

FIRST RECORD OF PORBEAGLE, *Lamna nasus* (Bonnaterre, 1788),  
IN THE BRAZILIAN ATLANTIC.

(Primeiro registro de tubarão-golfinho, *Lamna nasus* (Bonnaterre, 1788),  
em águas brasileiras)

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ABSTRACT

Two specimens of porbeagle, *Lamna nasus* (Bonnaterre, 1788), caught by a Brazilian longliner off Santa Catarina State - Brazil (26°S - 46°W) are recorded: the specimen used for identification was a female, 201 cm total length and 85 kg total weight, caught in water about 680 m deep, in August 1983; the other porbeagle, caught at a depth of about 1,200 m, in September 1983, was commercialized dressed, weighed 70 kg. The identification was based on the number, pattern, and arrangement of the teeth, morphometrics, and color. This is the first reported occurrence of the species in Brazilian waters.

RESUMO

Foram capturados dois exemplares de tubarão-golfinho, *Lamna nasus* (Bonnaterre, 1788), através do espínhel de um atunheiro brasileiro, no litoral do Estado de Santa Catarina - Brasil (26°S - 46°W): o espécimen utilizado para identificação foi uma fêmea com comprimento total de 201 cm e peso total de 85 kg, capturado em local com aproximadamente 680 m de profundidade, em agosto de 1983; o outro exemplar capturado em setembro de 1983, em local com cerca de 1,200 m de profundidade, foi comercializado eviscerado, pesando 70 kg. A identificação foi efetuada com base no número, forma e disposição dos dentes; em dados morfométricos e coloração. Este trabalho registra a primeira ocorrência dessa espécie em águas brasileiras.

1. INTRODUCTION

The genus *Lamna* Cuvier, 1817 (Family Lamnidae) occurs in moderately cool water of the oceans in both hemispheres (SPRINGER, 1973), being *L. nasus* (Bonnaterre, 1788) the most common species of this genus. In the North Pacific it is replaced by the easily distinguished *Lamna ditropis* Hubbs & Follett, 1947, characterized by a shorter snout than *L. nasus*; lower surface of body with dark blotches; and the fourth upper tooth markedly oblique (BIGELOW & SCHROEDER, 1948; HUBBS & FOLLETT, 1947 and NAKAYA, 1971). In water around New Zealand and Australia occurs *L. witleyi* Phillipps, 1935; this species apparently differs from *L. nasus* by the first dorsal fin located farther backward, and a larger lower lobe of the caudal fin (FARQUHAR,

1963). In the area of Chile occurs *L. philippii* Pérez Canto, 1886, which was described as lacking basal denticles on the teeth (DE BUEN, 1959).

The status of *L. witleyi* and *L. philippii* has not been definitively established. BASS; D'AUBREY; KISTNASAMY (1975) suggested that *L. witleyi* is a doubtful species, and GARRICK & SCHULTZ (1963), that it is a synonymous with *L. nasus*. As to *L. philippii*, DE BUEN (op. cit.) had suggested that it was identical to *L. nasus*; other records from waters of Chile referring to this form utilize the name *L. nasus* (MANN, 1954 and KATO; SPRINGER; WAGNER, 1968) or *L. nasus philippii* (BAHAMONDE & PEQUENO, 1975).

This paper records the presence of porbeagle, *Lamna nasus*, in Brazilian waters.

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## 2. MATERIAL AND METHODS

The studied specimen, a female of porbeagle, measuring 201 cm in total length and weighing 85 kg in total weight, has been received from Mr. Hisami Funatsu, captain of the tuna boat Imaipesca, stationed in Santos — SP — Brazil. According to Mr. Funatsu the shark was captured in August 1983, off the North of Santa Catarina State — Brazil (about 26°45'S—46°08'W) by longline, at the relative hook depth of 60 to 120 m, in water approximately 680 m deep. Frozen squid bait was used. This specimen is now preserved in formalin 10%, at the "Instituto de Pesca" Santos — São Paulo — Brazil.

A second specimen of porbeagle was caught on the next cruise of the boat in about the same area, in water about 1,200 m deep, but was unavailable for analysis because it had been commercialized. Its dressed weight was 70 kg.

The morphometrics was based on SPRINGER (1964) and GARRICK (1982). The dressed weight is the fish weight without the gill, gut, head and fins.

The morphometric data are expressed in percentages of the total length.

The dental formula was established on the basis of the tooth terminology by APPLIGATE (1965).

## 3. RESULTS AND DISCUSSION

The catch of two specimens of porbeagle, *Lamna nasus*, off the North of Santa Catarina State, is the first record of this species in Brazilian waters.

The present record was possible mainly by the help of the local fishermen. Without the contact with them, new

occurrences as SADOWSKY; AMORIM; ARFELLI (1984), would not have been noticed.

TABLE 1 gives the data of taxonomic importance for the identification of the species, selected from data of the Brazilian specimen and of Argentine specimens.

TABLE 1

Proportional dimensions as percentages of total length of three specimens of porbeagle from Southwest Atlantic: (1) our specimen, female 201 cm; (2) specimen from NAKAYA (1971), male 219 cm; and (3) specimen from MENNI & GOSZTONYI (1977), male 215 cm.

	Brazil (1)	Argentina	
		(2)	(3)
Snout tip to:			
eye	6.5	5.5	—
origin of pectoral fin	25.1	25.8	25.3
origin of first dorsal fin	33.1	32.9	33.2
origin of second dorsal fin	69.2	69.9	—
origin of anal fin	69.2	69.9	—
upper pit	80.1	80.8	—
Caudal fin:			
length of upper lobe	23.4	22.8	23.2
length of lower lobe	17.5	17.1	17.2
Height of trunk at origin of first dorsal fin	19.1	20.0	19.3
Interspace between back of eye and first gill-slit*	11.9	—	—

(\*) bilateral measurements of the head, averaged.

The morphometric measurements taken from our female porbeagle were similar to those from recent records by NAKAYA (1971); MENNI & GOSZTONYI (1977), based on the detailed examination of two males of the same species, caught in Argentine waters.

Some observed discrepancies could possibly be interpreted as sexual or individual differences, but can also be due to different techniques used for the measurement of sharks.

All teeth except those next to the corners of the jaw have a basal denticle on either side of the tooth; third upper tooth very small and fourth tooth almost erect.

The dental formula of our specimen on the basis of the terminology by APPLE-GATE (1965) was:

25 = P-4 L-6 I-1 A-2	A-2 I-1 L-6 P-3
26 = (P-L-A) 13	13 (A-L-P)

and in the specimens of NAKAYA (1971) and MENNI & GOSZTONYI (1977) it was respectively 29/27 and 28/26.

The stomach contents of our specimen were impossible to be identified. The valvular intestine was similar to the other Lamnoid sharks, with 39 - 40 rings. The uteri were small and did not contain ova.

Two ectoparasitic copepods were identified: *Anthosoma crassum* (Abildgaard, 1794), found in the mouth and the gill-slit, and *Echthrogaleus coleoptratus* (Guerin, 1837), found in the ventral fin.

Occurrence of *Lamna nasus* in the South Atlantic is very rare. There are only two definitively established records in the Southeast Atlantic, off the South coast of Africa, from Knysna and False Bay (SMITH, 1965 and BASS; D'AUBREY; KISTNASAMY, 1975). Both localities lie at approximately 34°S.

In the Southwest Atlantic *L. nasus* is also apparently rare. There are four records definitively known from Argentine waters: by E. Siccard apud SPRINGER & GARRICK (1964) from Port Quequen, about

38° - 39° S; by NAKAYA (1971) from 47°01' S; by MENNI & GOSZTONYI (1977) from about 47°S; and by SVETLOV (1978) from 54°28' S. The fifth record (LAHILLE, 1928) refers to a shark captured off Mar del Plata (about 38° - 39° S), measuring 188 cm and described as *Lamia\* nasus* (Broussonet, 1780) Lah.; it is doubtful, due to the critical examination by BIGELOW & SCHROEDER (1948), which based upon atypical morphometrical data of the specimen, recognized this shark as *Isurus oxyrinchus* Rafinesque, 1810, though the author's description of the tooth shape with basal denticles is a good distinctive characteristic of genus *Lamna*.

The species *L. nasus* has never been found in Brazilian waters before 1983. Our record of captures of two specimens off North coast of Santa Catarina State, at about 26° 45' S, relates an exceptionally low latitude and probably in sub-tropical waters, whose Southern limit of principal water masses lies between 29° to 30° S in the winter. That limit also represents the Northern boundary of the convergence zone (BOLTOVSKOY, 1968).

The specimens from Brazil were called "tubarão-golfinho", by the authors, because their upper side (or back side) resembles a dolphin - "golfinho".

The head of the specimens caught in Brazil, present a circular pale spot on the interorbital space\*\* (FIGURE 1), not mentioned in the literature.

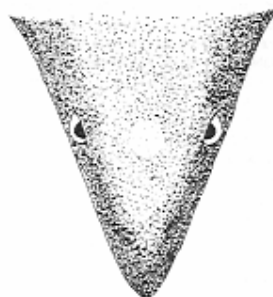


FIGURE 1 - Head of the *Lamna nasus* from Brazil, showing the circular pale spot.

(\*) Lahille used the name *Lamia* instead of *Lamna* because he thought it was more correct.

(\*\*) This spot was observed in the eight posterior records, from September 1983 to June 1985.

## IDENTIFICATION

The examined porbeagle was readily distinguished from other shark in Brazilian waters by much stouter body; lunate caudal fin with prominent primary keel and short secondary keel; first dorsal fin originating over the inner edge of the pectoral fin; second dorsal fin originating about over origin of anal fin; teeth awl-like, slender and smooth-edged, with small basal denticles; and lack of nictitating eyelids. All these characters correspond to genus *Lamna*.

By the sum of the collected data, the species of Brazilian porbeagle was easily identified according to the keys of BIGELOW & SCHROEDER (1948) and NAKAYA (1971): distance from the snout to the front of eye at least half as long as distance from back of eye to the first gill-slit; lower surface of body plain white, without dark blotches; fourth upper tooth almost erect ..... *Lamna nasus*.

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