BODY MORPHOMETRY OF THE SHORT BEAKED COMMON DOLPHIN (*Delphinus delphis)* ON THE EASTERN COAST OF THE TURKISH BLACK SEA

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Key words: Black sea, common dolphin, morphometry

SUMMARY

The short beaked common dolphin (*Delphinus delphis (*Linnaeus, 1758)) is a species of common dolphin. It lives in the warm temperate portions of the Atlantic and Pasific Ocean. It is also found in the Caribbean, Mediterranean and the Black Sea. The aim of the study is to gather information about the body morphometry of the short beaked common dolphins which live on the eastern coasts of the Black Sea and then the obtained parameters are compared with the similarities or the differences between the other species of the dolphins which live on the other coasts of the Black Sea and the oceans. For the research, a total number of 119 short beaked common dolphin consisting of 52 female and 67 male, which are drowned by gill nets or stranded ashore in the eastern coast of The Black Sea, are investigated. The body morphometry of the animals are determined with the help of tape measure and callipers on the basis of twenty nine criterias in paralel with published literature data. For the all measurements, right side of the animals is used. As a result of these, the largest short beaked common dolphin on the eastern coast of the black sea is 190 cm and the smallest one is 103 cm. The average lenght of female dolphins are 158,86 cm and the average lenght of male dolphins are 160,09 cm. So the body lenght of the short beaked common dolphin on the easten cost of the Black Sea is lower than the Eastern North Atlantic Ocean.

The common dolphins are one of the most widespread species of the Delphinidae. The common dolphins are typically icthyophagus cetaceans, feeding chiefly on pelagic fish. They usually catch fish far from the shores (Tomilin, 1957). They are slender and have a long beak sharply demarcated from the melon. The dorsal fin is high and moderately curved backwards. They are distinguished from other species by a unique crisscross colour pattern formed by interaction of the dorsal overlay and cape (Perrin, 2009). In the Atlantic Ocean, the common dolphin ranges as far as Norway and Iceland, occuring in the Baltic sea, North sea, Mediterranean, and Black Seas, at the coasts of North America, Africa, and Tristan da Cunha I. In the Pacific, it has been observed at the shores of California, Japan, China, in the Sea of Okhotsk and Sea of Japan (Tomilin, 1957). The Black Sea has a very fragile ecosystem because it is semi-enclosed and has the largest anoxic water mass on the planet (Öztürk et al., 1999). It is a naturally isolated body of water in which 3 cetacean species are found; the common dolphin (*Delphinus delphis*), the bottlenose dolphin (*Turciops truncatus*) and the harbour porpoise (*Phocoena phocoena*) (Viaud-Martinez et al, 2007).

The purpose of the study was to define the body morphometry of the short beaked common dolphins which live on the eastern coasts of the Black Sea. The obtained values are compared with the similarities and the differences between the other species of the dolphins which live on the other coasts of the Black Sea and the oceans.

1. MATERIAL AND METHOD

The materials that were obtained from drowned by gill nets or stranded ashore on the eastern coast of the turkish black sea. In total, 119 the short beaked common dolphin consisting of 67 female and 52 male were measured by certain criterias for this study.

For each dolphin, the drafting criterias that were determined according to previously published literatures (Palacios et al, 2004; Gol'din, 2005) were numbered and showed at figure 2.They were measured by tape measure and callipers whenever possible.

2. RESULTS AND DISCUSSIONS

During the study, 119 *Delphinus delphis* were examined on the eastern coast of the Black Sea. Female common dolphins were ranged in TBL from 107 to 167 cm (n = 67) and the average TBL of the female was 158,86 cm. On the other hand male common dolphins were ranged in TBL from 103 to 190 cm (n = 52) and the average TBL of the male was 160 cm. As a result, the total body length of the Black Sea common dolphin is lower than the other regions. The flipper width of female common dolphins were measured from 6,3 to 10,2 cm and the average data was 8,95 cm. For male common dolphins, these data were measured from 6,8 to 11 cm and the average data was 9,3 cm on the eastern coast of the Black Sea. The fluke width of female common dolphins were measured from 23,5 to 43,5 cm and the average point was 34,98 cm. The fluke width of male common dolphins were measured from 21 to 48,5 cm and the average point was 36,15 cm. The dorsal fin height and base lenght of female common dolphins were measured from 9,3 to 18,3 cm and between 13,7 with 23,5 cm. These measurement for male common dolphins were 10,5 - 22 cm and 13,5 - 26,5 cm on the eastern coast of the Black Sea.

The female common dolphins in this study showed their body weight lower than the male common dolphins. On the contrary the average point of UJMC, WBH, LGS, BCDF and UJME of the female common dolphins are higher that the male common dolphins.

However in the eastern North Atlantic Male common dolphin's total body length were measured from 105 to 244 cm (Murphy et al, 2006), in the western coast of the Turkish Black Sea, the body length of the common dolphin was measured at 151 cm (Tonay and Öztürk, 2003). A male common dolphin was 214 cm in total length in the eastern tropical Pasific (Palacios et al, 2004). Female common dolphins ranged in total body length from 93 to 230 cm (Murphy et al, 2006). Mean total body length for male and female harbour porpoises were measured 164,4 cm and 173 cm in France. At there minimum 153 cm and maximum 176 cm for males and minimum 153 cm and maximum 190 cm for female harbour porpoises (Viaud-Martinez et al, 2007). The flipper width of a male short beaked common dolphin was scaled score 9,3 cm on the eastern Pasific. On the eastern Pasific The fluke width of a male short beaked common dolphin was measured at 49 cm. On the eastern Pasific the dorsal fin height and the dorsal fin base lenght of a male short beaked common dolphin was 15,5 and 43 cm(Palacios et al, 2004).

3. CONCLUSIONS

In conclusion, with this study, morphometric characters of the short beaked common dolphin on the eastern coast of Turkish black sea were examined. According to obtained findings, it was suggested that the Black sea's common dolphin was quite smaller to that of the ocean's forms. It is considered that this study will both be a refence in veterinary anatomy, and help researchers that are studying marine biology.

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Table 1

Body measurements for female and male short beaked common dolphin from the eastern coast of the Black Sea

	n ♀	min-max (cm)	mean (cm)	Standard deviation		n ♂	min-max (cm)	mean (cm)	Standard deviation
TBL	67	107-167	158,86	16,38		52	103-190	160	21,83
PPL	67	38-40	37,75	2,47		51	29-43	38,12	3,08
WFL	67	23,5-43,5	34,98	4,49		52	21-48,5	36,15	6,74
LWTF	67	8,5-13,1	11,51	1,08		52	7,8-14	11,71	1,52
LPFU	67	12,5-21,7	18,35	1,77		52	14-23	18,85	2,33
LPFL	67	18,5-28,7	25,55	2,22		52	19-31	26,18	2,91
WPF	67	6,3-10,2	8,95	0,78		52	6,8-11	9,3	1,01
HDF	65	9,3-18,3	14,75	1,78		50	10,5-22	15,76	3,07
UJDF	66	11-113,7	97,98	14,32		52	68,5-116	99,5	11,53
UJEA	67	25,5-37,5	32	2,18		52	23-35	32,03	2,53
UJMC	67	17,5-28	22,5	1,6		52	15-24,7	22,37	1,95
UJEY	67	18-29,3	26,49	1,90		52	20-29	26,7	1,96
UJBH	67	22,3-33	28,51	1,92		52	20-32,5	28,54	2,46
TNAV	67	28,5-51,5	42,72	4,55		52	28,5-51,5	43,01	6,78
WBH	66	1,4-2,7	1,91	0,25		50	1,4-2,4	1,87	0,2
TDFNF	66	42,5-82	69,28	8,61		51	46,5-94	73,27	12,41
HDFNF	66	44,5-85	71,61	9,11		50	47,5-96	75,73	12,8
HDFAM	66	16,5-31	25,84	2,74		50	11,5-35,5	26,68	5,09
LDFB	65	13,7-23,5	19	1,87		50	13,5-26,5	20,13	3,36
LGS	67	3,5-14	7,77	1,63		51	3-11	5,65	1,86
GSAN	67	3-13	4,21	1,41		51	7-17	12,97	2,44
UMAN	65	23-51	40	5,98		52	24,5-52	40,54	6,6
UJAN	66	80-139	117,04	12,03		50	79-141	117,86	15,53

DLUJ	67	0,2-1,4	0,70	0,26		51	0,2-2	0,77	0,39
BCPF	67	64-95	81,48	6,59		51	61-101	83,83	7,9
BCDF	67	67-122	99,52	11,91		52	11-130	97,62	18,08
BCAN	67	36-75	55,43	7,5		52	33-78	56,4	10,27
UJME	67	8,5-14,2	12,15	1,2		52	7-14	11,89	1,48
BW	50	19-98	60,48	17,38		23	18-87	53,63	17,75

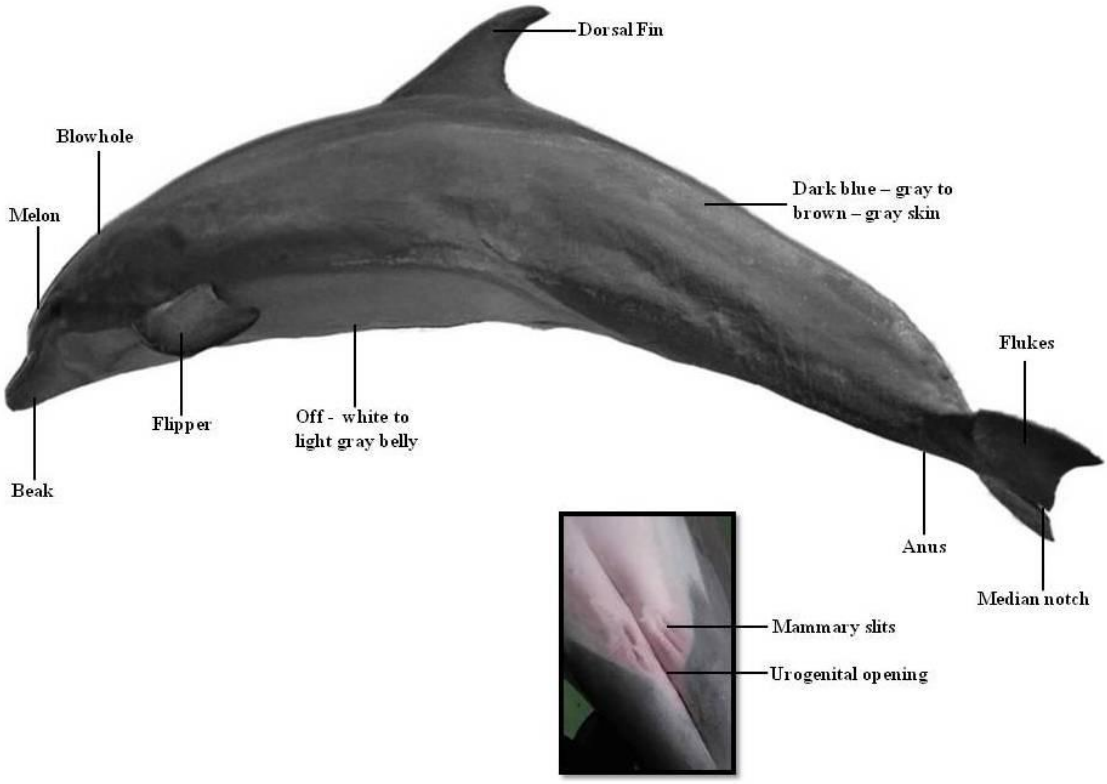

Figure 1: Anatomy of the short beaked common dolphin

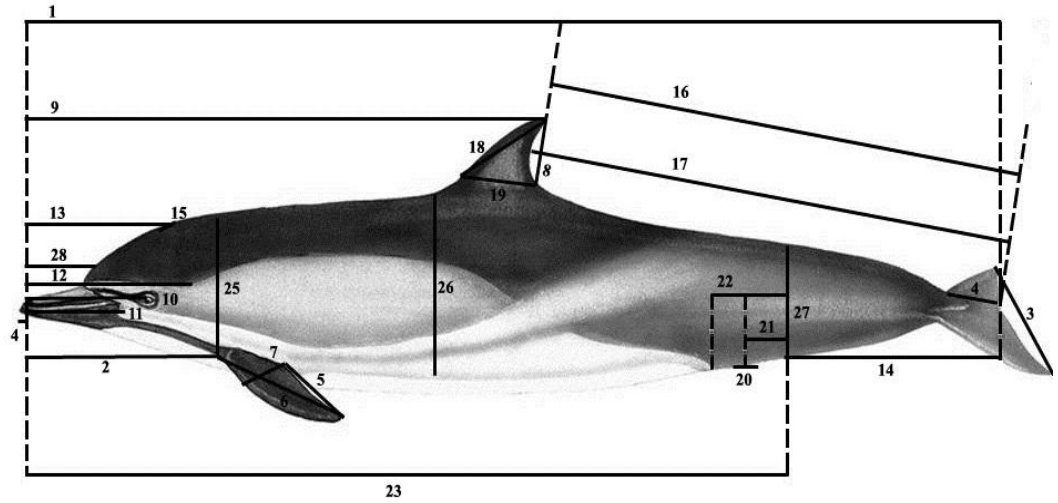

Figure 2: Measuring range on the schematic design:1- total body length (TBL), 2- prepectoral lenght (PPL), 3- width of flukes (WFL), 4- longitudinal width of the toil fin (LWTF), 5- length of pectoral fin along the upper magrin (LPFU), 6- length of pectoral fin along the lower magrin (LPFL), 7- width of the pectoral fin (WPF), 8- height of dorsal fin (HDF), 9- distance from the tip of upper jaw to dorsal fin (UJDF), 10- distance from the tip of upper jaw to ear fin (UJEA), 11- distance from the tip of upper jaw to mouth corner (UJMC), 12- distance from the tip of upper jaw to eye (UJEY), 13- distance from the tip of upper jaw to blowhole (UJBH), 14- distance from the tail notch to anal vent (TNAV), 15- width of blowhole (WBH), 16- distance from tip of dorsal fin to the notch of flukes (TDFNF), 17- distance from hind end dorsal fin to the notch of flukes (HDFNF), 18- height of dorsal fin along the anterior magrin (HDFAM), 19- length of dorsal fin of the base (LDFB), 20- length of the genital slit (LGS), 21- distance from the genital slit to anus (GSAN), 22- distance from umbilicus to anus (UMAN), 23- distance from the tip of upper jaw to anus (UJAN), 25- body circumference at the anterior and of pectoral fin (BCPF), 26- body circumference at the anterior and of dorsal fin (BCDF), 27- body circumference at the anus (BCAN), 28- distance from the upper jaw to anterior of melon (UJME)

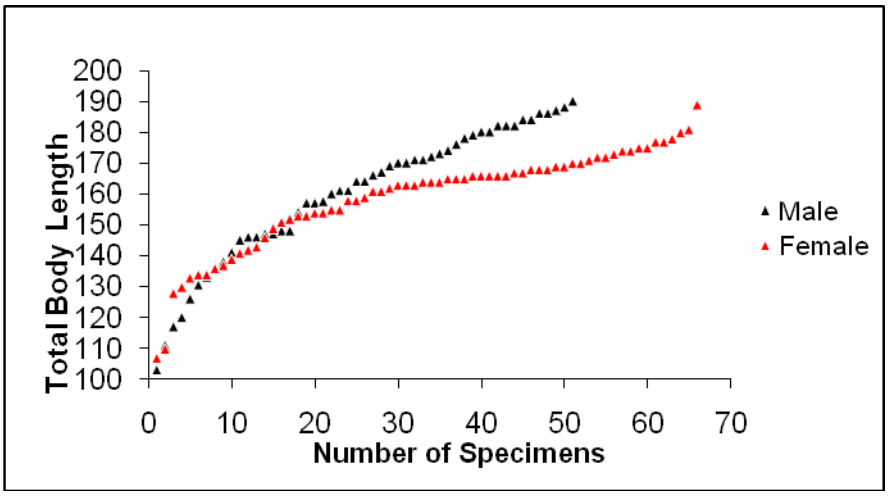

Figure 3: Graphical analysis of the total body length of the specimens

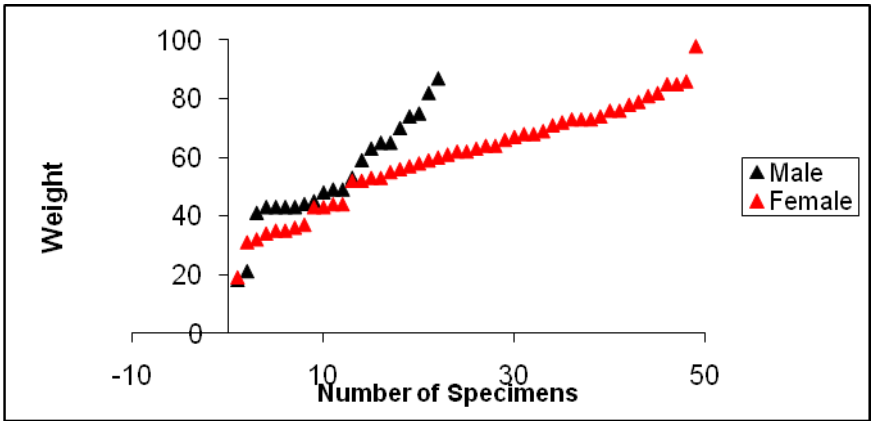

Figure 4: Graphical analysis of the weight of the specimens

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