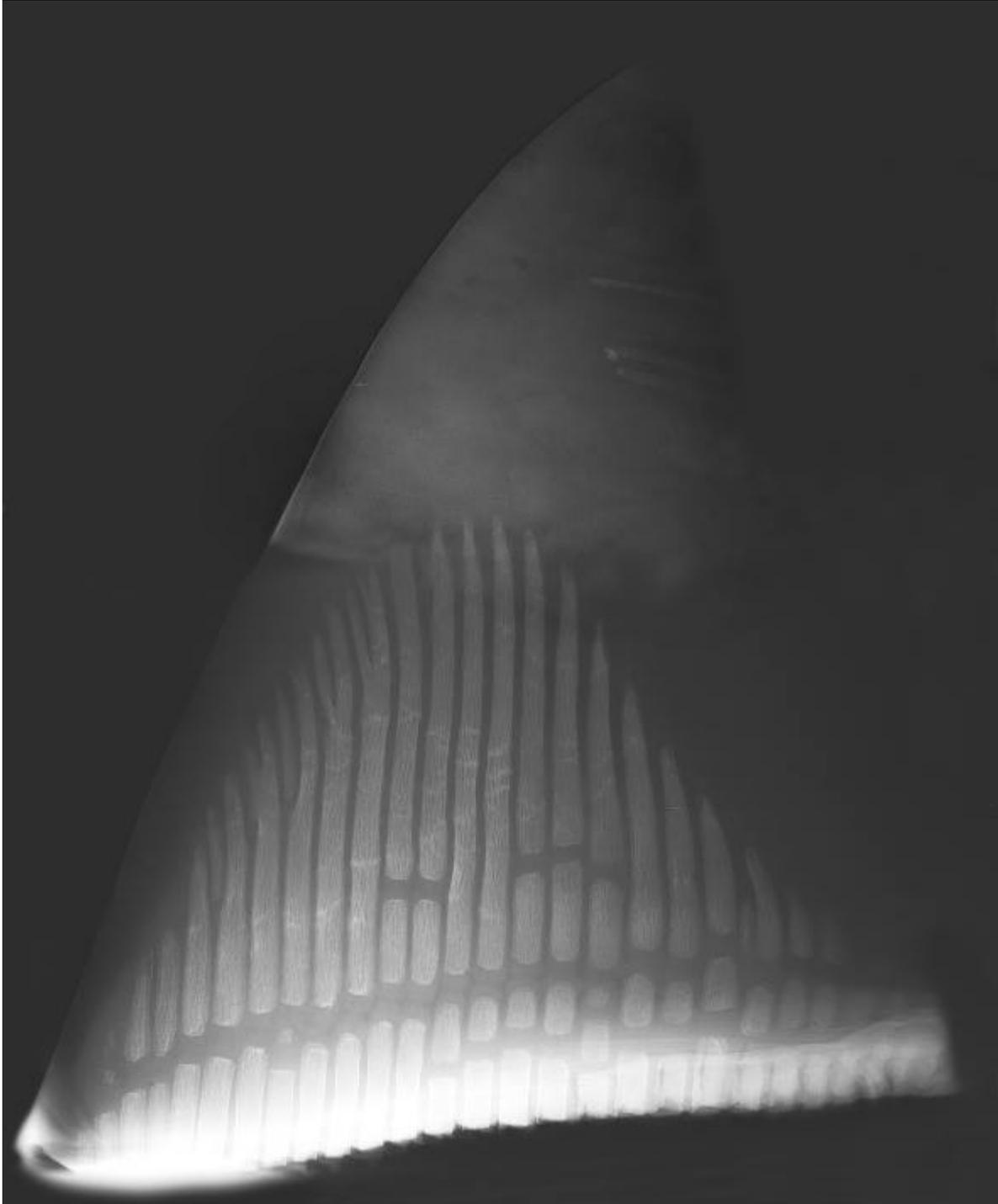
dorsal fin - base



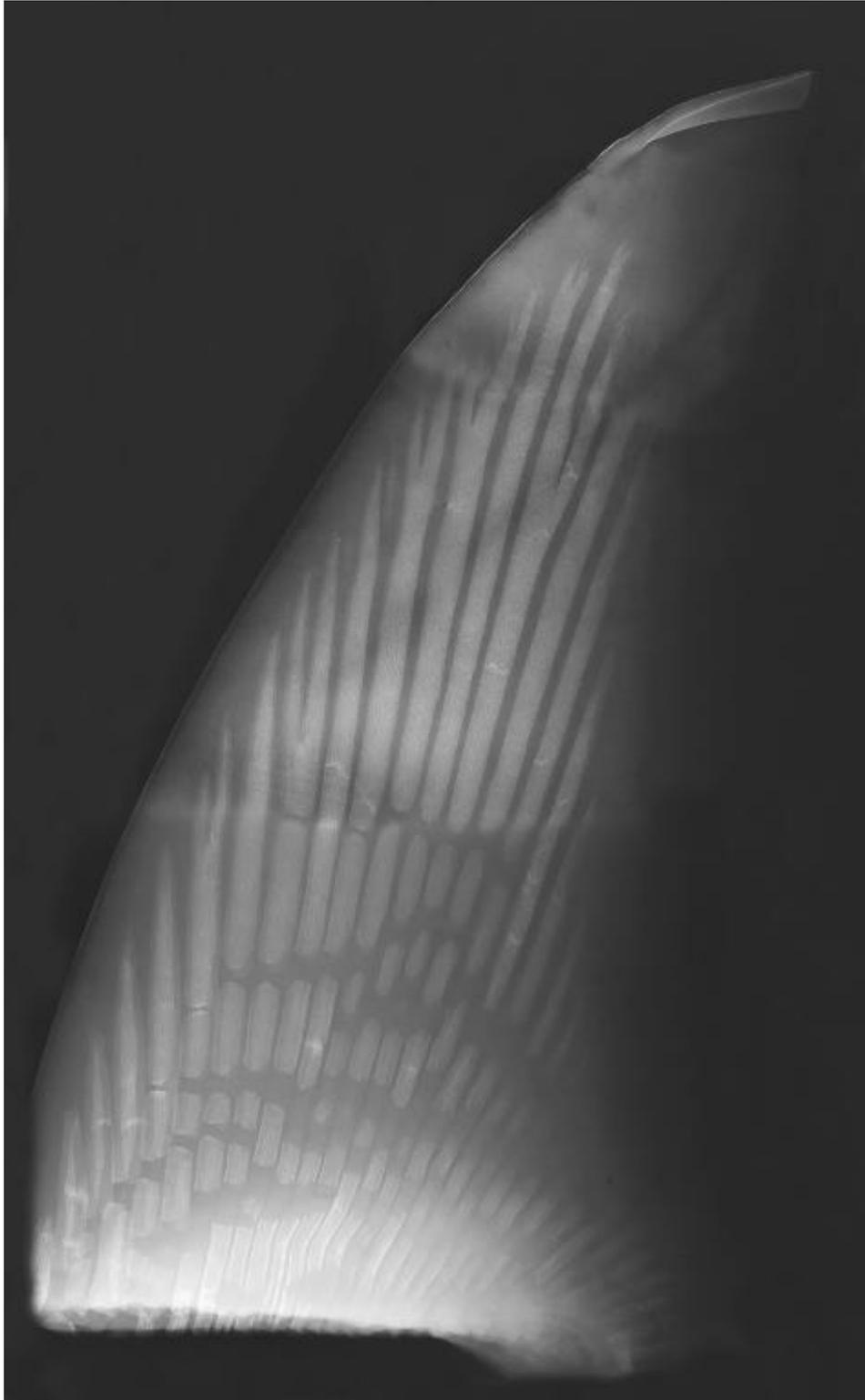
pectoral fin – dorsal surface



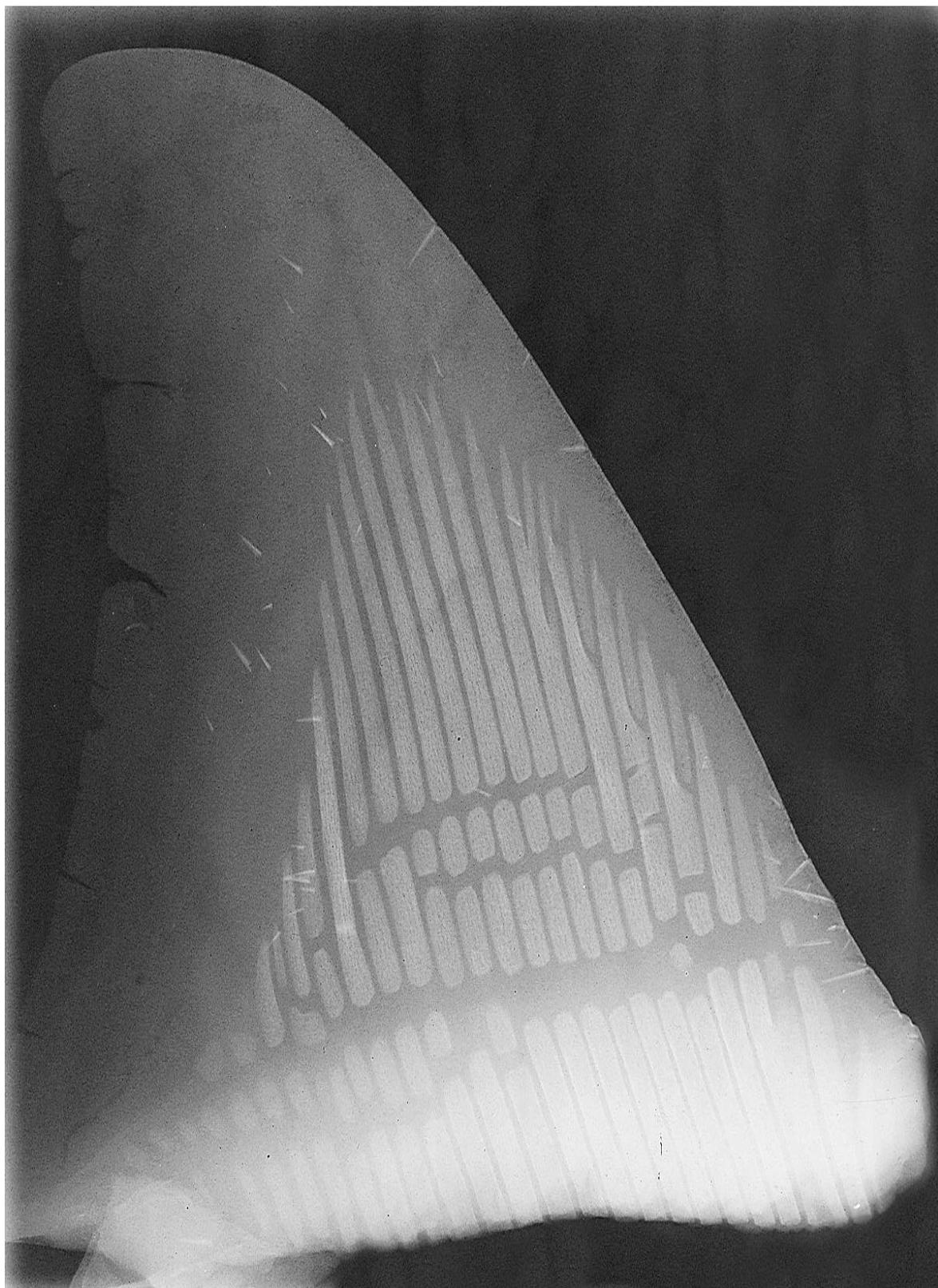
pectoral fin – ventral surface



large dorsal fin x-ray image



large pectoral fin x-ray image



small dorsal fin x-ray image



tooth