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Dedicated to Mrs. W.S.S. van Benthem Jutting

On three specimens of *Lagenorhynchus albirostris* Gray, 1846 (Mammalia, Cetacea)

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Recently the Zoological Museum in Amsterdam came into possession of three specimens of the White-beaked Dolphin, *Lagenorhynchus albirostris.* As data on this species are rather scarce, it may be useful to publish a few notes on these animals.

The first dolphin, a female, was caught in the North Sea at 7.3 miles N.N.W. from IJmuiden (about 52° 34′ N, 4° 30′ E) at the end of November 1958 by a commercial fish-trawler. The animal was obtained by the Netherlands Whale Research Group T.N.O. (Prof. dr. E. J. Slijper and Drs. W. L. van Utrecht), Amsterdam, for anatomical studies. Afterwards the skull and the complete skeleton were presented to the Zoological Museum. The dolphin was pregnant, its fetus weighed 1.5 kg. This specimen bears the registration number ZMA 2483.

The second *Lagenorhynchus albirostris,* also a female, was one of three specimens found stranded (or washed ashore) on the coast of the North Sea island Texel, on 5th May, 1964. Thanks to the kind cooperation of Mr. G. J. de Haan, the director of the Natural History Museum at Texel, the Amsterdam Museum obtained this animal, which provisionally is called specimen „C"; registration number ZMA 6815. Specimen „A" of this stranding will be exhibited in the Texel Museum; specimen „B" went to the Rijksmuseum van Natuurlijke Historie at Leyden. At the moment these three animals were found, they probably were dead already for about 10 days.

On 21st May, 1964, Mr. de Haan found a fourth representative of the same species. The body of this dolphin, likewise a female, he found drifting in sea between Texel and another North Sea island, Vlieland. Mr. de Haan estimated that the animal, afterwards called specimen „D", died about four weeks before he found it. If the estimations of the dates of death are right,

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it may be concluded that the four White-beaked Dolphins died on about the same time and probably also on the same place. It is almost certain that the place where the animals died is not the beach where specimens A, B and C were found.

The last specimen of *Lagenorhynchus albirostris,* which came into the collections of the Zoological Museum, was brought in at Scheveningen by the fish-trawler „Sch. 64" (Captain Mr. S. Harteveld). The animal, a young male, was caught at 59° 30′ N, 1° 30′ W, on about 14th July, 1964. We obtained this dolphin, registration number ZMA 6994, by the kind help of Mr. M. Pronk at The Hague.

The last specimen excluded, since it was caught far outside the faunal area of the Netherlands (for borders of this area, see BOSCHMA, 1927), at this moment 20 White-beaked Dolphins are known from the coasts of the Netherlands, either stranded or caught in coastal waters. In table I a list of these 20 specimens is compiled from literature, mainly after the important publications by VAN DEINSE (1931, 1946) and after the yearly reports on the Cetacea stranded on the coasts of the Netherlands by the same author.

Table I. List of specimens of *Lagenorhynchus albirostris* Gray, 1846, stranded on the coasts of the Netherlands or caught in coastal waters.

Locality	*Date*	*Sex*	*Length*	*Reference*
(1) Vlieland	28-VI-1886	♂	274 cm	Weber, 1887
(2) Near Den Helder	18-XII-1887	♀	179 cm	Maitland, 1898
(3) Westernieland	17-V-1904	♀	283 cm	v. Deinse, 1946
(4) Noordwijk aan Zee	8-II-1918	♂	275 cm	v. Oort, 1918
(5) Texel	6-X-1929	?	± 270 cm	v. Deinse, 1931
(6) Terschelling	5-XII-1936	♀	± 285 cm	v. Deinse, 1946
(7) Katwijk	21-I-1941	♀	± 215 cm	Creutzberg, 1941
(8) Katwijk	21-I-1941	♂	± 260 cm	Creutzberg, 1941
(9) Wieringen	9-VIII-1941	♂	255 cm	v. Deinse, 1946
(10) Bloemendaal	10-VI-1950	♀	227 cm	v. Deinse, 1951
(11) Noordwijk aan Zee	7-IX-1953	?	?	v. Deinse, 1955
(12) Ameland	24-XII-1954	♀	245 cm	v. Deinse, 1955
(13) Domburg	17-I-1955	?	210 cm	v. Deinse, 1956
(—) Near IJmuiden	XI-1958	♀	264 cm	this paper
(14) Heveskes	I-1962	♀	250 cm	v. Deinse, 1963
(15) In the Eems	VIII-1962	?	?	v. Deinse, 1963
(A) Texel	5-V-1964	♀	260 cm	this paper
(B) Texel	5-V-1964	♀	264 cm	this paper
(C) Texel	5-V-1964	♀	259 cm	this paper
(D) Texel - Vlieland	21-V-1964	♀	264 cm	this paper

Figure 1 shows the localities where the animals came from. The numbers on the list as well as on the map are those given by van Deinse. Awaiting his numbers for the last specimens found on Texel, we have used the provisional indications A to D. As can be seen from the map, almost twice as many White-beaked Dolphins stranded on the northern part of the Netherlands coasts as on the southern part. This was to be expected in view of the distribution of this species (NORMAN & FRASER, 1948).

As to the monthly incidence of the strandings in the Netherlands, we do not

find a clear maximum during the middle of the summer as has been observed in Great Britain (FRASER, 1953). For these data see table II.

TABLE II. Monthly incidence of strandings of *Lagenorhynchus albirostris* on British coasts (FRASER, 1953) and on the coasts of the Netherlands.

Months	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
the Netherlands	4	1	—	1	5	1	—	2	1	1	—	2
Great Britain	2	6	2	5	2	4	16	12	5	3	3	1

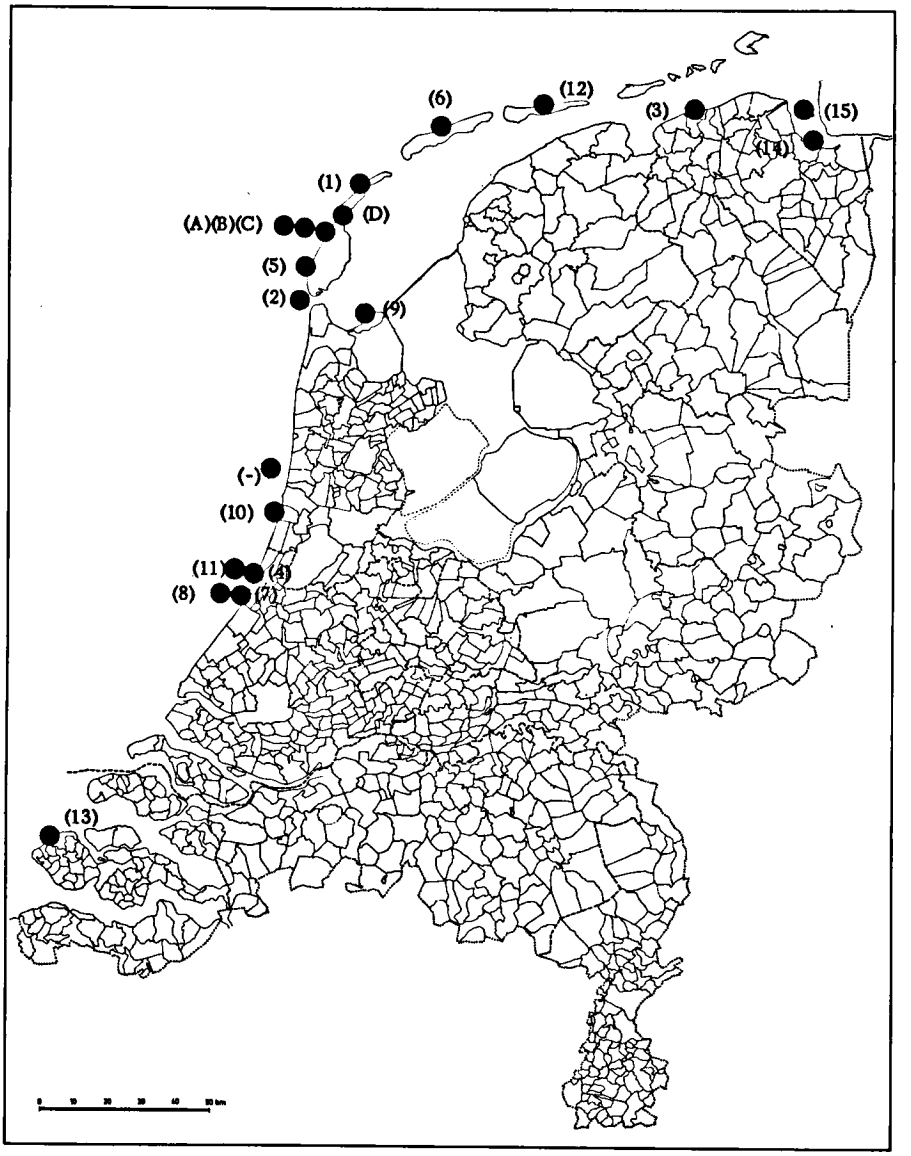

FIG. 1. Localities where specimens of *Lagenorhynchus albirostris* have been found. The numbers and letters correspond with those on table I.

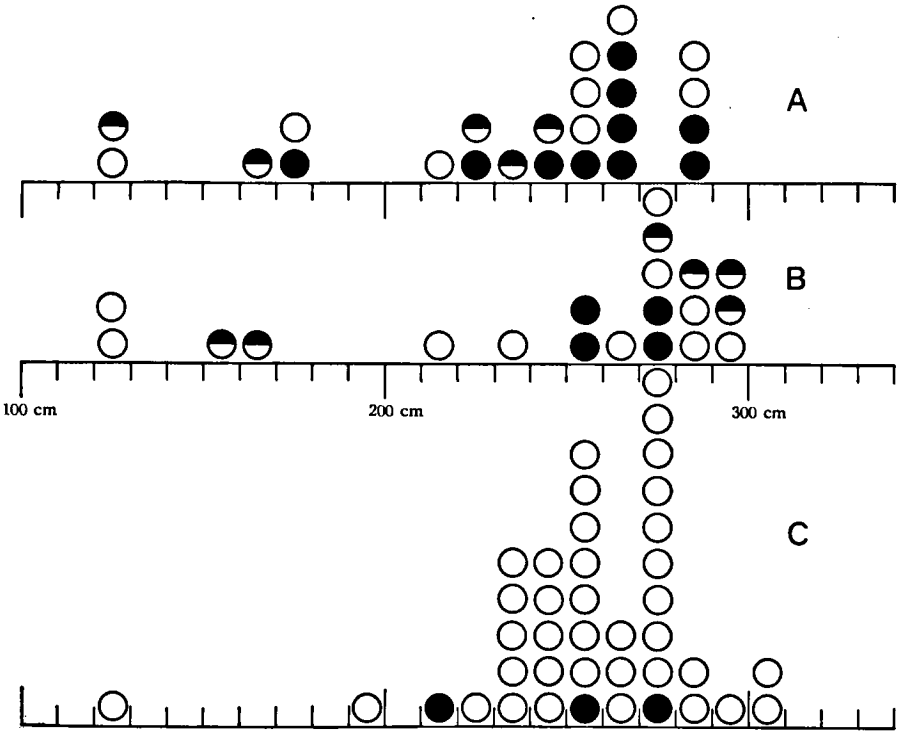

FIG. 2. Length distribution of 84 specimens of *Lagenorhynchus albirostris*, stranded on the British coasts (open circles; after HARMER, 1914-1927 and FRASER, 1943-1953), the coasts of the Netherlands (filled in circles; after VAN DEINSE, 1931-1963 and own data) and stranded elsewhere (black-white circles; after WEBER, 1887). A females, B males and C animals of which the sex was not known.

In order to know whether the dolphins received by the Zoological Museum in Amsterdam had reached their maximum lengths, we compiled from literature a review on the length-distribution of 84 specimens of *Lagenorhynchus albirostris* stranded on the British coasts (after HARMER 1914-1927 and FRASER 1934-1953), on the coasts of the Netherlands (after VAN DEINSE 1931-1963 and own data) and after data cited by WEBER (1887). We divided the animals according to their sex and into length classes of 10 cm. The results can be found in figure 2. As can be seen from this figure the two females, ZMA 2483 (264 cm) and ZMA 6815 (259 cm), had lengths (distances from the tips of the snouts to the notches of the flukes) quite normal for full-grown females. The male, ZMA 6994, with its length of 218 cm was, however, an unfull-grown specimen. These facts were also evident from the state of ossification of the skulls and vertebrae.

Looking at the figure with the length distribution of stranded *Lagenorhynchus albirostris* we see, that except for a few newly born animals (120-130 cm), very few immature ones were found. Only full-grown and most probably

only old and diseased White-beaked Dolphins get stranded or are washed ashore. Already in 1927, HARMER wrote: ". . . suggest that old age is ordinally reached at a length of 9 to 10 feet (274-305 cm) and that death usually occurs between these limits".

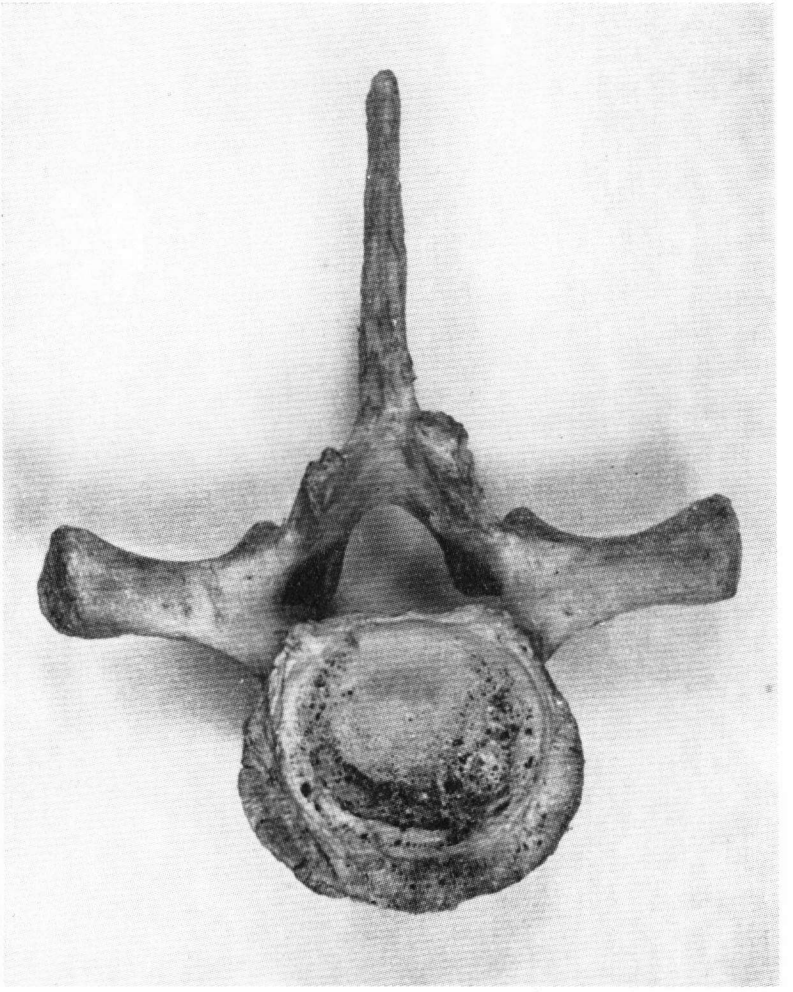

FIG. 3. Deformed vertebra (Spondilitis deformans) of a White-beaked Dolphin (reg. nr. ZMA 6815).

HARMER came to this conclusion after having dissected a large number of *L. albirostris*, in which he found a high percentage of diseased animals. He stated: "specimens of about 9 feet in length, or even rather less, commonly show signs of disease, teeth often lost during life and their alveoli being inflamed often with large abcesses . . ." FRASER (1946) discussed the same phenomenon. Our animal from Texel, ZMA 6815, with only one visible tooth

in the right upper jaw, had also inflamed alveoli, which were enlarged so that the dividing septa almost were obliterated. This dolphin had also deformed vertebrae (Spondilitis deformans), see figure 3. A White-beaked Dolphin, stranded on the British coasts, with the same aberrations has been described in detail by SLIJPER (1936). In specimen B from the same stranding on Texel, several teeth were lacking too.

As stated already, animal ZMA 2483, from coastal waters and caught in November 1958, was pregnant. The stranded female, ZMA 6815, was neither pregnant nor lactating, but has certainly been pregnant previously. The male ZMA 6994 with a length of 218 cm, was still sexually immature. JONSGÅRD (1962) described an immature female *L. albirostris* of 229 cm, an immature male of 228 cm and a sexually mature male of 255 cm. These data are still insufficient to indicate at what length males and females become sexually adult.

Not in every publication on White-beaked Dolphins a clear distinction is made between the number of *visible* teeth and the total number of teeth or alveoli; this gives the impression that the variation in teeth-number is larger than it in reality is. As to the number of teeth, we may cite HARMER (1927): "the most usual number of teeth, on each side of each jaw, seems to be 27, of which the first 3 are small and may be concealed below the gum and the number of *visible* teeth, or teeth distinguishable during life, is generally 22 to 25 or 26". The number of alveoli found in the animals discussed by us, are given in table III. The old female from Texel with only one *visible* tooth, had still 3 vestigial teeth in each jaw hidden under the gum; see figure 4.

As to the appearance of our animals or to their colours or colour patterns we have to remark nothing in particular. The dolphins fell within the described or pictured limits of variation. It only may be noted that specimen ZMA 6815 had a few round and oval scars near the dorsal fin. These scars probably are the remains of wounds caused by Sea-lampreys (VAN UTRECHT, 1959). Also animal ZMA 6994 had these scars, but less clear.

In table III, in which measurements of the three White-beaked Dolphins

TABLE III. Measurements, weights and number of vertebrae and alveoli of four specimens of *Lagenorhynchus albirostris* in the collections of the Zoological Museum, Amsterdam.

Specimen ZMA	2483	6815	6994	7144
Sex	♀ ad.	♀ ad.	♂ subad.	♂ ad.
Length of the animal	264 cm	259 cm	218 cm	274 cm
Weight of the animal	219 kg	242 kg	—	—
Condylobasal length	448 mm	465 mm	446 mm	466 mm
Length of rostrum	210 mm	220 mm	222 mm	224 mm
Width of rostrum at base	146 mm	143 mm	142 mm	148 mm
Breadth of braincase	246 mm	248 mm	243 mm	250 mm
Length of mandible (mean value)	369 mm	372 mm	369 mm	378 mm
Length of pelvic bone (mean value)	111 mm	115 mm	114 mm	—
Weight of pelvic bone (mean value)	2.5 g	4.5 g	7.1 g	—
Number of vertebrae	85	88	89	90
Number of alveoli, upper jaw	26—27	25—26	26—26	24—27
Number of alveoli, lower jaw	26—27	28—28	26—24	27—27

are given, we noted also the lengths of the pelvic bones. After the studies of VAN DEINSE (e.g. 1931), it is known that the length, weight and the shape of these bones in full-grown Delphinidae can be used as secondary sexual characteristic. Of the male *Lagenorhynchus albirostris* stranded on the Netherlands coast near Noordwijk aan Zee, on 8th February 1918, with a length of 275 cm and a weight of 275 kg, VAN OORT (1918) mentioned the length of the pelvic bone, being about 15 cm. In table III we noted also some

FIG. 4. Anterior part of the mandible of an old specimen of *Lagenorhynchus albirostris*. Note the vestigial teeth and the almost obliterated septa.

dimensions of the skull and particulars of the first known White-beaked Dolphin, stranded on the Netherlands coast; Vlieland, 28-VI-1886. These data are not mentioned by WEBER (1887) in his paper on this animal (registration number ZMA 7144).

Data on the food of White-beaked Dolphins are rare. HARMER (1925) mentioned the dentary of a large Whiting (*Gadus merlangus*) found in the

oesophagus of a dolphin he dissected. FRASER in 1946 reported on the remains of Herrings (*Clupea harengus*) in one specimen, the skull and vertebrae of a Codfish (*Gadus callarias*) in the stomach of an other one. Also SERGEANT & FISHER (1957) found the remains of Codfishes in the stomachs of *L. albirostris* from Newfoundland.

We were able to study the contents of the stomach of two of our specimens. We identified the fish-otoliths and our results are:

Specimen ZMA 6815, ♀ ad. from Texel, had in its stomach the remains of at least 4 specimens of *Gadus callarias* Linnaeus, 1758, with a length ranging from 50 to 65 cm, at least 30 specimens of *Gadus merlangus* Linnaeus, 1758, ranging from 18 to 45 cm, at least 3 specimens of *Hippoglossoides platessoides limanoides* (Bloch, 1787) with a length of less than 20 cm and at least 1 specimen of *Pleuronectus platessa* Linnaeus, 1758, with a length of less than 20 cm.

Specimen ZMA 6994, ♂ subad., from the North Sea between the Orkneys and South Norway, had in its stomach, besides parasitic worms, the remains of at least 13 specimens of *Clupea harengus* Linnaeus, 1758, with lengths between 28 and 31 cm (some otoliths were still found in situ) and of at least 17 specimens of *Gadus aeglefinus* Linnaeus, 1758, ranging from 18 to 25 cm. In view of the state of preservation of the otoliths, it can be said that this dolphin first hunted Haddocks (*Gadus aeglefinus*) and afterwards Herrings (*Clupea harengus*).

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