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A Stranding Record of the Cuvier's Beaked Whale

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ABSTRACT

A Cuvier's beaked whale, *Ziphius cavirostris,* stranded on Kayama Island in the Ryukyu Islands on 12 April 1966. The skull and postcranial skeletons are described and illustrated. The specimen is presumed to be an adult male.

The Cuvier's beaked whale, *Ziphius cavirostris,* is common in all temperate and tropical seas (Rice and Scheffer 1968)[1]. The stranding records of the species were reported from many places over the world. For example around the Pacific Ocean the records were sighted from the coast of western North America (Hubbs 1946,[2] Houck 1958,[3] Mitchell and Houck 1967,[4] Mitchell 1968)[5], from Hawaiian waters (Richard 1952,[6] Galbreath 1963)[7], from Kamuchatka (Tomilin 1957),[8] and from the coast of Japan (Omura 1972).[9] The purpose of this note is to report a stranding record of the species from the Ryukyu Islands.

According to Mr. Ueseto's personal information, a Cuvier's beaked whale stranded on the beach of Kayama Island (24°21′ N, 124°00′ E) on 12 April 1966. The data on sex, body length, and sexual condition are unknown. This specimen is preserved as his collection and is exhibited in the Ueseto's private museum at Taketomi Island (24°19′N, 124° 04′E). The skeletons preserved there are as follows, skull, mandible, 7 right and 7 left ribs, 27 vertebrae (7 cervical, 8 dorsal, 10 lumbar, and 2 caudal), 3 sternal bones, 2 chevrons, a pair of stylohyal bones, one humerus, and one radius. Table 1, 2, and 3 show measurements of skull, mandible, and vertebrae, respectively. The measurement numbers of skull are cited from Moore (1963).[10]

Skull. Condylobasal length is 852 mm. The skull is ossified and looks like to be from an adult male because the prenarial basin is presented distinctly as shown in Fig. 1. The mesorostral bone is developed conspicuously and its superior surface rises slightly over the level of the premaxillaries. It begins about 10 cm from the tip of the rostrum as a narrow ridge, it increases its height and width towards the two third of the rostrum, and at a point, 302 mm from the tip, it is truncated abruptly to be prenarial basin. At this point the widths of the premaxillaries and the maxillaries are 76 and 139 mm, respectively. The greatest depth of rostrum at midlength of rostrum is very conspicuous.

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TABLE 1. SKULL MEASUREMENTS OF A CUVIER'S BEAKED WHALE, *ZIPHIUS CAVIROSTRIS*, STRANDED ON KAYAMA ISLAND ON 12 APRIL 1966 (in mm). PERCENTAGE IS EXPRESSED AS THE RATIO TO THE TOTAL SKULL LENGTH.

	Measurement	Percentage
1. Greatest length of skull.	852	100
2. Greatest length of rostrum, tip of beak to line connecting apices of antorbital notches.	488	57.3
3. Tip of rostrum to posterior margin of pterygoid nearest mid-sagittal plane.	659	77.3
4. Tip of rostrum to most posterior extension of wing of pterygoid.	665	78.1
5. Tip of rostrum to most anterior extension of pterygoid.	408	47.9
6. Tip of rostrum to most posterior extension of maxillaries between the pterygoids on the palate.	461	54.1
8. Tip of rostrum to anterior margin of superior nares.	589	69.1
9. Tip of rosrum to most anterior point on premaxillary crest (i.e. to anterior tip of nasals).	619	72.7
10. Tip of rostrum to most posterior extension of temporal fossa.	753	88.4
11. Tip of rostrum to most posterior extension of lateral tip of left premaxillary crest.	703	82.5
13. Greatest length of temporal fossa.	145	17.0
14. Greatest length of orbit.	135	15.8
15. Greatest length of right nasal on vertex of skull.	143	16.8
16. Length of nasal suture.	75	8.8
17. Greatest breadth of skull across postorbital processes of frontals.	480	56.3
18. Greatest breadth of skull across zygomatic processes of squamosal.	479	56.2
19. Greatest breadth of skull across centers of orbits.	449	52.7
20. Least breadth of skull across posterior margins of temporal fossae.	248	29.1
21. Greatest span of occipital condyles.	154	18.1
22. Greatest width of an occipital condyle.	58	6.8
23. Greatest length of an occipital condyle.	109	12.8
24. Greatest breadth of foramen magnum.	56	6.6
26. Greatest breadth of nasals on vertex.	73	8.6

27. Least distance between premaxillary crests.	63	7.4
29. Greatest span of premaxillary crests.	186	21.8
32. Width of premaxillae at midlength of rostrum.	58	6.8
33. Width of rostrum in apices of antorbital notches.	335	39.3
34. Width of rostrum in apices of prominential notches.	294	34.5
35. Greatest width of rostrum at midlength of rostrum.	108	12.7
36. Greatest depth of rostrum at midlength of rostrum.	95	11.2
37. Greatest transverse width of superior nares.	122	14.3
38. Greatest inside width of inferior nares, at apices of pterygoid notches, on the pterygoids.	105	12.3
40. Greatest width of temporal fossa approximately at right angle to greatest length.	98	11.5
41. Least distance between main or anterior maxillary foramina.	129	15.1
44. Greatest length of vomer visible at surface of palate.	239	28.1

Mandible. The greatest length of right ramus is 766 mm. None of teeth has been preserved. The length and width of the mandiblar alveoli are 41 and 24 mm in the right, and 41 and 23 mm in the left, respectively.

TABLE 2. MEASUREMENTS OF MANDIBLE OF A CUVIER'S BEAKED WHALE, *ZIPHIUS CAVIROSTRIS*, STRANDED ON KAYAMA ISLAND ON 12 APRIL 1966 (in mm).

	Measurement
A. Greatest length of right dentary bone.	766
B. Greatest length of right dentary to posterior end of symphysis.	153
C. Greatest length of right dentary to anteromedial margin of mandibular vacuity.	434
D. Height at coronoid process.	137

Vertebral bones. Seven cervical, 8 dorsal, 10 lumbar, and 2 caudal vertebrae are preserved but the other caudal are not. These two caudal vertebrae are considered as the first and second ones. First 5 cervicals united into a mass including spinous processes. The epiphyses of all 27 vertebrae are entirely fused that the sutures of centrum are obliterated.

TABLE 3. MEASUREMENTS OF VERTEBREA OF A CUVIER' S BEAKED WHALE, *ZIPHIUS CAVIROSTRIS*, STRANDED ON KAYAMA ISLAND ON 12 APRIL 1966 (in mm).

Vertebral no.	Greatest breadth	Greatest height	Centrum Breadth	Centrum Height	Centrum Length
C 1	246		148	102	
2	213				
3	154	183			92
4	117				
5	99	107	83	71	
6	95	115	79	63	21
7	125	127	82	62	22
D 1	203	190	75	61	36
2	224	275	79	62	49
3	222	323	76	61	61
4	200	300+	71	61	71
5	183	308	74	61	79
6	171	338	75	62	83
7	163	324	77	65	89
8	178	359	84	65	97
L 1	234+	421	97	89	146
2	302+	378	90	78	121
3	329	351	97	75	112
4	334	341	100	78	118
5	325	364	102	84	126
6	305	385	104	93	135
7	288	369	109	94	140
8	277	334+	114	101	148
9	269	351	110	97	145
10	272	327+	118	106	151
Ca 1	256	373	124	109	150
2	249	383	124	109	148

Ribs. The straight measurements of two complete right ribs are 741 and 730 mm, respectively, but their rib numbers are unknown exactly. From the fragments of ribs it is made clear that 7 right and 7 left ribs are preserved.

The other bones. Three segments of sternum, a pair of stylohyal bones, two chevrons, one humerus, and one radius have less value to report here.

The number of dorsal vertebrae of this specimen is by one or two smaller than that of the specimens from the east and west North Pacific (True 1910[11], Omura 1972)[9]. Considering the shape of dorsal vertebrae of this specimen, the 9th and/or 10th dorsal vertebrae may be lost during preparation of this specimen.

Omura (1972)[9] pointed out that the individual difference in skull proportion of the species seems to be much greater than the difference by sexes. But he also reported that in some characters the presumed adult male is separated from the others. As already mentioned, the specimen is presumed to be an adult male by the presence of the distinct prenarial basin and the prominent mesorostral bone, and the complete fusion of the epiphyses of all 27 vertebrae preserved. The skull measurement in the measurement number 36 (greatest depth of rostrum at midlength of rostrum) seems to prove this to be true.

Acknowledgement……We thank Mr. Ueseto for his permission to measure the specimen and to photograph it.

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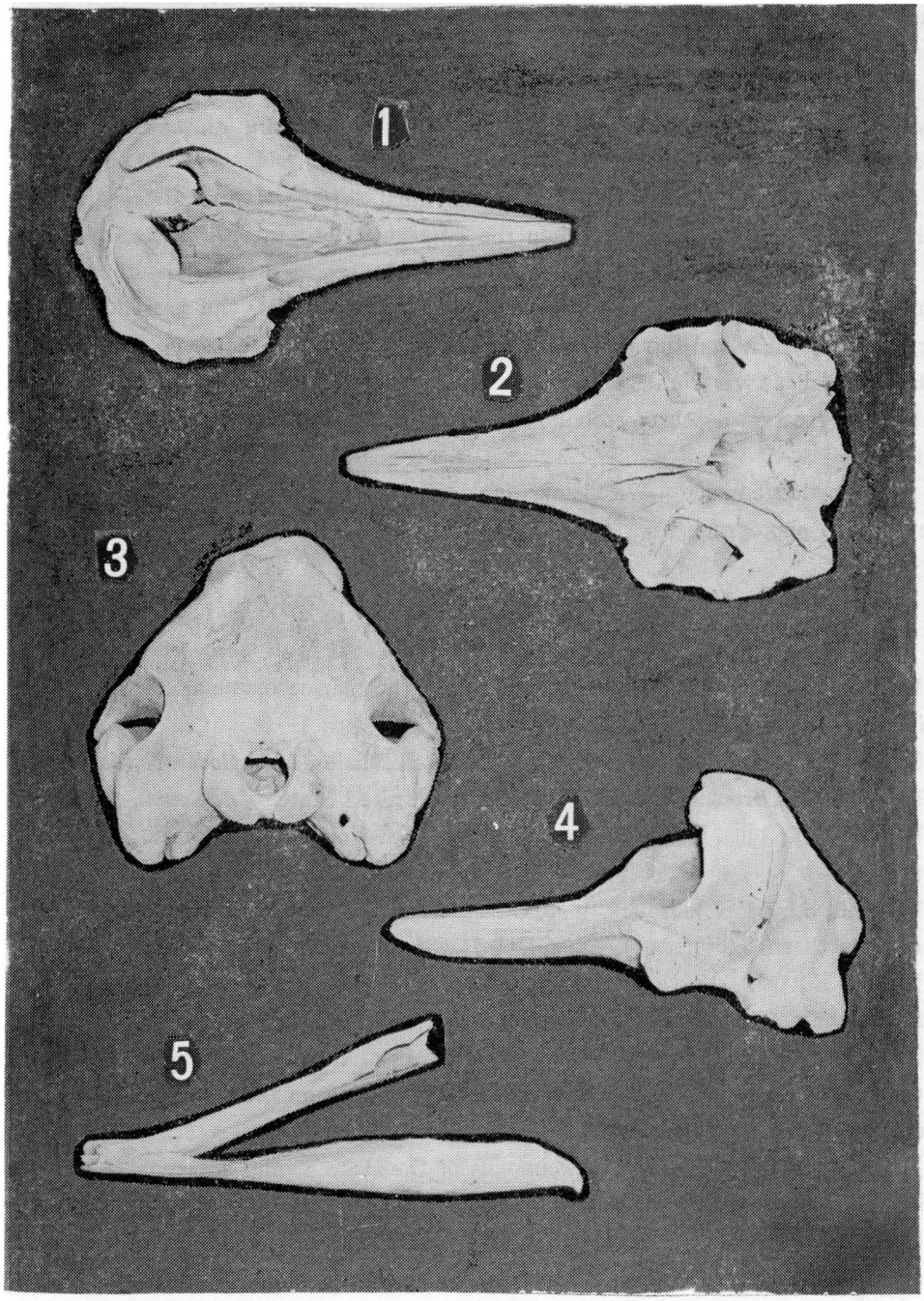

Fig.1. Skull and mandible of the Cuvier's beaked whale, *Ziphius cavirostris* stranded on Kayama Island on 12 April 1966. 1, Dorsal view of skull; 2, Ventral view of skull; 3, Posterior view of skull; 4, Left lateral view of skull; 5, Mandible.