FIRST RECORD OF A DWARF SPERM WHALE FROM SOUTHWEST ATLANTIC, WITH REFERENCE TO OSTEOLOGY, FOOD HABITS AND REPRODUCTION

MARIA C. PINEDO*

ABSTRACT

A female dwarf sperm whale, *Kogia simus*, 2,490 mm long with a 260 mm female foetus was found stranded on July, 1983 at Rio Grande do Sul coast, southern Brazil (32°05'S, 52°01'W). The species was identified based on external and cranial characters. The condylobasal length was 283 mm and the vertebral formula was C7 + D13 + L10 + Ca25 = 55, with 14 chevron bones. The first nine pairs of ribs were double headed. The complete skeleton and foetus were placed in the cetacean collection of the Museu Oceanografico do Rio Grande (MORG 495). Nematode parasites, shrimp remains and 78 cephalopod beaks were found in the stomach content. Of the identified cephalopod beaks, 55% belonged to Histioteuthidae, 14.1% to Chiroteuthidae and the remainder to other five families. A review of foetal records suggests that birth and copulation occur in summer.

INTRODUCTION

On July 5, 1983, a decomposed odontocete carcass was found 10 km north of the entrance to the Patos lagoon, Rio Grande do Sul (32° 05'S, 52° 01'W). It was a 2,490 mm female dwarf sperm whale, containing a 260 mm female foetus. The specimen was measured, photographed and the stomach collected. The complete skeleton was recovered and, along with the formolized foetus, placed in the marine mammals collection of Museu Oceanografico do Rio Grande (MORG 495).

The external measurements of both specimens were taken according to Leatherwood, Reeves, Perrin and Evans (1982) and are shown in Table 1. The skull was measured according to Ross (1979) and rest of the skeleton according to Nishiwaki, Kasuya, Kureha and Oguro (1972), Pinedo and Castello (1980) and Omura, Shirakihara and Ito (1984). The present study reports the external morphology, osteology, stomach contents of this specimen, together with the review of presently available fetal records of the species.

* *Departamento de Oceanografia, FURG, 96200 Rio Grande, RS Brazil.*

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TABLE 1. EXTERNAL MEASUREMENTS OF A FEMALE *KOGIA SIMUS* (A) AND FOETUS (B) STRANDED AT RIO GRANDE DO SUL COAST, BRAZIL

	Measurements	A		B	
		in mm	% of total length	in mm	% of total length
1.	Tip of upper jaw to deepest part of fluke notch	2,490	100.0	260	100.0
2.	Tip of upper jaw to center of anus	1,770	71.1	195	75.0
3.	Tip of upper jaw to center of genital slit	1,715	68.9	195	75.0
4.	Tip of lower jaw to center of umbilicus	1,500	60.2	140	53.8
5.	Tip of upper jaw to top of dorsal fin	1,470	59.0	185	71.6
6.	Tip of upper jaw to leading edge of dorsal fin	1,170	46.9	160	61.5
7.	Tip of upper jaw to anterior insertion of flipper (left)	540	21.7	80	30.8
8.	Tip of upper jaw to center of blowhole	190	7.6	22	8.5
9.	Tip of upper jaw to anterior edge of blowhole	230	9.2	23	8.8
10.	Tip of upper jaw to auditory meatus, right			55	21.2
	left			55	21.2
11.	Tip of upper jaw to center of eye, right			44	16.9
	left			44	16.9
12.	Tip of upper jaw to angle of gape	235	9.4	34	13.1
13.	Center of eye to center of eye	505	20.3	52	20.0
14.	Height of eye, right	12	0.5	2	0.8
	left			1	0.4
15.	Length of eye, right	35	1.4	6	2.3
	left			6	2.3
16.	Center of eye to angle of gape, right	195	7.8	28	10.8
	left			30	11.5
17.	Center of eye to external auditory meatus, right	80	3.2	14	5.4
	left			13	5.0
18.	Center of eye to center of blowhole, right	320	12.9	42	16.2
	left	250	10.0	34	13.1
19.	Blowhole length	70	2.1	12	4.6
20.	Flipper width, right	130	5.2	15	5.8
21.	left	125	5.0	16	6.2
22.	Flipper length-tip to anterior insertion, right	330	13.3	39	15.0
	left	320	12.9	39	15.0
23.	Flipper length-tip to axilla, right	230	9.2	26	10.0
	left	220	8.8	27	10.4
24.	Dorsal fin height	155	6.2	9	3.5
25.	Dorsal fin base	305	12.3	27	10.4
26.	Fluke span	620	24.9	59	22.7
27.	Fluke width	180	7.2	20	7.7
28.	Fluke depth of notch	10	0.4	1	0.4
29.	Notch of flukes to center of anus	805	32.3	83	31.9
30.	Notch of flukes to center of genital aperture	855	34.3	86	33.1
31.	Notch of flukes to umbilicus	1,070	43.0	144	55.4
32.	Notch of flukes to nearest point on leading edge	170	6.8	19	7.3
33.	Girth at anus	1,040	41.8	100	38.5

TABLE 1. (Cont.)

34. Girth at axilla	1,360	54.6	175	67.3
35. Girth at eye			180	69.2
36. Blubber thickness (lateral)	25	1.0		
37. Mammary slit length, right	50	2.0		
left	45	1.8		
38. Genital slit length	50	2.0		

RESULTS

External morphology

The specimen was identified as a dwarf sperm whale, *Kogia simus* (Owen, 1866) (Fig. 1a) based upon the following external characteristics: height of dorsal fin equivalent to 6.2% of total body length (over 5% in *K. simus* according to Ross (1979)) and positioned in the midback; 10 teeth in each side of the lower jaw, which is in the ranges of the value for the species given by Handley (1966); the size of 8 lower teeth (15.5 to 20.5 mm) agrees with the values given by Ross (1979). Teeth were present on the upper jaws.

Due to decomposition, the colour pattern, throat grooves and the bracket mark behind the eye could not be observed (Fig. 1b). The bracket mark seems to be characteristic of the genus (Ross, 1979), whereas the throat grooves are present in *K. simus* and absent in *K. breviceps* (Leatherwood *et al.*, 1982). The blowhole was positioned to the front and directed to the left in an oblique way (Fig. 1c). It was an adult specimen, since a 260 mm foetus was found in it. The foetus was a female (Fig. 1d) which presented 5 vibrissae in each side of the maxilla (Fig. 1e) and two throat grooves.

Osteological characteristics

The specific cranial characteristics mentioned by Handley (1966) and Ross (1979) were observed on this specimen, especially the condylobasal length, the shape of the dorsal fossae, the width of the dorsal sagittal septum and the length and shape of the mandibular symphysis. These characteristics are shown in Fig. 2. The anterior part of the mesethmoid was not ossified (Fig. 2) and the skull sutures of the frontal in the vertex, the parieto-occipital and the maxillary were visible. The rami of the mandible were not fused together. Among a total of 8 teeth examined, two had the closed pulp cavity and the remainder were in process of closure. Skull measurements are listed in Table 2.

The vertebral formula was C7 + D13 + L10 + Ca25, with total of 55 vertebrae. The vertebral groups are presented in Fig. 3, and measurements of vertebrae in Table 3. Bones of axial skeleton, as well as the skull, were light and porous.

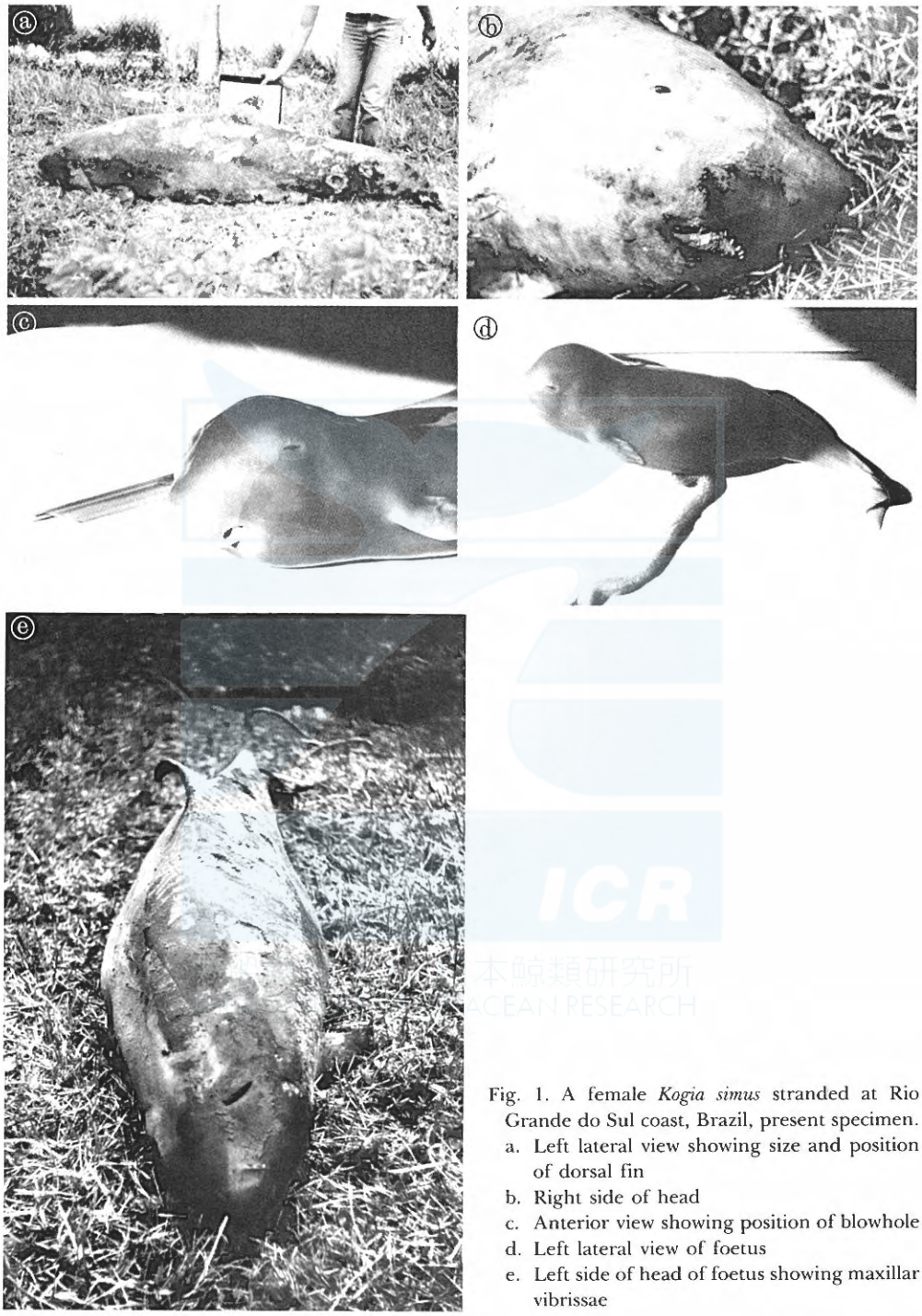

Fig. 1. A female *Kogia simus* stranded at Rio Grande do Sul coast, Brazil, present specimen.
a. Left lateral view showing size and position of dorsal fin
b. Right side of head
c. Anterior view showing position of blowhole
d. Left lateral view of foetus
e. Left side of head of foetus showing maxillar vibrissae

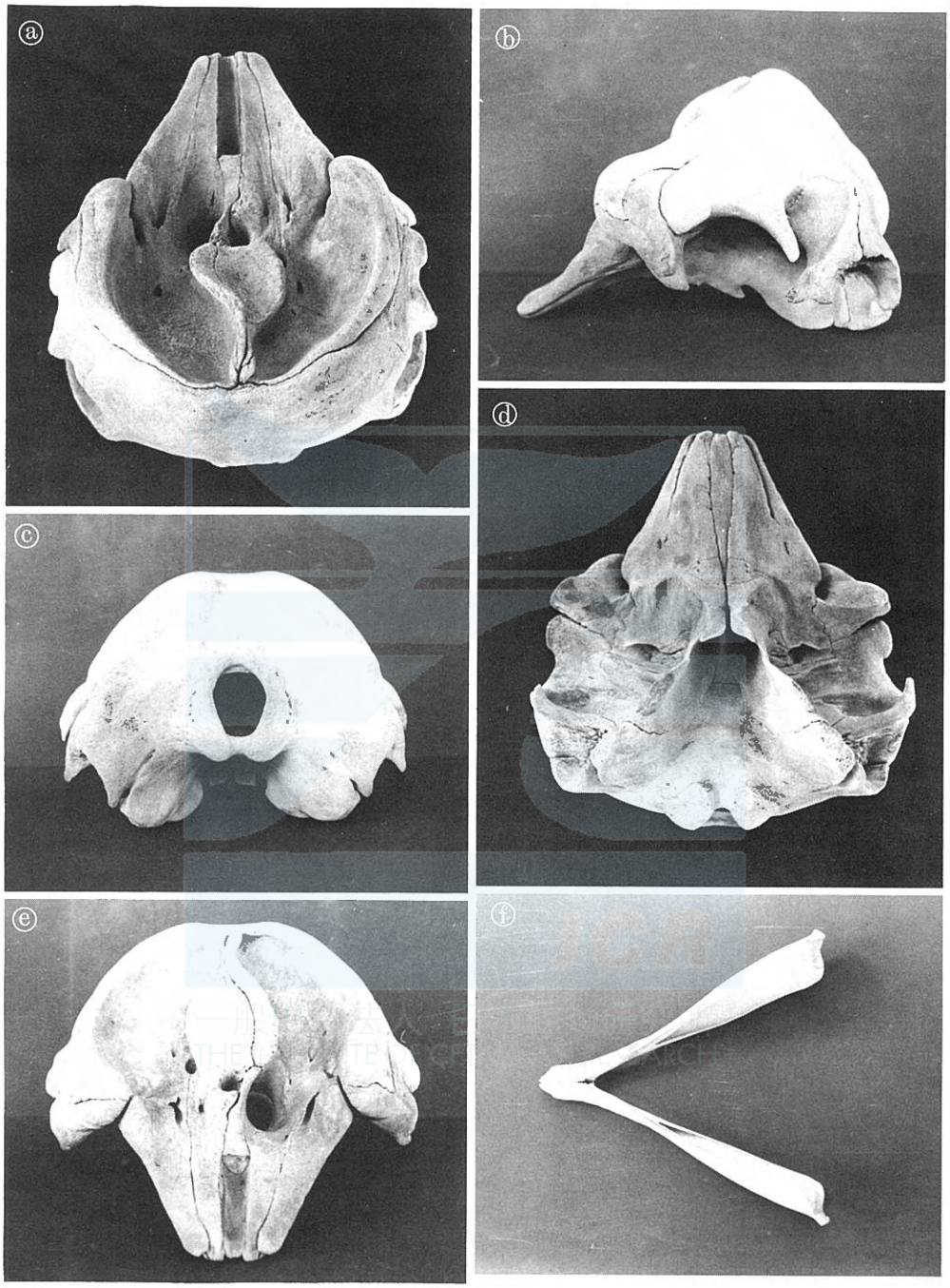

Fig. 2. Skull and mandibles of the present specimen
a. Dorsal view b. Lateral view c. Posterior
d. Ventral view e. Anterior view f. Mandible

The seven cervical vertebrae are fused into a single unit, where posterior three of them could be individualized. Most of the vertebral epyphyses, 60, were free from the centrum. The neural arch was closed up to the 13th caudal vertebra. The transverse and spinous apophyses attained their maximum sizes in the 5th lumbar vertebra. The last lumbar vertebra was distinguished from the 1st caudal by the absence of chevron bone in its ventral posterior portion. The 25th caudal vertebra showed a straightening, which confers it a triangular shape, in dorsal view. There were 14 chevron bones, and the first one was not fused bilaterally (Fig. 4). The measurements of these bones are provided in Table 4.

There were 12 ribs in the right side and 13 in the left; the last one was rudimentary for its small size (Fig. 5). The first nine pairs presented double articulation. Measurements of the ribs are shown in Table 5.

The sternum consisted of two bony sections both presenting a longitudinal rift in the ventral portion, evidencing the bilateral origin already mentioned

TABLE 2. CRANIAL AND MANDIBULAR MEASUREMENTS OF A FEMALE *KOGIA SIMUS* STRANDED AT RIO GRANDE DO SUL COAST, BRAZIL

Measurements	in mm	% of total length
1. Total condylobasal length	283	100.0
2. Rostrum length*	123	43.4
3. Rostrum, basal width*	146	51.5
4. Rostrum, width at its middle*	101	35.6
5. Breadth across pre-orbital angles of supra-orbital processes	241	85.1
6. Breadth across post-orbital processes	263	92.9
7. Zigomatic width	253	89.3
8. Height to vertex	185	65.3
9. Width of vertex	16	5.6
10. Width of supra-occipital at narrowest part between posterior margins of temporal fossae	190	67.1
11. Tip of rostrum to left naris	112	39.5
12. Height of ventral border of foramen magnum	65	22.9
13. Length of maxillary tooth groove – right	68	24.0
14. Length of maxillary tooth groove – left	65	22.9
15. Width between outer margins occipital condyles	80	28.2
16. Tip of rostrum to hind margin of pterygoids	160	56.5
17. Length of mandible	243	85.8
18. Height of mandible at coronoid	82	28.9
19. Length of mandibular symphysis	40	14.1
20. Length of lower toothrow – left	87	30.7
21. Length of lower toothrow – right	88	31.0
22. Height from dorsal border of foramen magnum to vertex	95	33.5

* Measured ventrally

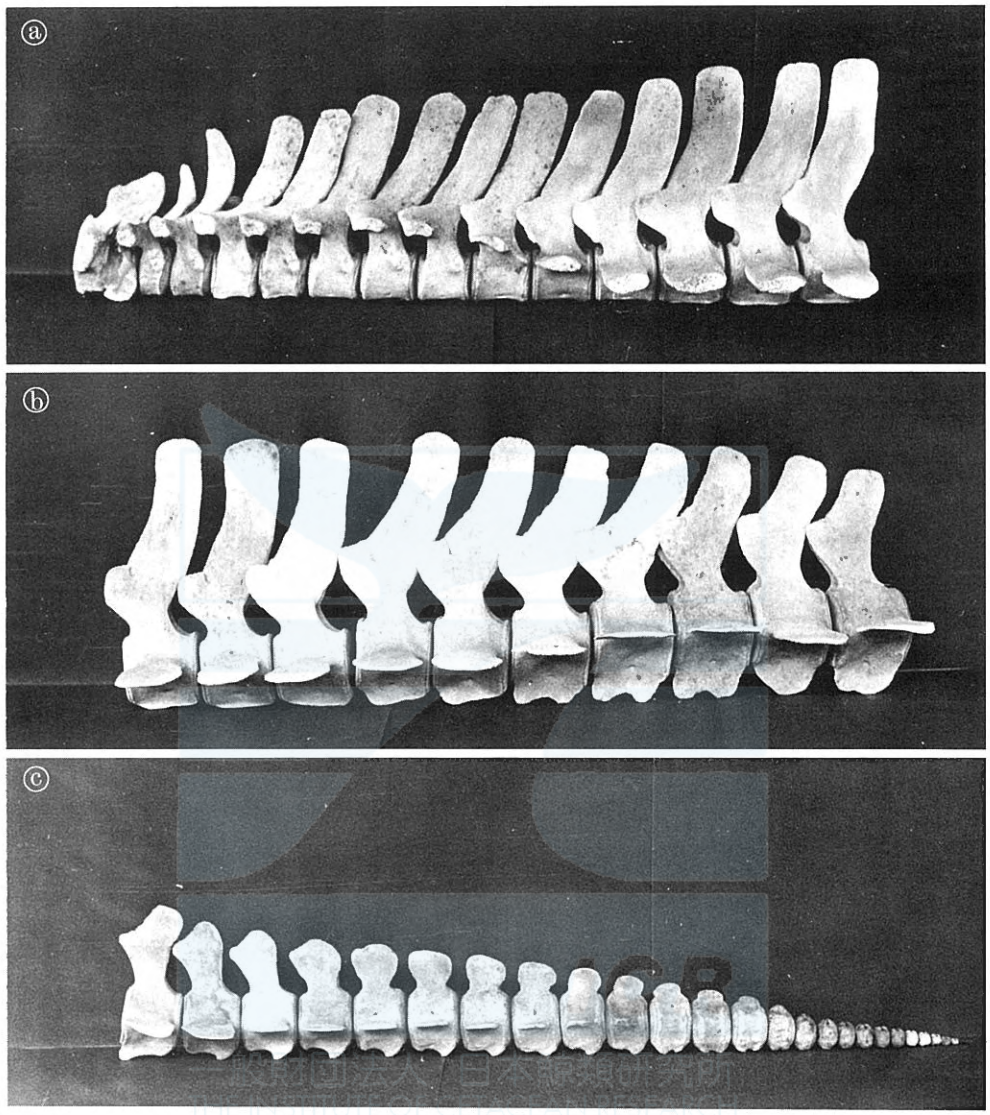

Fig. 3. Vertebrae of the present specimen
a. 1-7 cervical vertebrae (fused) and 1-13 dorsal vertebrae
b. 1-10 lumbar vertebrae
c. 1-25 caudal vertebrae

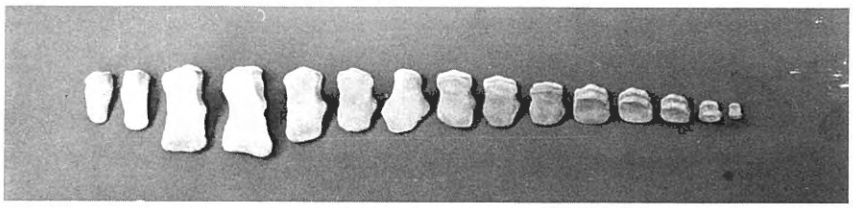

Fig. 4. 1-14 chevron bones of the present specimen showing isolated laminae of the first chevron.

TABLE 3. VERTEBRAL MEASUREMENTS OF A FEMALE *KOGIA SIMUS* STRANDED AT RIO GRANDE DO SUL COAST, BRAZIL (IN MM)

Serial No.	Vertebral No.	Greatest breadth	Greatest height	Centrum			Note
				Breadth	Height	Length*	
1	C 1						
2	2						
3	3						all fused but posterior
4	4	127	99	45	36	38	epiphysis of No. 7 is not
5	5			(posterior)		(inferior)	fused to its centrum
6	6						
7	7						
8	D 1	104	98	42	37	20	epiphysis fused only at upper part
				(anterior)			
9	2	99	120	39	35	29	epiphysis free until
10	3	100	138	36	33	32	eigth caudal vertebra
11	4	97	145	36	33	33	
12	5	97	148	36	31	36	
13	6	92	155	40	33	39	
14	7	93	154	38	32	38	
15	8	97	155	40	34	39	
16	9	108	156	43	36	42	
17	10	118	163	45	37	42	
18	11	132	168	45	40	44	
19	12	140	173	48	42	45	
20	13	168	172	50	43	46	
21	L 1	179	181	53	49	49	
22	2	176	181	51	46	48	
23	3	180	180	53	45	49	
24	4	183	186	56	56	50	
25	5	182	183	56	57	50	
26	6	177	178	54	61	51	
27	7	175	176	56	65	53	
28	8	168	172	56	71	53	
29	9	164	162	55	71	51	
30	10	162	152	54	67	50	

TABLE 3. (Cont.)

31	Ca	1	154	141	54	64	50	
32		2	144	122	55	54	49	
33		3	136	115	52	49	48	
34		4	125	107	52	48	47	
35		5	107	100	50	48	46	
36		6	91	95	51	49	45	
37		7	78	90	50	48	43	
38		8	66	84	52	47	42	
39		9	55	77	49	46	39	
40		10	49	70	45	48	39	
41		11	—	62	45	44	36	
42		12	—	57	42	42	34	
43		13	—	50	39	39	32	
44		14	—	41	37	33	25	
45		15	—	32	33	28	20	
46		16	—	27	31	23	18	
47		17	—	23	29	22	17	
48		18	—	21	27	20	17	
49		19	—	—	25	19	15	
50		20	—	—	23	16	14	
51		21	—	—	21	14	12	
52		22	—	—	19	13	11	
53		23	—	—	16	11	10	
54		24	—	—	13	8	9	
55		25	—	—	9	6	7	triangular shape, posterior epiphysis missing

* Measured with epiphysis

for *K. breviceps* by Carvalho (1966) and Vaz-Ferreira and Praderi (1973). Fig. 5 shows the way sternum measurements were taken, and the measurements are provided in Table 6. The sternal ribs were not found, demonstrating the attachments of ribs to the sternum only through cartilage, which agrees with Carvalho (1966) for *K. breviceps*.

Photographs of the hyoid arch and scapulae and the way measurements were taken are shown in Fig. 6. Tables 7 and 8 show the measurements of hyoid arch and scapulae, respectively.

The proximal and distal epiphyses of the right and left humerus were fused, as well as the proximal epiphyses of radius and ulna. The distal epiphyses of the latter were not fused. Measurements of humerus, radius and ulna are provided in Table 9. The phalangeal bones could not be counted. The pelvic bone was not found.

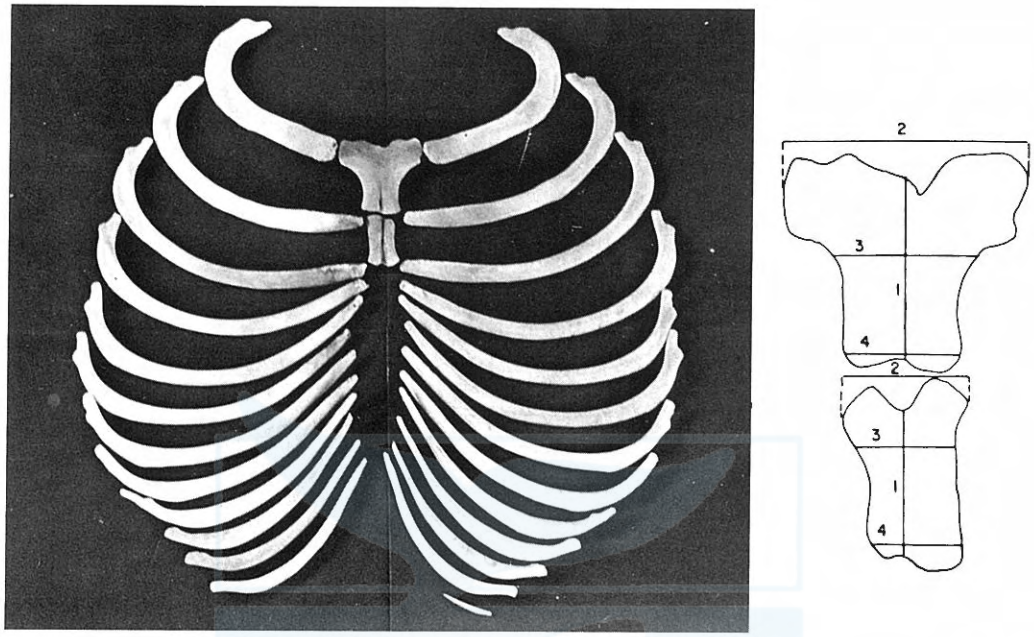

Fig. 5. Ribs and sternal bones of the present specimen (left), and illustration showing sternal measurements in Table 6 (right).

TABLE 4. MEASUREMENTS OF CHEVRON BONES OF A FEMALE *KOGIA SIMUS* STRANDED AT RIO GRANDE DO SUL COAST, BRAZIL (IN MM)

No.		Length*	Height*	No.	Length*	Height*
1	Right	19	37	8	26	35
	Left	20	43	9	26	30
2		29	63	10	26	27
3		27	63	11	24	24
4		29	53	12	21	19
5		27	45	13	16	13
6		30	46	14	10	9
7		27	39			

* Measured at midpoint

TABLE 5. STRAIGHT LENGTH OF RIBS OF A FEMALE *KOGIA SIMUS* STRANDED AT RIO GRANDE DO SUL COAST, BRAZIL (IN MM)

No.	Right	Left	No.	Right	Left
1	232	229	8	345	341
2	312	313	9	323	311
3	352	357	10	280	276
4	360	360	11	264	252
5	352	353	12	252	242
6	355	354	13	0	64
7	352	356			

TABLE 6. MEASUREMENTS OF THE STERNAL BONES OF A FEMALE *KOGIA SIMUS* STRANDED AT RIO GRANDE DO SUL COAST, BRAZIL (IN MM)

No.	Manubrium	Sternebrae
1. Length at medium	90	61
2. Maximum breadth	110	41
3. Anterior breadth	62	34
4. Posterior breadth	51	37

TABLE 7. MEASUREMENTS OF THE HYOID BONES OF A FEMALE *KOGIA SIMUS* STRANDED AT RIO GRANDE DO SUL COAST, BRAZIL (IN MM)

No.		Right	Left
1. Baiyhyal height at medium	54		
2. Maximum basihyal height	65		
3. Maximum basihyal breadth	77		
4. Thyrohyal length		83	81
5. Thyrohyal breadth		64	65
6. Straight line thyrohyal*	174		
7. Stylohyal length		74	86
8. Stylohyal height at medium		15	9

* Measured approximately – not fused with basihyal

Stomach content and parasites

The stomach contained 78 cephalopod beaks (38 upper and 40 lower) and gladius remains. Beaks were identified by M. J. Imber, Wildlife Service, Wellington, New Zealand and results are shown in Table 10. Fifty-five percent of the beaks belonged to the oceanic family Histioteuthidae and the remainder were assigned to six other families. Two beaks could not be identified due to their small size. Remains of shrimp carapaces were also found but identification was not possible due to wear. The presence of cephalopods and crustacean in the *K. simus* stomachs and the predominance of the former were previously observed by Fitch and Brownell (1968), Ross (1979), Jones (1981), Maigret

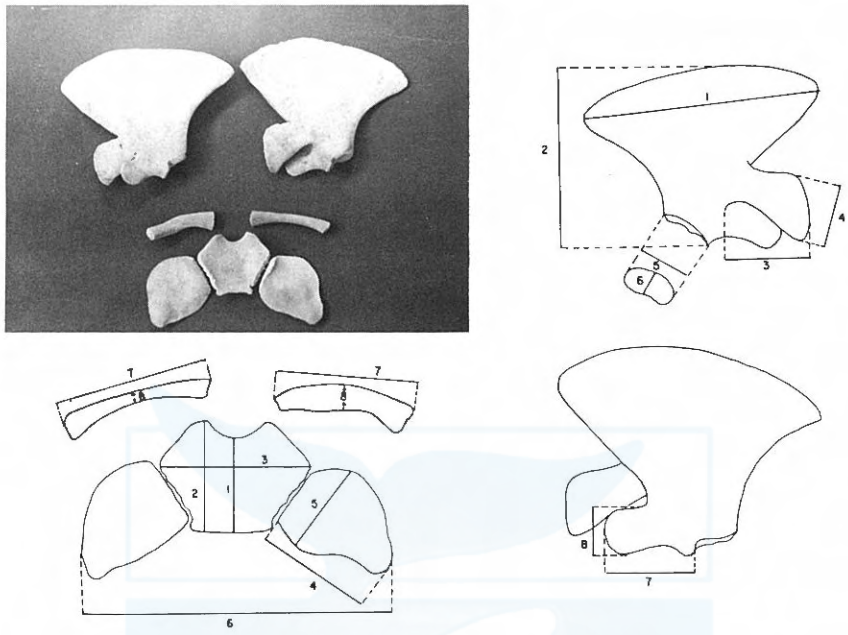

Fig. 6. Scapulae (right and left) and hyoid bones of the present specimen, and illustrations showing measurements in Tables 7 and 8.

TABLE 8. MEASUREMENTS OF THE SCAPULA OF A FEMALE *KOGIA SIMUS* STRANDED AT RIO GRANDE DO SUL COAST, BRAZIL (IN MM)

No.	Right	Left
1. Maximum length	187	183
2. Maximum height	151	149
3. Coracoid length	54	55
4. Coracoid maximum breadth	41	52
5. Glenoid fossa length	35	37
6. Glenoid fossa breadth	26	26
7. Acromium length	53	52
8. Acromium maximum breadth	26	23

TABLE 9. MEASUREMENTS OF HUMERUS, RADIUS AND ULNA OF A FEMALE *KOGIA SIMUS* STRANDED AT RIO GRANDE DO SUL COAST, BRAZIL (IN MM)

	Humerus		Radius		Ulna	
	Right	Left	Right	Left	Right	Left
Length*	87	87	57	56	55	55
Breadth*	37	38	31	30	28	26

* Measured at midpoint

TABLE 10. NUMBER OF CEPHALOPOD BEAKS FROM A STOMACH OF *KOGIA SIMUS* FROM SOUTHERN BRAZIL

Cephalopods	Upper	Lower	Total number	% of total	No of squids	Family % of total
Histioteuthidae						
Histioteuthis atlantica	4	4	8	10.3	4	
Histioteuthis macrohista	16	17	33	42.3	17	55.1
Histioteuthis sp. (*corpuscula*?)	1	1	2	2.6	1	
Lycoteuthidae						
Lycoteuthis diadema (= Oregoniateuthis longimanus)	3	4	7	9.0	4	9.0
Cranchiidae						
Megalocranchia maxima	2	2	4	5.1	2	7.7
Teuthowenia impennis	1	1	2	2.6	1	
Mastigoteuthidae						
Mastigoteuthis sp.	1	1	2	2.6	1	2.6
Chiroteuthidae						
Chiroteuthis capensis	6	5	11	14.1	6	14.1
Brachioteuthidae						
Brachioteuthis sp.	2	1	3	3.8	2	3.8
Sepiolidae						
Rossia sp.?	1	3	4	5.1	3	5.1
Unidentified	1	1	2	2.6	1	
Total	38	40	78		42	

and Robineau (1981), Nagorsen and Stewart (1983) and Ross (1984). Nevertheless, in most of the stomachs analyzed fish otoliths were also found. Nematode parasites were present in great number.

Most of the beaks found in the present specimen belonged to species *Histioteuthis atlantica* and *H. macrohista*, coinciding with what was observed for a *K. simus* specimen from New Zealand (Imber, pers. com.).

Fetal length

Body length at birth is not known for *Kogia simus*, but it is suggested to be around 1 m by comparison with *K. breviceps* (Ross, 1979). Known records of fetal and juvenile *K. simus* are cited in Table 11 and the Southern Hemisphere

TABLE 11. RECORDS OF *KOGIA SIMUS* OF CALVES AND FEMALES WITH FOETUS OR CALF.

Cat. N°		Total length (mm)	Length of foetus (mm)	Sex of foetus	Length of calf (mm)	Sex of calf	Date	Region	Source
MCZ	4038	2,210	c.300	–	c.1,500	male	21/ 4/39[a]	U.S.A.	Allen (1941) Barbour (1950)
PEM	1515/50	2,310+	?	–	1,520	–	28/ 4/70	South Africa	Ross (1979)
PEM	1515/53	2,305	–	–	1,525	–	Apr/May 1970	South Africa	Ross (1979)
PEM	1516/50	c.2,440	–	–	1,360	female	24/ 3/71	South Africa	Ross (1979)
PEM	1516/97	2,350	72	female	1,525	female	15/ 4/71	South Africa	Ross (1979)
PEM	1518/02	2,400	c.200–250	–	c.1,000–1,300[b]	–	23/ 8/72	South Africa	Ross (1979)
	–	–	–	–	1,220	female	10/73	U.S.A.	Gunter and Overstreet (1974)
PEM	1519/72	2,240	325	female	1,610	female	17/ 9/75	South Africa	Ross (1979)
ELM	935	2,500	960	–	–	–	21/12/76	South Africa	Ross (1984)
PEM	1520/66	2,200	–	–	1,470	female	30/ 7/77	South Africa	Ross (1984)
PEM	N678[c]	2,410	–	–	1,035	male	3/ 3/81	South Africa	Ross (pers. com.)
PEM	N830	2,380[d]	–	–	1,030	female	31/ 3/82	South Africa	Ross (pers. com.)
MORG	495	2,490	260	female	–	–	5/ 7/83	Brazil	Present study
	–	2,270	591	female	–	–	19/10/83	Mexico	Fleischer *et al.* (1984)
PEM	N1132[c]	–	–	–	1,275	female	17/ 1/85	South Africa	Ross (pers. com.)

a. Although Allen (1941) mentions that this record was found on 21/4/39, Barbour (1950) wrote it was found during Autumn of 1939.
b. Due to the great range of the estimated length this calf is not present in Figure 7.
c. Lactating female (PEM N678). Stranded near Gaimtoos River Mouth, Eastern Cape.
d. Lactating and calf stranded alive, Coega River Mouth, Algoa Bay.
e. Stranded 300m from an adult male, Cape Receife, Port Elizabeth. Preserved whole, stomach not examined.

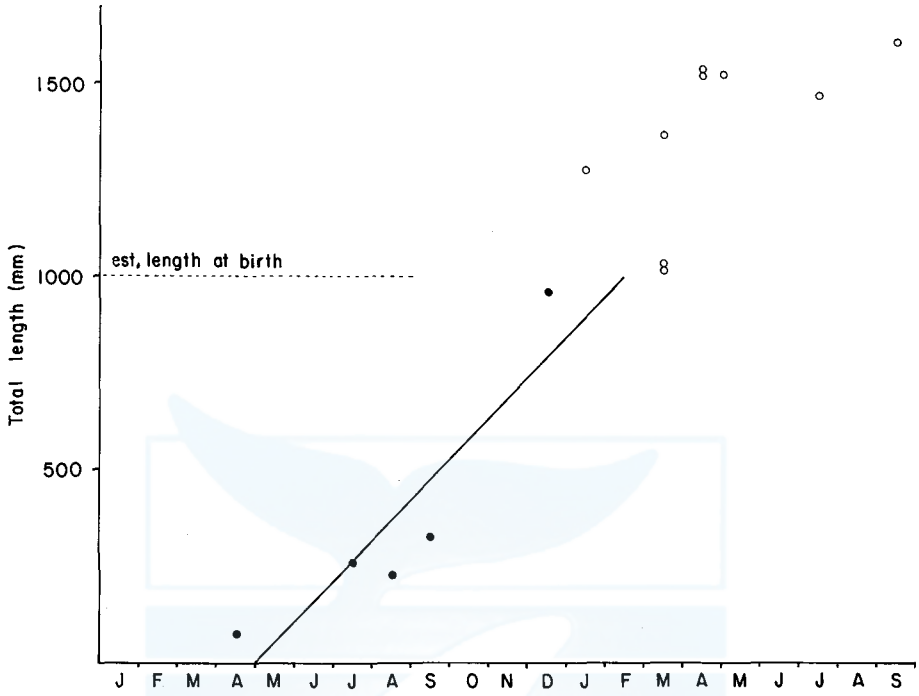

Fig. 7. Lengths of foetuses (●) and calves (○) of *K. simus* plotted against month of occurrence in the Southern Hemisphere.

records of the body length are plotted against the date in Fig. 7. The occurrence of small foetuses in April and of large foetus and new born calves in November to February suggests the matings in summer and births in early summer. The gestation period is possibly about 9.5 months and the length at birth around 1 m, agreeing with those suggested by Ross (1979).

ACKNOWLEDGEMENTS

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REFERENCES

ALLEN, G.M., 1941. Pygmy sperm whale in the Atlantic. *Zool. Series, Field Mus. Nat. Hist.* (Chicago), 27: 17–36, figs 1–4.

BARBOUR, T., 1950. *Naturalist at large*. pp206–207. Robert Hale, London. 258 pp.

CARVALHO, C.T. DE, 1966. Notas sobre *Kogia breviceps* (Cetacea, Physeteridae). *Rev. Biol. Trop.*, 14(2): 169–181.

FITCH, J.E. and R.L. BROWNELL, JR., 1968. Fish otoliths in cetacean stomachs and their importance in interpreting feeding habits. *J. Fish. Res. Bd. Can.*, 25(12): 2561–2574.

FLEISCHER, L.A., F. CERVANTES, R. FUENTES and G.E. MICHEL, 1984. New records of whales strandings at the Bay of La Paz, Baja California Sur, Mexico. Presented at IX International Reunion of the Mexican Society for the Study of Marine Mammals, La Paz, B.C.S., Mexico, 29–31 March.

GUNTER, G. and R. OVERSTREET, 1974. Cetacean notes. I. Sei and rorqual whales on the Mississippi coast, a correction. II. A dwarf sperm whale in Mississippi Sound and its helminth parasites. *Gulf Res. Repts.*, 4(3): 479–481.

HANDLEY, C.O., 1966. A synopsis of the genus *Kogia* (pigmy sperm whale). pp. 62–69. *In*: K.S. Norris (ed.) *Whales, dolphins and porpoises.* Univ. California Press, Berkeley and Los Angeles. 789pp.

JONES, R.E., 1981. Food habits of smaller marine mammals from northern California. *Proc. Calif. Acad. Sci.*, 42: 409–433.

LEATHERWOOD, S., R.R. REEVES, W.F. PERRIN and W.E. EVANS, 1982. Whales, dolphins and porpoises of the eastern North Pacific and adjacent Arctic waters. A guide to their identification. *NOAA Technical Report NMFS Circular 444*. 245pp.

MAIGRET, J. and D. ROBINEAU, 1981. Le genre *Kogia* (Cetacea, Physeteridae) sur les cotes du Senegal. *Mammalia*, 45(2): 199–204.

NAGORSEN, D.W. and G.E. STEWART, 1983. A dwarf sperm whale (*Kogia simus*) from the Pacific coast of Canada. *J. Mamm.*, 64(3): 505–506.

NISHIWAKI, M., T. KASUYA, K. KUREHA and N. OGURO, 1972. Further comments on *Mesoplodon ginkgodens*. *Sci. Rep. Whales Res. Inst.*, 24: 43–56.

OMURA, H., M. SHIRAKIHARA and H. ITO, 1984. A pygmy sperm whale accidentally taken by drift net in the North Pacific. *Sci. Rep. Whales Res. Inst.*, 35: 183–193.

OWEN, R., 1866. On some Indian Cetacea collected by Walter Elliot, Esq. *Trans. Zool. Sco. Lond.*, 6(1): 17–47, pl. III–XIV.

PINEDO, M.C. and H.P. Castello, 1980. Primeiros registros dos golfinhos *Stenella coeruleoalba, Stenella* cfr. *plagiodon* e *Steno bredanensis* para o sul do Brasil, com notas osteologicas. *Bolm. Inst. Oceanogr. (S. Paulo)*, 29(2): 313–317.

ROSS, G.J.B., 1979. Records of pygmy and dwarf sperm whales, genus *Kogia*, from Southern Africa, with biological notes and some comparisons. *Ann. Cape Prov. Mus.* (Nat. Hist.), 11(14): 259–327.

ROSS, G.J.B., 1984. The smaller cetaceans of the South East coast of Southern Africa. *Ann. Cape Prov. Mus.*, 15: 173–410.

VAZ-FERREIRA, R. and R. PRADERI, 1973. Un nuevo ejemplar de *Kogia breviceps* (Blainvile) (Cetacea, Physeteridae) del Atlantico Sudoccidental. Caracteres y notas. *Trab. V Congr. Latinoam. Zool.*, 1: 261–277.