REMARKS ON A LIVE ZIPHIID BABY (*Mesoplodon bidens*)

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Summary

On October 9, 1972, a female *Mesoplodon bidens* was found dying on the beach north of Ostende, Belgium. She was accompanied by her female calf. During the night the mother was dissected on the beach and the live calf was brought to the Dolfinarium Harderwijk in Holland. She was forcefed and regained strength to such an extent that she started to swim more and more vigourously.

On October 12th this behaviour resulted in a crash against the side of the pool with such a force that the rostrum broke and the calf died. The observations on the behaviour support the conclusion that even a semicircle pool of 30 m long is not lar-

Fig. 1

Female juvenile *Mesoplodon bidens*. (Copyright: Dolfinarium Harderwijk, Netherlands.)

ge enough to give these pelagic creatures a fair chance to survive the initial period of adaptation. A description of the way of swimming in relation to the anatomy of these animals and relevant to this case is given.

Case history

On October 9, 1972, Mr. F. Hochsherff, Rodenkirchen, West Germany, walked along the beach north of Ostend between the Lighthouse and Bredene. The sand beach is wide and very gently shelving. About 13.50 hrs he saw a large "dolphin" thrashing around on the beach. The animal was too big for him to help and it died in a short while. Very much impressed about what he had just whitnessed he looked around and saw a smaller "dolphin" thrashing wildly some 100 m. away. Without hesitation Mr. Hochsherff took off shoes and socks and tried to bring the little one into deeper water. When he stopped for a moment with a few short strokes the animal pushed itself upon the beach again. After an hour Mr. Hochsherff gave up and someone else who had come to the scene took over, but to no avail. Other people came and Mr. Hochsherff withdrew to change clothes. These people finally phoned the Dolfinarium Brugge for help. In turn they phoned the author at Harderwijk, Holland. I sent my eldest trainer from Brugge for reconnaissance and about 17.00 hrs near dark I learned the following. "Dead mother and live calf, a Ziphi-

id, probably *Mesoplodon*. Carcass to be removed at first light next morning for destruction by a municipal department". I sent the trainers to fetch the baby and transport it to the Dolfinarium Brugge. Since we had no facilities in Brugge to cope with a baby Ziphiid I prepared a transport in Holland to be on call once I had examined the baby myself in Brugge. I also prepared for dissecting the mother to save the skeleton.

I arrived in Brugge at midnight to find a baby *Mesoplodon* in a remarkable fit condition considering what she had gone through. At about 00.30 hrs on October 10, the transport was ordered to come and fetch the baby. A small group left for the beach at 05.00 hrs to take the most important measurements. The length of the mother was 4.75 m. We severed the head, flensed the carcass and saved the whole skeleton. However, in the total darkness we missed the pelvic bones in the huge mass of tissue. We had to hurry because we had to return as the transport van was due to arrive at 08.00 hrs at the latest. We took the head with us, an assistant followed later with the ribcase, the vertebrate column and flippers.

Upon arrival at the Dolfinarium the baby was still very much alive and we left for Holland immediately at 08.30 hrs. Customs had been warned so that we could pass without a delay. The baby was 270 cm long and weighed 185 Kg.; we arrived at Harderwijk about 14.30 hrs and she was immediately lowered into our round treatment pool of 6 m. diameter (DUDOK VAN HEEL, 1970) and we walked her round as usual. She kept her flippers firmly against her body and if we did not support her she would topple over. She had very much difficulty in turning around. Therefore we pushed her into the annexe pool which is 9 m. long and 6 m. wide, which has rounded ends with the same radius as the round pool. She could swim somewhat faster but as she kept her flippers against her body she had difficulty in turning and constantly hit the side. In no time abrasions appeared and blood coloured the water making it opaque. To remedy this situation we decided to push her into our large show pool. She passed through the 40 m. long connecting channel and entered the large pool. Once she hit the side with a resounding bump and then began to swim around at a nice speed. She made curves with sideways strokes of the tailstock as the flippers were not spread but tucked in against her body. At 16.30 hrs we tubefed her one half of: 500 cl. whipping cream, 500 cl. water, 500 gr. mashed herring and mackerel, 30 gr. of phosphatic and lactic acid calcium, 14 gr. of yeast

flakes, 10 cl. wheat germ oil, 2 tablets Gravitamon, 100 mg. vit. B_1, 40 mg. vit. C, 20 mg. vit. K_3. At 1930 hrs we gave the second half of this formula.

The introduction of an old female *Tursiops*, instead of calming down, frightened the baby to such an extent, that we decided to leave her without companionship.

We set a watch for the night. When everything was quiet the baby went to rest at the bottom of the pool and stayed there as long as 20 minutes. The first time the trainer who was used to observing *Tursiops* was worried but slight movements of the fluke now and then told him that the baby was still alive.

The next morning the whole amount of the previous formula was given. In the afternoon, at 15.30 hrs, 500 gr. of mashed herring and mackerel, 125 cl. cream, 5 cl. wheat germ oil and 500 cl. of water was tubefed. Our intention was to change over to a rich fish diet, by gradually increasing the amount of fish. For feeding we simply, but slowly caught her with a net, kept her gently against the side of the pool and tubefed her. She accepted this without fighting. After every feeding she appeared to swim more vigourously, but not nervously. At 17.00 hrs she went too fast, hit the side of the pool, broke her rostrum and sank to the bottom dead.

Discussion

Immediately upon learning about this stranding of *Mesoplodon* I phoned Dr. P.E. Purves of the British Museum, London, to join me on this case. He was able to observe the animal while still alive and performed an anatomical study afterwards. Dr. E. Schenkkan was invited to study the heads of both mother and baby. It is a pity that the weather was so bad, so that there was not enough light to take good pictures or a film of the swimming behaviour. We did not want to use flash, film suns or the like, in case we frightened the animal.

The post mortem on the head of the mother proved her to be a *Mesoplodon bidens*. Dr. Purves estimated the age of the baby to be less than one year.

A few anatomical observations should be mentioned here as they are relevant. In a paper (PURVES, JONK and DUDOK VAN HEEL, in press) it will be shown that the greatest girth of a

delphinid is at 1/3 of the length measured from the tip of the beak. But in this baby Ziphiid it is at 1/2 of the length. As is known the dorsal fin is stepped much further caudally than in delphinids. At cross section it is clear that the center of gravity must be appreciably higher than in a delphinid. The muscles for the upstroke in a delphinid are twice as heavy in weight as those for the downstroke. We weighed the muscles of this Ziphiid and found the weight ratio to be 3 : 1. This explains why the baby toppled over so easily. Most remarkable, however, were the tiny flippers for which there are hollow recesses in the body enabling the flippers to be drawn in completely and lying within the body contours. Every student of hydrodynamics or aerodynamics will recognize these features of a body built for high speed. The fact that the moment the little one started to swim she pressed her flippers against her sides meant she lost almost all the manoevrability for which the delphinids, *Tursiops* in particular, are famous. Therefore *Mesoplodon* is built to go fast and straight, which seems logical for a pelagic animal. They are seriously hampered in narrow surroundings, let alone in a tank even when it is in a semi-circle with a radius of 15 m. as at Harderwijk.

References

DUDOK VAN HEEL, W.H., 1970. The Dolfinarium at Harderwijk. Int.Zoo.Yearb. 10: pp. 49-51.

PURVES, P.E., A. JONK and W.H. DUDOK VAN HEEL, in press. Locomotion in cetaceans.

Fig. 2 Female juvenile *Mesoplodon bidens* found on the beach near Ostende, Belgium. (Copyright: R. Spiessebaert, Belgium)