

FIRST AUSTRALIAN RECORD *HEXANCHUS GRISEUS*
(BONNATERRE) 1780. THE SIX-GILLED SHARK

*By D. D. Lynch, Chief of Division of Marine Fisheries, Fisheries
and Wildlife Department of Victoria.*

INTRODUCTION.

On 29th March, 1963, Mr. B. Newman, a professional fisherman operating in 110 fathoms off Port Fairy, Victoria, caught a shark with six gill slits and one dorsal fin, weighing 48·635 kg. (107 lb.) and 218·7 cm. (7 ft. 2 in.) in length.

Recognizing the specimen as unusual, Mr. F. B. O'Brien, Fisheries and Wildlife Officer for the district, secured the specimen for further examination.

The shark was later identified as a male six-gilled shark, *Hexanchus griseus* (Bonnaterre) 1780, Order Hexanchiformes, Family Hexanchidae.

The specimen is lodged in The National Museum, Melbourne, Nat. Mus. Reg. No. A.235.

The species has not been recorded in Australian waters previously although two other members of the family occur here: *Heptranchias dakini* (Whitley) 1931, the One-finned shark, and *Notorhynchus cepedianus* (Peron) 1807, the Seven-gilled shark. Both these species have seven gill slits and by this character may be readily distinguished from *Hexanchus griseus*.

DESCRIPTION.

A detailed description of the six-gilled shark and a list of the relevant literature is given by Bigelow and Schroeder (1948), and the specimen from Victoria agrees with the description given by these authors.

It was uniformly coffee-coloured, except for a white patch near the pectoral fins, with the ventral surface darker than in the specimen described by Bigelow and Schroeder. However, as the pigment came off the body readily, this difference is considered to be of minor importance.

MEASUREMENTS.

The method of measurement follows that used by Bigelow and Schroeder—

Weight: 48·635 kg.

Total length: 218·7 cm.

Trunk at origin of pectoral: breadth .. 31·8 cm.;
height .. 24·5 cm.

Snout length in front of outer nostrils .. 4·2 cm.;
mouth .. 10·1 cm.

Eye: horizontal diameter: 5·2 cm.

Mouth: breadth: 23·2 cm.

Nostrils: distance between inner ends: 10·9 cm.

Gill opening lengths: 1st 25·0 cm.; 2nd 21·5 cm.;
3rd 21·1 cm.; 4th 20·5 cm.;
5th 15·2 cm.; 6th 13·1 cm.

First dorsal fin: vertical height 9·7 cm.; length of base 16·3 cm.

Anal fin: vertical height 7·8 cm.; length of base 11·6 cm.

Caudal fin: upper margin 69.0 cm.; lower anterior margin 17.6 cm.

Pectoral fin: outer margin 28.5 cm.;
 upper margin 11.0 cm.;
 distal margin 22.0 cm.

Distance from snout to: 1st dorsal 120.2 cm.;
 upper caudal 155.0 cm.;
 pectorals .. 39.8 cm.;
 pelvics .. 107.6 cm.;
 anal .. 138.8 cm.

Interspace between: 1st dorsal and caudal 20.0 cm.;
 anal and caudal .. 10.9 cm.

Distance from origin to origin of:
 pectorals and pelvics .. 77.0 cm.;
 pelvics and anal .. 31.5 cm.

An internal examination of the specimen was not made.

GEOGRAPHICAL DISTRIBUTION.

Bigelow and Schroeder (*loc. cit.*) list the range of *Hexanchus griseus* as: the eastern and western Atlantic, the Mediterranean, the Pacific coasts of North and South America, Japan, Australia, the Southern Indian Ocean and South Africa.

The shark is reported to live in waters from 437–1,025 fm. off Portugal, over 100 fm. off Ireland, 90–500 fm. off Scotland, and 75–300 fm. off Cuba.

It was first recorded from New Zealand waters by Phillipps (1946), who described two specimens taken in Cook Strait. Since that date, Parrott (1958) has reported additional captures by trawl gear from deeper water.

Evidently, Bigelow and Schroeder based the Australian range on Phillipps' record from New Zealand, as neither Whitley (1940) nor Munro (1956) lists it as occurring in Australian waters.

SIZE RANGE.

Bigelow and Schroeder (*loc. cit.*) estimated the size of the six-gilled shark at birth as from 400 to 500 mm., with maturity expected at about 182 cm. The recorded lengths of the larger specimens range up to 4.82 m. (15½ ft.) with one doubtful record from Cornwall of 26 ft. 5 in.

ACKNOWLEDGMENTS.

The author desires to thank Mr. F. B. O'Brien for procuring the specimen from Mr. B. Newman, who kindly donated it for examination; Miss C. F. Crellin for preparing the drawings and Mr. G. P. Whitley of the Australian Museum, Sydney, who suggested useful references.

REFERENCES.

- Bigelow, H. B. and Schroeder, W. C. (1948).—Fishes of the Western North Atlantic. Pt. 1. Lancelets, cyclostomes and sharks. Yale Univ., Sears Foundation Mar. Res., Mem. 1, pp. 80–87.
- Munro, I. S. R. (1956).—Handbook of Australian Fishes. Fish. Newsletter Aust. 15 (7).
- Parrott, A. W. (1958).—Big Game Fishes and Sharks of New Zealand, pp. 83–4. Hodder and Stoughton Ltd., London.
- Phillipps, W. J. (1946).—Sharks of New Zealand. Dom. Mus. Rec. Zool. 1 (2): pp. 1–20.
- Whitley, G. P. (1940).—The Fishes of Australia. Pt. 1. The Sharks, Rays, Devil-Fish, and other Primitive Fishes of Australia and New Zealand. Royal Zoological Society of New South Wales, Sydney.



PLATE 1.

Fig. 1. Lateral view of *Hexanchus griseus* (Bonnaterre), the Six-gilled shark.

Fig. 2. Enlarged lateral view of head.

Fig. 3. Ventral view of head to show arrangement of gill slits.

Fig. 4. Denticles of six-gilled shark, magnified $\times 40$ (after Bigelow and Schroeder).

Fig. 5. Upper and lower dentition (after Bigelow and Schroeder).