

## First record of Bull shark, *Carcharhinus leucas* (Valenciennes, 1839) in commercial landings from New Ferry Wharf, Mumbai, Maharashtra

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On 10<sup>th</sup> January 2013, the bull shark *Carcharhinus leucas* was landed by a trawler at New Ferry Wharf, Mumbai. The depth of operation was about 30-40 m at 70- 80 km off North of Mumbai coast. The total length of the shark was 325 cm and weight 450 kg. The specimen was a pregnant female with 14 full grown up pups (Right lobe -7, Left lobe - 7). The size range of pups ranged between 80-84 cm with corresponding weight ranging from 3.4 to 3.9 kg (Table 1). According to fishermen, the shark was very exhausted because of carrying of 14 pups (Approximate wt. 52 kg) at the time of catching. The shark was sold for ₹ 30,000/- and pups for Rs.700/- each. The sex ratio of pups was: 1: 1.8 (M: F). One pup was brought to the laboratory for the identification of species (Fig.1, Fig. 2 and Fig. 3).



Fig. 1. Lateral view of *Carcharhinus leucas* (Pup) collected from New Ferry Wharf, Mumbai

The morphometric and meristic characters of one of the pups were as follows, a massive shark with a short and stocky body, broad and blunt snout, small eyes, no inter dorsal ridge, 1<sup>st</sup> dorsal fin broad and triangular, First dorsal fin origin anterior or over pectoral fin axil, pectoral fins moderately long and broad, total 9 rows of upper and lower jaw teeth pattern of *Carcharhinus leucas* (Pup) collected from New Ferry Wharf, Mumbai was observed (Fig.4 & Fig.5). The bull shark, *Carcharhinus leucas* reaches maximum size of 350 cm and common size is 260 cm (Fisher & Bianchi, 1984). Rajapackiam *et al.*



Fig. 3. Upper teeth pattern of *Carcharhinus leucas* (Pup) collected from New Ferry Wharf, Mumbai

(2007) reported a giant sized female bull shark, *C. leucas* measuring 356 cm in total length and 320 kg weight caught by a gillnet operated at a depth of 50-60 m on 22.06.2005 which is the largest record of *C. leucas* so far in Indian waters.

The bull shark, *C. leucas* is distributed in the Western Atlantic: Massachusetts, USA to Southern Brazil. Eastern Atlantic: Morocco, Senegal to Angola.



Fig. 4. Lower teeth pattern of *Carcharhinus leucas* (Pup) collected from New Ferry Wharf, Mumbai

Indo-west Pacific: Kenya and South Africa to India, Vietnam to Australia. Eastern Pacific: Southern Baja California, Mexico to Ecuador and possibly occurring in Peru and the depth of occurrence reported up to 152 m (Compagno, 1984). The same latitudinal distribution of this species in Chennai on east coast and Mumbai on west coast throws more light on the distributional range and latitudinal diversity around peninsular Indian coast and there is considerable population dispersal occurred over a period of time, since its first report. The IUCN has assessed the bull shark as "Near Threatened".

In the light of published data on *C. leucas*, it was observed that Morphometric measurement for the pups has not been reported so far. Table 2 shows the detailed morphometric measurements of one of the pups recovered from the collected bull shark.

Table 1. Size, weight and sex of *C. leucas* (Pups) from New Ferry Wharf, Mumbai

Sl. No.	Size (mm)	Weight (kg)	Sex
1.	820	3.70	Male
2.	810	3.75	Female
3.	801	3.65	Female
4.	806	3.80	Male
5.	805	3.70	Female
6.	800	3.45	Female
7.	801	3.55	Female
8.	804	3.80	Male
9.	809	3.90	Male
10.	800	3.60	Male
11.	808	3.55	Female
12.	803	3.65	Female
13.	811	3.90	Female
14.	804	3.45	Female

Table 2: Morphometric measurements (in mm) of Pup of *Carcharhinus leucas* collected from New Ferry Wharf, Mumbai.

Sl.No.	Date	Place	Sample No.	Weight (kg)
	10.01.2013	New Ferry Wharf, Mumbai	1	3.7
1	Total Length (TOT)			: 820
2	Fork Length (FOR)			: 650

3	Pre-caudal Length (PRC)	: 610
4	Pre-second dorsal length (PD2)	: 510
5	Pre-second dorsal length (PD1)	: 236
6	Head length (HDL)	: 183
7	Pre-branchial length (PG1)	: 148
9	Pre-orbital length(POB)	: 48.76
10	Pre-pectoral length (PP1)	: 161
11	Pre-pelvic length (PP2)	: 406
12	Snout-Vent length (SVL)	: 430
13	Pre-anal length (PAL)	: 424
14	Inter-dorsal space(IDS)	: 176
15	Pectoral -pelvic space (PPS)	: 198
16	Dorsal-caudal space (DCS)	: 62
17	Pectoral pelvic space (PPS)	: 202
18	Pelvic-anal space (PAS)	: 60.48
19	Anal-caudal space (ACS)	: 45.50
20	Pelvic-caudal space (PCS)	: 106
21	Vent-caudal length(VCL)	: 386
23	Pre oral length (POR)	: 51.18
24	Eye length (EYL)	: 8.49
25	Eye height (EYH)	: 8.76
26	Inter gill length (ING)	: 44.20
27	First gill slit height (GS1)	: 30.13
28	Second gill slit height(GS2)	: 32.84
29	Third gill slit height(GS3)	: 32.98
30	Fourth gill slit height (GS4)	: 33.78
31	Fifth gill slit height (GS5)	: 25.57
33	Seventh gill slit height (GS7)	: -
35	Pectoral radial length (PRL)	: -
36	Pectoral base(P1B)	: 57.06
37	Pectoral inner margin (P1I)	: 42.15
38	Pectoral posterior margin (P1P)	: 99.20
39	Pectoral height (P1H)	: 120
40	Sub-ocular pocket length (SOD)	: 6.29
41	Dorsal caudal margin (CDM)	: 225
42	Pre-ventral caudal margin (CPV)	: 95
43	Upper post-ventral caudal margin (CPU)	: 134
44	Lower post-ventral caudal margin (CPL)	: 49
45	Caudal fork width (CFW)	: 65
46	Caudal fork length (CFL)	: 62
47	Sub-terminal caudal margin (CST)	: 21.88
48	Sub-terminal caudal margin (CSW)	: 19.73
49	Terminal caudal margin (CTR)	: 36
50	Terminal caudal lobe (CTL)	: 50.38
51	First Dorsal length (D1L)	: 101
52	First dorsal anterior margin (D1A)	: 10.86
53	First dorsal base ((D1B)	: 96.06
54	First dorsal height (D1H)	: 67.19
55	First dorsal inner margin (D1I)	: 23.04
56	First dorsal posterior margin (D1P)	: 50.41
57	Second dorsal length (D2L)	: 65.46

58	Second dorsal anterior margin (D2A)	: 48.76	88	Lower labial furrow length (LLA)	: 556
59	Second dorsal base (D2B)	: 44.27	89	Nostril width (NOW)	: 12.32
60	Second dorsal height (D2H)	: 40.69	90	Internarial space (INW)	: 49.93
61	Second dorsal inner margin (D2I)	: 20.36	91	Anterior nasal flap length (ANF)	: 5.21
62	Second dorsal posterior margin (D2P)	: 33.27	92	Clasper outer length (CLO)	: 15.09
63	Pelvic length (P2L)	: 67.59	93	Clasper inner length (CLI)	: 30.19
64	Pelvic anterior margin (P2A)	: 52.61	94	Clasper base width (CLB)	: 9.46
65	Pelvic base (P2B)	: 42.25	95	Inter orbital space (INO)	: 89.76
66	Pelvic height (P2H)	: 44.92	96	Spiracle length (SPL)	: -
67	Pelvic inner margin length (P2I)	: 30.50	97	Eye spiracle space (ESL)	: 17.14
68	Pelvic posterior margin length (P2P)	: 44.42	98	Head width (HDW)	: 115
69	Head length (HDL)	: 109	99	Trunk width (TRW)	: 119
70	Trunk height (TRH)	: 126	100	Abdomen width (ABW)	: 122
71	Abdomen height (ABH)	: 140	101	Tail width (TAW)	: 70
72	Tail height (TAH)	: 98	102	Caudal peduncle width (CPW)	: 35
73	Caudal peduncle height (CPH)	: 38	103	Girth (GIR) at first dorsal fin	: 124
74	Anal length (ANL)	: 71			
75	Anal anterior margin (ANA)	: 60			
76	Anal base (ANB)	: 47			
77	Anal height (ANH)	: 32			
78	Anal inner margin (ANI)	: 24			
79	Anal posterior margin (ANP)	: 32			
80	First dorsal midpoint-pelvic origin (DPO)	: 110			
81	Pelvic midpoint-first dorsal insertion (PDI)	: 94			
82	Pelvic midpoint-second dorsal origin (PDO)	: 65			
83	Second dorsal origin-anal origin (DAO)	: 15.45			
84	Second dorsal insertion-anal insertion (DAI)	: 16.21			
85	Mouth length (MOL)	: 79			
86	Mouth width (MOW)	: 92			
87	Upper labial furrow length (ULA)	: 54			

Due to population declines, it is very important to develop management and protection programs for many elasmobranch species, which require well-founded knowledge about the taxonomy, distribution, and abundance of the species. However, although many new elasmobranch species have been described in recent years, the knowledge on many known species is still scarce due to the often very old and sketchy original descriptions like those by Müller and Henle (1841). Another reason for the gaps in knowledge is the often insufficient declaration of elasmobranch catches by fishermen, who classify most caught specimens simply as “diverse Elasmobranchii” or “small sharks” instead of making a more detailed determination.