A PYGMY SPERM WHALE, *KOGIA BREVICEPS* (BLAINVILLE, 1838) (CETACEA : ODONTOCETI) STRANDED ON FAIAL ISLAND, AZORES, WITH NOTES ON CEPHALOPOD BEAKS IN STOMACH

by

HELEN R. MARTINS [1]
MALCOLM R. CLARKE [2]
FRANCISCO REINER [3]
and
RICARDO S. SANTOS [1]

ABSTRACT

A pygmy sperm whale, Kogia breviceps *(Blainville, 1838), was found stranded on Faial Island, Azores (38° 34.08'N; 28° 36.05'W), on 20 October 1984, the fourth record of* Kogia *from the archipelago. The specimen was a male of 250 cm*

[1] Departamento de Oceanografia e Pescas, Universidade dos Açores; 9900 Horta, Açores, Portugal.

[2] Marine Biological Association of the United Kingdom; Citadel Hill, Plymouth PL1 2PB, Devon, England.

[3] Museu do Mar; Câmara Municipal, 2750 Cascais, Portugal.

total body length. External measurements were compared with those given by Ross (1979) thus confirming the species identification. Skull measurements are also given.

The stomach contained 18 upper and 20 lower cephalopod beaks. The latter were identified and attributed to 5 families of oceanic teuthoid cephalopods of which the family Histioteuthidae was the most numerous. Estimated body weights of the squid were calculated.

RESUMO

No dia 20 de Outubro de 1984 foi encontrado na Praia do Almoxarife, Ilha do Faial, Açores (38°34.08'N; 28°36.05'W), um cachalote anão, Kogia breviceps *(Blainville, 1838), que passa assim a constituir a quarta ocorrência de* Kogia *no Arquipélago.*

O espécimen era um macho com 250 cm de comprimento total. As diferentes dimensões externas obtidas foram comparadas com as fornecidas por Ross (1979), confirmando-se assim a identificação da espécie. São fornecidas ainda as medidas do crânio.

O estômago continha 18 bicos superiores e 20 bicos inferiores de cefalópodes. Estes últimos foram identificados e atribuídos a cinco famílias de cefalópodes teutóides oceânicos, das quais a família Histioteuthidae era a mais abundante. Com base nas dimensões dos bicos foram atribuídos pesos estimados às lulas.

INTRODUCTION

Whales of the genus *Kogia* have been reported from the Azores on three previous occasions. Chaves (1924) wrote that a whaler described to him a whale caught close to Lajes, Pico Island in 1899, as a «very small sperm whale

equal to ones he had caught in the Pacific». In the same paper Chaves stated that on Flores Island people had told him about the capture of a «small sperm whale» that he considered to be a *Kogia*. The two records mentioned by Ferreira (1935) must be the same two specimens reported by Chaves. Finally, in 1976, a cetacean cadaver, found floating in the sea off the southern coast of S. Miguel Island was identified as *K. breviceps* (Teixeira, 1978).

Kogia breviceps is a cosmopolitan warm water species. Most frequent reports of strandings come from South Africa, south east Australia, New Zealand and the south-eastern United States (Lyall Watson, 1981).

From continental Portugal there are three records of this species (Reiner, 1981) and from Madeira one (Maul and Sergeant, 1977).

Few stomach contents had been reported before Ross (1979) examined 16 stomachs of *K. breviceps* from the South African coast. Prior to that study, various authors had reported remains of crabs, shrimps and fish as well as cephalopod beaks from stomachs of pygmy sperm whales. Beaks had been identified on only two occasions, as those of *Sepioteuthis australis* by Hale (1947) and of *Ommastrephes sp.* by Raun *et al.* (1970). Ross (1979), however, reported 408 lower beaks, belonging to 13 different families of cephalopods.

MATERIAL AND METHODS

The cadaver of a pygmy sperm whale was found stranded on Praia do Almoxarife (38°34.08'N; 28°36.05'W), Faial Island, Azores, on 20 October 1984. The specimen was a male. Some external measurements were taken on the spot and the head, dorsal fin, and stomach were removed for closer study.

The measurements of the skull were taken according to Ross (1984). Unfortunately, poor preservation did not allow all the measurements to be completed.

The stomach contained cephalopod beaks and corneas as well as parasitic nematodes of the species *Anisakis physeteris,* Baylis, 1923. The lower beaks were identified and the «Lower rostral lengths» (LRLs) measured with vernier calipers to an accuracy of 0.005 cm as described by Clarke (1962, 1980). Weights of the squids from which the lower beaks came were estimated from the LRLs using graphs published by Clarke (1980).

RESULTS

External measurements (cm)

Total length, tip of snout to tail notch	250
Tip of lower jaw to anus	160
Tip of snout to anterior insertion of dorsal fin	141
Flipper length, anterior insertion to tip	30
Flipper width at widest point	13
Height of dorsal fin	7,5
Fluke width at widest point	62

There were 12 teeth in each lower jaw.

Measurements of the skull (cm)

Rostrum length	18,5
Height of vertex	21,9
Width of vertex	5,0
Tip of rostrum to anterior border of left naris	17,2
Height of ventral border of foramen magnum	8,5
Length of maxillary tooth groove, left	9,9
Width between outer margins of occipital condyles	8,2
Tip of rostrum to hind margin of pterygoids near the midline	21,4
Length of mandible	31,3

* Number of alveoli, left	11+
* Number of alveoli, right	11+
Height of mandible at coronoid process	7,8
Length of tooth row, lower right	12,4
Height of dorsal border of foramen magnum to vertex	13,4

Cephalopod beaks

The material consists of 18 upper and 20 lower beaks of oceanic teuthoid cephalopods. The groups of squids represented by the lower beaks and one upper beak are given in Table I, together with an analysis by number and by estimated weight of the squids represented by beaks. Seven species belonging to 5 families were identified.

TABLE I

	No.	%	Weight g (estimated)		
			Total	Mean	%
Histioteuthidae					
Histioteuthis reversa	6	28.6	331	55.2	13.6
Histioteuthis bonnellii	8	38.1	933	116.6	38.3
Octopoteuthidae					
Octopoteuthis sp.	1	4.8	157	157	6.5
Chiroteuthidae					
Chiroteuthis sp. A	3	14.3	361	120.3	14.8
Chiroteuthis sp. B	1	4.8	144	144	5.9
Mastigoteuthidae					
Mastigoteuthis?	1	4.8	139	139	5.7
Ommastrephidae					
Ommastrephes caroli	1	4.8	369	369	15.2
Total	21	100.2	2434	—	100.0

* Only 11 alveoli could be counted with certainty but probably there had been at least 12.

DISCUSSION

Five comparable external measurements were all within the limits given by Ross (1979, Table 3) for 16 specimens of *K. breviceps* from South Africa. For instance, the height of the dorsal fin, which is one of the characteristics of the species, is in our specimen 3% of the total length and the limits given by Ross are from 2.3–4.7%. For comparison, in the other species of *Kogia*, *K. simus*, the height of the dorsal fin varied from 5.4% to 10% of the total body length in 21 specimens.

The skull measurements are unfortunately not comparable with the cranial and mandibular measurements given by Ross (1979, Table 26) as these were given as percentages of the condylobasal length which it was not possible to measure in our specimen.

From the presentation of the cephalopod beaks in Table I, it can be seen that the histioteuthids account for 2/3 of the number of specimens, and slightly more than one half (51.9%) of the estimated weight.

All the squid families represented here, except the Mastigoteuthidae, were also represented in the 13 stomachs from South Africa studied by Ross (1979, Table 14). His material contained 13 families of cephalopods altogether, the histioteuthids being, also here, the most numerous.

Because of the vertical migrations known to occur in species of the families present in the stomach of the Azorean pygmy sperm whale, it is not possible to say at what depth the animal had been feeding. Other species of the most numerous family, the Histioteuthidae, are known to migrate upwards to 300-400 m during the night (Roper and Young, 1975).

ACKNOWLEDGEMENTS

We would like to thank the port captain of Horta, Cdr. Fernando Vargas de Matos, who reported the stranded whale to the Department of Oceanography and Fisheries and Dr. J. A. Raga who kindly identified the nematodes. Of the staff of this department, Noberto Serpa, Manuel F. Serpa, Vítor Rosa, José Fraga, José Carlos Silva and Carmelina Leal, all helped in various ways with the work. Mrs. Jane Silverman has kindly corrected the English.

LITERATURE CITED

CHAVES, F. A. (1924) — Cetáceos que aparecem nos mares dos Açores. *A Pesca Maritima*, 2 (15): 41-44.

CLARKE, M. R. (1962) — The identification of cephalopod «beaks» and the relationship between beak size and total body weight. *Bulletin of the British Museum (Natural History), Zoology*, 8 (10): 419-480.

—— (1980) — Cephalopoda in the diet of sperm whales of the southern hemisphere and their bearing on sperm whale biology. *Discovery Reports*, 37: 1-324.

FERREIRA, E. (1935) — Gigantes dos mares dos Açores. *Açoreana*, 1 (2):74-85.

HALE, H. M. (1947) — The pigmy sperm whale (*Kogia breviceps*, Blainville) on the south australian coasts. *Records of the South Australian Museum*, 8: 531-546.

MAUL, G. E. and SERGEANT, D. E. (1977) — New cetacean records from Madeira. *Bocagiana*, 43: 1-8.

REINER, F. (1981) — Nota sobre a ocorrência de um cachalote-anão *Kogia breviceps* Blainville, na Praia de Salgueiros — Vila Nova de Gaia. *Memórias do Museu do Mar*, série zoológica, **2** (15): 1-12.

ROPER, C. F. E. and YOUNG, R. E. (1975) — Vertical distribution of pelagic cephalopods. *Smithsonian Contributions to Zoology*, **209**: 1-51.

ROSS, G. J. B. (1979) — Records of pygmy and dwarf sperm whales, genus *Kogia*, from southern Africa, with biological notes and some comparisons. *Annals of the Cape Provincial Museums, Natural History*, **2**: 259-327.

ROSS, G. J. B. (1984) — The smaller cetaceans of the south-east coast of southern Africa. *Annals of the Cape Provincial Museums, Natural History*, **15**, part II: 173-410.

TEIXEIRA, A. M. (1978) — Sobre a ocorrência de um exemplar de cachalote-anão, *Kogia breviceps* Blainville, 1838, no mar dos Açores. *Memórias do Museu do Mar*, série zoológica, **1** (3): 1-5.

WATSON, L. (1981) — *Whales of the world*. Hutchinson & Co., London: 302 pp.